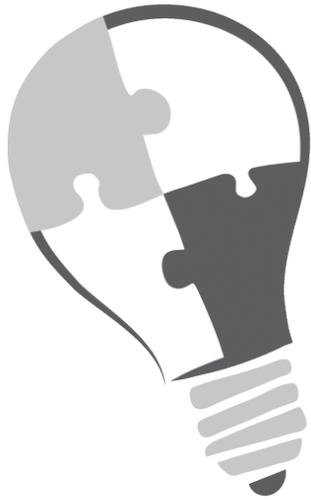




UNIVERSITY *of* WEST FLORIDA

**STUDENT SCHOLARS
SYMPOSIUM**

AND FACULTY RESEARCH SHOWCASE



UNIVERSITY *of* WEST FLORIDA

STUDENT SCHOLARS
SYMPOSIUM

AND FACULTY RESEARCH SHOWCASE

APRIL 2015
PROGRAMS & ABSTRACTS

Editors:

Allison Beauregard Schwartz, Ph.D.
Director, Office of Undergraduate Research

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Designer

Event Organized By:

Office of Undergraduate Research
Office of Research and Sponsored Programs
Graduate School

We would like to thank the following sponsors for the event:

Office of the President, Office of the Provost, Student Government Association, UWF IT Performance Funding, Office of Undergraduate Research, Office of Research and Sponsored Programs, and the Graduate School.

We gratefully acknowledge the faculty reviewers for the Office of Undergraduate Research and the Scholarly and Creative Activities Committee for their dedicated service in support of UWF's research mission.

OUR

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Special thanks to volunteer judges and all who contributed to the organization of this symposium: Carl Backman, Allison Beauregard Schwartz, Christina Boddiford, Eman El-Sheikh, Jocelyn Evans, Rodney Guttman, Kris Hall, Ermalynn Kiehl, Beth Moulder, Richard Podemski, Diane Scott, Pam Vaughan.

THANK YOU

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WELCOME SCHOLARS



I am happy to welcome you to the University of West Florida and congratulate the students and faculty on their academic achievements. Your diligence and hard work are to be commended. This year, we are delighted to have the opportunity to celebrate these accomplishments with the Student Scholars Symposium and Faculty Research Showcase.

Best wishes to you in your future academic endeavors.
Please enjoy your time on campus with us.

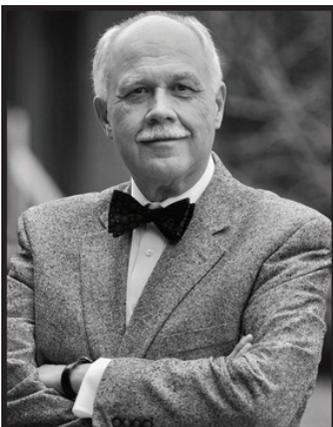
Sincerely,
Judith A. Bense, Ph.D.
University of West Florida President



I am pleased to welcome everyone to the University of West Florida's Scholars Celebration. This unique event provides an opportunity for both graduate and undergraduate students from the College of Arts, Social Sciences and Humanities; College of Business; College of Education and Professional Studies; and the College of Science, Engineering and Health to be recognized for their scholarly and creative work by fellow students, faculty and others.

Please accept my best wishes for your life and work in the weeks, months and years ahead.

Sincerely,
Martha D. Saunders, Ph.D.
Provost and Executive Vice President



The Graduate School and the Office of Research and Sponsored Programs are delighted to support the 2015 University of West Florida Scholars Celebration. Our faculty and students are actively engaged in research that is important to our region. This celebration showcases the inspiring scholarship in which they are engaged and demonstrates how vital research is to UWF's mission.

Richard Podemski, Ph.D.
Associate Vice President for Research and Dean of the Graduate School



It is my pleasure to welcome you to this year's Student Scholars Symposium and Faculty Research Showcase! As the new director of the Office of Undergraduate Research at UWF, I am inspired by the quality and range of scholarly and creative works that our students and faculty are engaged in. This year's event represents the work of 346 UWF undergraduate, graduate, and faculty authors and spans 25 departments and all four academic colleges. I personally invite you to visit the 55 projects that were supported by the Office of Undergraduate Research this year.

Please join me in celebrating the accomplishments of all of our students!

Allison Beauregard Schwartz, Ph.D.
Director, Office of Undergraduate Research



On behalf of the College of Arts, Social Sciences and Humanities, it's my pleasure to welcome you to the Student Scholars Symposium and Faculty Research Showcase. We are honored to be afforded the opportunity to showcase the scholarly achievements and collaborations of our faculty and students. Your work demonstrates the excellence that represents both CASSH and UWF. We hope you take pride in your successes and achievements and take time to celebrate your efforts.

Dr. Steve Brown,
Dean of the College of Arts, Social Sciences and Humanities



On behalf of the College of Education and Professional Studies, I extend my congratulations to the faculty and students who are presenting their research at UWF's Scholars Celebration. A priority goal for the College of Education and Professional Studies is to support student participation in high-impact learning opportunities including conducting research with faculty mentors. This week's events highlight the very best of faculty-student collaboration on creative and scholarly pursuits and showcases the wonderful opportunities that UWF provides for students who seek to distinguish themselves beyond the classroom. We encourage you to continue striving for excellence in your future academic endeavors and your careers. You should be proud of your hard work and achievements.

William R. Crawley, Ph.D.
Dean of the College of Education and Professional Studies

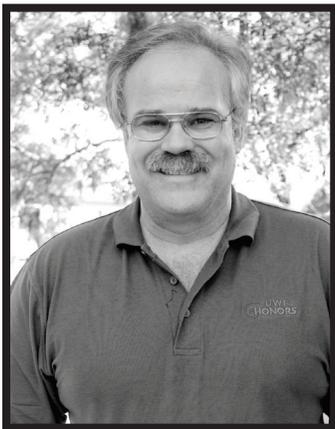
WELCOME SCHOLARS



The faculty, staff and students of the College of Science Engineering and Health are happy to welcome you to the annual Scholars Celebration. The event offers a wonderful opportunity to showcase the scholarly and creative activities underway in the College where our faculty and students work together on collaborative projects. We hope you enjoy interacting with our undergraduate, and graduate students as well as our outstanding faculty during the Scholars Celebration events.

Michael T. Huggins, Ph.D

Professor and Dean of the College of Science, Engineering, and Health



On behalf of everyone involved with the Kugelman Honors Program, I'd like to welcome each and every one of you to the UWF Student Scholars Symposium! The Honors Program has a long and deep history of supporting undergraduate research at The University of West Florida, and this Symposium is just one way we have of celebrating the great work of our wonderful students! I can't tell you how proud I am of the cutting edge thought and ability that exhibitions like this demonstrate; we are definitely living up to our promise to bring out the very, very best in our students. I hope you have an enjoyable and stimulating time!

Greg Lanier, Ph.D

Dean of University College

Director of the Kugelman Honors Program



To all faculty and students participating in the University of West Florida's Scholars Celebration, I extend my congratulations. As a Dean, I feel very fortunate to be a part of an institution that fosters collaboration between faculty and students in educational pursuits. This week showcases the exceptional educational experience offered at UWF.

Sincerely,

Tim O'Keefe, D.B.A.

Dean of the College of Business

SCHEDULE OF EVENTS

10:00AM

Opening Remarks

Dr. George Ellenberg, *Vice Provost*

Field House Gymnasium (Building 54)

10:00AM–12:00PM

Judging of Poster Presentations

Field House Gymnasium (Building 54)

10:15AM–12:00PM

Oral Presentations

Argo Athletic Club (Building 54, Room 164) – Public Welcome

10:00AM–2:00PM

Public Viewing of Poster Presentations

Field House Gymnasium (Building 54)

1:00PM

Awards Ceremony

Dr. Allison Schwartz, *Director of the Office of Undergraduate Research*

Field House Gymnasium (Building 54)

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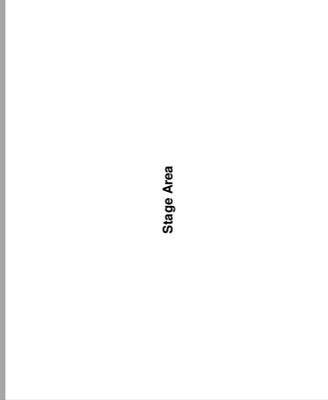
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To Registration & Lunch

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ORAL PRESENTATIONS

Organized by Time — Located in the Argo Athletic Club

10:15 AM

A Novel Panel of Microsatellites for the Gulf of Mexico Hagfish, *Eptatretus Springeri*

Rebecca Varney

Faculty Mentor: Toby Daly-Engel

Masters Student Project

Biology

Hagfishes are keystone detritivores as well as fishery species in much of the world. In spite of this, they are relatively unstudied relative to most fishes. In the Gulf of Mexico there are three species: *Eptatretus springeri*, *Eptatretus minor*, and *Myxine mcmillinae*. Genetics has recently been demonstrated as a superior identification tool for these species, particularly between *E. springeri* and *E. minor*, which are morphologically difficult to distinguish. A novel panel of microsatellites is under development for *E. springeri*, the most common of the three species, and is presented here. Microsatellites will be applied to individuals from more than 20 collection sites in the Gulf of Mexico. Resulting information will provide the first look at genetic connectivity among populations of this benthic species. This in turn may offer insight into mating habits and development of this little known species.

10:30 AM

DNA Barcoding in the genus *Squalus* from the Gulf of Mexico

Mariah O. Pflieger

Faculty Mentor: Toby Daly-Engel

Masters Student Project

Biology

Sharks of the genus *Squalus* are slow-growing, long-lived, and have long gestation periods, as is typical of most deep-water sharks. In addition, low genetic diversity is frequently observed, making this group slow to rebound from depletion due to overfishing. The shortspine spurdog shark (*Squalus mitsukurii*) is a putative circumglobal deep-water shark that was originally described from Japanese waters. This species is easily misidentified due to the high degree of similarity with their congeners, and recent taxonomic research from the Pacific has indicated that *S. mitsukurii* may in actuality comprise a species complex, a group of separate but closely

related species. We analyzed 596 bp of the mitochondrial cytochrome oxidase 1 (CO1) gene (barcoding region) of *Squalus cf. mitsukurii* from the Gulf of Mexico and compared it to sharks from the type locality in Japan to test the hypothesis that Gulf *S. mitsukurii* comprise a distinct species. Our results show high bootstrap support for a 1.5-2.0% sequence divergence between Gulf of Mexico and Japanese *S. mitsukurii*, with 0.3-0.7% separation between *Squalus cf. mitsukurii* and *S. cubensis*, also from the Gulf of Mexico. Within-species divergence ranged from 0.0-0.5%. These results confirm that *Squalus* species in the Gulf of Mexico are more closely related to one another than they are to congener species in the Pacific regardless of nomenclature, and that *Squalus cf. mitsukurii* from the Gulf of Mexico merits recognition as a novel dogfish species.

10:45 AM

The Rise in Mobile Computing: How to Write an App

Ryan Hirth

Faculty Mentor: Bernd Owsnicki-Klewe

Undergraduate Student Project

Computer Science

As an increasing population acquires smart phones, tablets, and other smaller devices to access the web, it becomes necessary to have content that is accessible for this growing audience. Software developers must adapt by creating applications that are mobile-friendly. Companies today are seeking the creation of mobile apps to serve this purpose, if they don't already have one.

There are two popular platforms used today, which are Android and iOS. Due to the scope of this project, I will focus on one of these operating systems. Since this will be my first time developing a mobile app, I decided to focus on Android which has a lower cost (it's free), based on the Java programming language that I have used before, and it is currently the most widely used mobile platform today.

The goal of this project is to create an app to play a game of Lingo.

11:00 AM

Engaging Pre-Service Teachers in High Impact Practices through Research in Partnership Schools

Amanda Sellers

Faculty Mentor: Keith Whinnery

Undergraduate Student Project

Teacher Education and Educational Leadership

Educational researchers have advocated for more intensive, authentic, and hands-on practice for pre-service teachers (Garet, Porter, Desimone, Birman, & Yoon, 2001; Grossman, Hammerness, & McDonald, 2009). One way of achieving this is through increased use of High Impact Practice (HIP). HIPs are meaningful, career-related practice opportunities that include mentoring, feedback and ongoing reflection designed to better prepare college students for the work world (Kuhn, 2008). HIPs have been associated with: greater persistence and higher GPA, higher rates of student-faculty interactions, greater experience with and appreciation for diversity, and greater appreciation of the learning experience.

This project immersed two UWF pre-service teachers in a HIP related to research on Class Wide Peer Tutoring (CWPT) within a partnership school. A quasi-experimental research design with pre and post testing of a control and experimental classroom was chosen. Pre-service teachers were co-investigators and engaged in all aspects of the research and will be engaged in dissemination of findings. Research allowed pre-service teachers to think critically about CWPT as an evidence-based practice, work collaboratively with their university professor, and interact with classroom teachers and staff. Pre-service teacher were mentored throughout the activity and were taught to reflect critically on their experiences and insights.

11:15 AM

Peter Pan Throughout the Twentieth Century

Brittany Soder

Faculty Mentor: Tressa Kelly

Undergraduate Student Project

Communication Arts

In my paper titled Peter Pan throughout the twentieth century I look at how media has taken a patriarchal message from the early twentieth century and repackaged it for newer generations. The method of this paper uses ideology as the lens to analyze the rhetoric of Peter Pan. To perform an ideological criticism, one examines ideographs that are embedding in the text. These ideographs work as tangible pieces of evidence one can analyze to discover the ideology at work in the text. Through the lens of ideological criticism I ask: how is the hegemony of patriarchy, constructed in the

original text Peter Pan, reinforced in different renditions of the story?

The story of Peter Pan works as my overarching artifact while I look at four different variations of the story. I use the 1911 novel, 1953 Disney movie Peter Pan, 1991 Steven Spielberg movie Hook, and the 2003 universal movie Peter Pan. It is because the story of Peter Pan has remained so pervasive in popular culture that I decided a feminist ideological criticism could make apparent the subtle workings of its rhetoric. Movies and books targeted towards children are what enforce our cultures expectations on them. It is important to be aware of the messages children are being taught, especially when the messages are almost 100 years out of date. After looking at the four sources, two ideologically rich themes emerged through analysis: male as dominant and female as domestic and silent.

11:30 AM

Intimacy and the Monarch in Thomas Hoccleve's Address to Sir John Oldcastle

Dylan Mathews

Faculty Mentor: Robert Yeager

Undergraduate Student Project

English and World Languages

Thomas Hoccleve makes multiple references to monarchs past and present in his Address to Sir John Oldcastle. This is anything but unusual, given the regularly political content of Hoccleve's poetry, but the circumstances surrounding the Address call for closer attention to these monarchical references as they reflect on the poem's theoretical recipient, Sir John Oldcastle himself. Oldcastle's relationship with Henry V is well documented--he fought alongside both Henry V and his father in France more than once, his first open charges of heresy were put to the wayside by the young king, and when explicit evidence of Oldcastle's Lollard beliefs were brought to the royal court, Henry insisted that he establish a personal correspondence with Oldcastle before making an arrest. Even after Oldcastle's formal charges, Henry saw to it that he was granted a forty day respite, during which time Oldcastle escaped to the countryside of Herefordshire. It is in the midst of this tension between Oldcastle the friend of Henry and Oldcastle the rabble-raising heretic that Hoccleve writes the Address. The poem makes reference to the tales of Sir Lancelot, the Siege of Troy, and the Siege of Thebes--all narratives conspicuously heavy with the theme of breaking fidelity. It is difficult to conceive that, in composing this poem for Henry, Hoccleve would keep the poem ignorant of the friendship between these two men. Beyond Thomas Hoccleve's heavy-handed indictment of heresy in his Address to Sir John Oldcastle lies a profound appeal to the relationship between Oldcastle and Henry V.

11:45 AM
**Rebirth, Renew, and Re-imagine; or, What
Does the Palafox Street Say?**

Ian Hamilton
Undergraduate Student Project
History

This research paper examines the downtown Pensacola area over a fourteen-year time, from 2000 to 2014, and how Hurricane Ivan forever changed the downtown landscape, potentially for the better. For the paper, the boom of bars and restaurants along Palafox St and the surrounding areas measures the growth. The research also goes into the shift of the city under a strong mayor system, instead of city council system, and major land development that includes the current Community Maritime Park and Blue Wahoos Baseball Stadium. Pensacola did not expand strictly because of Hurricane Ivan, but it certainly was the catalyst to allow Pensacola to start over, metaphorically, from scratch. This allowed Pensacola to find out what kind of city it wants to be. The opportunity allowed Pensacola to grow in to a destination, complete with a growing nightlife, a New Year's Eve celebration that attracts more people each year, and Palafox Street becoming one of the top 10 great streets in the country in 2013. The contrast of pre- and post-Hurricane Ivan provides a clear narrative for research and shows the potential good sides that a hurricane of Ivan's strengths can provide. Many people throughout the Gulf Coast lost more than words can describe, however, it allowed the cities to rise from the rubble and improve on itself for the betterment of everyone.

POSTER PRESENTATIONS

Organized by Department— Located in the Field House

ART

12 Art Cats

Dawn Calilman-Jongko

Faculty Mentor: Gregory Saunders

Undergraduate Student Project

OUR Funded Project

Art

I am an artist and educator and I am concerned with the decline of art in the school systems and recognizing the reinforcement in literacy. I have combined art, geography and history in a way the elementary and middle school ages can easily retain these ideas through visuals using crayons as the medium. Crayons are a medium that children can relate to and are not just for kids. I have personified an art critic, Vasari, as a Rat and historic artists as cats. This concept is executed through illustrations and in book form. Vasari travels through each period addressing historical references, geographical locations, actual images of the artists work and each cat is depicted in the style of art that the artist is known for, as well as being a depiction of the artist themselves. The premise of this type of imagery in the cat will give the students a visual to connect the style and artist.

The book has periods such as Paleolithic, Impressionism, Fauve, Renaissance, Pop Art, and Surrealism. There are books to follow that are more period specific, where each book will be focused on an art period and encompassing many artists from that time frame for a more in depth experience of what art was being done and how it came to be.

I have created a book that incorporates artists, and samples of the artist's work. There are facts and bio information, along with a time line and reproducible images for children to color. I have also compiled information and projects creating a compatible art lesson plans that have been executed within a middle school. Some of these student works have been shown and won awards at Gulf Coast Arts Festival in Pensacola Florida.

13 Installed Awareness Project

Yvonne LeBrun

Faculty Mentor: Quintin Owens

Undergraduate Student Project

OUR Funded Project

Art

This project is to research materials necessary and supplement supplies for an art installation. The aspects explored are the basic materials and processes to create final sculptures. Through this research the limitations of the material and possible solutions will be evaluated, the best solutions will be applied to a multi-media installation of sculptures with supporting large scale two-dimensional mixed-media images that include contextual found-objects/ ready-mades and free standing armatures. The primary inspiration of this project is based around regional missing and exploited children within the greater Pensacola area.

14 Expedition

Jenea Wood

Faculty Mentor: Valerie George

Undergraduate Student Project

OUR Funded Project

Art

The purpose of this project is to explore the relationship between photography and painting through process verses actual paint to create hybrid works of art that incorporate both media.

This exploration into creating mixed media pieces was inspired by critiques of my photography in which I was asked if they were paintings. In researching the idea, I was further inspired by artist Gerhard Richter, who paints directly onto photographs and Jeff League, who creates beautiful surreal landscapes by combining photography and painting. I wanted to further this and explore the idea of painting through process instead of using actual paint. I will also be creating the canvas on which I am working though paper making or re-purposing found objects like old fence boards.

15

Techniques in the study of Underdrawings and Painting Conservation

Anna Downing

*Faculty Mentor: Nick Croghan
Undergraduate Student Project
OUR Funded Project
Art*

The world of fine art collection management practices has made numerous technological advancements in the preservation and archival conservation of paintings. With the use of a plethora of constantly evolving technologies, multiple discoveries that were once hidden beneath the top layer of paint have been revived. The use of these technologies have revealed changes in composition, detected forgeries, and exposed damages that are unseen in visible light. In my research I explored two of these technologies: infrared photography and ultraviolet photography in relation to the study of, respectively, under-drawings and damages that are not visible to the naked eye. I questioned what was the element that inhibited infrared waves from penetrating the paint, the binding agent or the pigment, as well as what damages and other materials used in painting could be seen under ultraviolet light.

To answer my first question of whether it is the binding agent or pigments that affect infrared photography of under-drawings I employed the use of two different canvases, one painted with only oil paint and the other only with acrylic. An artist started both works with graphite drawings and painted as normal. The first layer of paint was then photographed in infrared then painted over again. The process was repeated until the graphite drawing could no longer be seen in the infrared photos. The number of layers revealed what the factor was that stopped any further results. Equal layers amount of layers on both canvases meant it was the pigment, while different layers meant it binding agent.

After the first portion of my research was completed I then aged, stressed, applied varnish, and damaged both of the paintings. All of this was carefully done so no changes were seen in natural light. I ran into the obstacle of mimicking truly aged varnish because aged varnish fluorescent under ultraviolet light while newly applied varnish does not. In order to mock this aged look I attempted aging techniques that are done by master forgers. Under ultraviolet light I examined the paintings to see what damages showed and if the aged varnish appeared fluorescent. This allowed me to see what kinds of damages were seen and if the forgers' techniques to age varnish worked.

My research yielded both expected and unexpected results. My objective was to not only see what blocked infrared waves from reflecting back, but to also to see what could be done by institutions that did not have access to such equipment.

My research has been designed to spark interest and curiosity in those around me to look deeper into a painting and the process of painting to better understand the artist.

16

UWF Art Capstone

Stefini Pilgrim

*Faculty Mentor: John Markowitz
Undergraduate Student Project
OUR Funded Project
Art*

The research scholarship awarded me to complete my won personal capstone at UWF as an Artist and a future educator of funding will display an array of research and work accomplished during the fall 2014 semester in regards to my growth in painting, drawing, ceramics and teaching.

The first half of the scholarship funds received will display the means of which I could further explore my studio art. My show case will include a few oil paintings in which I discovered a new method with oils and pallet knife, drawings with the use of a new mixed medium of a charcoal and graphite pencils, and ceramic pottery through wheel throwing and glazes for raku clay.

The second half of the award was spent on supplies for six Woodlawn Beach Middle School choral students to paint in response to their winter musical orchestration they had been studying and singing for a couple of months. Their music painting will be displayed with the show case.

The research scholarship awarded me assisted me to complete my own personal capstone capitalizing on my studies at UWF as an Artist and a future educator. At the symposium I will display an array of research and work accomplished through the use of the finances awarded during the fall 2014 semester in regards to my growth in painting, drawing, ceramics and teaching.

98

The Development of a Water Quality Monitoring Program for High School Students

Heather Barrineau

*Faculty Mentor: Jane Caffrey
Undergraduate Student Project
OUR Funded Project
Biology*

The objective of this research project was to develop a laboratory manual on water quality testing to help launch a water quality monitoring program at the Navarre Beach Marine Science Station. Several sites along Santa Rosa Sound were sampled in order to establish laboratory methods and techniques that could be used in the development of a lab

protocol. The sampling will allow for the establishment of a database of measured parameters, so comparisons of long term trends can be observed and studied to assess the health of local marine ecosystems. The knowledge and techniques gained through this project are being implemented into the development of laboratory procedures in which high school students involved in the Navarre Beach Marine Science Station programs can continue the research as citizen scientists. The data will be incorporated into an oceanography curriculum that will focus on studying how factors such as nutrient loading correlate to long term trends.

99

The Influence of a Major Flood Event and Potential Exposure to Contaminates on the Bottlenose Dolphin (*Tursiops truncatus*) in the Pensacola Bay System

Traci Butler; Leah Hartigan

*Faculty Mentor: Christina Toms
Undergraduate Student Project
OUR Funded Project
Biology*

A record breaking flood occurred in Pensacola in April 2014, flushing unknown levels of toxins and pollutants into the Pensacola Bay system. Within a week severe skin lesions were observed on inshore bottlenose dolphins, *Tursiops truncatus*, and a higher than average number of neonate mortalities were reported at a time that coincided with the peak of the breeding season. Unfortunately, very little is known about the influence of large amounts of fresh water on bottlenose dolphin health, but skin lesions are known to be an indication of physiological stress. Our goal was to capitalize on an ongoing project and report on the water conditions surrounding the event and potential influences on inshore dolphins.

Boat-based mark-recapture surveys were completed over three seasons (spring, summer, fall 2014) to photograph and track individual dolphins following the flood and measure environmental parameters. We (1) quantified the prevalence and extent of dolphin skin lesions over time, (2) determined the birth rate and survival of this year's calves compared to rates reported in other areas, and (3) compared water quality data over time to determine if and when Pensacola Bay system returned to normal. Preliminary data indicates a minimum of 25 dolphins seen with skin lesions following the flood. Eleven calves were born this year but at least two have died. Our data will eventually be combined with histopathology from stranded dolphins to provide a more complete understanding of how a flood and resulting fresh water and contaminants influences the local system.

