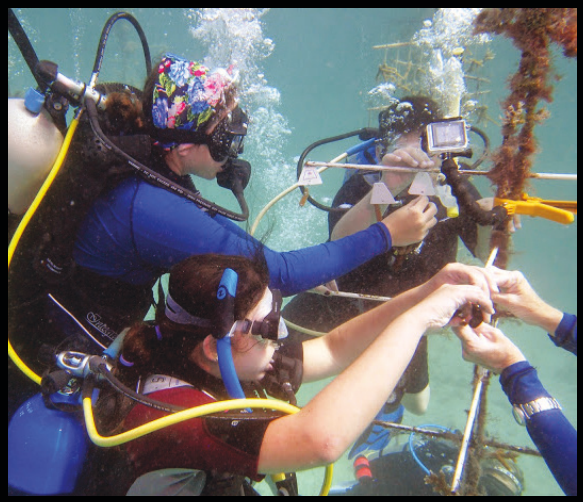
[FEBRUARY 26-27, 2016]

FURC

FLORIDA UNDERGRADUATE RESEARCH CONFERENCE



HOSTED BY THE UNIVERSITY OF TAMPA

CONFERENCE SCHEDULE

[FRIDAY, FEB. 26]

6–8:30 p.m.	Registration and Reception, Vaughn Center, Ninth Floor
7:30 p.m.	Keynote Presentation: Daniel Huber, Ph.D.

[SATURDAY, FEB. 27]

7:30–8:30 a.m.	Registration and Breakfast, Plant Hall Lobby
8:30–9:30 a.m.	Poster Session One, Plant Hall, Fletcher Lounge and Grand Salon
9:45–10:30 a.m.	Workshop Session One
10:45–11:45 a.m.	Poster Session Two, Plant Hall, Fletcher Lounge and Grand Salon
11:45 a.m.–1 p.m.	Lunch, Plant Hall, Music Room Graduate Recruiter Fair, Plant Hall, Fletcher Lounge and Grand Salon
1–2 p.m.	Poster Session Three, Plant Hall, Fletcher Lounge and Grand Salon
2:15–3 p.m.	Workshop Session Two
3:15–4:15 p.m.	Poster Session Four, Plant Hall, Fletcher Lounge and Grand Salon
ALL DAY	Recruiter Fair

WELCOME

ON BEHALF OF THE UNIVERSITY OF TAMPA,

WELCOME TO THE 6TH ANNUAL FLORIDA UNDERGRADUATE RESEARCH CONFERENCE!

FURC 2016 will feature presentations of 374 research projects and involve more than 700 participants from across the state. Your personal contribution to this event is greatly appreciated.

Please make the most of the conference by attending poster sessions, professional development workshops, meeting with graduate recruiters, and networking with students and faculty from more than 30 colleges and universities.

We hope you enjoy your experience at FURC 2016!

Eric Freundt, Ph.D. and Eric Werner, Ph.D.
Conference Co-Organizers

KEYNOTESPEAKER

[**DANIEL HUBER,** PH.D.]

Daniel Huber is an associate professor of biology at The University of Tampa, where he specializes in the biomechanics of feeding and locomotion in cartilaginous fishes (sharks, skates, rays and chimaeras). His lab utilizes interdisciplinary approaches, including biomechanical modeling, force transduction and material science, to infer the mechanical influences involved in the function and evolution of cartilaginous fishes, as well as how biomechanics can be used to improve the state of animal husbandry for captive animals. Huber completed his bachelor's degree in biology at Duke University (2000) and his doctoral degree in biology at the University of South Florida (2006). He teaches a variety of introductory biology courses and ecological physiology, and has been involved in numerous media productions for the Discovery Channel, History Channel and National Geographic.

WORKSHOPABSTRACTS

HOW TO WRITE AN EFFECTIVE PERSONAL STATEMENT

[Jon Gottesman, Ph.D.]
Director, Office of Biomedical Graduate Research, Education and Training
University of Minnesota

Writing the personal statement is often the most stressful part of a graduate school application. This breakout session will provide answers to questions that many applicants have. What are admissions committees looking for? How do I make myself stand out? Examples of statements will be provided to highlight common errors to avoid and good practices to employ. Considerable time will be reserved for questions from attendees.
LOCATION | Vaughn Center, Reeves Theater

RESEARCH JEOPARDY: HOW TO AVOID ENDANGERING YOUR ACADEMIC AND CAREER GOALS

[LouAnne Hawkins, Kelsey Eagen, Christopher Leone and Judith Ochrietor]
University of North Florida

How do you determine if a faculty-mentor might be a good fit for you? What can you do to facilitate a mutually advantageous relationship with a mentor? How do you handle a problematic relationship with a faculty-mentor? Learning to identify, establish, maintain and — when necessary — end a mentor-protégé relationship is invaluable as students navigate a path through academics to a career. Many of us haphazardly plunge into a mentored research experience without thoroughly investigating expectations and obligations. These hit-or-miss affiliations can be beneficial or can be extremely detrimental. Rather than leave this important connection to chance, join us for this Jeopardy style game as we consider ways in which we may enhance our chances of finding an exceptional mentor and examine the best ways to negotiate this complex relationship.
LOCATION | Plant Hall 325

DEMYSTIFYING GRADUATE AND PROFESSIONAL SCHOOL AND THE ACTIVE PROCESS OF APPLICATION

[Richard S. Pollenz, Ph.D.]
Professor and Associate Dean
University of South Florida

What is graduate or professional school, and why would you want to put in another two to six years when you only just completed the undergraduate degree? In this interative workshop, we will break down the answers to these questions and provide action planning documents that allow you to determine if this option should be a priority for you now. Discussion topics include: how graduate school differs from professional school (M.D., PharmD, DVM); the different types of degrees available; what it costs and what the expected return on investment is; how to determine the up-and-coming fields; how to choose a school; how to best market yourself to potential faculty mentors; and the importance of taking an active approach to your admissions. Attendees will be provided an action planning document and will have an opportunity to engage with a speaker who has been a faculty member in higher education for more than 20 years at both a medical school and a major research university.
LOCATION | Lecture Hall A