100

Nitrogen Removal By Oyster Microbiomes

Jane Caffrey

*Faculty Project
SCAC Funded Project
Biology*

Epibenthic bivalves provide a critical habitat for aquatic species and are a food resource for higher trophic levels. While the role of oyster reefs in improving water quality by removing phytoplankton is well documented, less is known about the contribution of microbes directly associated with oysters to the removal of fixed nitrogen. We found that nitrification rates were similar between whole, live oysters and empty oyster shells, whereas denitrification was significantly enhanced on living oysters. Comparison of oyster-associated to sediment denitrification indicated that oyster-associated denitrification rates were 5 to 40 times greater than sediment denitrification rates. Thus, the loss of historic oyster reefs has likely affected the resilience of estuaries to eutrophication. Restoration of oyster reefs should be considered as a tool for managing eutrophication.

101

Modeling N-glycanase 1 (Ngly1) Deficiency in the Mouse

Jini Curry

*Faculty Mentor: Pamela Vaughan
Undergraduate Student Project
Honors Thesis
Biology*

N-glycanase 1 (NGLY1) is an enzyme involved in the degradation of misfolded glycoproteins. Recently several patients who lack NGLY1 have been identified. These patients have significant neurocognitive disability, movement disorders and liver disease. The pathogenesis of NGLY1 disease remains a complete mystery. A mouse model of NGLY1 disease has been made to study the effects of loss of N-glycanase on the brain and liver, organs that express high levels of the enzyme. Using various stains and immunohistochemistry, we demonstrate significant histologic differences between Ngly1 null animals and control littermates in the cerebral cortex, cerebellum and liver. These results suggest that the Ngly1 mouse is a good model to study the pathogenesis of Ngly1 deficiency.

102

Fungal Colonization of the Rice Rhizosphere

Daniel Dees; Kelsee Bing; Danielle Tavano

Faculty Mentor: Joe E. Lepo

Graduate Student Project

Biology

Rice is a staple food for most of the world and while the fungi with intimate, intracellular, symbioses with these vascular plants are well studied, the role of free-living fungi in the rhizosphere (root zone) of rice is relatively unknown. This study in collaboration with the International Rice Research Institute, Los Banyos, Philippines, employs traditional microbiological methods to isolate, phylogenetically identify and determine effects of free-living fungi in rhizospheres of two American rice cultivars: Presido and CL151, acquired from the Texas A&M Rice Research Institute, Beaumont, Texas. Fungal strains specific to these cultivars have been isolated in pure culture using selective fungal media such as Rose Bengal and Sabouraud Dextrose agars. Based on macroscopic and microscopic morphology, some isolates belong to the genera *Aspergillus* and *Penicillium*. Identification to species will be achieved using more advanced dichotomous keys. We elucidated specificity of these fungi to the rice cultivars by comparison with soil samples from the rhizosphere of wheat, a common cereal grain. Further experiments include growing rice from sterilized seeds using sterile perlite and nutrient solution in a controlled environment and inoculated with isolated fungi. Measurements of height will be taken throughout growth and after 10-14 days, the plant will be removed, dried and weighed. These results will be statistically analyzed to determine if specific fungi affect plant growth. Bioassays for enhancement or inhibition of individual plants will elucidate the function of free-living fungi in rice rhizospheres that may lead to improved fertilizer-deployment or cultivation practices to increase overall crop yields.

103

Rate of pESC Plasmid Loss in *Saccharomyces cerevisiae* in the Absence of Selective Pressure

Jasmine Jordan

Faculty Mentor: Paul Nash

Undergraduate Student Project

Honor Thesis

Biology

Recombinant yeast has been proposed as a vaccine modality, especially for inducing CTL responses. The production of yeast expressing proteins of interest would be facilitated if they can be grown in less expensive non-selective medium. This would only be practical if the population of

yeast retains high levels of plasmid over the duration of the growth. We tested the *Saccharomyces cerevisiae* multiple gene auxotroph with pESC-URA to determine the rate of plasmid loss in the population. The yeast maintain the plasmid much longer than anticipated, suggesting that growth in non-selective medium may be a viable method. Induction of protein expression increases the competitive advantage of plasmid loss. Growth rates of the yeast and of plasmid loss under these variable conditions was also determined.

104

Description of a New Dogfish Shark Species from the Central Pacific: The Hawaiian Spurdog, *Squalus kainalu* sp. nov. (*Squaliformes, Squalidae*)

Amber M. Koch

Faculty Mentor: Toby Daly-Engel

Undergraduate Student Project

OUR Funded

Biology

Sharks are highly susceptible to population depletion from overfishing because of their low reproductive rate, and studies to investigate these species can be difficult to develop and implement. Deep-water sharks are especially difficult to both study and protect, given the inaccessibility of their habitat. This work focuses on *Squalus cf mitsukurii*, the shortspine spurdog shark described from Misaki, Japan. Originally a single, putative, circumglobal species, recent work has shown *S. cf mitsukurii* to be a species complex: a group of closely related but distinct species that resemble each other with a high degree of similarity. We examined the Hawaiian populations of *S. cf mitsukurii* using both morphological and genetic techniques and compared it to the type population in the West Pacific (Japan). External morphology between groups differs with respect to head and interdorsal length, and molecular analysis of both the mitochondrial NADH2 gene and CO1 (barcoding region) show significant, well-supported divergence. Between-species diversity was low, but at least five-fold greater than within-species diversity and consistent with previously described *Squalus* species. We rename this species the Hawaiian spurdog shark, *Squalus kainalu*. Kainalu meaning ocean wave in the Hawaiian language.

105

Protocol Development to Support DNA Based Gut Content Analysis of Invasive Lionfish

Ryan Lavoie

Faculty Mentor: Jeff Eble

Undergraduate Student Project

Biology

First seen off of Florida's southeastern coast in 1985,

the invasive lionfish (*Pterois volitans* and *P. miles*) have explosively expanded their range, and can now be found along the East Coast up to Rhode Island as well as throughout the Caribbean and Gulf of Mexico. Population sizes have increased exponentially over the years, with potential significant impacts on native fish populations. Thus, it is important to determine exactly what these invasive lionfish consume in order to develop strategies to protect the species that are most in danger from predation. Gut content analysis is traditionally used to identify prey species, but prey items are often too digested to allow visual identification. However, DNA barcoding using tissue recovered from prey items can provide more accurate identifications. I am therefore optimizing DNA extraction and amplification protocols to facilitate research into the impacts of lionfish on native species. The goal is to establish affordable and reliable protocols that will allow high school students, working as Citizen Scientists, to assist with lionfish prey identification. The students' research will help improve our understanding of the impacts of invasive lionfish on local ecosystems, while also introducing students to the lionfish threat and providing them with valuable training in modern genetic methods and analyses.

106

Size Assortative Mating and Population Structure in the Banded Scuplin (*Cottus carolinae*) from the Coosa River System

Laurel Manor; Carol E. Johnston

Faculty Mentor: Alexis Janosik

Undergraduate Student Project

Biology

Cottus carolinae, the Banded sculpin, is a freshwater fish that is endemic to the Alabama area. They can be found throughout the Coosa River System, the largest water system contributing to the Alabama River drainage. During their reproduction season, multiple females will attach their egg clusters to the roof of a nest. A male will then fertilize all of the eggs and guard the nest until the eggs hatch. Interestingly, males have been known to cannibalize females. Thus, females must choose a mate that is just the right size in order to not be eaten. In this study, fin clips were collected from both adult and juvenile banded sculpins from the Coosa River System in an area located adjacent to Coldwater Creek. DNA extraction was then performed. Following successful DNA extraction, a mitochondrial marker (cytochrome b) and microsatellite markers (Cha51, Cba14, and Cha42) were assayed with the DNA. Data will be used to look for size assortative mating and to study the population structure of the Banded sculpin in the Coosa River system. The weights of the males can be compared to their reproductive success to see if there is a correlation between the weight of the males and

the number of females who choose his nest to leave their eggs. These data will be informative towards better management and conservation of both the Coosa River System and surrounding areas, such as Coldwater Creek and Coldwater Spring, which is protected and is home to many endangered and threatened species

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Assessing Metabolic Sensitivity of the Little Skate (*Leucoraja erinacea*) to Warming Environmental Temperatures.

Lindsay Martin; Seth Hochberg

Faculty Mentor: Wayne Bennett

Undergraduate Student Project

OUR Funded

Biology

The little skate (*Leucoraja erinacea*) is a common residence in deep sea zones of the north Atlantic seafloors, they occupy depth zones from (1m-35m). The species is economically and ecologically important. Little skates are the most abundant elasmobranch captured in troll nets. They are often sold commercially for lobster bait. Ecologically skates are top benthic carnivores, and major bioturbators shaping both bottom morphology and intraspecific community structure. Global warming is a major threat to cold water species and yet very little is known about their thermal ecology. This project tests the hypothesis that increase in temperature will adversely affect performance of little skates. Specific objectives will include 1. Determining temperature tolerance of little skates acclimated to a temperature within their acclimation range. 2. Determining temperature preference of little skates. 3. Estimating metabolic rates to acute increases to ambient temperatures and 4. Interpreting those values relative to future changes in sea temperatures. Being able to predict what might happen to benthic elasmobranchs, as the top benthic predator, due to rising sea temperatures will give scientists a head start on trying to preserve these species for future generations.

108

Study of Hax1-HS1 Interactions

Roberta Palau; Kristina Inman; Peter Cavnar

Faculty Mentor: Peter Cavnar

Undergraduate Student Project

OUR Funded Project

Biology

The focus of this research is the adapter protein, Hax1, and in particular, its interaction with the protein HS1. Autosomal recessive mutations in the gene HAX1 is mutated it can result in Severe Congenital Neutropenia (SCN),

characterized by low number of neutrophils. As a result, SCN patients often experience life-threatening infections. Hax1 is identified as a binding partner with HS1, but the significance of this interaction is unknown. Previous research demonstrates that Hax1 and HS1 are both required for neutrophil migration and that HS1 phosphorylation regulates neutrophil migration. Phosphorylation of HS1 involves three tyrosine amino acids being phosphorylated in a particular pattern. This research aims to discover whether this unique phosphorylation pattern regulates Hax1-HS1 interactions. Phospho-mutants will be used to prevent phosphorylation in certain tyrosine sites of HS1. HS1 and HS1 phospho-mutants and wild-type Hax1 were overexpressed in tissue culture of the mammalian cell line, HEK293. HS1 was purified by immunoprecipitation and Western blot analysis was used to determine if Hax1 was bound to HS1. Unsuccessful binding will prove the imperative role of phosphorylation in Hax1-HS1 interactions. This could further contribute to our knowledge of how defects in Hax1 result in severe congenital neutropenia.

109

Influence of Phosphate Inputs on Phytoplankton Community Composition in Grand Bay, Mississippi

Roxane Quiquerez

Faculty Mentor: Jane Caffrey
Undergraduate Student Project
OUR Funded Project
Biology

Phytoplankton are the foundation of the aquatic food web, and provide an important food source to the food chain. These photosynthesizing microscopic organisms inhabit almost all oceans and bodies of fresh water. They depend upon specific conditions for growth, and frequently become the first indicator of a change in their environment. This study will help determine the environmental factors controlling phytoplankton species distribution in Grand Bay, MS and to better understand the ecology of algal communities. Since 2012, a series of phosphorus spills have affected the Grand Bay, Mississippi estuary, and previous research in the area has shown that phytoplankton growth is more often stimulated by nitrogen rather than phosphorus which in turn suggests that the phosphorus spills would have minor impacts on the Bay.

The objective of this study was to compare water quality and dominant phytoplankton species from Bangs Lake, Bangs Creek, Bayou Heron, and BN located in Grand Bay, Mississippi. The dominant species were identified using a Flow cam imaging particle analysis system. Once the pictures of particles were taken by the Flow cam, each photo was classified into their proper group. The dominant organism cyanobacteria, diatoms, and dinoflagellates were identified as

the most dominant groups. This expands on a previous study by Kendra Amacker and Rachel Dragon. We used the same scientific method. Previous samples obtained in 2011 and new samples from 2014 were analyzed to determine whether there had been any significant changes in phytoplankton abundance and variety due to the frequent phosphorus spill inputs.

110

Cross-Amplification of Microsatellite DNA in Dogfish Sharks of the Genus *Squalus*

Katherine Vaccaro; Rebecca Varney

Faculty Mentor: Toby Daly-Engel
Undergraduate Student Project
OUR Funded Project
Biology

The objective of this project is to assess the cross-amplification potential of microsatellite loci designed for *Squalus mitsukurii* and *Squalus acanthias* in other species of dogfish sharks in the genus *Squalus*. To do this, I will apply a panel of microsatellites developed for *S. mitsukurii* (Daly-Engel et al. 2010) and *S. acanthias* (McCauley et al. 2004) to several congener *Squalus* species in the Daly-Engel Lab tissue collection to estimate their overall quality (as in Selkoe and Toonen 2006). I will first run PCR reactions with universal primers to determine if the loci will amplify cleanly. The ones that do will be assessed for diversity (appearance of more than a single allele; Daly-Engel et al. 2010). A PCR may yield a product, but if different forms of that microsatellite are not present (polymorphic) in the population, that microsatellite will not be useful. If amplification occurs, I will run a diversity gradient in which several individuals are compared to determine if the locus is variable in that species. Through this project I will be able to qualify the overall usefulness of these loci, and, through publication, make them available to other scientists working to understand the evolution and ecology of dogfish sharks.

111

A Statistical Analysis of Tobacco Usage: As Reported on the National Health Interview Survey to Define the Demographics Associated with Tobacco Usage

Camille Wood

Faculty Mentor: Angela Hahn
Undergraduate Student Project
Honors Thesis
Biology

What do smokers have in common? Is it their socioeconomic status, or perhaps their geographic region? What is the correlation between tobacco usage and marital

status? Smoking is the number one cause of preventable death in the United States today, and 18.1% of American adults (18+) currently smoke. Although smoking in the United States has declined by almost two percent since 2005 it remains a major issue today. For almost half of adult smokers today the question is not if smoking will kill them, but when. We all know that there are certain stereotypes about those that smoke, from their socioeconomic status to their daily habits. However, these things cannot be taken at face value. Without a scientific approach any preconceived notions about people who do or do not smoke carry no weight. That is why it is so important that someone take an objective stance on this issue, and approach the information available with an unbiased analytical method in mind. That is the aim of this report, and with the help of NHIS survey data a biostatistical analysis was performed to answer some of the most important questions when it comes to the demographics of tobacco users.

112

Melichthys Niger Population Genetics

Nicholas Zielinski; Kaleb Price; Ian Bollinger; Jeff Eble

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Undergraduate Student Project
OUR Funded Project
Biology*

The triggerfish *Melichthys niger* is one of just a few tropical reef fish thought to have a circumglobal distribution. Considering the rarity of circumglobal reef fishes, and the challenges reef fish larvae face crossing large stretches of open-ocean, the objective of this research is to determine whether *Melichthys niger* is truly circumglobal or rather, if *M. niger* is really a complex of closely related, but evolutionarily isolated sub-species or species. Gene flow between the populations is being investigated by examining sequence data from three genes: control region (D-Loop), cytochrome oxidase I (CO1), and the large ribosomal subunit's second intron (S7-2). Preliminary analysis of mtDNA diversity (D-loop and CO1 genes) indicates extensive genetic connectivity and no indication of cryptic evolutionary divergence. Investigations are ongoing and will include an analysis of the S7-2 nuclear marker as well as additional samples from sites in the Eastern Pacific and Western Atlantic, which have been geographically isolated from one another for more than 3 million years.

17

A Study of Molecular Geometry of Simple Molecules: A General Chemistry Experiment

Judy Roth

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Undergraduate Student Project
Chemistry*

This research is designed to develop a lab experiment for students enrolled in the CHM 2045L (General Chemistry 1). The purpose of this research is to develop a lab for students to understand molecular geometry, dipole moments, bond angles, and electronegativity by using Spartan software. Currently twenty-two molecules have been built and are in the process of being studied. Using the Spartan software, these molecules are being analyzed to better understand bond angles, dipole moments, acid/base reactions, electronegativity, size comparison of different atoms, and to develop a better understanding of chemistry in 3D at a molecular level as it happens in real time. Students will be assigned several molecules to build using the Spartan software. They will be asked to answer a series of questions that they will need the Spartan software to answer. Many CHM 2045L students have never been introduced to this material before and the Spartan software is an excellent tool for a better understanding of several fundamental principles in chemistry. Experimental process, sample molecules, and learning objectives will be presented.

18

Iodocyclization/Etherification One-Pot Synthesis of Medicinally Useful Benzo[b]thiophenes

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Undergraduate Student Project
OUR Funded Project
Chemistry*

Benzo[b]thiophenes are sulfur-containing heterocycles that have many biological properties beneficial to medicine. They provide the core structure of a wide variety of pharmaceuticals used to treat patients with cancer, inflammation, and other diseases. In addition to biological uses, benzo[b]thiophenes have potential applications as organic semiconductors. Current methodologies of synthesizing benzo[b]thiophenes use multiple-step reactions and harsh conditions. In contrast, the methodology of our approach reduces excess waste and byproducts by converging two different reactions into a single-pot procedure. Electrophilic iodocyclization and etherification act in conjunction to form these molecules, and we also limit energy use by running the reaction at room temperature. Our synthesis was run under mild conditions

and produced high percent yields, and we conserved resources by utilizing iodine as a cyclizing agent, reactant, and catalyst. Our novel approach and the diversity of our project is promising for applications in industry and research, while minimizing damage to the environment.

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Synthesis of Polymers for Organic Light Emitting Diodes

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OUR Funded
Chemistry*

Synthetic schemes to synthesize novel polymers to be used as organic light emitting diodes (OLEDs) are currently being explored. According to modelling, the target polyboronic acid and poly-amide imide compounds will exhibit a characteristic band gap width of 2.0 to 2.5 electron volts, which correlates to emission between 450 – 495 nanometers (blue region of the visible spectrum). A formyl group was substituted on to a pyrrole ring which was then brominated using N-bromosuccinamide producing 4-bromo-pyrrole-2-carboxaldehyde (BPC). Boc-glycine was cyclized using Meldrum's acid to produce pyrrole-2,5-dihydro-4-hydroxy-2-oxo-, 1, 1-dimethylethyl ester (boc-PHK). Boc-PHK was then brominated via Vilsmeier-Haak reaction using oxalyl bromide yielding boc-PBK. After removing the protecting group, the PBK and BPC rings will be coupled together, and PBK and a substituted phenylboronic acid will also be coupled. These monomers will be polymerized to form the target conductive polymers. Construction of the desired monomers are in still progress; final polymers will be tested for validation as candidates for OLED applications.

20

Synthesis and Characterization of Titanium Oxide Nanopowders

Heather S.C. Hamilton; Lauren F. Barnes; Christopher J. Van Leeuwen; Karl A. Reyes

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Undergraduate Student Project
OUR Funded Project
Chemistry*

A variation of sol-gel synthesis was used to synthesize titanium oxide nanoparticles using Titanium Tetraisopropoxide at varied pH values. The nanoparticles were left in solution from times varying between two hours and twelve months. The synthesized nanopowders were heated between 80°C and 750°C varying between one and

two hour time increments at each temperature. Differential Scanning Calorimetry was used to further refine the heating range at which the nanopowders changed phase. The phase change to anatase was seen at temperatures between 300 to 500°C, with a mix of anatase and rutile seen after heating to 700°C. After synthesis, each nanopowder sample was characterized according to size, composition, phase, and absorbance properties using Scanning Electron Microscopy (SEM), X-Ray Diffraction (XRD), and UV-Vis Spectroscopy, respectively. The spectra and diffraction patterns were used to determine the temperature required to induce a phase change from the amorphous to anatase structure and anatase to rutile structures. Additionally, titanium oxide nanoparticles left in solution for over twelve months were characterized without heating. SEM of a sample aged over 12 months and dried with no heat treatment showed nanoparticle sizes at < 200 nm. The nanoparticles aged in solution were characterized to determine if they were single or mixed crystalline phase. Resulting XRD diffraction patterns showed characteristic peaks at 25.180°, 37.740°, and 47.600° indicating the presence of anatase. Characteristic rutile peaks at 54.300° and 68.620° may indicate a crystalline nanopowder of mixed phases. Research is in development to explore the efficacy of a similar synthesis method at room temperature at varying pH values of the precursor solution to determine the effect of aging without heat treatment on the size and crystalline phase of sol-gel synthesized TiO₂ nanoparticles.

21

Quantitative Analysis of Alcohol Using Nuclear Magnetic Resonance

Rebecca Hill

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Chemistry*

Nuclear Magnetic Resonance (NMR) is introduced to students during Organic Chemistry as a tool used for qualitative structure and conformational analysis of a compound to determine the structure. The UWF Instrumental Analysis (CHM 4130L) lab uses the PerkinElmer FT-IR Spectrometer to quantify ethanol found in a sample of Skyy Vodka. For this study, an experiment was developed to use quantitative functions of the NMR to similarly quantify ethanol samples. The concentration of alcohol in Skyy Vodka was quantitatively analyzed by using a program called Eretic found in the Bruker NMR software. Eretic was used to analyze a proton NMR spectrum to define the concentration of ethanol in the reference sample to be compared to the unknown concentration of ethanol in different liquor samples. The percent by volume of ethanol for the reference sample was calculated for a calibration curve to compare the concentration of the liquor samples.

The analyzed data from the NMR will be compared to the analyzed data from the IR to determine how accurate the NMR method is in quantifying ethanol found in the sample.

22

Testing Two Conformational Search Methods of Aplyronine C

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Honors Thesis
Chemistry*

Molecular model Aplyronine C was tested in two different conformational search methods, advanced conformational search and macrocycle sampling search. In each of these searches the molecular model was subjected to force fields OPLS2005 and MMFFs. These searches and force fields have been compared and contrasted using polar coordinate maps that represent the measurement of the molecular models dihedral angles and determine the flexibility and rigidity of the model. Through these comparisons, the side chain of Aplyronine C was determined to have an impact upon the flexibility and rigidity of the molecular ring of the model. In an attempt to better understand where the side chain interacts with the ring, the side chain was removed and an edited version of the molecular model Aplyronine C was tested with the same force fields and search methods. All of this data was then compiled together and the polar coordinate data was compared. Through this comparison and contrast, figures of the model have been superimposed to gain a better physical representation of the flexibility within the molecular model.

24

Solid Phase Extraction of Petroleum Residues Implementing Green Chemistry Principles

Rebecca Brody Kamerman

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OUR Funded
Chemistry*

While a body of literature exists for analysis of crude oil, there is limited research examining solid phase (SP) extraction of WAF & chromatography techniques. Development of SP chromatography conditions to test water accommodated with petroleum (WAF) enables fractions (acid/base/neutral) collected from WAFs to be prescreened via LC/MS. The separation of acid, base and neutral compounds is accomplished by column chromatography then peak detection confirms PAH presence in WAF. Once optimal separation conditions are determined, species of PAH present

in WAF can be identified with high resolution Fourier Transform Ion Cyclotron Resonance Mass Spectrometry (FTICR/MS) which has recently opened the range of identification of chemical species either present in crude oil or those formed after weathering in the environment.

25

Vinyl to Aryl and Vinyl to Heteroaryl Through Space 1,4 -Palladium Migration

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Undergraduate Student Project
OUR Funded Project
Chemistry*

1, 4 Through Space Palladium Migration is a unique method of metal exchange that activates challenging C-C and C-H bonds through an environmentally friendly, one step process. By restricting the geometry around the palladium, the Pd-complex is forced to exchange places with a hydrogen four carbons away, therefore, activating remote C-H bonds which are difficult to activate otherwise. This unique method of C-H activation could potentially be used to create biologically active molecules such as dibenzothiophenes and fused indole rings. This method provides a convenient benefit to the petroleum industry due to their common use of tricky C-C and C-H bonds that are usually inactive to frequently used reagents. Two methods of palladium migration studied include vinyl to aryl and vinyl to heteroaryl migration.

26

Analysis of Polychlorinated Biphenyls in Deep Water Shark Liver Tissue

Robert Lynch

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Chemistry*

Liver tissue of deep water sharks caught in the Gulf of Mexico were analyzed for the presence of polychlorinated biphenyls (PCBs) via Electron Capture Detection (ECD). Due the interfering nature of the tissue matrices, particularly squalene and squalane, the tissues were subjected to extensive clean up techniques to remove any trace interferences to allow the identification of each PCB present. The liver tissues were saponified in alcoholic potassium hydroxide, then extracted with hexane. The hexane was then partitioned against concentrated sulfuric acid to remove residual triglycerides and other fatty acids. The samples there subjected to both silica-

sulfuric acid columns and basic alumina columns to isolate the PCBs. Identification and quantification of individual PCBs was carried out via Gas Chromatography – Mass Spectrometry (GC/MS) using selected ion monitoring where two characteristic isotopes were recorded for each chlorination level. The highest concentration of PCBs were found to have six to eight chlorines.