WORKSHOPABSTRACTS

SUMMER OFF-CAMPUS RESEARCH EXPERIENCES

[Kimberly Schneider, Ph.D.]
Director, Office of Undergraduate Research
University of Central Florida

Summer is a great time to participate in research and there are numerous programs available to students away from their home institution. Summer programs are available at hundreds (maybe thousands) of universities and research institutions. Opportunities are available nationally and internationally and many provide a stipend, travel costs, housing and/or board. Applications open in late fall and deadlines occur from early January through the end of March. Opportunities exist for all majors, but more are available for students in the science and engineering areas. Fall and spring semester opportunities also exist. This workshop will provide an overview of these opportunities, information on how to create a strong application and resources to help students through the process.
LOCATION | Plant Hall 215

STUDENT LEADERSHIP IN UNDERGRADUATE RESEARCH PROGRAMS

[Bailey Hofmann]
CURBS President
University of Florida

Being undergraduate researchers, we are always trying to find a way to stand out and gain more experience with research and leadership. The UF Center for Undergraduate Research (CUR) staff is small, and they wanted to involve undergraduate students in programming designed by and for undergraduates. For the undergraduate volunteer, this provides significant leadership opportunities. The UF Center for Undergraduate Research Board of Students is a three-year-old, self-perpetuating student group that boasts more than 2,600 members on its Facebook page, a number that has doubled each of the last two years due to their activities. Students will describe the services they provide to CUR and how being involved with CUR has impacted their undergraduate experience.
LOCATION | Plant Hall 213

MED SCHOOL — ADMISSION AND SURVIVAL

[Robert Larkin]
Registrar, M.D. Program
College of Medicine
University of Central Florida

This session will provide you the information that you need to become a successful applicant to medical school programs. We will discuss not only the requirements, but the "other" things that you should be doing to get the interview. A current medical student will also discuss medical school life and what adjustments you may need to consider during the intense medical school curriculum.
LOCATION | Lecture Hall B

WORKSHOPABSTRACTS

STUDENTS AS UNDERGRADUATE RESEARCH AMBASSADORS: PERSPECTIVES FROM TWO UNIVERSITIES

[Ashley Ostroot and Brian Cooney]
Florida Atlantic University
[Arjun Patel, Thomas Carpino and Samantha Mensah]
University of Central Florida

At both the University of Central Florida (UCF) and Florida Atlantic University (FAU), a select group of students are chosen each year to become research ambassadors for their universities. Together, they work towards increasing involvement, inclusion and the quality of research at their respective institutions. In addition to improving their university's overall research and educational reputation, these ambassador groups also give the selected students the opportunity to develop leadership skills, acquire a more comprehensive understanding of the research environment, and make a positive impact on their peer community. Despite the growing success of these programs, research ambassador programs do not exist at many Florida collegiate establishments. Furthermore, many of the highly qualified prospective applicants are unaware that such an opportunity exists, or could potentially exist, within their academic environments. The overall goal of this workshop will be to discuss the critical role that undergraduates can play in fostering research involvement, inclusion and quality at their respective universities. In addition, student research ambassadors from both UCF and FAU will share their own experiences as research leaders and discuss their respective frameworks and activities that their ambassador groups have adopted to strengthen the research environment at their institution.

LOCATION | Plant Hall 313

MAKING THE TRANSITION: GETTING INVOLVED IN UNDERGRADUATE RESEARCH AS A TRANSFER STUDENT

[Daniel Hubbard, David Perez, Jasmine Richardson and Latika Young]
Florida State University

As a transfer student, it can be difficult to figure out how to get involved with undergraduate research at your new institution when you are still trying to get used to a new campus, new procedures and new professors. Yet, if you wait too long, you might miss out on crucial deadlines for a range of opportunities, like honors theses, research funding and national fellowships. In this workshop, we will discuss the unique benefits and challenges of engaging with research as a transfer student; most importantly, you will hear the perspectives of three recent transfer students at Florida State University who transferred from institutions around the state. This workshop will be useful regardless of the institution to which you plan to transfer, and you will leave with specific tips to help facilitate your own successful transition to a four-year institution.

LOCATION | Plant Hall 240

WORKSHOPABSTRACTS

AVOIDING THE DARK SIDE: CASES IN RESEARCH ETHICS

[Rachel Messer and Jennifer Soberon]
Florida Atlantic University

Although research ethics are often discussed in black-and-white terms such as what is "right" and what is "wrong," sometimes it is hard to judge the light side from the dark side. Join us for an interactive presentation where the force guides you along the perilous path over to the light side of research ethics. We will briefly discuss the historical background of unethical research and the need for ethical research guidelines. Then you can ask yourself, "What would I do?" as we examine cases of unethical research practices across a variety of disciplines, including modern cases of unethical research in areas such as social media. Other topics of discussion will include ethical research methods, authorship, and the use of human and animal subjects.

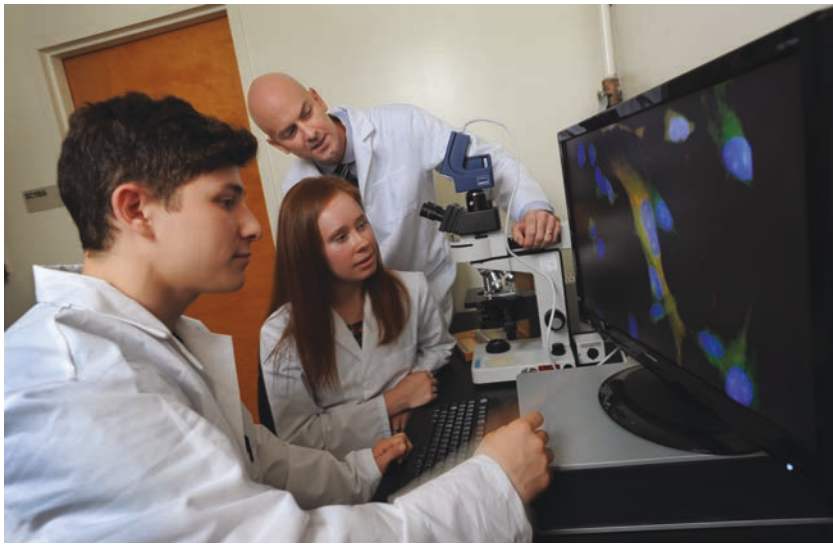
LOCATION | Plant Hall 210

PREPARING YOUR APPLICATION FOR RESEARCH-BASED PRESTIGIOUS AWARDS AND FELLOWSHIPS

[Catherine Wrobel and Michelle Howell]
Embry-Riddle Aeronautical University

The Goldwater Scholarship and National Science Foundation Graduate Research Fellowship Program are two examples of prestigious awards that can bring winners national acclaim as well as monetary rewards for graduate training. These awards are very competitive and awarded to students who are pursuing careers in STEM research. Although they are exclusive, the process of applying for these awards can be enlightening and lead to future opportunities. In this workshop, students will spend some time brainstorming ideas for their personal statements and learning tips for preparing their applications.

LOCATION | Plant Hall 220



POSTERTITLES

SESSION ONE

1. *Juxtacellular Silver Labelling of Neuronal Recording Sites in the Spinal Respiratory Network.* A. Caballero, K. A. Schwanebeck, A. Sexton, S. Patel, A. De Guzman, K. Samuel, V. Zhu, H. B. Denson, K. Streeter and D. M. Baekey, University of Florida

2. *The Effects of Metacognitive Prompting on Music Learning.* Kelly Rosch, Valerie Sims, Ph.D., and Stephen M. Fiore, Ph.D., University of Central Florida

3. *Study on the Placement of Zinc in HeLa cells using SNAP-tag Technology.* Eden Gordon, Nick Accardo and Lei Zhu, Ph.D., Florida State University

4. *Singing Ebola: Music, Media and Cultural Messages in Liberia.* Michael P. Rivera, Florida State University

5. *A genetic suppressor screen identifies RNA-binding protein SSD1 as a regulator of proteasome subunit levels.* William C. Howe and Robert J. Tomko Jr., Florida State University

6. *Alcohol Dependency on a "Dry" College Campus.* Chelsea Basley and Hema Mason, Ph.D., Albany State University

7. *In vitro Analysis of the Efficacy of Probiotic Use During Antibiotic Application.* Taylor Culbertson and Chris Petrie, Eastern Florida State College

8. *Stroking Away Stress: The Effects of Stroking One's Pet on Perceived Stress as a Function of Attachment.* Anna Burns, Leah Boepple and Judith Bryant, Ph.D., University of South Florida

9. *Real-time effects of Prescribed Fire on Gopher Tortoise (Gopherus polyphemus) Burrows and Their Occupants.* Frank Robb and Chris Petrie, Eastern Florida State College

10. *The effects of being Hispanic on Health.* Luis Puesan and Scott Landes, University of North Florida

11. *ERP implementation is not the end: a case study about ERP implementation and upgrade.* Malayna Renberg, Konnor Wagner and Laura Ospina, Florida Gulf Coast University

12. *Pump It Up! Providing insulin pump treatment intervention for children with Type 1 Diabetes.* Kimberly Driscoll, Ph.D., Rebecca Lynch, Haley Stephens, John Wilcox, Sydney Elise, Kenzie Hendrix and Jenna De Francesco, Florida State University

13. *Tamoxifen's effects on the Acoustic Startle Reflex and Prepulse Inhibition of the Acoustic Startle Reflex for Aging CBA Ovariectomized Mice.* Carlos J. Cruz, McKenzie Lynn Watson, Xiaoxia Zhu, Tanika T. Williamson, Alaa W. Taha, Robert D. Frisina and Joseph P. Walton, University of South Florida

14. *Visual Exploration of Software Clusters.* Somalia Jamall and Sandeep Reddivari, University of North Florida

15. *Objectivity and Themes in Press Coverage of the Devyani Khobragade Incident.* Matthew Hebron, Florida State University

16. *A Study on Aging: Depression and Anxiety in Elderly Populations.* Elizabeth A. Hull, Yasmine S. Humeda and Angelina Sutin, Ph.D., Florida State University

17. *Fulfilling Psychological Needs and Improving Life Satisfaction through Sport Consumption Activities: A Comparison with Non-Sport Activities.* Jeeyoon Kim, Casey Coholan, Adrianna Alonso and Daniel Prewett, Florida State University

18. *Onna-bugeisha: Female Samurai in Tokugawa Japan.* Erin Trumble, Florida State University

19. *Free to be Accountable: Extended Self as a Moderator of Cheating among those Primed with Determinism.* Vincent M. Iula, University of Central Florida

20. *How threat and objectification affect women's eating behavior and mathematics performance.* Rebecca Roberts, Sam Hawkins, Elizabeth R. Brown and Olivia Suddarth, University of North Florida

21. *Teaching Leadership — A Case Study on the Criticality of a Culturally Competent Approach in Educational Initiatives.* Inam Sakinah, Florida State University

22. *Locating High Affinity Binding Sites of the Carcinogen 4-Nitroquinoline-1-Oxide on PhiX174 DNA Using Restriction Enzyme Activity Assays.* Jessie Limonta and Stephen Winkle, Florida International University

23. *Springfield and Eastside Urban Forestry Plan Project.* Daniel Norez, Kelly Rhoden and Madison Masters, University of North Florida