27

Growth Kinetics of Zinc Oxide Quantum Dots

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OUR Funded Project
Chemistry*

Zinc Oxide quantum dots (QDs) were synthesized using a seed method, which produces a dispersion of highly modified ZnO particles. Hydroxide solutions of LiOH, NaOH, KOH and CsOH were reacted with zinc acetate in concentrations of 0.4-1.0 mmol and 0.05-0.25mmol, respectively. The particles were characterized using UV-Vis and Fluorescence spectroscopy. Varying solution concentrations produced QDs ranging in size as shown with fluorescence emissions from orange (622 – 597 nm) to purple (455 – 390 nm).

33

Conformational Analysis of Aplyronine A

Dennel McKenzie

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Aplyronine A (ApA) is a macrolide collected from a sea hare in the Northwest Pacific Ocean. This molecule has been found to exhibit antitumor activity in vivo against leukemia and other cancer cell lines. Our interest in ApA is related to the conformation of the macrolactone. Conformations of ApA were analyzed using the molecular modeling program MacroModel. Conformations of ApA generated by conformational searching were studied under varying modeling conditions. Conditions that were varied include three different force fields, MM2, OPLS, and OPLS2005, which upon initial study in a water solvent showed flexibility around carbons 1 and 5, 14-18, and 23-25 of the macrolactone. These same force fields were once again studied, this time in an octanol solvent. Data from the conformations was collected and the dihedral angles and coupling constants were determined. These values were used to observe the flexibility of the molecule and to compare computational data to literature values, respectively.

34

The Filtration Efficiency of Nylon-6,6 Spunbond Fabric Used to Separate Louisiana Sweet Crude Oil From Synthetic Estuarine Water Using Gas Chromatography

Kyra Murrell

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Chemistry*

Inland industrial oil spills can have detrimental effects on the river and stream environments and may contaminate the groundwater. Nylon 6,6 nonwoven fabric bags and fences have been employed to separate spilled oil from contaminated water along the coast of the Gulf of Mexico and the southern United States. This work describes the laboratory scale analysis of the effectiveness of these nylon filters to remove light crude oil from fresh and saltwater. Small filters (48 mm in diameter) were tested at varying flow rates of water passing through the filter and varying concentrations of oil-water emulsions. Samples were taken before and after the filter and analyzed by gas chromatography/flame ionization detection to determine the oil levels in the water. The filters were effective at removing the oil with tested concentrations of 1370 ppm and 2740 ppm. The filters trapped oil better at the lower flow rates.

35

Kinetics of Sn2 Reaction Chemistry

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Chemistry*

Bi-molecular substitution (Sn2) chemistry is typically not studied quantitatively in undergraduate organic laboratories because it is difficult to observe directly. The easiest way to study Sn2 reaction chemistry is through observing the kinetics of the reaction, which is often qualitatively studied by observing the relative rates of different reactions. In the proposed experiment, the kinetics of the reaction will be directly observed using an ion-selective probe. In the experiment, the [Cl⁻] will be continuously measured as the reaction occurs to give an accurate picture of the kinetics of the Sn2 reaction. Using the data collected, the rate of the reaction, as well as the [Cl⁻] in the final solution, can be calculated. Once the quantification of Sn2 reactions has been studied, the same method can be further applied to studying Sn1 reactions.

36

Transition Metal Oxides for Use as Surfaces in Surface Assisted Laser Desorption/Ionization of Adsorbed Asphaltenes

Karl Reyes; Christopher Van Leeuwen; Heather Hamilton; Michael

Patterson; Lauren Barnes

Faculty Mentor: Karen Molek

Undergraduate Student Project

OUR Funded Project

Chemistry

Asphaltenes from Arabian heavy crude oil were adsorbed onto various transition metal oxide nanoparticles (TMOs) to determine their utility as surfaces in Surface Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometry (SALDI-TOF-MS) experiments. The TMO nanoparticles used in this experiment were NiO and TiO₂. The concentrations of adsorbed asphaltene solutions were determined using UV-Vis spectroscopy. A calibration curve was constructed using asphaltene solutions of known concentration ranging from 1-100 ppm. By recording absorbance readings at max at regular time intervals (t=0, 10, 24, 48, 72, 96, 120 hours) the amount of asphaltene adsorbed onto TMOs were determined by comparing generated spectra with that of t= 0 hours. Thermogravimetric analysis (TGA) was also performed on the TMOs after all UV-Vis spectra had been generated, in order to further show asphaltene adsorption. TGA was used to determine the catalytic activity of TMOs on pyrolysis of asphaltene. Generated thermograms, showing weight loss as a function of temperature, were compared with thermograms of neat TMOs and neat asphaltene generated during previous research. Once adsorption of asphaltene onto TMOs had been verified, SALDI-TOF-MS experiments were performed in order to determine the molecular mass of the adsorbed asphaltene. Spectra obtained indicated promise for TMO's to be used as potential surfaces in the SALDI-TOF-MS analysis of crude oil asphaltene.

37

Synthesis of Biologically Interesting Heterocyclic Compounds: Multicomponent Chemistry Using Prins and Iodocyclization Reactions

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Undergraduate Student Project

OUR Funded Project

Chemistry

The synthesis of heterocyclic compounds such as benzo[b]thiophene can be conducted using a combination

of Iodocyclization and Prins reactions. The desired starting compound for our methodology was obtained starting from 2-iodothioanisole via a sequence of Sonogashira coupling, manganese dioxide oxidation, and Grignard reagents. Iodocyclization and Prins reactions were utilized in unison to synthesize benzo[b]thiophene. Although this method was able to produce the desired compound, it was unable to produce a pure, or easily purified, compound. The conditions used were unable to yield a pure compound of benzo[b]thiophene due to the presence of cis and trans isomers.

38

Synthesis of Copper (I) Trifluoromethylating Agents

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Undergraduate Student Project

OUR Funded Project

Chemistry

Attempts were made to synthesize four copper (I) complexes: tris(triphenylphosphine)copper(I) acetate (1), tris(triphenylphosphine)copper(I) phenolate (2), tris(triphenylphosphine)copper(I) trifluoromethylacetate (3) and (1,10-phenanthroline)copper(I) trifluoromethylacetate (4). These complexes were intended for use as intermediates in the preparation of two important trifluoromethylating agents, namely tris(triphenylphosphine)(trifluoromethyl)copper(I) and (1,10-phenanthroline)(trifluoromethyl)copper(I), that have the potential to play a significant role in the manufacture of pharmaceutical and agrochemical compounds. Complexes 2 and 3 were successfully synthesized. The reaction for complex 1 produced bis(triphenylphosphine)copper(I) acetate rather than the desired tris(triphenylphosphine)copper(I) acetate. Our efforts to isolate 4 by recrystallization were hindered by oxidation reactions that generated predominantly copper (II) phenanthroline complexes. Several reactions were carried out in an attempt to decarboxylate 3 by heating, but it appeared that the complex lost triphenylphosphine to form the bis(triphenylphosphine)copper(I) trifluoromethylacetate instead of the target trifluoromethylating agent. The products of these various reactions were analyzed using single-crystal X-ray diffraction, nuclear magnetic resonance spectroscopy, and infrared spectroscopy.

39

Cationic Ring-Opening Polymerization of Glycidol in the Presence of Emulsifiers

Carla Staton; Aliya Chaudhry

Faculty Mentor: Tim Royappa

Undergraduate Student Project

OUR Funded

Chemistry

Glycidol was polymerized by BF₃-initiated cationic ring-opening polymerization using various concentrations of THF, diglyme, MTBE and diethyl ether as emulsifying agents. A control sample of polyglycidol was also synthesized without any added emulsifier. Polymerizations were monitored by Gas Chromatography (GC). Whenever a reaction was 99% or more complete, the polymerization was quenched by adding water and stirring. The polymer was obtained by rotary evaporation and/or drying on a vacuum line followed by freeze drying. The resulting polymers were analyzed by differential scanning calorimetry (DSC), by ¹H and ¹³C NMR, FTIR and gel permeation chromatography (GPC). The solubility of the polymers in various solvents was also examined. The solubility tests and the NMR and IR spectra showed that THF had copolymerized with glycidol. There was no discernible effect of the other emulsifying agents on the polymerization, although some traces of free diglyme were noted in the NMR spectra of polymers synthesized with diglyme. Molecular weights were not significantly affected by the presence of any of the emulsifying agents.

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Synthesis and Characterization of Novel Polyester Polyols

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Undergraduate Student Project
OUR Funded
Chemistry

Succinic acid is a renewable feedstock that has been investigated to supplant petroleum-based adipic acid polyester polyols. Polyester polyols are used in the manufacture of many common materials such as foams, coatings, adhesives, and lubricants. A library of succinate and adipate polyesters were prepared using a Tin (IV) catalyst. Diols (3-methyl-1,5-pentanediol, 2,2-dimethyl-1,3-propanediol, 1,4-butanediol, 1,3-propanediol, and diethylene glycol) were varied to determine the influence of branching, chain length, and hydrophilicity, on the T_g, viscosity, crystallinity, density, and melting point of the polyesters. Molecular weight was quantified using ¹H-NMR endgroup analysis. Incorporating mixtures of diols into succinate polyesters was found to decrease crystallinity, lowering the melting point. Succinates and adipates were found to possess comparable viscosities. The structure-property relationships between mixed diol succinates and adipates were evaluated.

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Synthesis of 2,3-dihalosubstituted Benzo[b]thiophenes via Electrophilic Iodocyclization Reaction Sequence

Amanda Tonnaer; Cory Kornman

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Undergraduate Student Project
OUR Funded
Chemistry

Electrophilic Iodocyclization was used to synthesize previously unknown 2,3-dihalosubstituted benzo[b]thiophenes. The reactions were monitored to completion via thin layer chromatography, isolated by column chromatography and analyzed by NMR. The reaction was determined to have a 67 % yield. The scope of this newly developed methodology for the synthesis of a diverse library of benzo[b]thiophenes by employing various starting bromoalkyne is being investigated. Benzo[b]thiophene is used as the core structure of a variety of pharmaceutical drugs including raloxifene, zileuton, and sertaconazole. 2,3-Dihalosubstituted benzo[b]thiophene provides two sites of reactivity, allowing for greater functionalization in the synthesis of biologically useful molecules.

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Calibrating a HIMAS Linear Detector on a Matrix-Assisted Laser Desorption/Ionization Reflectron Time-of-Flight Mass Spectrometer

Christopher J. Van Leeuwen; Karl A. Reyes; Michael H. Patterson

Faculty Mentor: Karen S. Molek
Undergraduate Student Project
OUR Funded
Chemistry

A matrix-assisted laser desorption/ionization reflectron time-of-flight mass spectrometer was rebuilt and calibrated at acceleration voltage sets: 20/17 kV, 15/12 kV and 13/10 kV. The potentials were modeled using SimION Ion and Electron Optics Simulator. A ProteoMassTM Peptide MALDI-MS Calibration Kit with mass range 720-3494 Da, and a ProteoMassTM Protein MALDI-MS Calibration Kit with mass range 5.7-66 kDa were used as calibration standards. Additionally, 1000-3000 average molecular weight polymer samples of polystyrene and polyethylene glycol were analyzed and they were used to measure mass spectra and optimize signal via a HIMAS linear detector. The HIMAS detector is composed of a conversion dynode, single microchannel plate (MCP), scintillator, and photomultiplier tube (PMT). The data was collected and analyzed using National Instruments LabView software and a Tektronix DPO 3054 oscilloscope. Each standard and sample were scanned 100 times with a

minimum of five trials to ensure reproducibility, and mass spectra obtained were compared to literature spectra to ensure accuracy. Current experimentation involves surface-assisted laser desorption/ionization analysis of asphaltenes using transition metal oxide nanoparticles.

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Photo-chemical Reactive Oxygen Species Production by Petroleum Water Accommodated Fractions

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Faculty Mentor: Pam Vaughan

Undergraduate Student Project

OUR Funded

Chemistry

Photochemically produced reactive oxygen species (ROS: hydrogen peroxide and superoxide) were detected in Water Accommodated Fractions (WAF). WAFs were prepared in sterile seawater in the dark. Samples containing the water fraction were exposed to simulated sunlight. ROS were determined using the fluorometric reagent method of Yocis et al. Superoxide dismutase was added to samples for superoxide production determination. Initial determinations made for Jay oil indicated nM/sec production rates of both hydrogen peroxide and superoxide. Additional studies will compare ROS production from WAFs made using Macondo Surrogate oil.

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Conformational Analysis of FD-895: Measuring Flexibility and Rigidity of Different Dihedral Angles in the Ring

Sheneika Jackson

Faculty Mentor: Christopher Nicholson

Undergraduate Student Project

Chemistry

FD-895 is found in the fermentation broth of *Streptomyces hygroscopicus* A-9561 and was isolated from a soil sample found at Iriomote Island in Okinawa, Japan. The conformations of FD-895 were analyzed by a MacroModel Software program through MM2, MM3, Amber, and OPLS force fields with water and octanol as solvents. The resulting data obtained from the conformational searches were plotted using polar coordinate mapping to show the different areas of flexibility/ rigidity for each dihedral in the macrolactone. The polar coordinate results were grouped based on solvent and the force field used and then compared against each other to determine different flexibility/ rigidity for the different dihedrals angles in the ring structure. This analysis indicated that the dihedrals in FD-895 ring structure were more flexible when analyzed using water as the solvent and the MM2/MM3 force field.

1

Similarity Measures in Smart Building Electrical Demand Data

Dallas Snider; Glenda Mayo; Sridhar Natarajan

Faculty Project

Computer Science

With the increase in smart, LEED-certified buildings there comes an increase in the amount of time-series data generated by the sensor networks within these buildings. Extracting useful information from the sensor network data can pose a challenge. While diurnal and seasonal patterns of electrical demand are well known from traditional metering systems, smart-building sensor networks can provide insight into abnormalities or previously unknown patterns in electrical demand. In this presentation, we demonstrate how to mine the data for these unknowns through the analysis of the frequency components of the time-series electrical demand data. The data for this study was collected from an LEED-certified building over twelve consecutive months with separate data feeds for the electrical demand from the heating, A/C, ventilation, lighting and miscellaneous systems. We employed Fourier methods to transform the data from the time domain to the frequency domain and then used similarity measures to look for similarities and outliers among the differing systems.

2

Self-deployment of Mobile Underwater Acoustic Sensor Networks for Maximized Coverage and Guaranteed Connectivity

Bilal Gonen

Faculty Project

Computer Science

Self-deployment of sensors with maximized coverage in Underwater Acoustic Sensor Networks (UWASNs) is challenging due to difficulty of access to 3-D underwater environments. The problem is further compounded if the connectivity of the final network is desired. One possible approach to this problem is to drop the sensors on the water surface and then move them to certain depths in the water to maximize the 3-D coverage while maintaining the initial connectivity. In this project, we propose a fully distributed node deployment scheme for UWASNs which only requires random dropping of sensors on the water surface. The idea is based on determining the connected dominating set (CDS) of the initial network on the surface and then adjust the depths of all neighbors of a particular dominator node (i.e., the backbone of the network) for minimizing the coverage overlaps among them while still keeping the connectivity with the dominator. The process starts with a leader node

and spans all the dominators in the network for repositioning them. The performance of the proposed approach is validated through simulation. Simulations results indicate that connectivity can be guaranteed regardless of the transmission and sensing range ratio with a coverage very close to a coverage-aware deployment approach.

3

Creating a Cost-Effective Air-to-Ground Network Simulation Environment

Lem Soles; Thomas Reichherzer; Dallas Snider

*Faculty Mentor: Dallas Snider
Undergraduate Student Project
Computer Science*

Today's warfighter is increasingly dependent on networked systems and information from unmanned aerial vehicles to provide up-to-the-minute conditions on the battlefield; therefore the network must continually perform at optimum levels. One of the problems encountered in complex air-to-ground networks is that all possible hardware, software and network configurations that will be encountered in the field cannot be pretested; therefore there is a need to provide a method for studying the interaction between different hardware and software components and identifying potential network bottlenecks in air-to-ground networks and their causes before they become critical. In this presentation, we demonstrate our accomplishments in building a robust and scalable simulation of an air-to-ground network environment based on wired and wireless network emulation using widely available software tools. We will also present our data capture and testing methodologies including our ability to test hypothetical, what-if scenarios, and our plans for future research where we will apply the knowledge discovery process to assist in the mitigation of network problems to reduce the risks to personnel and assets.

4

The Hemingway Effect: A Comparison of Artificial Intelligence and Machine Learning Methods

Clark Mitchell; Ray Wood; Catilina Caballero; AI Research Group

*Faculty Mentor: Eman El-Sheikh
Undergraduate Student Project
Computer Science*

Artificial Intelligence (AI) and Machine Learning (ML) methods can be used to develop intelligent agents that learn and adapt to solve various problems. Such agents can be utilized in a variety of applications, including robotics, cybersecurity and educational environments. In Spring 2015, the UWF AI Research Group focused on the development of a simulation environment that can be used as a platform

to test various intelligent methods, and the development and evaluation of various AI and ML algorithms within that environment. To observe the emergent behavior and strategies of intelligent agents, we developed a competitive and dynamic simulated environment that includes robots (bots) whose goal is to survive by navigating obstacles and acquiring resources. Several teams of students created bots that employ various AI and ML algorithms, and compete within the environment. Bots have to decide and prioritize when to attack, defend, reproduce or scavenge until resources have been depleted or time has expired. Several AI and ML methods, such as non-informed, heuristic and adversarial search algorithms, were developed and compared to evaluate their performance and usefulness in support of the project goals. Our environment can be used as a platform for the comparison of AI to human strategies and the study of navigation strategies for robots, games and autonomous drones.

76

Social Workers and Police Officers: Examining The Relationship for Reducing Domestic Violence

Kati Andrews

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Undergraduate Student Project
Honors Thesis
Criminal Justice*

Domestic violence police calls are prone to distressed victims, difficult situations and recidivism (Reuland, Schaeffer-Morabito, Preston, & Cheney, 2013). The presence of a trained social worker on these calls can assist officers in managing the scene by answering victims' concerns.

Previous research shows success when using this idea in community policing as a social outreach tool (Corcoran & Allen, 2005). This project proposes to embed a trained social worker in patrol units responding to domestic violence calls in Escambia County, FL. The main goal is to reduce the stress on officers by providing victims with immediate referrals to local agencies.

77

The Monetary Value of Art Within Criminal Organizations

Meghan Bang

*Faculty Mentor: Matthew Crow
Undergraduate Student Project
OUR Funded Project
Criminal Justice*

Evidence suggests the use of art within criminal organizations has become rife, but very little research exists on this topic. Many questions remain unanswered ranging from black-market values of stolen art, which sites are suitable

targets for art theft, the extent of the problem, and most importantly, what is the true (if any) monetary value of art within criminal organizations. This research explores these questions and in order to establish understanding and create preventative measures.

78

Stop the Madness: The Detrimental Consequences of Criminalizing Homelessness

Melanie Cummins

Faculty Mentor: Kathrine Johnson

Graduate Student Project

Criminal Justice

Homelessness in the Florida Panhandle is an ongoing and often contentious issue. Identifying and defining the homeless population is not easy. The panhandlers on the corner become the artificial face of homelessness which generally angers the public and stifles the efforts of those who are advocates for all homeless individuals. There are a relatively small number of chronically homeless individuals who are entrenched in the revolving door of the criminal justice system. Many of these homeless come in contact with law enforcement as a result of an ordinance violation or committing a misdemeanor offense. In some cases they are arrested; are processed through the court, end up owing hundreds of dollars in court costs, may spend a short time in jail, and are ultimately released back to the same situation they left. And the cycle continues with detrimental and costly consequences for the homeless individual, the police, the courts, corrections, and a variety of service providers. The purpose of this research project is to explore the perspectives of those who are involved in processing the homeless individuals to find a more productive method of addressing this cycle. Interviews were conducted with law enforcement, prosecutors, jail staff, and service personnel to see how we can better expend a finite set of resources. Ultimately, changing Florida Statute regarding this process is seen as a viable solution.

5

IEEE SoutheastCon 2015 Hardware Competition

Josue DeJesus; Jacob Gourlie; Lee Fulton; Kenneth King;

Lindsay Leyo; Ryan Sanders

Faculty Mentor: Andreas Fuchs

Undergraduate Student Project

OUR Travel Award Recipient

Electrical and Computer Engineering

The IEEE SoutheastCon is a regional engineering conference which hosts a variety of competitions, discourses, and events for both professional and student IEEE members. The conference is host to a student robotics hardware

competition for which the UWF IEEE Unmanned Systems team at the Emerald Coast REEF campus has designed and built a completely autonomous robot that performs tasks which include intuitive path following, audio processing, and object recognition, all while remaining within a mandatory 12x12x12 size constraint. The aforementioned capabilities of the robot are utilized to, upon indication by a red LED, navigate a playing field and complete four road trip themed games which involve Etch A Sketch®, Simon®, and Rubik's Cube® toys. Points are awarded for successfully navigating the course and completing each game within the given time constraints.

6

Application of Embedded Systems with Brushless DC Motors

Darius Bethel; Adam Ferguson; Teresa Frigon

Faculty Mentor: Bassam Shaer

Undergraduate Student Project

Electrical and Computer Engineering

The objective of this work is to utilize an embedded system to automate the control of a Brushless DC (BLDC) motor via numeric control. The design will be implemented to demonstrate with precision how to control multiple BLDC motors simultaneously and with accuracy. The design will be operated with precisely programed commands called G-Code that will be encoded in LabVIEW. In order to demonstrate proof of concept a plotter was constructed as a visual representation of the capabilities in which a machine can operate autonomously. A finite-state machine is the model of computation used to design the appropriate program in LabVIEW to provide autonomous operation of the system. The plotter will feature a myRIO, a fully functional FPGA, and a Seeeduino to control all operations of the system. The system also features a custom communication protocol develop specifically for interaction between the FPGA and microcontroller. The plotter has a Graphical User Interface (GUI); custom designed and built in LabVIEW that allows a user to interact with the operations of the plotter. The user is able to monitor system fault conditions and correct them in a timely fashion.

7

Design of an Electronic Apiary Unit

Nicole Latourelle; Kaitlyn Latourelle; Dylan Radcliffe

Faculty Mentor: Mohamed Khabou

Undergraduate Student Project

Electrical and Computer Engineering

This newly designed apiary unit will protect the bees from predators, and it will allow the beekeeper to

maintain a healthy and efficient hive. A major cause of bee disappearances can be attributed to weak apiary units. A healthy apiary unit exists when hive predators are eliminated, and when there is minimal hive disruption. To eliminate predators, a special frame will be designed and placed in the unit. To avoid disrupting the apiary units, weight sensors will be used to determine when more supers are needed, a temperature sensor will be used to monitor the climate of the hive, a data tracking system will be implemented to track the data received from the hive, and an alert system will be implemented to enable the user to act accordingly. All these modifications will be modular and can be used with pre-existing apiary units. The cost of these modifications will be as minimal as possible.

8

Design of an Integrated Circuit Storage and Retrieval System

William Posey; Branden Sherrell; Colby Cohron

Faculty Mentor: Mohamed Khabou

Undergraduate Student Project

OUR Funded

Electrical and Computer Engineering

Integrated circuit (IC) chips are an important part of many engineering laboratory courses at UWF. The current system for storage of these components is inefficient and unorganized. The IC's were kept in small bins in the labs in the past, and were often put back into the incorrect bins by students, leading to confusion about the actual lab stock of each chip. Currently, each student enrolled in a lab course is given several of each IC in a lab kit, although it is often the case that the kit's contents are only used a few times, and could easily be recycled and used again in future labs. In order to combat these issues, this design project aims to develop a system through which integrated circuit chips can be checked out and returned from a friendly front-end user interface. The automated system allows users to simply either place used IC chips into or retrieve IC chips from storage bins through the use of a simple graphical user interface. Front end devices communicating with efficiently programmed system movement control components allow for a speedy storage or retrieval transaction to be carried out. This design will solve the issue of organization of lab components, as well as eliminate the cost of constantly buying new components to give out in lab kits.

9

Design of a Comprehensive Renewable Energy System For the University of West Florida

Shawn Reid; Stratton Miniatt; Michael Rosenblum

Faculty Mentor: Muhammad Rashid

Undergraduate Student Project

Electrical and Computer Engineering

Our project is a comprehensive renewable energy system for the University of West Florida using varying sources of alternative energy in order to offset long-term power costs, as well as reduce dependence on fossil fuels and provide hands-on learning experiences for UWF students and faculty.

10

The Smart Cooler

Mark Shipp, Jr.; Bryan Rhodes; Jimmy Kocher; Hunter Hardy

Faculty Mentor: Mohamed Khabou

Undergraduate Student Project

OUR Funded

Electrical and Computer Engineering

Arguably the two most essential components of a successful recreational outing such as a sports tailgate or casual beach trip are the music and the drinks. With the advancement of portable entertainment options like Bluetooth media players, there has never been a greater demand for an all-in-one portable entertainment and beverage station. The Smart Cooler System delivers these focus points in a robust design. Featuring an aluminum chassis and dual 120 watt motors, the Smart Cooler system is self-propelled to take away the strain of lugging the cooler and entertainment system around manually. The cooling system itself is iceless, featuring its own compression refrigeration unit with a programmable thermostat to take away the hassle of retrieving ice only to have it melt in the hot sun hours later. The Bluetooth speakers on board offer the perfect solution to getting music wherever the fun may lead. Finally, all the Smart Cooler System's controls are centralized on a 7-in. LDC touch screen powered by a Raspberry Pi computer.