24. *Constitutive Expression of Buckwheat Fagopyritol Synthase in Transgenic Glycine max: A Novel Strategy for Plant-based Drug Production for Type-II Diabetes.* Coedy Sears, Louis Mausser and Zachary Osking, Florida Gulf Coast University

25. *Garbage on the Green: an Annual Campus Waste Audit.* Caitlin Kengle, University of North Florida

26. *The Argippaeans: A Comparison between Kurgans in the Altai Region and Herodotus.* Rachel Wood, Nancy de Grummond, Ph.D., and M. Lynette Thompson, Florida State University

27. *Communication about HIV/AIDS on YouTube: Implications for College Health.* Brittani Powell, Delores C.S. James, Ph.D., and Cedric Harville, II, University of Florida

28. *Investigation of a new hypoxia model to induce cardiomyocyte proliferation in zebrafish.* Fabio Frech, Johan Sanchez, Kevin Williams and Brenda Schoffstall, Barry University

29. *Healthy Habits for Life: Does preschool nutrition knowledge predict eating behavior?* Ali Simons, Taylor Claxton and Jody S. Nicholson, University of North Florida

POSTERTITLES

30. *Does Early Diagnosis of Reading Disorder Impact College Success?* Byllingston Jean and Anthony F. Greene, Ph.D., University of Florida

31. *Application for Tissue Scaffolding and Biocompatible Membranes Research.* Katty Pierre-Charles and Sylvia W. Thomas, Ph.D., University of South Florida

32. *Revolutionary Cuba in the 1960s: Creating and Commemorating a New Man.* Jany Mendez, University of Florida

33. *Adaptive Therapy Treatment of Tamoxifen: Which Method Works Significantly Better?* Libia A. Garcia, Pedro M. Enriquez-Navas, Robert J. Gillies and Robert A. Gatenby, H. Lee Moffitt Cancer and Research Institute

34. *Antimicrobial activity of tropical spice extracts against Issatchenkia orientalis and Escherichia coli O157:H7.* E. B. Olasoji, I. M. Ogunade, D. H. Kim and A. T. Adesogan, University of Florida

35. *Aminobisphosphonate Polymers via RAFT-SCVP and a Multicomponent Kabachnik-Fields Reaction for the Treatment of Osteosarcoma.* Justin D. Hochberg, Patricia R. Bachler, Brent S. Sumerlin and Kenneth B. Wagener, University of Florida

36. *Finite Element Analysis of the Small Punch Test.* Alex Strebeck, University of Central Florida

37. *Redefining the extracellular markers of human regulatory T cells improves research methods and has important implications for T1DM cellular therapies.* Leeana D. Peters, Howard R. Seay, Wen-I Yeh and Todd M. Brusko, University of Florida

38. *Governance and Integrated Urban Infrastructure Solutions for Environmentally Sustainable, Healthy and Livable Cities.* Rick Feiock, Ph.D., Portia Dinoso, Jonathan Lubin, Minsun Song, Nohelia Orozco and Mary Meade, Florida State University

39. *A Survey of Benthic Cyanobacteria from the Middle Basin of the St. Johns River.* Danielle Tipley and Dale Casamatta, Ph.D., University of North Florida

40. *Examining the relationship between self-report and cognitive measures of executive function.* Nora Jean-Baptiste, Casey Hammer, Danielle Blinkoff, Rachel West, Geoffrey Potts and Cynthia Cimino, University of South Florida

41. *Evaluation of a Novel Test Platform for Fatigue Experiments in Combined Extreme Environments Analogous to Hypersonic Flight Conditions.* Michael Sedlack, Thomas Bouchenot, Abdi Jasmin, Michael Keasey, Nicholas Stoll and Ali P. Gordon, Ph.D., University of Central Florida

42. *The Silenced Voices: Women Diarists of Early America.* Jesse Long, The University of Tampa

43. *The Effect of Sexist Humor on Women's Victim Blame.* Samantha Shepard, University of Central Florida

44. *Special Euclidean Relativity.* Robert Bauer, University of Central Florida

45. *Subjective and Objective Education Measures as it Relates to Mini Mental Status Examination Performance.* R. T. Corona, A. L. Sardina, K. L. Bartlett, R. Andel and A. A. Gamaldo, University of South Florida

46. S*tatus Update: An Examination into the Influence of Social Media Use During Learning and the Affect on Memory Recollection.* Valerie Kessler, Megan Bell, Shayne Gutzmore and Zachary Jennings, University of Central Florida

47. *Characterization of 3DP Polylactic Acid under Monotonic and Cyclic Torsional Conditions.* Jose E. Cotelo, John Brown University; Harrison T. Bearden, John Brown University; Jonathan Torres, University of Central Florida; Kevin Smith, University of Central Florida; Bas van Deurson, Ultimaker, Geldermalsen, Netherlands; Ali P. Gordon, University of Central Florida

48. *Genetic characterization of populations of the African jewelfish (Hemichromis letourneuxi) introduced to the waterways of Florida.* Lorenzo A. Gayle, Youssra El Hanaoui, Mitchell D. Hartwig, Heather A. Muse, Brandon Saiz, Emily J. Williams, Pamela Schofield and Natalia M. Belfiore, The University of Tampa

49. *Calvinism, Natural Law and the Way Evangelicals Think Politically.* Austin Fitzgerald and John Kelsay, Ph.D., Florida State University

50. *Development of a Colorimetric Assay for Sex Determination in Ancient DNA.* Courtney Powell, Alexandra Smith and Dmitry Kolpashchikov, University of Central Florida

51. *Fluctuating asymmetry: A biomarker for environmental stress.* Jamie Hamilton, Florida A&M University; Yvis Nicholas, Nova Southeastern University; and Paulette S. Reneau, Ph.D., Florida A&M University

52. *Practical Investigation of open-sources software for Environmental Data.* Jonathan Cobb and Hongmei Chi, Florida A&M University

53. *The DEA's Expulsion From Bolivia: An Analysis of U.S. Counternarcotics Abroad.* Ashley Reynolds, Saint Leo University