11

Predicting and Modeling of Uncertainties in Wind Power Generation to Improve Accuracy of Short Term Forecasting in a Smart Grid

Luis Paulo Nallin de Oliveira

Faculty Mentor: Bhuvaneshwari Ramachandran

Undergraduate Student Project

Electrical and Computer Engineering

Motivated by the Renewable Energy, the Wind Energy

Generation has been increasing in many countries such as Germany, Denmark, and Spain. However, in this specifically form of energy generation there is not a procedure to storage the source of the energy. It means that the wind speed is converted in electrical energy at the same time that the energy is required by the consumer. Consequently, there is the eminent necessity of wind prediction to ensure that the enough electrical energy will be provided.

There are several approaches of wind speed prediction based on historic data and numerical weather predictions. All of them are proposing a relationship between wind speed and power output (power that will be sent to the consumers). Nowadays, the company that generates energy has to announce how much energy in a specific time of the day will be provided in the next day. If the wind generation farm does not satisfy its own statement it will be charged in a large amount of money according to the local politics. So, the issue of Short Term Forecasting was characterized by the essential pre-statement of electrical energy generate. As a result, our main aim is to develop a new approach of wind prediction based on its uncertainty. Basically, this approach will estimate the wind forecasting for a short term power generation.

In conclusion, the project will provide a predicting model based on uncertainties applied for Wind Power Generation. It will be focused on developing results for Short Term Forecasting.

118

Analyzing Different Grammar Instructions and Their Application in English Composition II

Kara Griffith

*Faculty Mentor: Raina Garrett
Undergraduate Student Project
Honors Thesis
English and World Languages*

This research will provide will insight into the mechanics of grammar instruction. For fifty years, grammar has been taught as a long list of rules that students need to memorize in order to use them; this definition is known as formal grammar. Grammar has also been regarded as irrelevant to the future education and careers of students. Nevertheless, this study will attempt to change these views of grammar by introducing students to a different grammar instructional method: rhetorical grammar. This recently developed instructional method focuses on the purpose of grammar and how students make certain grammatical choices to achieve a specific purpose in their writing. The objective of this project is to introduce rhetorical grammar to students in order to test their comprehension of it and observe how well they apply it through writing assignments.

114

Short Term Changes in Soil Health Under Mob Grazing: Physical Characteristics

Caroline Gible; Elizabeth Evans

*Faculty Mentor: Johan Liebens
Undergraduate Student Project
OUR Funded Project
Environmental Studies*

Current practices for the grazing of livestock have been shown to deteriorate soil quality. Out of the need for more sustainable agricultural practices, the method of mob grazing arose. This new grazing method involves a large concentration of livestock to be confined to small pastures with daily rotations between pastures. Allegedly, this new method improves soil quality without the use of fertilizer by creating an environment in which animals effectively work plant litter into the soil with their hoofs. To study the sustainability of mob grazing, four sites were selected in northern Escambia County: two mob-grazed sites differing in soil type and two correlative fallow control sites. Comparisons of soil properties were made between the mob-grazed sites and control sites of each soil type, and between the mob-grazed sites over time. The soil properties examined were bulk density, infiltration rate, aggregate stability, and pH. The soil's bulk density was determined with the core method. Low bulk density indicates a higher porosity; a quality indicative of greater soil health. Infiltration rate was assessed using field infiltrometers. A higher rate indicates that the soil allows for water to more easily enter, which prevents erosion. Aggregate stability was measured via the wet sieving method. Higher aggregate stability is indicative of higher porosity and resistance to erosion, and thus better soil health. Soil pH was measured with the standard USDA method in water and CaCl. This study has the potential to generate information for the more sustainable and environmentally safe grazing of land.

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Short Term Changes in Soil Health Under Mob Grazing: Organic Characteristics

Linda Grimminger; Josh Barnill

*Faculty Mentor: Johan Liebens
Undergraduate Student Project
OUR Funded Project
Environmental Studies*

Mob grazing is a farming practice that involves the rotation of livestock onto different parts of the pasture while letting the rest of the pasture lay fallow. In this practice the livestock tramples the manure and unpalatable weeds into the soil, providing natural fertilizer. The practice prevents selective

grazing since the livestock are more limited in food options. The purpose for this study is to accumulate soil health data to verify if this practice is more sustainable than conventional grazing practices and if it increases soil health over time. There are two experimental and two control sites, the former have been mob grazed for eight years while the latter have not been. At each of the four sites, three locations were selected at random to be sampled. The three 30x30x30 cm pits were dug at each location. Organic matter content, soil respiration rate (the output of CO₂ from a soil), and earthworm count have been analyzed, as these are good indicators of soil health. Organic matter content was analyzed in the lab with the Walkley-Black method while the other two analyses were conducted and recorded in the field. Respiration rate was measured in close proximity to each of the pits, on the surface of the soil, with a respiration chamber and Draeger tubes to measure the CO₂ concentration. If soil health is found to improve under mob grazing, it could result in reduced fertilizer use and more sustainable farming practices.

116

Estimating stream bank erosion in the Coastal Plain: Improving Practical Methods

Mitchell McMillan; Johan Liebens; Michele Goodfellow; Dave Cambron

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Graduate Student Project
SCAC Funded Project
Environmental Studies*

Accelerated stream bank erosion pollutes water resources and aquatic habitat throughout the US, but the most widely applied method for predicting erosion rates is ill suited for many areas, relies heavily on bank morphology and subjective estimates for crucial variables, and indexes variables arbitrarily. It is also lacking robust statistical analysis. Efficient use of time and money in river restoration requires that bank stabilization target the most unstable banks. This often involves a rapid assessment of the stability of many stream banks. Rosgen's Banks Assessment and Consequences of Sediment (BANCS) model for predicting the annual erosion rate of stream banks has been demonstrated to be inadequate for many areas, especially ones dominated by woody vegetation. Nevertheless, it is still widely practiced by the river restoration community and supported by several government agencies, including the US EPA, Forest Service, and Fish & Wildlife Service. The stream restoration community relies on the method for its practicability. We hypothesize that modifying the model with more quantitative variables will improve erosion predictions while maintaining practicability. Our objectives are to replace the subjective estimates with new field measurements representing controlling processes. To compare our predictions against those of the existing method, annual erosion will be measured at 75 banks over

a 3 year period, and statistics will determine the best model. Based more on underlying processes than bank morphology, our method will offer more accurate and widely-applicable predictions of bank erosion rates in general. This will directly benefit both the public and the scientific community.

117

Particle Size Distribution Analysis in Archaeology

Matthew Newton

*Faculty Mentors: Johan Liebens and Ramie Gougeon
Graduate Student Project
Environmental Studies*

A geomorphological analysis was conducted on the UWF campus during the Fall Semester of 2014, as a partial requirement for a Directed Study in Soil Science course. The project's primary objective was to determine if any pedogenic processes have affected the context of artifacts recovered on campus during a 2012 archaeological fieldschool, by conducting a particle size distribution analysis on nearby soil matrix sampled at various depths within the soil profile. The data were then used to determine if a lithological discontinuity is evidenced within the hillslope, applying principles and techniques found within the field of environmental science directly to archaeological investigation. Several undergraduate and graduate students from both the anthropology and environmental studies programs assisted with fieldwork and data collection. The project highlights multidisciplinary investigations in archaeological research and shows the utility in educating a student in archaeology on laboratory procedures for a particle size distribution index, a procedure almost exclusively conducted by environmental science professionals. The learning outcomes far exceeded the learning of the particle size analysis laboratory procedure alone by also including the knowledge gained from the management of a project from start to finish.

49

A Look at Various Nutrition Trackers

Meagan Adams

*Faculty Mentor: Green Waggener
Undergraduate Student Project
Exercise Science and Community Health*

Nutrition tracking programs or applications help people manage their daily diet habits and provide nutritional information. My project is an evaluation of the applications and online materials many people use calculate their caloric expenditure and develop their own nutritional plans. My project compares and contrasts various nutrition trackers to each other and the U.S. government's program Myplate.gov. Myplate.gov is the USDA's official tracker. I used data from

a class project to compare the applications and analyze their accuracy of results, ease of use, and comprehensiveness of nutrient values. The results display nutrition trackers preferred by students in my class and provide a look at the variability of results between the different applications.

50

County Population Density and the Association with Registered Sexual Offenders in Florida

F. Stephen Bridges

Faculty Project

Exercise Science and Community Health

Residence restrictions are laws enacted to protect community members from registered sex offenders by banning them from living too close to schools, parks, and other locations where children are likely to congregate. Florida Many counties in Florida have 1,000-foot restricted buffer zones around attractions, bus stops, daycares, parks, and schools where children may gather. The expectation is that offenders will have a more difficult time finding and approaching children they could sexually assault thereby decreasing rates of sexual recidivistic crimes. However, past research has reported that residence restrictions can cause numerous unintended consequences. For example, when faced with limited housing options some offenders seek to establish residency in mostly low-density rural areas. The purpose of this study was to explore whether legal residence restrictions disperse registered sex offenders away from child congregation locations (schools, parks and malls) in some Florida counties and into more rural and less populated ones? Across 67 Florida counties no associations were found for rates of registered sex offenders per 10,000 population and schools, parks or malls per square mile. On the other hand, a significant negative association was found in the expected direction for population density per square mile by county and rates of sexual offenders. This suggests residence restrictions might have other than the intended effect, i.e., to actually serve as a factor contributing to their social and economic isolation and thus greater likelihood for reoffending.

51

Effects of a Six-Week Progressive Resistance Training Intervention on Gait Speed in Community-Dwelling Senior Adults

Karla A. Caillouet

Faculty Mentor: Eric Greska

Doctoral Student Project

Exercise Science and Community Health

Gait speed is a well-known marker of physiological health

and is affected by many variables, including motor control and muscular strength. Previous research has related gait speed directly to performance of activities of daily living and quality of life; with higher gait speeds demonstrating greater functional ability and ambulation in older adults.

PURPOSE: To examine the effects of a six-week, progressive strength-training intervention on temporal and spatial parameters of gait in senior adults. **METHODS:** Ten community-dwelling older adults (4 male, 6 female; age=66±6.25 years) participated in a six-week progressive strength-training intervention. Pre- and post-assessments were performed during a 4-meter walk using a Vicon three-dimensional motion capture system, collecting at 250Hz. The 16-marker Plug-in Gait model was utilized for lower extremities to quantify angles for hip, knee, and ankle joints, with marker data filtered at 6Hz. The strength-training intervention included six weeks of bi-weekly, 1-hour training sessions targeting all muscle groups.

STATISTICAL ANALYSIS: Repeated measures ANOVAs (group x training status) were performed for gait speed, stride length, step time, and joint range of motion.

RESULTS: Significant differences were found for stride length ($p<.05$), step time ($p<.05$), left hip extension ($p<.05$), left knee extension ($p<.05$), and right knee extension ($p<.05$). Gait speed increased but was not significant ($p=.06$).

CONCLUSION: Influencing factors to improved gait speed included increased stride length and decreased step time, which may indicate enhanced stability and ambulation. Training length, sample size, and/or inter-subject training variations may have influenced the lack of significance in gait speed.

52

Disc Games to Facilitate Transfer of Learning

Scott Carrico

Faculty Mentor: Christopher Wirth

Graduate Student Project

OUR Travel Award Recipient

Exercise Science and Community Health

This poster was created to share and review an activity based, teaching presentation given at Share the Wealth Conference 2015 in Jekyll Island, GA. During this session, participants learned and interacted in disc lead-up activities that transition across various sports and activities. Disc games are often used to promote eye-hand coordination, throwing, catching, spatial awareness, and agility skills. In addition, disc games can promote cardiovascular health in students while providing activity that is both fun, cooperative, and challenging.

There are common disc games such as ultimate Frisbee and disc golf, but you can take elements of these sports and easily modify them to other games and activities that will continue to develop the basic throwing motions all the while providing

new challenges and educational opportunities. Most disc games can be used during physical education classes, after school programs, and even at home. These activities require minimal set up and managerial instruction. The skills taught and abilities gained from disc games will make way for students with even the most basic abilities to feel successful. It is important to provide students with indispensable skills and abilities to ensure that they will have the skills necessary to participate regularly in physical activity.

Specific objectives of this presentation:

- Discuss how skills, rules, and strategies can be transferred throughout various age groups;
- Provide examples of rule, space, and equipment modifications;
- Demonstrate disc games that involve minimal setup that are easy to instruct.

The session featured a brief introduction followed by game participation by the audience of each modified game presented. Every disc game was set up, explained, and demonstrated. After every disc game was taught volunteers played and were provided with ongoing feedback to simulate a classroom environment. A handout was provided in person and available at Share the Wealth website.

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Effects of Full Body Immersion Cryotherapy on Recovery, Fatigue, and Anaerobic Power in Collegiate Rugby Players

Matthew Christenson

Faculty Mentor: Youngil Lee

Graduate Student Project

SCAC Funded Project

Exercise Science and Community Health

The purpose of this study was to test the effect of full body immersion cryotherapy on recovery and anaerobic power in collegiate rugby players. 8 collegiate male rugby players between the ages of 18-24 completed performance and physiological tasks during pre- and post- exercise. The performance tasks consisted of a pre- and post-test. These tests consisted of a 40 yd. dash, T-test for agility, vertical jump and Wingate anaerobic cycle test. The performance tasks also included a graded treadmill test, during which, temperature, RPE and heart rate were monitored. Blood lactate was taken throughout the study. The graded treadmill test consisted of a 30 minute run at 85% of the participant's maximum HR. The graded treadmill test took place in a heated (90 Fahrenheit) environmental chamber on the second and third day. This protocol was repeated 3 times, with a hot (90 Fahrenheit), cold/ice bath (50 Fahrenheit) or ambient (72 Fahrenheit) recovery.

The results of this study showed there were no significant changes in the pre and post-test performance results, however we did see a significant increase in lactate removal after a recovery that included cryotherapy. A significant increase in blood lactate removal occurred following the cold recovery day. Cold recovery also had slight impact on body temperature recovery. We can conclude that inclusion of an ice bath as a recovery modality might aid recovery by increasing blood lactate removal and that there might be a relationship between body temperature and lactate removal.

54

Y Balance Test and Functional Movement Screening as Predictors of Injuries in a Maritime Security Response TEAM

Ludmila Cosio-Lima

Faculty Project

Exercise Science and Community Health

Presently it has become popular for health care providers to look into tools that could have the ability to predict injuries in various athletic populations. Functional Movement Screen tests (FMS) and Y Balance Tests (YBT) are one of these tools that are becoming popular among physical therapists and coaches. It is well known that injuries are a major economic burden in the military. Purpose: The purpose of this study to report results conducted in training related injuries commonly sustained by members of the Maritime Security Response Team (MRST) and their associations with FMS scores and YBT scores. Methods: 31 male cadets were administered 7 FMS and lower and upper YBT tests before their 2-month of intense physical training program. Physical training-related injuries were recorded during this 2-month training period. After normalizing for upper and lower limb lengths on the YBT, each reach distance and FMS scores were examined using chi squares and odds ratios. Results: For the Composite YBT upper body measures on both the right and left, differences between the 3 levels was significant and there was a strong trend ($p = 0.04$, $p = 0.01$, respectively) indicating that injury risk decreases with longer reach distances. There was a trend ($p=0.02$) between FMS scores and injuries; the lower the FMS scores (< 14) the higher the percentage of injuries (80%). Conclusion: Although for the current study the upper YBT test and FMS demonstrated trends between injuries among MRST cadets it is necessary to further study these tools since in accordance with previous and the present investigations they have limitations that need to be better addressed in order to define if they are reliable predictors of injuries in diverse athlete's populations.

55

The Effects Of Ankle Bracing And Direction On Knee Angles During Single-Leg Hop Tasks

Mariel Crawford; Christina Moya; Nelson Cortes; Jatin Ambgaonkor; Ludmila Cosio-Lima

Faculty Mentor: Eric Greska

Graduate Student Project

Exercise Science and Community Health

Bracing is intended to minimize ankle movement during physical activity, yet transient effects at the knee are not always considered, and may increase injury risk due to improper joint mechanics. The purpose of this study was to assess the effects of ankle bracing techniques (ABT) on knee angles during the landing phase of single-leg hop (SLH) tasks. Fifteen subjects participated in this study. Reflective markers were applied to the participants' lower extremities and trunk, and tasks were captured using a 3-D motion analysis system. A control was performed in a non-braced condition for the SLH tasks, with an ABT applied (white tape, lace-up brace, and kinesio-tape) during subsequent sessions. Participants performed a SLH task from five different starting positions. Peak knee angles ($^{\circ}$) were observed for joint rotations during the landing phase. A multivariate analysis of variation (MANOVA) was performed to examine the main and interaction effects of ABT and SLH direction. Results exhibited no significant differences for the main effect of ABT. For the effect of SLH direction, minimal knee flexion demonstrated significant differences for the lateral compared to anterior, anteromedial and medial directions. Maximal external knee rotation displayed significant differences for the lateral compared to the medial direction. The results indicate that ankle bracing does not significantly alter joint mechanics at the knee, whereas SLH direction does have an effect on knee angles during the landing-phase. When considering the prevention and probability of knee injuries, attention to the direction of the movement performed is an important factor.

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Body Mass Index of Registered Sex Offenders in Florida and Victim's Age

Amy Crawley; Lakshmi Prayaga; F. Stephen Bridges

Faculty Project

Exercise Science and Community Health

Are overweight sex offenders or predators (or both) more likely to prey on minor victims than adult ones? Fish (2006) reported that rape or assault criminals have significantly higher BMI scores than do perpetrators of other crimes like murder or property offenders. The purpose of the study was to explore the possible associations(s) between BMI categories for RSOs, i.e., underweight/normal/ overweight/obese, and

victim's status as either a minor or adult. Separate analyses were conducted for 'less violent offenders, 'more violent' predators and then both combined, i.e., RSOs. Online data for a sample of 23,778 RSOs were downloaded from the Florida Department of Law Enforcement's Sex Offenders and Predators registry as of February, 2015. Results for a Pearson's Chi-Squared test was significant ($p < .001$) indicating an association for the BMI categories and minor-age status. Overweight RSOs and overweight offenders accounted for the majority of minor-aged victims. When sexual predators alone were examined the Chi-Squared coefficient was not significant ($X^2 = .75$). Nonetheless, overweight predators still accounted for the largest number of minor-aged victims compared to the other BMI categories. These findings lend support for the relationship between overweight RSO's being more associated with minor victims, specifically in the case of less violent offenses. Further research in this area should be replicated across other states to expand the generalizability of the findings.

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Quantification of Gait Patterns in Unilateral Lower Extremity Amputees with Prosthetic Assistance

Nicole Davis; Mariel Crawford; Stuart McCrory

Faculty Mentor: Eric Greska

Undergraduate Student Project

OUR Funded Project

Exercise Science and Community Health

Mobility is an important aspect of an individual's quality of life and their ability to accomplish basic activities of daily living. Aside from congenital amputees, other causes leading to lower-extremity amputations can be diseases such as diabetes, cancer, peripheral vascular disease, and trauma. Though advanced resources have made significant technological improvements with prostheses, there still remains an opportunity to improve the quality of movement after one has been fitted with a prosthesis. It takes perseverance and determination to fully adapt to an artificial limb in hopes to achieve the basic biomechanics of a natural gait. Unfortunately some amputees can develop an asymmetrical gait, causing subconscious modifications, leading to underlying musculoskeletal abnormalities. The objective of this research is to analyze gait patterns of amputees with a lower-extremity prosthesis over multiple sessions to either identify any adjustments that can be made or to ensure the participant is remaining consistent. Participants will be qualified using a questionnaire to determine each individual's specific conditions. Research sessions will be conducted bi-weekly over a six week period. A 16-camera 3-D motion tracking system will be used for the gait analysis; electromyography sensors will be used as accelerometers for each limb and pressure sensors on each foot will be used to determine weight distribution.

The findings of this study will represent the similarities and differences between each amputee and their prosthetic models, and will be helpful in assisting clinicians to determine best practices when designing patient-specific prosthetics.

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The Physical Health Benefits of Living Within Close Proximity to Outdoor Recreational Areas: A Retrospective Cross-Sectional Analysis from Florida

Daniel Drost; Reynaldo Valdez; F. Stephen Bridges

Faculty Project

Exercise Science and Community Health

Recreation providers currently identify outdoor recreation space exposure as a cost-effective public health initiative because of the associated health benefits (Blanck et al., 2012). A county-level analysis for determining these potential associations is appropriate as results add to an existing body of literature which does not include proximity effects on health risk factors. Specifically, this study examines the association between proximity to outdoor recreational areas (parks and trails) and health lifestyle indicators that can be predictors of premature death (overweight and obesity).

Methods: This study utilized a retrospective, cross-sectional research design in which data were drawn from secondary sources for a county-level analysis. Specifically, proximity to parks and trails were used as independent variables, overweight and obesity were dependent variables, and mean county household income was a covariate.

Results: Partial r correlation analyses were conducted within seven urban classification systems. Significant correlations for park proximity were found within the all-Florida counties, metro counties, and counties with population 250K-1M classifications. Trail proximity was not correlated to overweight or obese BMI percentages within any classification.

Discussion: For residents of Florida, living within a half-mile of parks appears to be significantly related to health risks associated with obesity. Close proximity to parks also appears to be connected with being overweight. Attempts to delineate whether county classifications explained these all-Florida county relationships were inconclusive. Ultimately, this study demonstrates that parks provide health benefits to Florida's adult residents. Developing future budgets for state recreational facilities and increasing park services will impact health, particularly obesity.

59

The Rate of Suicide by Drowning and the Presence of Inland Fresh Waters

Sara Dyehouse

Faculty Mentor: F. Stephen Bridges

Doctoral Student Project

Exercise Science and Community Health

Suicide is the act of taking one's own life by intentional self-harm or self-inflicted injury. In 2012, there were 2,964 suicides in FL. In 2012, 440 Florida residents drowned. In 2011, five percent of drowning deaths and non-fatal hospitalizations combined were suicides. There is a paucity of studies investigating suicidal drowning. Some researchers have reported that the availability of lethal mechanisms for suicide increases their use for suicide. Another study on suicidal drowning in south Florida has not supported such a view despite the relative abundance of water (Davis, 1999). Florida has over 2.5 million acres of fresh water available in the form of lakes, rivers and streams, springs, man-made canals, ponds, reservoirs, springs and wetlands. With this much freshwater, the availability or presence inland water within many Florida counties provides ample opportunity for a suicidal person to drown themselves. The purpose of this study was to explore if inland fresh water area by county is associated with the average age adjusted rates of suicide by drowning. Water area in both acres and square miles were available for 42/ 66 counties. Union County was excluded with its large prison population. Age-adjusted rates of suicide by drowning were averaged for 2007-2012. The presence of inland fresh waters was negatively associated with the rate of suicide by drowning (Spearman's Rho = $-.34$, two-tailed, $p < .03$). The negative coefficient was not in the direction expected. Future research may wish to employ additional water area measures.

60

Effects of a Commercially Available Energy Drink on Reaction Time, Cortisol, and Isometric Strength in Healthy College Students

Claire Errington; Youngil Lee; Mariel Crawford; Stuart McCrory

Faculty Mentor: Eric Greska

Graduate Student Project

Exercise Science and Community Health

Ingestion of caffeine, especially in an already withdrawn state, has been shown to increase firing of neurons in the brain, thus increasing attention and visual-motor performance as well as enhancing isometric strength and endurance. Further, excessive consumption of caffeine has been shown to elevate concentrations of salivary cortisol (SC). Little research is available on certain caffeine supplements claiming

to enhance mental energy and focus while being a source of long-lasting energy, raising the question of validity as numerous commercial energy supplements exist today that provide the same or nearly the same amount of energy but have more sugar and calories. The purpose of this study is to analyze the effects of a commercial energy supplement on reaction time, SC, and isometric strength in students. Subjects will arrive for testing in a caffeine-fasted state (none for 24 hours prior) and consume a non-caffeinated control beverage or an energy drink, followed by a 30-minute waiting period, as this is the time designated for the beverage to take effect. Subjects will then perform unilateral isometric strength tests, a reaction time test, and have saliva samples taken for SC concentration assay. After a washout period subjects will report back to the laboratory for a second testing session using the beverage opposite of the first test. Distribution of beverages will be double blind to avoid bias. It is hypothesized that the energy drink will improve reaction time and isometric strength and will also increase SC concentration.

61

Gait Abnormality: Intervening for Injury Prevention

Jessica Evans; Katherine McLelland; Michael Greene; Mariel Crawford;

Charles McCrory

Faculty Mentor: Eric Greska

Undergraduate Student Project

OUR Funded

Exercise Science and Community Health

Gait abnormalities often occur secondary to deeper-rooted issues and are a common predisposing factor for injury. Ranging anywhere from an ill-fitting shoe to developmental pathology, influences on gait patterns appear frequently throughout the population. With abnormal gait recurrently leading to both acute and chronic injuries, prevention strategies should be implemented through the use of intervention protocols. The specific aim of this study is to analyze a participant with a known gait abnormality biweekly throughout a six week time period to examine the progression through an intervention protocol. The participant will run for thirty minutes, three times a week with intermittent bouts of specific focus on gait correction. Spatial and temporal components of gait will be quantified with the use of a three-dimensional motion capture system and electromyography. The intent of this study is to alter abnormal gait pattern over time through the use of an intervention strategy and potentially decrease the likelihood of future consequent injuries.

65

Yoga for Youth

Ashlie Fitzsimmons; Jordan Rolin; Blake Nobles

Faculty Mentor: Christopher Wirth

Undergraduate Student Project

OUR Travel Award Recipient

Exercise Science and Community Health

This poster presentation will provide a recap of an activity based, teaching presentation that was given at the Share the Wealth Conference in Jekyll Island, GA. During the session, participants actively learned yoga routines that could be easily adapted for appropriate age groups and skill levels. The objective of the presentation was to encourage the incorporation of yoga into the lives of students. If taught at an early age, yoga can assist with learning balance and weight transfer skills through safe and controlled movements. In addition, yoga will benefit older students by teaching them controlled breathing exercises that may serve to reduce stress and improve overall flexibility.

The specific areas that we addressed in the presentation were:

- Strength training through held poses that create a stronger core thus stimulating good posture;
- Flexibility that improves performance and reduces sport related injuries;
- Balance, coordination, and motor development promoting greater body and spatial awareness.

This session featured demonstrations and discussion by presenters and active participation by the audience. Strategies and techniques for appropriate age groups and learning abilities were presented and included balancing activities that lead up to modified poses, as well as terminology, and examples of ways to structure classes. Each pose was described, demonstrated and performed by session participants as well as the audience. Readily available resources were provided for instructors via Youtube, a children's yoga website describing pose benefits, as well as a picture book of pose demonstrations.

66

The Relationship of Isometric Strength and Eccentric Movement on Jumper's Knee Pain and Lesion Size

Sami Kara; Stuart McCrory; Mariel Crawford

Faculty Mentor: Eric Greska

Undergraduate Student Project

OUR Funded

Exercise Science and Community Health

As individuals progress through puberty, their bones and muscles are undergoing rapid growth and development.

Males grow more rapidly in a shorter span of time, and this strenuous growth on the knee can lead to the development of Osgood-Schlatters disease. In post-pubescent males, Osgood-Schlatters is referred to as Jumper's Knee. Almost any task that requires constant and brisk turns (i.e. acceleration, cutting and landing) will increase the chances of experiencing Jumper's Knee. Chronic throbbing and sharp pains on the superior tibia as well as referred pain throughout the knee joint are impairments due to Jumper's Knee. These pains tend to limit individuals from performing at maximum effort and will continue to cause chronic discomfort. It is the specific aim of this study to determine if a relation exists between lesion size, pain, muscle strength, and knee muscle activation and movement patterns during eccentric landing amongst those suffering from Jumper's Knee. The 16-camera Vicon 3D motion tracking system, Delsys Trigno electromyography (EMG) system, Delsys Trigno Force transducer, and the Kistler force plate will all be used in this study to collect and process the data. A series of tests will be conducted for data collection and will include measurements of lesion size, pain sensitivity, isometric strength in each leg, and single-leg hop. The findings within this study may allow clinicians to determine and implement more effective treatments for those suffering from Jumper's Knee, allowing for pain-free physical activity and increased participation in activities of daily living (ADL).

67

Can Chronic Electrical Stimulation Mimic the Effects of Endurance Exercise?

Sarah Lanning; Charles Springer; Insu Kwon; Ludmila Cosio-Lima;

Youngil Lee

Faculty Mentor: Youngil Lee

Graduate Student Project

SCAC Funding Project

Exercise Science and Community Health

Autophagy is an essential catabolic process by which damaged proteins and dysfunctional organelles, such as mitochondria, use to maintain normal cell function. Exercise has been reported to induce autophagy to remove cellular cargos and improve insulin sensitivity. However, these important exercise-mediated health benefits will not be available for those who are limited in performing the activities of daily livings (i.e., injuries). Currently, electrical stimulation (ESTIM) has been used as a key therapeutic strategy in many clinical fields, although, exact mechanisms of how ESTIM mitigates pain and enhances recovery from muscle damages are unknown. In this regard, we hypothesized that ESTIM would mimic exercise-induced autophagy through which damaged proteins are quickly removed, therefore expediting the healing process. Methods: Five healthy female subjects, aged 18-24 years were recruited from

the current University of West Florida student population. Muscle samples were obtained from the quadriceps muscles via needle muscle biopsy. We examined the levels of autophagy proteins (i.e. LC3-II, p62, Beclin-1, Atg7, and BNIP3) by Western blotting. Results: Our results showed that ESTIM significantly increased autophagy flux evidenced by increased LC3-II and decreased p62 proteins compared to non-ESTIM ($p < .05$). Interestingly, a pivotal autophagy protein, Beclin-1 and autophagy rate limiting protein, Atg7 were both significantly decreased compared to non-ESTIM ($p < .05$), while BNIP3 protein, a strong inducer of autophagy, was upregulated compared to non-ESTIM ($p < .05$). Conclusion: Taken together, our findings show that ESTIM, similar to endurance exercise, promotes autophagy flux and reveals that ESTIM-induced autophagy occurs in a Beclin-1 independent pathway (non-canonical pathway).

68

Cardiac Kinetophagy Coincides with Activation of Cell Survival Signaling

Youngil Lee; Ludmila Cosio-Lima; Insu Kwon

Faculty Project

Exercise Science and Community Health

Autophagy, a conserved catabolic process is essential for maintaining normal cardiac cell function. Growing evidence has shown that endurance exercise is a strong inducer of autophagy in various tissues. However, the exact mechanisms responsible for exercise-induced cardiac autophagy remain unclear. Given that exercise facilitates cell survival signaling, known to antagonize autophagy but promotes autophagy, we investigated whether acute Kinetophagy occurs independent of canonical autophagic pathway (mTOR). C57BL/6 mice were randomly assigned to either endurance exercise (EE: $n=7$) or control sedentary group (Con: $n=7$). After acclimatization, mice were trained for 60 min on a motorized treadmill at 12m/min on a 0% grade. Hearts were excised immediately 1-hour post exercise and homogenized for Western blot analyses. We found that EE promoted Kinetophagy flux (an increase in the ratio of LC3-II to LC3-I, levels of LC3-II, and a reduction in levels of p62) without alterations in Beclin1, but with an increase in Atg7, compared to the sedentary group. We also observed that EE increased LAMP2 and cathepsin L, which are linked to termination of autophagy, and that that EE augmented potent inducers of autophagy (i.e., AMPK phosphorylation, BNIP3, and HSP70). Moreover, we found that exercise-mediated BNIP3 overexpression is associated with hypoxia inducing factor-1 α (HIF-1 α). Intriguingly, in contrast to the canonical autophagy pathway, we found for the first time that Kinetophagy coincides with mTOR activation. Our findings reveal that acute EE induces Kinetophagy in a Beclin1 and mTOR independent manner and that EE-induced activation of cell

survival signaling does not interfere in Kinetophagy flux.

69

The Effects of an Acute Bout of Intense Cycling in Hot and Cold Environments on Cytokine and Autophagy Protein Production in Neutrophils

James Lewis; Eric Greska; Ludmila Cosio-Lima

Faculty Mentor: Youngil Lee

Graduate Student Project

SCAC Funded Project

Exercise Science and Community Health

This study tested the hypothesis that high-intensity endurance exercise would induce synthesis of heat shock, cytokine, and protective cellular proteins in the human neutrophil. Nine healthy, recreationally-active males (ages 21-24) performed 30 min of vigorous (70% of VO₂max) cycling exercise for two separate testing sessions in an environmental chamber. Blood samples were drawn on three separate time points (pre-exercise, post-exercise, and one hour post-exercise). Neutrophils were isolated from the whole blood samples, treated and prepped for western blotting analysis. Heat shock protein 70, NF-κB transcription factor, TNF-α, LC3, and Ubiquitin proteins were quantified by western blotting. Friedman's two-way ANOVA was performed on levels of HSP-72, NF-κB, LC-3, TNF-α, and Ub, and no significance was established ($p = 0.725$, $p = 0.654$, $p=0.497$, $p=0.098$, and $p=0.825$, respectively).

70

Student and Non-Student Female Victims of Rape and Sexual Assault, 1995-2013

Svetlana Mett

Faculty Mentor: F. Stephen Bridges

Graduate Student Project

Exercise Science and Community Health

A plethora of legal statutes have been enacted and reauthorized since 1964 regarding sex discrimination, sexual assault, and violence against women. However, sexual assaults on and off-campus continue to be reported in the news media. The present study explores possible associations between type of rape or sexual assault victimization and type of post-secondary enrollment status of female students and non-students 18-24 years of age (college-age) over a 19 year time period from 1995-2013. The average annual population for these female students was 5,130,004 and 8,614,853 for non-students. A Pearson's Chi-squared coefficient was significant ($p < .001$). Among students the type of victimization percentages for completed rapes, attempted rapes, sexual assaults, and threats of rape or sexual

assault were 33%, 25%, 31%, and 11%, respectively. These percentages were generally fewer than for those for non-students except for attempted rape. Among non-students the type of victimization percentages for completed rapes, attempted rapes, sexual assaults, and threats of rape or sexual assault were 40%, 24%, 28%, and 8%, respectively. Visual inspection of these estimates of the average annual numbers of completed rapes committed against female students and non-students were 10,237 and 26,369, respectively. In sum, the victimization percentage for completed rape was lower for college-age female students than for non-students.

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Fitness Games for the Fitnessgram

Jonathon Przybylek; Chad Eckert

Faculty Mentor: Christopher Wirth

Undergraduate Student Project

OUR Travel Award Recipient

Exercise Science and Community Health

This poster presentation will provide a recap of an activity based, teaching presentation that was given at the Share the Wealth Conference in Jekyll Island, GA. Participants were informed on a variety of fun and creative activities that can be used in all class settings for students K-12. Moreover, these same activities were expected to provide lifetime fitness as they can easily be utilized in a home setting. Furthermore, these activities were designed to help improve Fitnessgram scores, by addressing fitness components such as cardio respiratory fitness and muscular strength.

During this session, it was addressed that there is a limited amount of time in physical education classes and it is sometimes problematic for every student to participate and attain the same results in class. By adding these games to the current physical education curriculum, students are expected to improve their overall fitness without cutting into an already busy schedule. These activities can be used in any school grade and do not require multiple people so that the student can do them by him/herself at home. The activities presented included equipment that is already available in most physical education settings, or can be acquired at very little cost. Some of the basic equipment that were used included jump ropes, cones, tape and hula-hoops. These activities can help increase Fitnessgram scores because each activity focused on specific components, as well as combined components.

In these activities, participants were expected to:

- High and low crawl under rope
- Navigate through obstacles
- Hula hooping to advance to the next stage

This session featured quick demonstrations of the activities listed above and was followed by audience participation.

In addition, participants were provided details and set-up procedures to most effectively utilize time, equipment and student participation. Age appropriate modifications were addressed and examples were provided for skill adaptations. Additional information such as handouts were provided to include necessary equipment needed.

72

Variation of Rates of Registered Sex Offenders with Latitude and Longitude in Florida Counties

Lesley Sommerville; Lakshmi Prayaga

Faculty Mentor: F. Stephen Bridges

Doctoral Student Project

Exercise Science and Community Health

Research and Advanced Studies

This study explores potential associations between geographic coordinates and registered sex offenders across 67 Florida counties. Knowledge about registered sex offenders can empower communities and facilitate crime prevention, the basis of current sex offender registries. According to the National Center for Missing and Exploited Children, as of December 14, 2014, some 65,153 of Florida's estimated 19.5 million residents are registered sex offenders. The rate of sex offenders of 347 per 10,000 Florida residents exceeds the national average of 262 per 10,000, including territories. The rate of sex offenders by county (as of February 9, 2015) was correlated with: (1) the latitude of the county seat of each of the 67 counties, and (2) the longitude of the county seat of each of the 67 counties. The rate of registered sex offenders varied with latitude ($r = 0.59$, $p < 0.01$), with a higher rate of registered sex offenders in the northern Florida counties. The rate of registered sex offenders varied with longitude ($r = -0.48$, $p < .01$), with a higher rate of registered sex offenders in the western Florida counties. Findings have implications for approaches to ecological research and social policies pertaining to registered sex offenders. Future research should consider measures of poverty, housing values, residential stability, and ethnic heterogeneity as potential correlates of registered sex offenders in Florida counties.

73

Proximity to Healthy and Fast Food Sources and Obesity among Middle and High School Students and Adults

Debra M. Vinci; F. Stephen Bridges; Patsy Barrington

Faculty Project

Exercise Science and Community Health

The State Surgeon General of Florida identified overweight and obesity as the number one public health threat in Florida. Sixty five percent of adults in Florida are at an unhealthy weight (BMI of 25 or greater) with 14.7% of adolescent

overweight (≥ 85 th and < 95 th percentile BMI by age and sex) and 10.3% obese (≥ 95 th percentile by age and sex). Healthiest Weight Florida, a public-private collaboration of state agencies, non-profits, and communities, has identified five obesity prevention strategies. One recommended environmental change strategy focuses on increasing access to healthy food and beverages.

The study examines the relationship between community access (proximity) to healthy food sources and fast food restaurants and obesity among middle and high school students and adults across Florida counties. Data for most of the years between 2010-2013 were available for Florida counties for the following variables: percentage of population that live within a $\frac{1}{2}$ mile of a healthy food source and a fast food restaurant; and percentages of middle and high school students and adults who are obese.

Across all Florida counties, findings offer no support for those reported in the extant literature, i.e., that obese adolescents and adults would have increase access to fast food sources and decrease access to health food sources. This could be related to the many factors that contribute to an individual's overall weight. Future research should focus on the impact of other built environment factors such as roadway safety and walkability of counties.

74

Lifelong Play: Developing Skills for Popular Beach Games

Brittany West; Kaitlyn McGee

Faculty Mentor: Christopher Wirth

Undergraduate Student Project

OUR Travel Award Recipient

Exercise Science and Community Health

This poster presentation will provide a recap of an activity based, teaching presentation that was given at the Share the Wealth Conference in Jekyll Island, GA. Participants learned and were involved in a series of lead- up games that promote lifelong physical activity. These games are easily adaptable to a wide variety of environments, such as indoor and outdoor settings that can be done at the school, at home, or on the beach. In addition, these activities require limited equipment and can also be modified for any age group and skill level.

The session featured a short- discussion and audience participation in an assortment of target based games utilizing skills such as underhand tossing and disk throwing. These activities were first presented at a beginner skill level and progressed to the more recognized parent games. Age appropriate variations were also discussed.

Skills that were addressed included:

- Hand- eye coordination
- Accuracy

- Precision
- Underhand throwing skills
- Disk throwing skills

The session also included brief descriptions and demonstrations followed by audience participation. Each activity was set up, described, and then demonstrated with volunteers. In addition to explaining the games, presenters provided details on how to build and set up the games on a limited budget. A handout was also provided including the equipment modifications.

75

Pre-Service Teachers' Feedback Preferences

Christopher Wirth; Daniel Drost; John Todorovich

Faculty Project

Exercise Science and Community Health

Pre-service teachers are in need of support during their early lesson presentations. Providing beginning teachers with immediate feedback is an effective strategy for improving instructional teaching strategies. This study looked to determine pre-service teacher's attitudes about immediate feedback as compared with other feedback delivery strategies.

Method: Undergraduate pre-service teachers taught three, four-lesson units. The researcher provided teachers with three different types of feedback (no feedback, feedback immediately following a lesson, and feedback during a lesson). The delivery of the feedback was conducted via electronic mail and via mobile technology (two-way radio with in-ear headphones).

Analysis/Results: Semi-structured interviews were used to determine reactions to each feedback delivery and feedback timing. Students reported a higher preference to electronic feedback provided at the completion of each lesson. While the immediate feedback was found to be beneficial, the delivery via two-way radio was found to be distracting and complicated and was the least favorite form of feedback. The no-feedback frustrated students, but did lead to self-reflective strategies and development of peer feedback.

Conclusions: The results of this study indicate that pre-service teachers desire feedback. While feedback provided during the lesson was found to be helpful, the delivery of the feedback was distracting and disrupted the flow of the lesson. Further use of this technology may improve this form of delivery, possibly with the use of pre-determined cues and redirection that would require less cognitive distraction.

97

Pipe Dreams

Paul Glass

Faculty Mentor: James Miklovich

Undergraduate Student Project

History

The year was 1858 and something was rotten in the city of London, England. A smell that was overpowering enough to stop the indefatigable parliament in its tracks. It was the great stink of London, and it was a problem that was long in its creation, and even longer in its solution. The project starts with the first idea for the sewers, goes to the great stink and the various ideas to solve it, and finishes with one of the most ambitious and forward thinking plans ever to come out of a public works project. These sewers set the precedent for public health and sanitary conditions and spurred other nations to build sewers of their own.

113

The Hammer of the Witch

Shawn Mallory

Faculty Mentor: Marie Champagne

Undergraduate Student Project

History

Witches, sorcery, and magic have long been of interest in the mainstream media and devices to capture interest and sell TV shows, movies, books, as well as cult based memorabilia since the early 1970's. The entire occult fascination has grown into full-fledged religious institutions and followers. Many scholars and researchers have done full-blown academic research into the events at Salem and a museum has been erected in the in Massachusetts to both honor the lives lost and create tourist revenue to capitalize on the questionable past of their forefathers. What plenty of bandwagon fans and Wiccan worshippers do not know is that the entirety of the mass murders and false accusations of Salem had already played out and ended in the same bloody loss in Europe just 10 years earlier. In this presentation I will be examining the Malleus Maleficarum or Hammer of the Witches; a medieval handbook for identifying, trying, and killing those accused of witchcraft.

119

Golf Package Marketing Plan

Erica Enriquez

Faculty Mentor: Xuan Tran

Undergraduate Student Project

Hospitality, Recreation, and Resort Management

My project is a marketing plan to present a golf package to add onto a hotel reservation. This package would include

club and ball rentals along with tee time reservation and transportation to the course. No hotels in the area offer a package like this and it would be a great asset to any hotel.

120

Marketing Plan for Hotels in Pensacola

Rylee Hart

Faculty Mentor: Xuan Tran

Undergraduate Student Project

Hospitality, Recreation, and Resort Management

When tourists come to visit our beautiful, white sandy beaches, they all do one thing in common: they all take pictures! My idea for this marketing plan is to offer customers a complementary, professional, and beach photography shoot. I would increase the room rate and then tell them about their offer. It would be best to block at least two hours each day for these sessions and have the guest sign up for their photo shoot. After their pictures are taken they would receive a print out version. This would include the hotel or a part of the hotel around the edge of the picture. This way they have a preview what their picture looks like and then they will have the option to order a bigger package with more pictures.

The main hotels on the beach that would be viewed as competitors are Hampton Inn Pensacola Beach, Margaritaville Beach Hotel, Hilton Pensacola Beach Gulf Front, and Holiday Inn Resort Pensacola Beach Gulf Front. I would promote my idea to these competitors because I feel as if they have the best properties to take the pictures on and I think that their guests would pay the price to enjoy their family pictures. I equally think that these hotels have the same SWOT in regards to my idea

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Customization of Hotel Room Amenities

Dylan Lucius; Ngoc Van Khanh Phung; Thanh Tam Ngo

Faculty Mentor: Xuan Tran

Undergraduate Student Project

Hospitality, Recreation, and Resort Management

We were asked to come up with an idea to increase revenue in a hotel in Pensacola, particularly Inn Is Free hotels, and then create a marketing plan for the idea. Our idea is to allow customers to be able to customize what amenities are available in their room and other minor things like the color of the quilt and possibly the color of the chairs for a fee of around \$5 per room. As far as we could find there has not been any hotel that has attempted what we are proposing, however there are other parts of the hospitality industry that have used a version of this idea to great success, particularly pizza places and Burger King. We think the easiest way to go about actually implementing the customization ability

would be on the website of the Hilton on the beach, and then the changes would be put on the list for the housekeepers to actually do the things requested. At this time there is not any data on whether or not people would like and use this service, but we think it is a good idea and would definitely take advantage of it if we were going on vacation and needed a hotel room.

122

Importance of Environment for the University of West Florida

Shauna Sanders

Faculty Mentor: Xuan Tran

Undergraduate Student Project

Hospitality, Recreation, and Resort Management

The purpose of this study is to examine the relationship between personality traits and building design. For the pilot test, students in Dr. Tran’s Hospitality Planning and Design class ranked design preferences of the UWF student housing buildings. Each student also took the Big 5 (OCEAN) personality traits survey. The Big 5 survey looks at openness, conscientiousness, extraversion, agreeableness, and neuroticism (OCEAN). (McCrae & John, 1991) The regression analysis shows: Pace Hall scored highest among personality traits Openness and Conscientiousness with a score of .31. Argo Hall scored highest among personality trait Openness with a score of .32. Village West scored highest among personality trait Agreeableness with a score of .22. Village East scored highest among personality trait Agreeableness with a score of .55. Heritage Hall scored highest among personality trait Conscientiousness with a score of .71. President’s Hall scored highest among personality trait Conscientiousness with a score of .72. Southside Village scored highest among personality trait Extraversion with a score of .72. Martin scored highest among personality trait Conscientiousness with a score of .31. The conclusion of this analysis is students who are curious (openness) prefer Pace Hall and Argo Hall. Students who maintain good grades (conscientiousness) prefer Pace Hall, Heritage Hall and Martin Hall. Students who love to have fun (extraversion) prefer Southside Hall. And, Students who are friendly (agreeableness) prefer Village East and Village West.

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The Winter Assembly in the Land of Summer

Dean DeBolt
Faculty Project
SCAC Funded Project
Library

Known as the Winter Assembly in the Land of Summer, the Florida Chautauqua was founded in 1884 at a meeting with John H. Vincent in the Athenaeum at the New York Chautauqua and held annually in DeFuniak Springs, Florida through 1920. This Great Southern Chautauqua was one of the longest-running Chautauqua and influenced the Gulf Coast region in the town of DeFuniak Springs, Florida. This poster exhibit will showcase its history and research on it and its founder Wallace Bruce, whose papers and records are held by the University Archives and West Florida History Center, John C. Pace Library.

123

Deliberately Confusing Students: A Project on Organizational Behavior

Kristie Abston
Faculty Project
Management and MIS

Students in MAN 3240, Behavior in Organizations, are pushed out of their comfort zones by completing an ambiguous, open-ended team project. The project requires students to apply what they have learned in the course to create a product that represents their comprehensive understanding of the course content. With minimal instructions, students further develop creative confidence and management skills by working with others to develop a satisfactory project. Completing the project facilitates a very dynamic experiential learning experience as the students learn more about everything covered in the course from the role of individual characteristics and communication to conflict resolution and leadership. This research-in-progress uses experiential learning approaches, self-efficacy, and creative confidence to explore how to drive students to become more confident and comfortable with unclear, ambiguous problems like those they will face in their careers.

124

Investigation on Mobile E-Business Solutions in the Pharmaceutical Industry

Chia-Ying Tsai
Faculty Mentor: Jun Wei
Masters Student Project
SCAC Funded Project
Management and MIS

The purpose of this paper is to investigate the impacts of mobile technologies on electronic business (e-business). Specifically, it first proposes a mobile value chain model for the pharmaceutical industry by investigating the mobile technology adoption for value chain in the pharmaceutical business. Second, a set of mobile e-business solutions are derived based on the developed mobile value chain model for the pharmaceutical industry. In particular, this paper divided the mobile solutions into four categories, including business to business, business to customers, customers to business, and business to internal to analyze the relationships of items on mobile applications and mobile value chain in the top 20 pharmaceutical companies. Third, the implementation pattern of the twenty dominant global pharmaceutical companies is analyzed. The findings show that the leading companies implemented more mobile technologies in their business. The results suggest that the pharmaceutical companies should keep adopting new mobile technologies in their value chain to improve efficiency, reduce cost, and enhance their competencies.