54. *Post Stroke Activation of Angiotensin II Type 2 Receptors Shows Sustained Neuroprotective Effects in Aged Rats.* Jacob D. Isenberg, Douglas M. Bennion, Allison T. Harmel, Jonathan Alexander, Marcello Febo, Eduardo Candelario-Jalil and Colin Sumners, University of Florida

55. *The social media activism of SOA Watch.* Carly Gillingham and Ambar Martin, Florida State University

56. *Comparison of resveratrol derivatives for anti-cancer activity in estrogen receptor-positive versus estrogen receptor-negative breast cancer cells.* Evan Roberts, Ellen Vann and Lyndsay V. Rhodes, Florida Gulf Coast University

57. *Aversive Racism and Selection Decisions: 1989, 1999 and 2015.* Jason English, Alyssa Finner, James Kozachuk, Samantha Shepard and Jacob Walters, University of Central Florida

58. *Analysis of Cellulose Hydrolysis Kinetics.* Deanna Bousalis and John Telotte, Ph.D., Florida State University

59. *Polyvinylidene fluoride based gel electrolyte membranes for electrochemical capacitor applications.* Tasha Williams, University of South Florida

60. *Artistic/Architectural Applications of Tensegrity Structures.* Jennifer Egelfeld, Kenn von Roenn, Mari Kyle and Andrew Burk, Florida State University

61. *Vibrant expression through clothing: cracking the color, patterns and style code of the Rajasthani women of India.* Kimberly Connor, Florida State University

62. *Mechanisms of Neuronal Survival Under Conditions of Oxidative Stress.* Howard M. Retz and Howard M. Prentice, Ph.D., Florida Atlantic University

63. *The Effects of Trait Mindfulness on False Memory for Emotional Word Lists.* Lindsey Johnson and Travis W. Conradt, Ph.D., Florida Institute of Technology

64. *Basic DNA Barcoding for Exotic Plants.* Justin Santiago and Eunice Laurent, Valencia College

65. *Impact of Data Analysis Software on Traffic Congestion of Special Events in Southwest Florida.* Gabriel Perez and Claude Villiers, Ph.D., Florida Gulf Coast University

66. *Engineering of a Weather Balloon System.* Sergei Bilardi, William Griffin, Erik Parker and Kari Slotten, Embry-Riddle Aeronautical University

67. *Analysis of the Data Collected from a Weather Balloon System.* Kari Slotten, Sergei Bilardi and William Griffin, Embry-Riddle Aeronautical University

68. *Preventing Suicide on Campus: Training Resident Assistants as Gatekeepers.* Kirsten Christensen and Martin Swanbrow Becker, Ph.D., Florida State University

69. *The Ethics and Conflicts of Biomedical Research.* Stephanie Holz and Janis Prince, Saint Leo University

70. *CCW/Restrictions Abstract.* Ryan Tanski, The University of Tampa

71. *The Behavioral Role of Carbon Monoxide Neurotransmission in the Anterior Hypothalamus.* Christopher Robison, Ph.D., Kia Adams and Elaine Hull, Ph.D., Florida State University

72. *A Study on Proprioception and Touch Perception in Object Discrimination.* Francesca Riccio-Ackerman, Liliana Rincon Gonzalez, Ph.D., and Ranu Jung, Ph.D., Florida International University

73. *The Quality Effects of Text Messaging in Maternal and Infant Well-being.* Cynthia White-Williams, Ph.D., and Aliza Williams, University of North Florida

74. *Call me — or text me — on my Cell Phone: Texting in Class as Deviant Behavior.* Beverly Mejias and Janis Prince, Saint Leo University

75. *Differences in Tarsal Morphology between Arboreal and Nonarboreal Ants.* Andrew Nisip and Andrea Lucky, Ph.D., University of Florida

76. *Sex differences in Physiological and Self-Reported Reponses to Stress.* Ezana Assefa, Jose Serrano, Jessica Garcia-Brown, Ph.D., Thomas J. Fagan, Ph.D. and Jaime L. Tartar, Ph.D., Nova Southeastern University

77. *Synthesizing ranking functions from query embeddings for image retrieval.* Michael Lopez-Brau, Fareeha Irfan and Boqing Gong, University of Central Florida

78. *Identification of Plant Species via Utilization of Polymerase Chain Reaction and DNA Barcoding.* Asima Khan, Valencia College

79. *Detection of Lagenidium giganteum in plant axil metagenomes.* Paula Leoro Garzon, Isabel Olivera, Andrew Gonedes, Gregory Edwards and Aurelien Tartar, Nova Southeastern University

80. *Investigating the potential role of TGF receptors in tumor angiogenesis and the development of cancer.* Patricia Varacallo, Saint Leo University; James Hawker, South Florida State College; and Iain Duffy, Saint Leo University

81. *China's Evolving Economic and Political Relationships with Russia and Japan.* Jana Nudelman, Florida International University

82. *Analysis of Growth Characteristics on Solid Media and Effects of Dissolved Oxygen in Liquid Media for Three Fungal Candidates.* Jonathon Niño Charari, Aldo Lobos and Valerie Harwood, University of South Florida

83. *Effect of Meditation on Creativity, Affect and the Brain.* Robert Gray, Christina Salnaitis, Rebecca Anderson, Ander Baranda, Jaclyn Dell, Alexis Dias, Jesse McDuffie, Annie Meier, Hannah Morris, Devin Plant, Lauren Prestwood, Jessi Smith and Emily Trip, University of South Florida-St. Petersburg

84. *The Validity and Feasibility of Using Recycled Concrete Aggregate (RCA) in Hot Mix Asphalt (HMA).* Fritznel Saint Louis, Florida Gulf Coast University

85. *Plankton dynamics of a species-poor Bahamian saltwater lake: which prey do lined seahorses (Hippocampus erectus) prefer?* Katie-Lynn Roberts, Heather D. Masonjones, Ph.D., Rebecca Waggett, Ph.D., and Elizabeth Pendergrass, The University of Tampa

86. *Examination of Virulence Based on the Morphology of the California and Panama Strains of Batrachochytrium dendrobatidis.* Shelby Wood and Taegan McMahon, Ph.D., The University of Tampa

87. *Genetic Differentiation Among Florida Populations of Diadema antillarum.* Luke Chandler, Linda Walters, Ph.D., and Eric Hoffman, Ph.D., University of Central Florida

88. *Investigating Detailed Abundance Patterns in the Hyades Cluster.* Drake Williams, The University of Tampa

89. *Abundance Analysis of 10 Kepler Planetary Hosts.* Zachary Vaz, The University of Tampa

90. *Is there a Paternal Role in Fetal Alcohol Syndrome?* Mariana Ruiz, Peter Nwokoye and Stephanie Bingham, Ph.D., Barry University

91. *Effects of Ethanol and Thiamine on Embryonic Rattus rattus Brain Cells.* Pedro Sanchez, Barry University

POSTERTITLES

92. *Can Cuban Tree Frogs Avoid Deadly Chytrid Fungus.* Electra Scott and Taegan A. McMahon, Ph.D., The University of Tampa

93. *The Impact of the Deep Water Horizon Oil Spill on Porewater Nutrient Distributions.* Marissa Macri, The University of Tampa

SESSION TWO

1. *Project Panther LIFE.* Juan Carlos Espinosa and Jonathan Viera, Florida International University

2. *Synoptic-scale Precursors and Characteristics of High-end Tornado Outbreaks in the Southeastern Region of the United States.* Benjamin D. Dillahunt, Embry-Riddle Aeronautical University

3. *To Hydrate or Chlorinate: A Regression Analysis of the Levels of Chlorine in the Public Water Supply.* Drew Doyle, University of Central Florida

4. *Photoreactivity of 2-Methoxy-4-(2-phthalimidinyl)phenylsulfonyl Chloride.* Tracy-Lynn Cleary and Paul Sibbald, Ph.D., Stetson University

5. *Who gets tested? Exploring factors influencing getting an STI/HIV test in college students.* Tyler G. James and Sadie J. Ryan, Ph.D., University of Florida

6. *Monolingual v. Bilingual Neurological Developments.* Mariam Fawaz, John Van Hook and Tiffany Baglier, University of Florida

7. *Effectiveness of State Incentives for Adoption of Anaerobic digestion systems in the U.S.* Anh Sam and Xiang Bi, University of Florida

8. *Hebrew and Computer-Mediated Communication: The Effects of a Language Manipulation on Perception, Identity and Preservation.* Tamar Nir, University of Central Florida

9. *Biodiesel Production via Genetically Altered Lipase from Proteus mirabilis Transesterification in Methyl Acetate.* Alaina McDonnell, Jake Altier, Demetrius Carey and D. Scott Witherow, The University of Tampa

10. *Characterization of fosfomycin resistance mediated by Enterococcus Fos B.* Christine Whitehead, Brett Linamen and Zanna Beharry, Florida Gulf Coast University

11. *Alignment free phylogenies of giant viruses.* Shane Dorden and Padmanabhan Mahadevan, The University of Tampa

12. *Methionine Sulfoxide Reductase Expression in Response to Anoxic Stress Conditions in D. melanogaster.* Evgeniya Rakitina and David Binninger, Ph.D., Florida Atlantic University

13. *Antimicrobial Effects of Essential Oils on Infectious Bacteria.* Emily Ruple, Taylor Anderson, Vanessa Rowan, Ph.D., and Sanaz Dovell, Ph.D., Palm Beach Atlantic University

14. *Substance Use Progression and Initial Treatment Entry: Characterizing the Role of Race.* Christian C. Garcia, Ben Lewis, Lauren A. Hoffman and Sara Jo Nixon, University of Florida

15. *The Influence of Right and Left Frontotemporal Stimulation on Visuospatial Creativity.* Nicholas Milano, Annika Goldman, Adam Woods, John Williamson, Leah Acosta, Damon Lamb, Han Zhang and Kenneth Heilman, University of Florida

16. *Assessing the Functional Capacity of Regulatory T-Cells Derived from Cryopreserved Umbilical Cord Blood for the Treatment of Type 1 Diabetes.* Ashley Bushdorf, Howard R. Seay, Kristi T. Balavage, Leeana Peters and Todd M. Brusko, University of Florida

17. *Invaders in the Night: Sleep Apnea and Sub-Clinical Renal Injury.* A. Rampersad, S. Bozorgmehri, A. Ishani, I. Weiner, S. RamachandraRao, R. Beyth and M. Canales; University of Florida, Minneapolis VAMC, University of Minnesota, Malcom-Randall VAMC and University of California-San Diego

18. *A Pilot Study Exploring Modifying Factors Related to Pregnant Women's Behavior and Perception of Electronic Smoking Products.* Irene Lopez Llorente, Megan Scipione and Mary Martinasek, Ph.D., The University of Tampa

19. *Response Differences in Modes of Data Collection: Telephone vs. Online.* Ryan Gondek, Monique Hall and Jimmy Mauk, Florida Atlantic University

20. *Hispanic Voters Opinions are being shaped by Social Media.* Ryan Clukey, Paul Donovan, Meetchelie Paul and Marina Giral Lores, Florida Atlantic University

21. *Extracellular Matrix Stiffness Modulates Connective Tissue Growth Factor and Yes-Associated Protein Expression.* Ashnee Patel, Liya Pi, Altin Gjymishka, Yiannia Protopapadakis, Marda Jorgensen and Bryon E. Petersen, University of Florida

22. *Soil Nematodes a Potential Long-Term Reservoir Host for Chytrid Fungus.* Nichole A. Laggan, Electra F. Scott, Sarah Cuccinello and Taegan A. McMahon, The University of Tampa