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Assessment of Student Memo Assignments in Management Science

**Julie Ann Williams; Randall Reid; Maxwell Rankin;
 Christopher Hill; Katie Rosa; Claudia Stanny**
Faculty Mentor: Julie Ann Williams
Faculty Project
Management and MIS

Previous researchers have focused on instructional approaches and assessment of student model formulation. However, few researchers assess student writing about their model formulations. This paper presents an analysis of the model building and writing of 88 participants, undergraduates taking a management science course over 2010 to 2013, who wrote about their models through memo-based homework assignments. These memo-based assignments are intended to help students develop the skills labeled words to numbers when students define the problem in a business memo and build the model, and the skill labeled numbers to words when students write a business memo to communicate a recommendation based on their

model. Students were introduced to the memo format during the first week of class and given multiple opportunities to practice and receive individual feedback through memo-based homework assignments distributed through the term. The results indicate that average student homework grades for the modeling portion were higher than average student homework grades on the memo portion in which the students wrote about their model formulations. These results led the authors to add formal instruction early in the course with whole-class feedback describing common errors students make during trouble shooting and how to fix both modeling and writing errors. The proposed approach will benefit students in many areas. It should lessen the struggle students experience with model building, reduce the number of modeling and writing mistakes on future work, and help students learn to find and correct their own modeling and writing mistakes.

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All for One, One for All: Country of Origin Image, Brand Concept and Vertical Line Extension’s Effects on Brand Image Perceptions among U.S. Consumers

Helena Allman; Anton Fenik; Felicia Morgan

*Faculty Project
SCAC Funded Project
Marketing and Economics*

This study contributes to a larger research project examining the interactive effects of micro country of origin image associated with product’s country of manufacture, brand concept, and vertical line extension type on brand image perceptions after brands introduce new products in their existing product categories. Results of scenario based survey experiment with U.S. consumers in the automobile product category show that post-extension brand image varies based on different levels of these three factors. Specifically, the study advances our understanding of country of origin image effects by demonstrating that manufacturing in a country with both overall and category specific favorable image does not always improve brand image evaluations. Micro country of origin image may mitigate or exacerbate negative brand image effects associated with a downward vertical line extension. Implications for theory and practice are discussed.

134

Net Effects: Consumer Social Media Responses to a Product Quality Shock

Hannah Bowling; Felicia N. Morgan

*Faculty Mentor: Richard R. Hawkins
Masters Student Project
Marketing and Economics*

In this paper, we examine consumer responses, via social media, to a product quality shock. Specifically, we look at how Facebook users initially responded to several celebrity cancellations for the 2015 Pensacon event and how those attitudes shaped later responses to good news and to the event itself. This research is important for any marketer using social media for positive and negative announcements.

135

Calling the Neo-tribes: Creating an Experience with Linking Value At Pensacon

Richard R. Hawkins; Felicia Morgan

*Faculty Project
Marketing and Economics*

Members of consumer neo-tribes seek products and services primarily for their linking value, their ability to foster social connections and interactions. Marketers can succeed in creating linking value for neo-tribes by astutely identifying and calling the tribes and by providing a platform on which tribal members can construct tribal identities, connect with others, and demonstrate their shared devotion for important objects, brand, places, and practices. When an offering creates linking value, its likelihood of success and longevity is enhanced. This study examines how the organizers of Pensacon, a fan con for aficionados of various media-oriented genres such as sci-fi and fantasy, created linking value for attendees and provided a platform for the various neo-tribes of fans to demonstrate their shared devotions and enhance their tribal identities. Findings of an empirical study are presented and discussed.

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Collaborating with Industry Partners: Utilizing Student Consulting Teams to Solve Real-World Business Logistics Problems

Josue Rosales; Scott B. Keller; Stephen LeMay

*Faculty Mentor: Scott B. Keller
Graduate Student Project
OUR Funded Project
Marketing and Economics*

In today's hyper-competitive business environment, companies must leverage their capabilities in supply chain and logistics management to help improve their capabilities and processes associated with the acquisition, movement and storage of materials and finished goods inventory. The ultimate goal must be to provide high quality logistics services at the lowest total logistics cost.

UWF Supply Chain Logistics Management students and faculty have partnered with several Pensacola area businesses (Lewis Bear, QMotion, and Avalex) and one other company (Saab-Barracuda) outside of the region. Together, students, faculty and business partners are solving real-world fundamental supply chain and logistics issues. The process requires student interaction with professionals and business operations in the field. Moreover, students utilize live data from each business partner to help analyze specific issues and render alternative solutions.

Each industry partner issue is documented as a business logistics case study. Each study requires documenting the processes involved in the issue, identifying and evaluating the qualitative and quantitative data pertaining to the issue, and the outcomes of each comprehensive analysis. The ultimate goal is to provide students with opportunities to solve real-world business problems that they may face during their initial years of working in the industry and providing business partners with student/faculty expertise in analyzing and providing viable solutions to business logistics issues.

The live cases will be utilized across the core Supply Chain Logistics Management courses for classroom education of fundamental supply chain and logistics management concepts, computations and issues.

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Organizational Learning through Marketing Analytics in Healthcare

Sherry Hartnett

*Faculty Project
Marketing and Economics*

There is widespread recognition of organizational learning and its importance to organizational performance and innovation. Recent research suggests that the use of analytics can play a critical role in an organization to enhance its learning ability. This study will examine how organizational learning involving intuiting, interpreting, integrating, and institutionalizing can be facilitated by marketing analytics. Healthcare organizations that are using marketing analytics to adapt to the changes in their rapidly changing environment present a rich context for this study. The study addresses the following research question: How are marketing analytics used to facilitate organizational learning in healthcare organizations? Through the analysis of data collected in a healthcare organization, a conceptual

framework will be developed to help understand how marketing analytics capabilities in the organization are used to facilitate organizational learning. The study will also provide recommendations on how healthcare organizations can enhance organizational learning through the use of marketing analytics, to improve their business performance.

126

Health Care Data Analysis: An Exploration Using Data Mining

Kelsey Garrett

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Masters Student Project
Mathematics and Statistics*

When it comes to patient health care, one decision can ultimately mean the difference between life and death. With many diseases being incurable, it is vital to gather as much information about them as possible so as to aid health care workers in the everyday decisions associated with treatment. When large amounts of information is available but little about the disease is known, as is the case many times in health care studies, one useful tool for analysis is data mining. Data mining is used to identify hidden patterns within a vast set of data. Data mining, specifically classification techniques such as Decision Tree analysis and Naïve Bayesian analysis, can uncover information that could help health care professionals to offer better treatment approaches/options to future patients. We apply these mining techniques to health data.

127

An Application of the Projected Gradient Method to Maximize Horsepower While Minimizing Cost

April Spell

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Mathematics and Statistics*

Most car enthusiasts advocate for the application of every possible performance enhancement available for the improvement of horsepower for their engines. However, in many circumstances financial resources are not unlimited and thus the adoption of every enhancement might not be feasible. It is then vital to determine the best improvements that can be made at the lowest cost. In this presentation, a horsepower model is introduced as a function of four different performance enhancement options. The cost of these modifications is also modeled. We then apply a constrained optimization method, specifically the projected gradient algorithm, with the intent of maximizing horsepower while minimizing cost. To do so, we optimize a special objective

function over a constrained region in 4-dimensions. We then, execute numerical experiments to prove which enhancements have less significance as more emphasis is placed on cost.

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The Effects of Line Dancing on Physical Function and Disability in Older Adults with Mobility Difficulty

Crystal Bennett

*Faculty Project
Nursing*

Older adults with mobility difficulty are at a greater risk for declines in physical function and disability. Line dancing is a popular form of exercise that can be modified and thus feasible for older adults with mobility difficulty. The purpose of this study was to evaluate the effects of line dancing on physical function and disability in sedentary community dwelling older adults with mobility difficulty from baseline to 8 weeks compared to those who did not receive the intervention. An experimental design was used with randomly assigned older adults to either an 8-week line dancing or wait-listed control group. The convenience sample consisted of 23 participants with mobility difficulty (12 experimental and 11 wait-listed control group), ages ranged 65-93. The intervention used simple routines that are used in novice line dance classes. At baseline and at 8 weeks, measures of physical performance, endurance, gait speed, and mobility disability were completed. ANCOVA tests were conducted on each dependent variable to assess the effects of the intervention. The results of this study indicated that 8 weeks of line dancing significantly improved physical function and reduced disability. Results found significant differences by group in physical performance ($p < .001$, $F = 20.50$); endurance ($p < .01$, $F = 12.61$); gait speed ($p < .001$, $F = 18.57$); and mobility disability ($p < .05$, $F = 4.89$).

This is the first study to examine line dancing as an exercise for older adults with mobility difficulty. The results suggest that line dancing twice a week for 8 weeks was enough to improve physical function and reduce disability in older adults with mobility difficulty.

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R.E.D. Light

Holly Dickson

*Faculty Mentor: Crystal Bennett
Undergraduate Student Project
Honors Thesis
Nursing*

According to Dovydaite (2010), it is estimated that traffickers bring 50,000 victims into the United States each year, adding to the 20 million victims who are already part of

the trafficking trade worldwide (Kerry, 2014). The research is significant in the nursing field today because there is a lack of research on the topic of human trafficking, especially research assessing awareness and knowledge nurses have of human trafficking. Many nurses come into contact with trafficking victims without identifying them because they have neither the skills nor the knowledge to work with this population (Isaac, Solak, & Giardino, 2011, p. 2). The research project will assess the awareness and knowledge of nurses in Pensacola, FL. A pre-test and post-test questionnaire will be administered via Survey Monkey and/or in person at local health care settings. After the participants take the pre-test, a Powerpoint will be presented online and/or in person that was developed by the U.S. Department of Health and Human Services and is aimed at increasing awareness and knowledge of human trafficking for health care providers. Following the Powerpoint presentation, a post-test will be administered to assess awareness and knowledge of human trafficking. The data will be analyzed to assess whether the human trafficking Powerpoint presentation increased awareness and knowledge among nurses.

152

Assessment of Moral Courage Across the BSN Curriculum

Ronald Goleboski; Misty Southerland

*Faculty Mentor: Crystal Bennett
Undergraduate Student Project
OUR Funded
Nursing*

Moral courage is lacking in students that are going through various college curriculums. The objective of this research is to bring awareness to the fact that students view academic dishonesty as normal and acceptable but not necessarily ethical (Balik, Sharon, Tabak, 2010). The same study indicated that there is usually a correlation between bad student behavior and bad nursing practices (Balik, Sharon, Tabak, 2010). A separate study concluded that there is a higher rate of cheating and dishonesty among nursing students than any other discipline (McCabe, 2009). To accomplish our objective we will administer a 30 item questionnaire via online SurveyMonkey site. This questionnaire will be administered to pre-nursing, BSN, and MSN students. The questionnaire will be used to assess whether the factors of gender, age, ethnicity, or upbringing correlate to an individual's aptitude to exhibit moral courage. Nursing students will be asked to volunteer and required to read and provide consent prior to participation within the study. The data will be compiled and analyzed to assess which factors, if any, influence moral courage. Our results will be available for presentation at the biennial conference. We hope to identify potential factors that could compromise a student's moral courage and thus their ability to exhibit integrity in the

healthcare arena. The findings could also bring awareness to nursing faculty about individual factors that could influence appropriate student behavior. Ultimately, we would like to begin to determine if implementing a moral courage curriculum will affect outcomes once students transition to the workforce.

158

Nursing Care of LGBT + Populations

Melody Cameron; Kieannah Marshall-Dawson

Faculty Mentor: Crystal Bennett

Undergraduate Student Project

OUR Funded

Nursing

When receiving healthcare, LGBT + populations face many challenges, and nurses generally are not competent on how to treat these populations (Chinn & Shattell, 2014). Being educated on the background of LGBT + populations, evidence based guidelines, and political and ethical issues will show that changes need to be made immediately in the healthcare setting for these individuals (Brown, Jones, & Lim, 2013). Homosexuality has been looked down on throughout history, but in 1973, homosexuality was declared as a mental illness, and less than 0.16% of articles published from 2005 to 2009 focused on LGBT issues (Brown et al., 2013). Through these background issues, practices and outcomes have been considered, such as family dynamics on LGBT populations; the rate of suicide, drug abuse, and sexually transmitted disease for LGBT youth; and the effects of surgery and hormone treatment on the human body (Brown et al., 2013). LGBT youth are less likely to receive healthcare because of harassment they may face (Adelson, 2012). In the last few years, efforts by President Obama, The Institute of Medicine, The Joint Commission, Healthy People 2020, and the US Department of Health and Services have been made (Brown et al., 2013). Resolutions should be established across the country for the lack of education about LGBT populations, such as training nurses and hospital employees about cultural competent care, providing students with diverse clinical placements where they can interact with LGBT patients and interest groups, and creating individual care plans for LGBT patients (Brown et al., 2013).

159

Promoting a Culture of Patient Safety by Measuring the Impact of Nursing Simulation (SIM) Education Augmented by Use of iBeacon Technology

Lela Hobby; Jill Van Der Like; Lesley Sommerville; Janusz Chudzynski;

Robert Hoyt; Carla Thompson

Faculty Project

Nursing

This quasi-experimental study examines the impact of two (2) 15-minute education presentations and an iBeacon technology system to monitor student nurses' (SN) progress during their simulation (SIM) lab experience. The following three research questions are considered:

RQ1: Does the iBeacon technology promote reliable care and culture of safety when instructing SN's to (a) always practice hand hygiene before and after patient care; and (b) always verify patient's identity?

RQ2: Is there a difference in the mean cognitive and affective outcomes of SN's who have utilized iBeacon SIM lab experiences as compared with SN's who have not utilized iBeacon SIM lab experiences?

RQ3: Does the iBeacon technology within an enhanced SIM lab used in the preparation of SN's improve the efficiency, proficiency, safety, and quality of patient care of SN's?

Data Collection: For convenience, 100 students were pre-assigned to either an experimental iBeacon SIM group, or a control SIM group that did not use the iBeacon technology. All students received the same education during the first two (2) SIM labs, and took pre-and post-knowledge tests and perception surveys.

The SIM lab data included: (1) data collected from the iBeacon technology of critical hygiene and patient identification activities performed by SN's, and (2) data collected by research observers viewing video-tapes of the critical activities performed by SN's within the SIM laboratory.

Findings: This is an ongoing research project involving students that will be completed by spring 2015. Descriptive statistics will be presented of the pre-and post-knowledge test and pre-and post-perception survey.

160

The Effect of Video Game Playing on Overweight/Obese Adolescents with Autism Spectrum Disorders

Brandy Strahan

Faculty Project

Nursing

This study tested the effects of video game playing on overweight/obese adolescents with autism spectrum disorders (ASD) using a multiple baseline single subject design. The sample included four overweight/obese adolescents aged 12-17 years with autism spectrum disorders. Data on weight, body mass index (BMI), waist-to-hip ratio, tricep skinfold were collected weekly in the participants' homes over the 12 weeks that they were playing the inactive and active video games. In order to determine the effect of video game playing on stress and anxiety, the Stress Survey Schedule for Individuals with Autism and Other Pervasive Non-Developmental Disorders (SSS) and the Behavior Assessment

System for Children Second Edition (BASC-2) were collected pre and post intervention. The Therapy Attitude Inventory (TAI) was used to determine parental perception of video game playing as a socially valid intervention to reduce stress and anxiety. Results demonstrated that active video game playing slowed and/or reduced weight and BMI. Waist-to-hip ratios and tricep skinfolds remained relatively unchanged. Stress and anxiety results had no significant changes across all categories but did reveal some improvements in internalizing problems. Yet, parents perceived video game playing as a socially valid intervention in reducing stress and anxiety. Although preliminary, this study demonstrates how alternative methods for physical activity can be utilized to improve health outcomes of overweight/obese adolescents with ASD and suggests directions for future research.

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Reliability and Validity Study of the iBeacon Technology for Use in Hand-washing and Patient Identification Activities in Nursing Education Simulation Laboratories

**Janusz Chudzynski; Lela Hobby; Jill Van Der Like;
Lesley Sommerville; Carla Thompson; Robert Hoyt**

*Faculty Project
Nursing*

This study focused on examining the reliability and validation of the use of iBeacon technology application for appropriately prompting student nurses (SN) in the acquisition and use of critical hygiene and patient identification activities within a simulation clinical laboratory environment.

Data Collection: The data collection involved procedures delivered from two sources: (1) data collected from the iBeacon technology recordings of critical hygiene and patient identification activities performed by SN within a simulation laboratory and (2) data collected by research observers viewing video-tapes of the same critical activities performed by SN within the simulation laboratory environment that were taped at the same time the iBeacon technology was in use and recording.

Findings: These findings provide empirical justification for the validation of the iBeacon technology as a viable tool for monitoring and prompting specific patient safety activities: (a) hand-washing completed within the first few seconds the SN entered the simulation patient's room ($r = .75$ and $r = .85$, respectively); (b) checking of patient's identification after completion of hand-washing ($r = .77$ and $r = .77$ respectively); (c) hand-washing by the nurse prior to leaving the simulation patient's room ($r = .84$ and $r = .70$, respectively); and (d) the length of time the nurse was present within the simulation patient's room ($r = .74$ and $r = .77$, respectively).

Conclusion: Study findings indicate that the intent of the iBeacon technology to appropriately monitor the hygiene

and safety activities within the SN simulation laboratory is verifiable and validated by the current study.

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Kierkegaard's Influence on the Existentialism of John Clellon Holmes

Lawrence Howe

*Faculty Project
Philosophy*

This essay addresses the question raised by Ann Charters' interpretation of existentialism in the works of John Clellon Holmes. Charter's leaves open the possibility that Holmes, as one of the first novelist of the Beat Generation, was influenced by either Sartre or Kierkegaard. Evidence is presented which argues that Holmes may have started out as a proponent of Sartre's brand of atheistic existentialism but that he later held a position that clearly aligns him with a version Kierkegaard's existential philosophy. The paper applies Kierkegaard's three stages of life and his development of the 'existential categories' to show that Holmes appropriated these ideas into his own thoughts about existentialism. Additionally it is shown that these ideas can be applied to many themes of the Beat Generation Movement as a whole.

143

Langmuir Blodgett Film Development

Ross Goodwin; Joseph Mays

*Faculty Mentor: Aaron Wade
Undergraduate Student Project
OUR Funded
Physics*

Arachidic Acid thin films are created and studied utilizing the Langmuir method in order to obtain a single molecule or monomolecular layer out of a desired substance at an air-water interface. The phase transitions are observed by measuring the surface pressure as a function of surface area. Once a stable Langmuir monolayer has been formed, a multilayer thin (Langmuir-Blodgett) film will be created on a prepared glass slide. The multi-layer film will then be studied using uv-vis absorption/transmission measurements.

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Electronic Resonance Enhancement in Raman and CARS Spectroscopy: Surface Enhanced Scattering of Highly Fluorescent Molecules

Carlos Lawhead

Faculty Mentor: Laszlo Ujj
Undergraduate Student Project
OUR Funded Project
 Physics

Surface enhanced Raman spectroscopy (SERS) is an extremely useful tool in increasing sensitivity of Raman spectroscopy; this technique significantly increases the signal from vibrational resonances which can overcome background fluorescence. Silver nanoparticle coated substrates and silver nanoparticles in solution were used on a variety of fluorescent molecules in order to overcome sample complexities and measure the vibrational spectra. The possible enhancement of SERS using a coherent Raman (CARS) method was investigated, but enhancement factors due to Surface Enhanced CARS have yet to be verified. The instrument used was developed in the University of West Florida Physics Department utilized the second harmonic of a Nd:YAG laser to provide the excitation wavelength at 532 nm and is capable of both transmission and reflection Raman measurements.

145

Exact Diagonalization of a Quantum XXZ Model with Long-Range Interactions

Shanna Muehe; Thomas Gunn; Christopher Varney

Faculty Mentor: Christopher Varney
Undergraduate Student Project
OUR Funded Project
 Physics

Due to the rapid advance of quantum spin simulators in ultra-cold ions, the varying interaction for spin models in two-dimensional lattices have become feasible for experimental exploration for exotic states of collective states of multiple spins. It is particularly interesting for the case of a triangular lattice with antiferromagnetic interaction between spins. When the XXZ spin-spin interaction is uniform and restricted between nearest neighbors, the spins are geometrically frustrated. When the system interaction becomes long ranged, the geometric frustration is lost but the spins are frustrated by the long-range interaction. In the latter case, the underlying orders present in the ground state are unclear and understanding these states in finite spin systems is crucial for the benchmarking of experimental observations. Here, we investigate the quantum dipolar XXZ

model with exact diagonalization to analyze the ground state, order parameters, and excitations and provide a baseline for comparison with experiments.

146

Laser Induced Breakdown Spectroscopy of Metals

Andria Palmer; James Amos

Faculty Mentor: Laszlo Ujj
Undergraduate Student Project
OUR Funded Project
 Physics

Laser Induced Breakdown Spectroscopy (LIBS) is a very practical spectroscopy to determine the chemical composition of materials. Recent technical developments resulted in equipment used on the MARS Rover by NASA. It is capable of measuring the emission spectra of laser induced plasma created by energetic laser pulses focused on the sample (rocks, metals, etc.). We have developed a Laser Induced Breakdown Spectroscopy setup and investigated the necessary experimental and methodological challenges needed to make such material identification measurements. 355 and 532 nm laser pulses with 5 ns temporal duration was used to generate micro-plasma from which compositions can be determined based on known elemental and molecular emission intensities and wavelengths. The performance of LIBS depends on several parameters including laser wavelength, pulse energy, pulse duration, time interval of observation, geometrical configuration of collecting optics, and the properties of ambient medium. Spectra recorded from alloys (e.g. US penny coin) and pure metals will be presented.

79

Note-taking Strategies: All Notes are not Created Equal

Jarrell Brown; Tyler Cox; Jacob Entinger; Anna Kieffer; Ronald Belter

Faculty Mentor: Lisa VanWormer
Undergraduate Student Project
 Psychology

Mueller and Oppenheimer (2014) recently found that participants answered more questions correctly following a 15 min lecture when participants took notes longhand rather than on a laptop. The results suggested students might do better in a course by taking notes with paper and pencil. However, in many college courses, students are not simply listening to lecture, they may also be provided with PowerPoint slides. These slides may be complete (i.e., not missing information) or partial (i.e., missing important information that the student needs to complete throughout lecture). Furthermore, students may print these slides out prior to class or may choose to view the slides on a laptop during class. Our study examined the interaction between

type of provided material (complete or partial) and strategy of note-taking (handout or laptop). Finally, we also examined the effect our variables may have on both content questions as well as conceptual, or applied, questions.

80

Introduction to OpenSesame: Overview and Analysis of Software and Experimental Capabilities

Maylin L. DiRienzo

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Undergraduate Student Project
Psychology*

OpenSesame is an open-source experimental software program designed to ease the creation and administration of psychological experiments. It is capable of running in all major platforms and can be used to collect and record data, as well as integrate the use of various plug-ins for such tasks as eye tracking and serial response. While there are other experiment builders available (e.g., E-Prime), OpenSesame uses new, proprietary technology to provide a cost-effective fully graphical user interface (GUI). This allows for an increase in accessibility across many areas of research and many different skill levels (e.g., undergraduates, graduate, faculty). This presentation will include an in-depth analysis of OpenSesame's various features, as well as an example of psychological stimuli that can be created and analyzed.

81

Spirituality & Grit

Margeaux Donovan

*Faculty Mentor: Vanessa Rainey
Masters Student Project
Psychology*

The purpose of this exploratory project will be to obtain a better understanding of why certain people develop higher levels of grit (i.e., perseverance) than others. The current project will explore possible correlations between spirituality (a wider construct compared to religiosity) and grit (i.e., perseverance). While there is much evidence that grit leads to positive outcomes such as academic success, we do not yet know the precursors or contributing factors to the development of grittiness. Spirituality may be one of these causal factors. In order to measure the construct of Grit, the Grit Scale will be utilized (Duckworth & Quinn, 2009). In order to obtain a spirituality score, the Intrinsic Spirituality Scale will be included (Hodge, 2008). The Intrinsic Spirituality Scale is a measure that was adapted by Hodge (2008) from a measure of intrinsic religion in order to assess the related but broader construct of spirituality as it relates to motivation. Lastly, the Big 5 Inventory will provide a measure of various personality characteristics.

82

Cognitive Constructs Contributing to a Psychomotor Tracking Task

Rebecca Fosha

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Masters Student Project
Psychology*

Psychomotor assessment tasks that require the use of one or both hands in tracking a target or keeping a target moving have been shown to be predictive of individual performance in training for complex vocations such as aviation. Consequently, many military branches utilize psychomotor tracking tasks when selecting personnel for complex jobs. Predictive relationships have also been shown between performance in training and cognitive measures such as general fluid intelligence, reaction time, and spatial reasoning. The present study seeks to better understand the relationships between general fluid intelligence, working memory capacity (WMC), reaction time, and a psychomotor tracking task similar to one in use by the U.S. military today. A sample of university undergraduate students completed a multiphase psychomotor tracking task (including spatial reasoning and dichotic listening tasks), a matrix reasoning task, a WMC span task, and two reaction time tasks (simple and choice). Correlations between all measures are expected, however we anticipate that relationships between matrix reasoning and spatial orientation, WMC span task and dichotic listening, and reaction time with tracking tasks to be stronger than other relationships, based on previous research and the shared cognitive demand of these tasks.