23. *Healthcare and Hispanics: The Disparity in Healthcare Coverage and Affordability Between Genders.* Monica Escaleras, Ph.D., Erik Rodriguez, Jonathan Sanchez and Shannon Lee Bowie, Florida Atlantic University

24. *Alice in Wonderland Syndrome in Patients with Frontal Lobe, Temporal Lobe Lesions or Shunting.* Joel C. Greenup, Florida International University; Roberto J. Diaz, University of Miami Hospital; Bennett L. Schwartz, Florida International University; Ricardo J. Komotar, University of Miami Hospital

25. *Investigations on the cost of resistance in a coevolving population of E.coli and T3 phage.* Sarah Sherman, Jeremie Brusini and Marta Wayne, University of Florida

26. *Identification and isolation of previously unreported oxylipin biosynthetic genes from fruit of Vaccinium corymbosum using an integrated sequence-data based methodology.* Lorenzo N. Bizzio, Joo Young Kim, Keun Cho, Jim W. Olmstead, David G. Clark and Thomas A. Colquhoun, University of Florida

27. *The Role of Mapping in the Formation of South America's Political*

Boundaries and Territorial Disputes. Justin Franco and Gretchen Scharnagl, Florida International University

28. *Investigation for the kinetics of electrochemically modulated separation of dysprosium and neodymium.* Ever Velasquez, Shannon Anderson, Mikael Nilsson and Egwu Kalu, Florida State University

29. *Windover: Examining Dental Attrition Patterns in a Florida Archaic Hunter-Gatherer Population.* Casey Johnson and Geoffrey P. Thomas, Ph.D., Florida State University

30. *Existentialism and Borderline Personality Disorder in "The Tunnel."* Joaquin Van Thienen and Robert Saba, Florida International University

31. *Spatial distribution and antibiotic sensitivity of Staphylococcus aureus in the Hillsborough River.* Rhianna Seferian, Ann Williams, Padmanabhan Mahadevan and Bridgette Froeschke, The University of Tampa

32. *Tripodal CMPO ligands as potential lanthanide extractants: A systematic study of ligand structure and selectivity in acidic aqueous media.* Michael G. Patterson, The University of Tampa; David A. Hardy, The University of Tampa; Shannon M. Biros, Grand Valley State University; Eric J. Werner, The University of Tampa

33. *Influence of Adherence to Clinical Practice Guidelines of Low Back Pain Treatment on Patient Outcomes.* Emiangeliz Gonzalez Luna and William J. Hanney, Ph.D., University of Central Florida

34. *Microbiology Bar Growth from Ten Hookah Pipes in the Community.* Zachery Rivera, Alexandra Ferrer, Mary Martinasek and Eric Freundt, The University of Tampa

35. *OPSCI Statistical Analysis: Female Increasing and Decreasing Percentages within Specific Engineering Disciplines.* Joanna Rivero, Geoff Potvin and Zahra Hazari, Florida International University

36. *How to Give Plants Cancer: A Study on Gall Formation.* Dillon Pierce, Brendan Murphy and Ashley Spring, Ph.D., Eastern Florida State College

37. *Effects of Freshwater Intrusion on Saltwater Species of the Indian River Lagoon.* Daniel Moffitt and Ashley Spring, Ph.D., Eastern Florida State College

38. *Comparing Volcanic Rocks in the Mount Rogers Formation.* David Gallagher, Mary Beck, S. W. Novak and D. W. Rankin, Valencia College

39. *The Culture of Sex Trafficking in India.* Krista Buda, University of Florida

40. *PCR detection of Wolbachia endosymbionts in mosquito and nematode species.* Athul Abraham, Daniel Icenhour, Marilyn Koletzke, Olivia Meitzner, Andrew Sorrentino, Vince Centonze, John Whitlock and Jennifer Bess, Hillsborough Community College

41. *Can Tarpon See Inside Their Natural Habitat?* Leah Coleman, Eastern Florida State College; Lorian Schweikert, Florida Institute of Technology; Ashley Spring, Ph.D., Eastern Florida State College

42. *Effects of garlic and ginger on bacterial growth.* Sarah Khaireddin, Ray Ward and Ashley Spring, Ph.D., Eastern Florida State College

43. *Mrs. Robinson Syndrome: The Impact of Sex Stereotypes and Socioeconomic Stereotypes on Attitudes toward Child Sexual Abuse.* Kelsey L. Eagen, LouAnne B. Hawkins and Christopher Leone, University of North Florida

44. *Photopositive Behavior in the Kleptoplastic Sacoglossans Elysia clarki and Elysia chlorotica.* Rachel Moline and Michael L. Middlebrooks, The University of Tampa

45. *The private versus public nature of infidelity: Self-monitoring and romantic jealousy.* Taylor Frances Drury, Christopher Leone and Tiffany Lucille Andolina, University of North Florida

46. *"Red and Blue Tinted Glasses": Political Perceptions of Ingroups, Outgroups and Ourselves.* Erik Clarke and Christopher Leone, University of North Florida

47. *Early Transition Metals as Inexpensive Substitutes for Ruthenium in Hydroxylated Polypyridine Complexes.* Carlos Alberto Acosta Jr., Alan Rodriguez Santiago and Raphael Raptis, Florida International University

48. *STEM Attitudes and Beliefs: Evidence from Elementary Classrooms.* Megan Keller, Tyler Keller and Kimberly McDowell, Florida Golf Coast University

49. *Inconsistencies in Female Hair Color Preferences.* D. Delvescovo, A. Miller and J. Wortham, The University of Tampa

50. *Culture Change in Nursing Home: Addressing Regulatory.* Melissa Villalta and Marshall Kapp, Florida State University