83

Orientation, Identity, and Body Positivity

Monika Hauck

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Undergraduate Student Project
Psychology*

Psychological literature suggests strong correlations between body image and disordered eating/eating disorders among women. Although some studies suggest that sexual orientation is irrelevant to women's body image, sexual orientation identity is not generally firmly established until late adolescence into early adulthood while exposure to social norms surrounding body type preferences are reinforced from the time one is born. Existing research on body image among queer women (e.g., lesbian, bisexual, pansexual, etc.), especially closeted queer women, is limited. A convenience sample of women of all sexual orientations were invited to participate in an anonymous, online study measuring demographic background characteristics, sexual orientation,

internalized homophobia, perceptions of societal pressure for thinness, eating behavior, and body image preferences. $N = 538$. Study results will compare heterosexual and queer women, as well as older and younger women, with regard to perceptions of societal pressures for thinness, body image preferences, and eating disordered behaviors. Study results will also examine correlations between outness and internalized homophobia and body image preferences and perceptions of societal pressures for thinness among queer women. These results will allow for greater understanding of the body image needs and eating disorder tendencies of queer women. Implications for future research will be discussed.

84

The Effectiveness of Auditory and Tactile Cross-Modal Cues in a Dual Task Visual and Auditory Scenario

Kevin Hopkins; Lisa Blalock

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Masters Student Project
Psychology*

The ability to perform simultaneous visual and auditory tasks is a common requirement of our everyday lives. However, the reality of finite attentional resources often limits our ability to perform one or both tasks effectively. One potential solution for improving task performance is to utilize augmenting cross-modal cues. For example, when performing a visual search task, an auditory cue is received detailing the location of the search target within the display. For visual tasks, the auditory and tactile modalities are the most often utilized for cross-modal cueing and generally result in comparable levels of improvement on visual tasks. However, considering the frequency in which individuals perform visual and auditory tasks simultaneously, the inclusion of a secondary task should be investigated in order to study how it affects the relationship between the primary task and cross-modal cues. In this study, we will examine how spatially informative auditory and tactile cues influence participants' performance of a visual search task, while they simultaneously perform a secondary auditory task. Tactile and auditory cues will provide information regarding the approximate location of the visual target within the search display. Task performance will be assessed using the reaction time and error rate of participant responses on the visual search task. The tactile modality is an often underutilized channel and has been demonstrated to be an effective medium for relaying spatial information. Therefore, we hypothesize that cross-modal tactile cues will yield lower reaction times and error rates for visual search responses in comparison to auditory cross-modal cues.

85

Mobile Phone Dependency and Distracted Driving

Alex Jarstad; Lisa VanWormer

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Masters Student Project
Psychology*

Current driving laws regarding mobile phone use focus on regulating the risk of distraction for the inexperienced driver and limiting the use of mobile phone features that require greater levels of physical interaction (e.g., texting or browsing the web while driving). However, with mobile phone use becoming more prominent, many individuals are developing a dependence on mobile phones that may impair driver attention. Park (2005) defined mobile phone addiction as exhibiting effects of tolerance and withdrawal, such as paying larger phone bills to get more talking time or growing anxious in the absence of one's mobile phone. It is possible that restricting mobile phone use while driving may lead to distraction for these dependent individuals. To test this possibility, an experiment was constructed to measure performance on a driving simulation task before and after participants received a phone call which they were restricted from answering. In addition to driving performance, mobile phone dependence, attitudes on risky behaviors, boredom proneness, and working memory capacity will be assessed. It is expected that higher levels of mobile phone dependence will be associated with poorer performance on the driving simulation task. Furthermore, the driving performance is expected to decline for participants in the experimental group after receiving a phone call that they were not allowed to answer. The results will be compared to the control group who did not receive the phone call manipulation.

86

Cognitive Failures in Driving Questionnaire Evaluation

Tiana X. Kaestner-Scott; Joseph Rodriguez; Lisa Pes

*Faculty Mentor: Steven Kass
Undergraduate Student Project
Psychology*

Cognitive failure is described as a trait that makes one prone to errors of attention on everyday tasks (Broadbent et al., 1982). Broadbent et al.'s (1982) Cognitive Failures Questionnaires (CFQ) was developed to measure this trait. Allahyari et al. (2008) found that scores on the CFQ significantly predicted self-reported driving error scores in professional taxi drivers. Kass, Beede, and Vodanovich (2010) found CFQ scores to be positively related to attentional lapses and negatively related to reaction time in a simulated driving task. Allahyari et al. (2008) expressed the need for a driving-oriented cognitive failure scale in order to help identify error prone drivers. The purpose of this study is to examine

created newly developed Cognitive Failures in Driving questionnaire (CFDQ). We propose a two part study which will include both self-reported and driving simulation data collection. The first experiment of this two part study will require the participants to complete the CFDQ and a survey of self-reported driving performance (e.g., number of tickets, accidents). The second experiment will assess the participants' driving performance using a driving simulator; recording the type and frequency of disruptive driving occurrences. In this portion of the study, drivers will perform under distracted and normal conditions in order to identify whether high CFDQ individuals are particularly susceptible to performance errors under distracted conditions. By testing the CFDQ in both self-reported and simulated conditions, we hope to better understand and identify error prone drivers.

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Serial Recall in a Divided Attention Task

Heather Lutkins; Lisa VanWormer

Faculty Mentor: Lisa VanWormer

Undergraduate Student Project

Psychology

One unique feature of working memory is that information is retained in a phonological format; that is, information is stored based on how the word sounds (Baddeley & Hitch, 1974). This results in the finding of the phonological similarity effect, which is decreased recall for letters that sound the same because the phonological code of one interferes with the phonological code of another. This study examined the interaction between the phonological similarity effect and two secondary tasks, articulatory suppression and tapping.

88

Reciprocity and the Likelihood to Accept Charity: The Moderating Effects of Gratitude

T'kara Mullins

Faculty Mentor: Rodney Guttman

Undergraduate Student Project

OUR Funded

Psychology

Approximately \$260 billion is donated to charity to over 1.5 million nonprofit organizations in the United States. While the context in which people give and ways to increase charitable giving have been investigated, little attention has focused on why people accept charity. Previous research suggests that reciprocity is a variable in the acceptance of charity. The theory of Reciprocity claims that people are most likely to respond parallel to the behavior that they receive. However, research has shown that reciprocity may

cause individuals to refrain from accepting charity in order to avoid feeling obligated to reciprocate the action. In addition, gratitude may be involved. Gratitude is defined as the experience of positive emotions or recognition of a positive benefit due to an action by another. The current project tests the hypothesis that individuals with high gratitude will be less likely to behave under reciprocity norms as they recognize the benefits of accepting help from others. The objective of this study is to evaluate the extent to which an individual's overall level of gratitude moderates the relationship between reciprocity and the acceptance of charity. Participants will complete both a measure of overall gratitude and reciprocity. To further address this putative interaction, we developed a novel measure in which participants will be presented a scenario indicating that they have been a victim of identity theft and will be asked of their likelihood to accept charity from different sources. These results of this study will assist charitable organizations more effectively distribute their resources.

89

Nutrition As Medicine

Elizabeth O'Connor; Rodney Guttman

Faculty Mentor: Rodney Guttman

Graduate Student Project

Psychology

The first two weeks after inpatient hospitalization are the most critical in forming the basis of a patient's optimal recovery. The level of care within the critical period also mediates the likelihood of hospital re-admittance, particularly for older adults with chronic illnesses. Importantly, proper nutrition has been shown to be a key element of patient success, especially among older adults. The objective of this study is to evaluate a patient-centered home-delivered meals program designed to improve nutritional intake for decreasing patient readmission. This project will focus on older adults recently discharged from an inpatient facility that are high risk for food insecurity. The present study is a wait-list design. The participants will be referred to the study by their healthcare provider, upon identification as nutritionally at-risk. For the intervention group, the researchers will provide 10 days of three nutritionally balanced meals, delivered every three days to the participant's place of residence, plus educational information about diet and nutrition. The control group will receive the nutritional information and then receive 10 days of food 45 days post-hospitalization. The researchers will assess the incidents of hospital re-admittance for the intervention group and the control group for differences attributable to proper nutrition post-hospitalization, via self-report measures.

90

Money as a Moderator? Examining the Relationship Between Working Hours and Work-School-Life Outcomes

Sadie K. O'Neill; Anna-Maria Colombaro;

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Graduate Student Project

Psychology

The next generation of workers will be the first to see the majority of mothers working full-time outside of the home (Bosco & Bianco, 2005). Because more families consist of two working adults, the relationship between working hours, income, and work-family conflict is an important facet of this shift in the workforce. Researchers have recently examined structural contributions (e.g. income, age, gender) to work-family conflict. Previous studies have found income to moderate the relationship between work hours and work interference with family (WIF; Ford, 2011). Lower income families may experience more WIF while working long hours due to lack of childcare resources or family strain. The current study expounded on previous research by including school as a third domain, which may introduce more conflict due to increased time and financial demands. We collected data from 137 undergraduate students working at least 10 hours per week while enrolled full-time. We used the Baron and Kenny (1986) approach to test if individual or household income moderated the relationship between hours worked and work-school-life outcomes. The hypotheses were partially supported. Moderation was not present. However, we found significant main effects of hours worked per week on work-school conflict and work-school enrichment. Students experienced conflict with school when working more hours, yet hours spent on the job also enriched the school domain. Interpretation of these results, along with limitations such as range restriction, will be discussed to guide future research.

91

Why Don't You Cry about It: A Study of Emotional Gender Expressions and Their Role on Traffic Violators

Michael Rotch; Jared Van Dam

Faculty Mentor: Valerie Morganson

Graduate Student Project

Psychology

Gender differences exist in the interpretation of emotional responses. According to Crester et al. (1982), men are less approving of crying behavior than women. The purpose of this study is to examine the relationship between participant gender and the effect of crying during a traffic stop on whether the participant thought the ticket was justified. The participants, 17 men and 54 females, read a vignette

about a traffic stop in which the offender in the traffic stop either cried or did not cry and was either male or female. Then, a questionnaire assessed participants' beliefs about the offender and situation. We examined how the participants' beliefs about the justification of the ticket varied as a result of participant sex and whether the offender cried or did not cry. The data were analyzed using a factorial ANOVA. Men judged tickets as more justified when the offender cried and women judged tickets as less justified when the offender cried. These results imply that men judge emotional expressions, such as crying, more harshly than women. This could have far reaching implications because women, who regularly emotionally disclose more often, could be hindered by displaying their emotions more.

92

The Effects of Gender and Race on Customer Sexual Harassment Labeling

Casilda Ruiz; Stephanie Brown; Ruthie Christie; Ashley Patterson; Valerie Morganson

Faculty Mentor: Valerie Morganson

Undergraduate Student Project

OUR Funded

Psychology

Thousands of workplace sexual harassment charges are filed every year in the United States and countless other instances go unmentioned. In service industry jobs, many employees experience customer sexual harassment (CSH). CSH is a term used to describe a variety of harassing behaviors inflicted upon a service industry worker by a customer. We expected to find significant differences in how individuals label their CSH experiences based on gender, as well as race. Because of the nature of service work, many employees who are sexually harassed do not label their experiences as sexual harassment. Labeling is whether or not a person defines their experience as sexual harassment. In the current study, data were gathered on the predictors (i.e., CSH behavior, gender, and race) and the outcome (i.e., labeling). Each participant worked for a minimum of 10 hours per week in a customer service position (N = 237, 16% men). A regression analyses revealed an interaction between race and CSH behavior in the prediction of labeling. While the association between CSH and labeling was significant regardless of race, minorities were more likely to label their CSH experiences as sexual harassment. The more severe the CSH behaviors were, the more likely a person was to label his/her experience as sexual harassment. Surprisingly, gender was not found to be a significant predictor of sexual harassment labeling. These results indicate that one's minority status and the severity of a CSH experience both increase the likelihood that customer service employees will label their experiences as sexual harassment.

93

Meta- Analysis of Art Therapy Benefits for children with ASD or Depression

Melissa Sandino

Faculty Mentor: Vanessa Rainey

Undergraduate Student Project

OUR Funded

Psychology

Art therapy is a technique in which individuals suffering from different ailments, such as depression, can benefit. The purpose of this research project will be to focus on the benefits of art therapy to different populations, to review the empirical literature on the effectiveness of art therapy techniques, and to highlight the empirical linkages between art therapy techniques and individuals with Autism Spectrum Disorder (ASD) and individuals with depression. Past research has documented the effectiveness of art therapy techniques in these individuals. By using different strategies, such as the dancing paintbrush, reflection drawings, stamping, dot coloring, avant guard painting and many others, individuals may be able to use these strategies to cope with difficult situations. Additionally, this literature review will discuss the documented effectiveness of these strategies over time and across individuals' lifespans. This information is important not only to those interested in the field of art therapy, but also to those interested in implementing intervention strategies with students or patients.

94

Do Younger Adults Choose Being Accurate Over Being Positive?

Jeffrey Simmons; Kristine Knowles; Jared Van Dam; Lisa VanWormer

Faculty Mentor: Lisa VanWormer

Undergraduate Student Project

SCAC Funded Project

Psychology

The Positivity Effect, or recalling more positive words than negative words, is often found in older adults (Carstensen & Mikels, 2005). Occasionally, the reverse, or a Negativity Effect, has been found in younger adults. This study examines the role that the type of recall (free recall or recognition) may play in the valence preference of younger adults.

95

When Teens Translate: A Literature Review of Language Brokering in Adolescents

Emily Speed

Faculty Mentor: Vanessa Rainey

Undergraduate Student Project

Psychology

The purpose of this project is to review the literature on language brokering (i.e., translating for family members who don't speak English) and its' effects on the psychological development on children and adolescent brokers. Past research has identified increased levels of anxiety and depression due to the level of stress in translating complex and developmentally inappropriate situations (e.g., Rainey et al, 2014). Stressful situations could include translating banking or legal documents, parent-teacher conferences, and medical conversations. Future research directions in examining these linkages include the possibility of moderation by collectivist cultural values. Collectivist cultures emphasize the connectedness of the family unit and helping promote the survival of the family and larger community. These values could potentially buffer the adverse psychological effects of language brokering.

96

Categorical Distinctiveness and Object Binding in Working Memory

Kyle Weichman

Faculty Mentor: Lisa Blalock

Masters Student Project

Psychology

The present study investigated the effects of higher-level knowledge on consolidation in visual working memory (VWM) by varying the similarity of subsequently viewed stimuli along categorical dimensions. To-be-remembered items and masks were taken from categories controlled for perceptual distinctiveness and distinctiveness in kinds (e.g. there are many kinds of cars and few kinds of coffee mugs). Participants completed a change detection task in which the memory array consisted of exemplars from either a similar or distinctive category, which was followed by a mask array of items from either the same category or a category not included in the memory array at varying time intervals. The results showed greater interference from conceptually similar masks as compared to the other conditions, with effects found for both conceptual and perceptual distinctiveness. An interaction between categorical distinctiveness and stimulus-onset-asynchrony (SOA) approached, but did not reach, significance, indicating that the effect of mask type on consolidation is still uncertain within these experimental

parameters. Implications for visual working memory and models incorporating long-term memory connections (e.g. Baddeley, 2000; Cowan, 1999; Oberauer, 2002) are discussed.

148

Modelling Risk of Depression in Men and Women Who Served on Active Duty in US Armed Forces: Results from the 2012 BRFSS

Audrey Thacker; Enid Sisskin; Anthony Okafor; Justice Mbizo

Faculty Mentor: Justice Mbizo

Masters Student

Public Health, Clinical, and Health Sciences

Mental health problems such as depression have significant ramifications for both physical, emotional and functional abilities of the affected. The purpose of the study is twofold: 1) estimate the prevalence of depression among men and women who served in the United States Armed Forces, and examine the role of gender and marital status in the risk of depression within this population. Methods: Data for Americans ages 18 and above from the 2012 Behavioral Risk Factor Surveillance System (n=59,870) were analyzed using Stata for Windows version 12. In addition to descriptive statistics, we computed Chi-square test of independence to examine associations between the key variable and other confounder, and the dependent variable. Stratified logistic regression models were generated to estimate the risk of depression based on gender and marital status. Results: The mean age for the sample was 64.2 (SD=14.9); comprised of 91.7% males; 5.3% who had depression; and 65% were married. With regard to gender, 13% of males reported depression compared to 2% among women ($p < 0.001$). Men who were not married were 31% more likely to be depressed than married men (OR=1.30; 95% CI: 1.24-1.38, $p < 0.001$). Unmarried women were 20% more likely to be depressed than women who were married (OR=1.20; 95% CI: 1.03-1.39, $p=0.02$). Conclusion: Results suggest that there are significant differences in both the prevalence and risk for depression in the target population. Marriage appears to offer some protection against depression in the study population.

149

CLS Student Participation in Annual Regional ASCLS Student Bowl Competition and Conference

Austin Turner; Rebecca Lee; Rebecca Smith; Michelle Portugal; Rachel Pennington; Teresa Brooks; Wesley Shamp

Faculty Mentor: Katie Cavnar

Undergraduate Student Project

OUR Travel Award Recipient

Public Health, Clinical, and Health Sciences

Clinical Lab Science (CLS) majors earn a degree that prepares them for a career in clinical laboratory settings such as hospitals, clinics, reference labs, blood banks, biotechnology companies, and many other opportunities. To work in these labs, licensure is required and upon completion of graduating from an accredited program such as the CLS program at UWF, the student sits for a national board registry (American Society of Clinical Pathology/ASCP) and receive passing scores to become licensed before they can seek employment.

The American Society for Clinical Laboratory Sciences (ASCLS) is a national organization designed specifically for those in the clinical laboratory sciences. Clinical laboratory scientists (previously called Medical Technologists) benefit from continuing education, advancement of new technology, collaboration and valuable partnerships, leadership, and advancement as health care professionals by belonging to this organization. Students may receive scholarships, career advice, continuing education, directory of job postings nationwide, and the ability to advance their careers through leadership programs. Along with the national organization, there are also regional, state, and local societies.

The students are attending the annual regional ASCLS (MS-LA) meeting in Shreveport, LA. They are competing in a CLS student bowl, an academic competition that pits teams from CLS programs in Florida, Louisiana, Mississippi and Alabama. It is a two day, academic competition that is part of a 4 day conference for clinical lab professionals. They will also be attending different break-out sessions in the different areas of the field of their choosing and several session that are specific for students.

128

Examining Bandura's Social Cognitive Theory Relative to an Application within Business Skills Standards: A Case Analysis

Paul A. Flores

Faculty Mentor: Carla Thompson

Doctoral Student Project

Research and Advanced Studies

Developing a comprehensive literature review based on a theoretical framework is crucial to sound research. This presentation demonstrates a model for preparing a comprehensive literature review. The SCTBS Model emphasizes an analytical process employing Social Cognitive Theory constructs and business skills variables from peer-reviewed references to develop the literature review. The analytical products are: well defined constructs and variables, an understanding of the inter-relationships between these constructs and variables, and a matrix depicting their inter-relationships. The researcher and his or her audience thereby gain a thorough understanding of the theory underpinning a

study and its application to the research question(s).

129

Balance and Strength Training in Older Adults: Impact of a Six-Week Intervention on Balance Related Measures

Rita Lucena

Faculty Mentor: Carla Thompson

Doctoral Student Project

SCAC Travel Award Recipient

Research and Advanced Studies

The purpose of this study included examining relationships between the change in balance confidence, functional mobility, and various measures of balance in older adults after six weeks of balance training only and a combination of balance and strength-training programs. A convenience sample of 34 older adults (>65 years old) was grouped based on their current participation in Balance and Mobility and Strength Training programs held at the University of West Florida: group one [balance training only classes (n = 15)], and group two [balance and strength training classes (n = 19)]. Each participant was measured on two different occasions: before and after six weeks of training. The following balance-related measures were assessed: The Fullerton Advanced Balance Scale (FAB), the Balance Efficacy Scale (BES), and the 8-foot-up-and-go test. The data were analyzed using the paired samples t-test procedure. There were significant differences between pre and post intervention in both groups for BES scores. The Balance training only (group one) scored significantly higher on the FAB ($p < .001$) and the 8-foot-up-and-go ($p < .01$) than the balance and strength training combination (group two). Both groups demonstrated improved balance confidence after the 6 weeks program. The Balance intervention was more effective in improving functional mobility and balance skills than the balance and strength intervention for the study participants. Implication of the study findings for older adults who participate in these types of exercises interventions include optimize their balance performance levels and remain more independent, leading to a better quality of life with reduced risk for falls.

130

Adolescent Homelessness: A Phenomenological Case Study

Carla J. Thompson; Lesley Sommerville;

Nancy Bridier; Maureen Howard

Faculty Project

Research and Advanced Studies

The special population of homeless youth has become an alarming concern within America's educational challenges. Increasing numbers of homeless students in American high schools have prompted educators and researchers to explore

characteristics and considerations of this special group. This research focused on the phenomenon of homeless adolescents within a public school district in the southeast region of the United States. Researchers from a partner university conducted extensive interviews with six homeless high school students to retrieve students' individual stories and their specific perceptions of homelessness. Common threads were compiled using triangulation of original student responses, school district stakeholders' perspectives of homelessness, and pertinent national perspectives on homelessness, while bracketing out the researcher's perspective of homelessness. Findings depict homeless adolescents as mindful of health and nutrition needs, uncertain of self-esteem and future transition considerations, and divided regarding support systems. Implications of the findings focus on the emerging phenomenon of adolescent homelessness.

131

Exploring Stress, Coping, and Decision-Making Considerations of Alzheimer's Family Caregivers

Carla J. Thompson; Nancy Bridier; Lesley Sommerville; Steve Morse

Faculty Project

Research and Advanced Studies

More than 15 million Americans are providing care for a family member with Alzheimer's disease. Family caregivers are faced with highly stressful experiences, using strong coping skills, and implementing critical decisions with little or no knowledge or information and with virtually no preparation or assistance. The need for research efforts to focus on caregiver stress, coping mechanisms, and informed decision-making skills spearheaded a theoretical framework model to study potential relationships between family caregivers' types of stress and coping skills and their decision-making efforts. Constructs of life event stress, role strain, self-concept stress, and coping stress were examined relative to ten priority areas of decision-making identified by the national Alzheimer's Association. A relational ex-post facto research design was utilized. Forty caregivers completed four Likert-scale instruments with data analyzed using descriptive statistics and correlation procedures. Findings indicated varying levels of stress, strong family self-efficacy and coping skills with virtually all variables contributing to critical decision-making.

138-142

At the Movies: A Documentary Photo Essay of the 1960s

Kenneth C. Baker

Faculty Mentor: Susan Jans-Thomas

Doctoral Student Project

Research and Advanced Studies

Cinema in the 1960's, according to Dirks (1996) reflected the decade of fun, fashion, rock 'n' roll, tremendous

social changes (i.e., the Civil Rights Era and marches), and transitional cultural values. The decade of the 1960's was a decade of monumental changes, cultural events, assassinations, and advancements. With movie audiences declining due to the dominance of television, major American film companies began to diversify with other forms of entertainment such as TV movies and the production of TV series. With the high cost of producing and making films in Hollywood and the shrinking of studio size, many studios decreased their internal production and increased movie-making outside the country, mostly in Britain. The purpose of this research is to provide the reader a documentary photo essay of the pop culture, political influence and sexism found in movies during the 1960's.

138-142

The Power of the Fro: The Meaning of the Movement from Relaxed Hair to the Afro

Marsha Barnes

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Doctoral Student Project
Research and Advanced Studies*

Concurrent with the paradigm shift in power for blacks during the 1960's, the time came for African American women to begin questioning the root of hair power: whether to continue with the straight and contrived, or to be happy to be nappy. In this documentary essay, *The Power of the Fro*, the author reveals the power of the Afro, the hairstyle that dared African American women and men to return to their celestial roots and use yet another symbol of power in what it means to be black, happy, and free.

138-142

The Drug Culture of the Sixties

Leslie Cuyuch

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Doctoral Student Project
Research and Advanced Studies*

Drugs were an integral part in helping to form what is known as the Counter Culture Movement. The Sixties were a tumultuous time in American History, and the mentality changed abruptly with the launch of the Russian Sputnik in 1959. Assassinations stirred the nation, and the Vietnam War was the catalyst for the distrust that young Americans felt during this decade. Rebellious young people started a lifestyle very different from the conservative lifestyles of their parents. Acts of rebellion included protesting the Vietnam War, listening to rock and roll music, and living the life of the free spirited hippy. The generation gap began, and one of its manifestations was the use of drugs. There was open

use of marijuana at large outdoor rock concerts and the use of psychedelic drugs referred to as LSD or Acid. This photo documentary essay explores the use of these drugs.

138-142

1960s and the Silent Majority: Richard Nixon and American's who Spoke Without Speaking

Wesley Delaware

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Doctoral Student Project
Research and Advanced Studies*

Richard Nixon's silent majority referred mainly to the older generation (those World War II veterans in all parts of the U.S.) but it also described young people across the country, many of whom eventually served in Vietnam. The Silent Majority was mostly populated by blue collar white people who did not take an active part in politics; suburban, exurban and rural middle class voters. They did, in some cases, support the conservative policies of many politicians. Others were not particularly conservative politically, but resented what they saw as disrespect for American institutions. Many believe that the Silent Majority was Nixon's way of dismissing the obvious protests going on around the country, and Nixon's attempt to get other Americans not to listen to the protests.

My documentary photo essay will, using photographs and text of the 1960s, explore the America that made up the Silent Majority.

138-142

Riots on the Path to African American Equality

Jessica Largent

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Doctoral Student Project
Research and Advanced Studies*

This documentary photo essay explores the 1961 Freedom Riders and associated riots. This series of bus trips throughout the United States sparked national controversy as thirteen young African-Americans started to travel via bus from Washington, DC to the American South (Miller, 1996). Along the way violence ensued as white protestors stopped the riders at their destinations and riots erupted (Miller, 1996). Through photography this essay will demonstrate the violence and struggle witnessed throughout the nation.

138-142**1960's Television: The Faces of Change****Kelly McGaughey***Faculty Mentor: Susan Jans-Thomas
Doctoral Student Project
Research and Advanced Studies*

Television in the 1960's began to open doors and tackle serious issues such as racism, gender issues and politics. As television began to reach a broader audience a need for different programming emerged. From the first televised presidential debate, to the rise in television journalism to women as lead characters on shows, television in the 1960's set the stage to open doors and to challenge the status quo. This photo documentary research paper will examine the role of television during the 1960's and examine the social changes and challenges that were addressed during this era.

138-142**The Role and Influence of Folk Music During the 1960s****Audrey Moore***Faculty Mentor: Susan Jans-Thomas
Doctoral Student Project
Research and Advanced Studies*

The purpose of this documentary photo essay is to explore folk music during the 1960s, focusing on the influence of major folk musicians and their alternative viewpoint for mainstream American culture. The essay will highlight the role of folk music songs during the Civil Rights Movement and the Anti-War Movement, as well as the music festivals and protest songs of the 1960s. This study will feature the story telling lyrics of folk music, and explore how the folk music trend influenced fashion and social change during the 1960s.

138-142**President John F. Kennedy and George Jetson:
Winning the Space Race One TV Ad at a Time****Rustian C. Phelps***Faculty Mentor: Susan Jans-Thomas
Doctoral Student Project
Research and Advanced Studies*

Since the Industrial Revolution, Americans have faced new technologies with a mixture of fear and fascination. After WWII ushered in the Atomic Age, Cold War fears of Soviet missile proliferation were exacerbated by the launch of the Sputnik satellites in the late 1950's. This fear was reflected in American film and a variety of other cultural arenas. Another development to arise from the Sputnik

Crisis, however, was Americans' intensified determination to compete with the USSR in its technological achievements. In 1961, when John F. Kennedy committed America's expanded space program to landing on the moon, Americans assumed a more positive attitude toward space technology. Again, media and popular culture reflected that mood. References to space travel appeared in movies, television, toys, playground equipment, art, architecture, even textiles and housewares. This documentary photographic essay will examine the ways space exploration not only measures the limits of our nation's technological prowess, but also gauges our cultural relationship to technology.

138-142**Documentary Photo Essay - Assassinations
and Murders of the 1960's****Timothy Sowers***Faculty Mentor: Susan Jans-Thomas
Doctoral Student Project
Research and Advanced Studies*

This documentary photo essay highlights the murders and assassinations of the 1960's. Americans were shocked and deeply saddened with the assassination of John F. Kennedy, November 22, 1963. Malcolm X was assassinated on February 21, 1965; Dr. Martin Luther King Jr., April 4, 1968; and Robert F. Kennedy, June 6, 1968. Additionally, Civil Rights Worker, Medgar Evers was murdered outside his home in Jackson Mississippi on June 12, 1963. James Chaney, Andrew Goodman, and Michael Schwerner were murdered in Mississippi during Freedom Summer, 1964. Jimmy Lee Lewis, James Reeb and Viola Liuzzo were murdered in Selma Alabama during the voting rights movement of March, 1965. Later in August, 1965 Jonathan Myrick Daniels, an Episcopal Seminarian was shot in Hayneville, Alabama while protecting the life of an African American girl. Each person was murdered or assassinated for their political work and beliefs during the tumultuous decade of the 60's.

138-142**A Chilling Conflict: The Cold War in The 1960s****John E. Woods***Faculty Mentor: Susan Jans-Thomas
Doctoral Student Project
Research and Advanced Studies*

The end of World War II brought a change in relationship between the United States and the USSR. During the war, both countries fought together to stop the spread of Fascism by defeating Hitler's regime. However, with the United States and the USSR as the prominent world powers, a new conflict emerged: The Cold War.

The term cold war first appeared in an essay in 1945 by George Orwell entitled, *You and the Atomic Bomb*. Orwell used these terms to reference a nuclear threat condition with peace that is no peace. This war would be fought through indirect means of conflict and surrogates.

The Soviet Union gained control of most of Eastern Europe after the end of World War II. In 1946, Winston Churchill described the divide in Eastern Europe as an Iron Curtain separating the East and the West. For the next several decades, the tension between democracy and communism increased. Challenges between the two philosophies were exploited via military conflicts and maneuvers, economics, and space exploration.

This photographic documentary essay focuses on photographic specimens of the Cold War during the 1960s Era. The research question to answer is how do photographs depict the Cold War during the 1960s?

28

Quality of Life among Stroke Patients in the Russian Federation

Victoria Adams; Daniel Durkin

*Faculty Mentor: Daniel Durkin
Undergraduate Student Project
OUR Travel Award Recipient
Social Work*

Research shows that quality of life for stroke patients who have difficulties with activities of daily living can be improved through treatment. Although there is a significant amount of literature on the effects of stroke on daily function and quality of life, most of the published research is based on Western populations. Very little is known about treatment outcomes in non-Western countries.

Using secondary data from the World Health Organization's Study on Global Aging and Adult Health (SAGE) from the Russian Federation we examined the relation between difficulties with activities of daily living (ADL) and quality of life (QOL) in 239 stroke patients when controlling for sex, age, income, and whether or not they had treatment in the last 12 months.

Regression analysis revealed that difficulties with ADLs significantly predicted subjective QOL; however, treatment was not significant. Participants with higher ADL difficulty scores reported lower QOL. Income and age were also significant in that higher income and higher age were associated with higher appraisals of quality of life. Results suggest that participants who reported greater difficulty with ADLs appraised their QOL as lower than those with less difficulty, regardless of whether or not they received treatment in the last 12 months. This suggests that treatment in the Russian Federation may not be effective in improving the QOL of stroke patients. Interestingly, participants who

were older reported higher QOL. This matches research using socioemotional selectivity theory that suggests that older adults are more likely to focus on the positive.

29

Increasing Hospice Utilization in the Pensacola Area: Potential Medicare Savings

Amanda Bolden

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Undergraduate Student Project
Social Work*

Research shows that older adults receive higher quality care under Hospice care compared to hospitalization or nursing home care and this care is also considerably less expensive. For example, the costs for hospital care, nursing home care, and Hospice care per day are \$6,200, \$620, and \$153 respectively. Despite the benefits in quality and cost, Hospice utilization rates at the end of life continue to be problematic. In addition, of those who use Hospice, 35% are enrolled for less than a week despite eligibility of up to 6 months.

Using 2010 Medicare data obtained from The Dartmouth Atlas of Health Care we found that the Hospice utilization rate for the Pensacola area during the last 6 months of life was 57% and that these patients were enrolled for an average of 27 days. The average Medicare expenditure in the 6 months prior to death was \$32,330.

Based on this information, we formulated the following research question: How much cost savings would there be if the Pensacola area increased the Hospice utilization rate by 5% and 10% respectively? If the utilization rate was increased by 5%, Medicare expenditures would decrease by \$1,616 per person. If the utilization rate was increased by 10%, Medicare expenditures would decrease by \$3,233 per person.

These findings suggest that even modest increases in the Hospice utilization rate would lead to significant cost savings for the Medicare program. In addition, these patients would receive higher quality care and most would be cared for in their home.

30

Ability for All!

Samantha Brown

*Faculty Mentor: Kellie O'Dare Wilson
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Social Work*

Many critics, including those who agree with the law's goal, argue that it is a one-size-fits-all approach to education. This is where success stops for disabled children because they do not fit one-size-fits-all. Teachers are so worried about everyone fitting in they do not have time to help

the children that do not fit. With their careers on the line that all children reach this goal the disabled children get over looked. Educators are about high test scores and not a good education. Yes, disabled children do struggle in school but children with disabilities can still learn with different strategies. This is where the education system lacks in the support of slow learners.

Many education systems lower the goals for the disabled children instead of arranging different strategies. Some segregate the children in different classrooms implying they will get special help, when most of the time they just have lower goals. Today you do see many school systems trying the inclusion program allowing children in regular classroom still with goals lowered, not teaching them with learning strategies; with many problems students needing solutions.

This one-size-fits-all approach to education needs to include all. The curriculum should be the same and strategies set for the disabled. Teachers need a higher education on the wide range of learning disabilities and have a one on one conference with psychologist for learning strategies per child. This will help them understand each child and help them reach their maximum potential.

31

The Rut: Working for Minimum Wage and the Violation of Civil Liberties

Zoe Brunner

*Faculty Mentor: Kellie O'Dare Wilson
Undergraduate Student Project
Social Work*

The current minimum federal wage is \$7.25 an hour, resulting in an annualized income of roughly \$14,000 a year, falling short of the federal poverty threshold for a two-person household. Minimum wage jobs are no longer just an outlet for teenagers to make a bit of extra money; less than 1 out of 5 minimum wage workers are under the age of 20. Adults of prime working age are making careers out of minimum wage jobs. Many of these adults are women and minorities who get stuck in the rut. 41 % of women and 47.3% minorities were shown to remain in low wage jobs. Along with the economic, mental and physical health stressors suffered by minimum wage workers, they are at a high risk of having their civil liberties violated. The purpose of this paper is to explore some examples of how low wage earners have had their civil liberties violated at work. For example, a man was fired for refusing to remove a pin that said One Nation Under God, Indivisible. Another employee was fired for liking a Facebook page in support of an opponent of his employer. These violations of the first amendment cause unnecessary tension and stress between employee and employer. Because workers spend large amounts of time at work; they should be able to express themselves freely without the threat of being fired. To remedy

the tension between employees and employers, employers should uphold their employee's first amendment rights in and out of the workplace.

32

From 22 a day to None: Fighting Veteran Suicide with Alternative Treatments

Brandi M. Helmly

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Undergraduate Student Project
Social Work*

To the eye of many civilians, the war in Iraq and Afghanistan is calming down, if not completely over. However, for many veterans that served in combat, the war is still raging, just on a different battlefield. An average of 22 veterans committed suicide every day in 2010. That's a total of 8,030 veterans lost at their own hand, far greater than the 6,030 servicemen and women killed in action during Operation Iraqi Freedom (OIF), Operation Enduring Freedom (OEF), and Operation New Dawn (OND) as of February 2015. The purpose of this project is to focus on the hidden wounds that lead to such a staggering rate of veteran suicides and the alternative treatments available. Post Traumatic Stress Disorder (PTSD) is on the rise, with 10-18% of combat troops diagnosed with the disorder after deployment, and has a high comorbidity with traumatic brain injury (TBI). The co-occurrence of PTSD and TBI have been closely linked to the increase in suicide-related behavior. Unfortunately, because trauma is such a personal battle, there isn't one type of treatment that can be applied across the board. Research shows that cognitive behavioral and prolonged exposure therapies have both been successful in some cases of PTSD. However, it's time to consider the benefits of alternative treatments such as Eye Movement Desensitization and Reprocessing (EMDR), service animals, equine therapy, and hyperbaric-oxygen therapy. It is the duty of the American citizens to show these men and women that their lives matter and they have not been forgotten.

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Service Animals: Helping Those in Need

Ashley Hill

*Faculty Mentor: Kellie O'Dare Wilson
Masters Student Project
Social Work*

One in every four adults suffers from a diagnosable mental disorder. Mental health disorders account for one of the top causes of disability worldwide. This project conducts legislative research exploring Florida Senate Bill 414 (2015) regarding the use of service animals to assist

eligible individuals, including those with mental illness, and the implications on Florida residents. Currently, individuals who meet physical disability criteria are permitted to use service animals in a public accommodation. However, mental illnesses are not currently included. First, the bill proposes to revise the definition of the term disability by adding a mental impairment aspect as defined by the DSM V criteria of the American Psychological Association. Second, the bill would revise the definition of service animal by adding that the animal be trained to help an individual with a psychiatric or neurological disability. Previous research indicates positive effects of service animals on those with mental health issues such as PTSD. For example, service animals can calm an individual with PTSD during an anxiety attack. About 20 out of every 100 veterans have PTSD, and given that Florida has the third largest population of veterans in the nation with over 1.6 million veterans, the passage of this bill could affect many residents. If enacted, this legislation could have a positive effect on the residents of Florida and would greatly improve the quality of life for those with mental health issues in our area.

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Exploring Social Determinants of Health and Health Attitudes Among UWF Students

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Social Work

Social determinants of health are environments that people find themselves in that contribute positively or negatively to their quality of life. Health attitudes are thoughts or feelings about health that are reflected in a person's behavior. Social determinants of health and health attitudes play important roles in overall health and well-being. The goal of this study is to explore how social determinants of health and health attitudes influence health behaviors. This study will analyze the findings from a survey tool administered to students in the University of West Florida departments of Social Work and Psychology. The study will review the aspects of social determinants of health and health attitudes. A comparison among the collected student data and community data provided by the AIM Escambia Peer Education Training Program will be made to show variations in findings between an academic institution and the larger community. Implications for practitioners who work to promote positive health behaviors among young adults in Escambia County, Florida will be discussed.

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Mindfulness Matters: Yoga as an Innovative Holistic Approach to Substance Abuse Recovery

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Masters Student Project

Social Work

Approximately \$366 billion is lost annually through health care spending, crime, and lost productivity due to Substance Abuse and Addiction (SAA). Traditional treatment approaches include medication, behavioral therapy, and residential inpatient programs. Relapse prevention is also implemented in aftercare programs and support groups such as Alcoholic Anonymous and other recovery groups. Although these methods have been proven effective, unfortunately relapse is still possible. SAA relapse rates have reached an average of 40-60%. An innovative approach being utilized in SAA treatment is holistic recovery, focusing on the mind, body, spirit wellness. Yoga is one of these holistic techniques. Through continuous practice of one hour per week, yoga has been shown to have a positive impact on characteristics associated with potential relapse.

PURPOSE: The purpose of this research project is to conduct a study of yoga as one component of a holistic-style treatment approach with a non-representative sample of individuals receiving SAA treatment at a local holistic residential treatment facility. **METHOD:** Participants were selected through a convenience sample to participate in therapeutic yoga sessions. Researchers administered a reliable and valid pre and post rating scale to determine level of stress before and after each yoga session each week for 6 weeks. Researchers maintained participant confidentiality and participants received informed consent. Data were collected and analyzed throughout the period to determine whether the yoga program was effective in reducing stress levels (known to correlate with relapse).

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Grabbing a Bite in the Desert: An Exploration of Food Deserts as a Contemporary Social Issue in Pensacola, the State of Florida, and Beyond

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Social Work

While many Americans are well aware of the importance of diet and nutrition in maintaining health, large numbers of the population residing in urban and rural food deserts are without access to affordable, nourishing foods. Additionally availability of healthy food is now an important public health

concern, as poor nutrition is often related to chronic health problems and shorter lifespans. According to the USDA, there are approximately 23.5 million Americans residing in food deserts, over half of whom are considered low-income. Geographic information systems (GIS) mapping software allows us to visualize and examine aspects of food deserts through the compilation of relevant data including the US Census. Analysis of this data demonstrates both geographical and financial variables, such as supermarket accessibility and SES levels, as being related to determining access to fresh, healthy, and reasonably priced food. Consequently, food deserts are an important social issue which must be explored within the context of human rights and disenfranchised populations. While this research looks at food deserts in general and those within the state of Florida, the primary focus is on food desert communities in Pensacola, FL. The research targets structural power imbalances within our society contributing to Pensacola's food deserts as well as current initiatives to address these important social concerns. In particular, the Fresh Access Bucks program is explored as an effort to increase the accessibility of affordable, healthy food options for low-income Pensacolans and other Floridians. Furthermore, this research analyzes pending food desert legislation in the Florida State Senate.

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12 Step Programs vs. Non 12-Step Programs

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In 2011, 23.5 million people needed treatment for substance abuse. Yet only 2.6 million of them actually received treatment. The 12-step programs (TSP) are a well-known substance abuse treatment protocol, and 30% of those in treatment typically receive 12-step based therapies. However, TSP interventions have limitations, including being based on religious aspects, and some believe this approach may not solve underlying problems. Consequently, alternative treatment protocols exist, such as the Non-Twelve Step (NTSP) programs. Each program applies different forms of therapy to help aid in client recovery. The purpose of this project is to compare and contrast the characteristics of TSP vs. NTSP, paying particular attention to level of efficacy among diverse populations. For example, the TSP was established in the 20th century and is used for a wide range of rehabilitation centers and models. The program uses a combination of steps and a sponsor to help accomplish goals in a nonjudgmental environment. It is frequently used in public healthcare with many populations and cultures. The NTSP model is newer. The research shows that it is more frequently used in private-pay settings. NTSP uses a

holistic aspect, focusing on transforming the mind and body along with evidence-based practices. However, lack of access to NTSP may be an issue, as private-pay programs are less likely to service populations that are in poverty. Therefore, the NTSP programs service the upper class individuals that can pay out of pocket. The Twelve-Step programs and Non-Twelve Step programs essentially yearn for the same thing—sobriety.

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An Exploratory Study of the Glass Ceiling in Academia

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Social Work*

Despite efforts to improve income disparities between men and women, the Equal Pay Act of 1963 has made little progress in ensuring equal pay for equal work. Women continue to earn 23% less than men despite the same professional roles and educational backgrounds. Income disparities widen further among women in minority populations and continue to expand exponentially among low income, less educated women. Economic impacts disproportionately affect women based solely on their gender. Along with initial salary constraints, missed time from work due to gender related circumstances continue to disenfranchise women in comparison to their male counterparts. Pregnancy, maternity leave, and breaks for breastfeeding are unique gender related roles whose responsibilities lie with women. Regrettably these gender specific responsibilities are undervalued, frequently result in loss of pay, and in some cases loss of employment.

While income disparities are well published for women with relatively moderate and low levels of education, the gender wage gap persists even in academia. Regrettably, there is very little scholarly research on income disparities between male and female faculty members. Data regarding public university faculty salaries are available for public review, however there are many variables that strengthen the glass ceiling for female faculty. The purpose of this study is to perform an exploratory analysis of variables influencing the salaries of faculty members in the state of Florida. This study employs a cross-sectional design using secondary data analyses to identify unique variables which impact the gender wage gap between faculty. Data will be obtained through public records and University publications. This study hopes to explore both quantitative and qualitative variables while opening the door for further research.

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But Where Can We Buy an Ounce of Prevention? High Sprawl, Low Access, and Insufficient Consumption of Fresh Fruits and Vegetables In Low-Income Communities

Kellie O'Dare Wilson

*Faculty Project
Social Work*

Low fresh fruit and vegetable (FFV) consumption is one of the top 10 mortality risk factors worldwide, and diet-related deaths accounted for 62% of reported US deaths in 2011. Despite an extensive body of literature extolling the dietary role of FFV, the vast majority of Americans do not meet published guidelines, and those least likely to meet recommendations include people of color and those living in poverty. While reasons for low consumption vary, a growing body of evidence suggests environmental factors outside of personal volitional control as strong predictors. Numerous studies have documented the availability of grocers stocking FFV in poor and minority neighborhoods is significantly less than in more affluent neighborhoods. Retailers that do not offer FFV, such as fast-food restaurants, corner stores, and liquor stores are more heavily concentrated in lower-income neighborhoods.

This study examined the effect of one characteristic of the food environment-- sprawl-- on FFV consumption. The cross-sectional design employed secondary data analysis to quantitatively examine a nationally representative sample (n=122,265). FFV consumption differed significantly by race, education, income, and perceptions of food security. Residents of more sprawling areas consumed significantly less FFV than did residents of less sprawling areas. In addition, residents of more sprawling areas reported more worry over having money to purchase healthful food items, lower perceived general health status, and were less likely to meet physical activity recommendations. This study contributes to the current knowledge base by identifying sprawl as a significant predictor of FFV consumption, net of demographic and economic covariates.

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Exploring Mentoring Considerations of Female STEM Faculty in Higher Education

**Pam Vaughan; Carla Thompson; Maureen Howard; Eman El-Sheikh;
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Kantaros**

*Faculty Project
STEM Collaborative Project*

The use of mentoring new faculty members in higher education has become a common practice within institutions across the United States. Definitions and descriptions of the

term mentoring vary substantially in the literature. This study focused on the practice of mentoring new female science, technology, engineering, and mathematics (STEM) faculty members relative to the characteristics of Kram's Mentoring Theory. In particular, characteristics of psychosocial and career development considerations of Mentoring Theory were explored using quantitative and qualitative research procedures. The overriding research question utilized in the study consisted of the following: What psychosocial and career development considerations are evidenced in mentoring practices utilized within a mentoring program aimed at new female STEM faculty members within a higher education institution? Descriptive statistics from self-reported data using a mentoring instrument designed for mentors and mentees will be presented as well as qualitative responses of the N= 16 pairs of mentor-mentee participants. The results will be presented relative to the alignment to Kram's Mentoring Theory and related literature.

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Practicing STEM through Exploration and Discovery

**Lakshmi Prayaga; Chandra Prayaga; Aaron Wade; Timothy Royappa;
Adam Mooers; James Davis; Andrew Riffle**

*Faculty Project
STEM Collaborative Project*

The millennial generation is heavily dependent on using and consuming technology for all their needs; however very few of them are being trained to make significant contributions to the growth and development of science and technology, one of America's greatest strengths. Current research suggests that contextual relevance and use of technologies such as 3D printing and modeling, robotics, laser and fiber optics communications, mobile app development and other technologies contribute to the increase in student learning outcomes (Khamis, 2006; Whiteside, 2014; Maja, 2007) related to STEM disciplines. Through these technologies, students explore the relevant content using an open inquiry method, a technique shown to increase student comprehension (Garrison, 1999). A team of faculty members from the University of West Florida are working together with undergraduate students to design several projects that foster open inquiry using these technologies by researching on best practices in learning with technology. These projects will be tested at schools in Escambia County. The goal of this effort is to a. provide the teachers and students with the most current assets related to teaching and learning, b. provide undergraduate students opportunities to research on the use of technology and design various projects that have applicability, c. provide undergraduate students the opportunity to develop communication skills (both oral and written) by engaging with the school teachers and students and d. package these projects into a kit that might have

a commercial value. We will demonstrate several of these projects at the conference.

23 Teaching Integers

Heather Jackson

*Faculty Mentor: Giang-Nguyen Nguyen
Undergraduate Student Project
Teacher Education and Educational Leadership*

My undergraduate research includes a further look into teaching strategies regarding integers for pre-service elementary school teachers. The research focuses on finding a better way to teach the lesson activities on a level that the younger students will be able to apply in their own learning every day. Studies have shown that using different models and participation activities in lessons can increase a student's amount of focus and better grasp of the lesson. I want to complete the research to have a better understanding of ways to effectively teach integers. With a better study of teaching a lesson, students in the future will have a better knowledge of the material as well.

select eras through 5 to 8 original designs. This opportunity is a test for myself to showcase everything that I have learned and aspired for in my last 4 years studying at UWF. I hope to use my experience to hold a publicly open fashion show that I believe will make other students who are inspired by fashion design aware of both the resources UWF provides to achieve their dreams and the possibilities being a costume design major can bring. Overall, I want to show people to never give up and always move toward achieving their goals through utilizing the resources around them. Therefore, it is my hope that this project will not only solidify my career and educational development at UWF, but also help me progress in the realization of my dream to enter the fashion industry upon graduation.

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Exploring the Impact of Personality and Learning Context on Students' Motivation to Learn in Mathematics

Giang-Nguyen Nguyen; Barbara Otto

*Faculty Project
Teacher Education and Educational Leadership*

We will share part of the research project investigating the impact of personality and learning context on student motivation to learn in mathematics. We will share our preliminary findings from the analysis of the data that we collected in Germany.

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Fashion Through the Ages

Tiffany Nelson

*Faculty Mentor: Glenn Breed
Undergraduate Student Project
OUR Funded
Theater*

There have been countless times where someone has asked me about my major at UWF, and upon answering their question, I have been shocked to learn that they never knew my major, Design tech (costume design), existed. Ultimately, this is very saddening, but by the use of this project I hope to showcase the opportunities that UWF has to offer. My objective is to make a cohesive contemporary fashion line that will display the influence of fashion through the ages by use of various textures, silhouettes, and color schemes from