51. *Cre recombinase has minimal effect on dendritic complexity of cultured hippocampal neurons.* Mariana Ruiz, Barry University; Laurel Kelnhofer, University of Wisconsin-Madison; Yu Gao, University of Wisconsin-Madison; Xinyu Zhao, University of Wisconsin-Madison

52. *Excluding the Problem: Bennett on Counterfactual Test and Backtracking.* Katelyn Hallman and Jonathan Matheson, Ph.D., University of North Florida

53. *Society's View of Bollywood and the "Perfect Woman": Is She Really Perfect?* Hawa Allarakhia, University of South Florida-St. Petersburg

54. *Bio-inspired Dinuclear Copper Oxygenation Catalysts: synthesis, characterization and reactivity studies.* Susana Herrera and Raphael Raptis, Florida International University

55. *The CSI Effect: Evaluating Forensic Crime Novel Readers.* Claire D. Scott-Bacon and Ryan Winter, Ph.D., Florida International University

56. *Functionalizing Diatoms with Titanium Dioxide for Solar Cell Applications.* Chris Dowdy, Dalton Reith, Samuel Trappen, Chris Coughlin, Ph.D., Melba Horton, Ph.D., and Sesha Srinivasan, Ph.D., Florida Polytechnic University

57. *A comparative survey of Gopherus polyphemus hemoparasites in four different South Florida habitats.* Brian Cooney, Dana Elhassani, Evelyn Frazier, Ph.D., and Joseph Caruso, Ph.D., Florida Atlantic University

58. *"The Pinball Wizard and the Miracle Cure": The Who, Meher Baba*

POSTERTITLES

and Drug Renunciation, 1969–1975. Holland Hall, University of Florida

59. *Neighborhood environment and community health promotion; the case of Spring Hill.* Tyler Bowling, Emily Carey, Gregory Fernandez, Jackie Pollack, Brittany Zwerver and Asal M. Johnson, Stetson University

60. *Not in Kansas Anymore: Effects from a Special Traveling Children's Museum Exhibit.* Kathleen Barakat, Alicia Carrillo, Diana Ropel, Stephen Blessing and Jeffrey Skowronek, The University of Tampa

61. *Talking It Out vs. Calling It Off: Self-Monitoring Differences in Conflict Resolution with Multiple Audiences.* Lori Sterling and Christopher Leone, University of North Florida

62. *How Facebook Use Affects Mood.* Greene, Kathleen Barakat, Caroline Carr, Amanda Lee, Philip Ash, Briana Mansour, Victoria Veronesi, Erin Koterba, Michael Stasio, Renee Patrick, Cynthia Gangi and Erica Yuen, The University of Tampa

63. *Incarceration Rates: A Comparison of Incarceration Rates of Small Towns versus Large Towns.* Daniela Scantlebury, The University of Tampa

64. *Prospect in Harnessing Brain-derived Neurotrophic Factor (BDNF) Extracted from Fetal Neural Tubes to Combat Neuro-Ophthalmologic Manifestations in Visual Motor Deficit (VMD).* Chidera O. Nwosu, University of Miami

65. *Development of niobium-based SPME fiber by sol-gel technology.* William Smith and Thomas Jackman, Ph.D., The University of Tampa

66. *Cooperativity and competition in the binding of 4-nitroquinoline-1-oxide and actinomycin D to phiX174 DNA.* Juan Medina and Stephen A. Winkle, Florida International University

67. *Is meditation good for the heart: A study of the effect of compassion meditation on heart rate variability among veterans with PTSD.* Michelle Aiello and Ariel J. Lang, Ph.D., M.P.H., University of Central Florida

68. *Coercive Field Enhancement in Microstructured Manganite Thin Films.* Hector Felipe Lacera Otalora, University of Florida

69. *Species verification of Magnolia virginiana through DNA barcoding of rbcL gene.* Katie A. Burket, Valencia College

70. *Characterization of a Novel Mutant Involved in Centrosome Assembly.* Briana Whitehead, Chunfeng Zheng and Timothy Megraw, Florida State University

71. *Rugs and Silver, Artists and Craftsmen: The Development of Artistic Autonomy in Southwestern Native American Art.* Victoria Anne Sunnergren and Karen Bearor, Ph.D., Florida State University

72. *Design, Construction and Optimization of a Low-Cost Portable Enterococci Test (PET) Kit.* Margaret K. Parrish, Suzanne Young and Valerie J. Harwood, University of South Florida

73. *Uncovering cardiovascular biomarkers of School Burnout.* Joseph T. Leonard, Ross W. May, Greg S. Seibert, Marcos A. Sanchez-Gonzalez and Frank D. Fincham, Florida State University

74. *Interannual Precipitation Variability surrounding the Alberto Manuel Brenes Biological Reserve, Costa Rica.* Taylor M. Gibbs, University of Florida

75. *DNA Barcoding of Valencia East Campus Greenhouse Plant Samples for Strophanthus Identification.* Iman Squires, Valencia College

76. *Engineering Efficiency and Sustainability in the Food, Energy and Water Nexus.* Catherine Ninah and Debra Reinhart, Ph.D., University of Central Florida

77. *Authoritarianism and collectivism: Antecedents and consequences.* Jasmine Samuel and Doan Modianos, University of Central Florida

78. *Preliminary findings: A systematic review of the effects of information and communication technology interventions on dementia family caregiver health.* Karis Lee, Renessa Williams, Elizabeth Fehlberg, Aditi Patel, Michelle Santoni-Miranda, Robert J. Lucero, Ph.D., University of Florida

79. *The Sound of Colonialism: Music and Its Impact on Cuba and Its People.* Mauricio Cabrera, University of South Florida-St. Petersburg

80. *Assessing Genetic Diversity within Natural Populations of Smooth Cord Grass to Ensure Effective Restoration Efforts.* Michelle Gaynor, Linda Walters, Ph.D., and Eric Hoffman, Ph.D., University of Central Florida

81. *Neighborhood jurisdictional boundaries and community health, the case of Spring Hill.* Justin Baggs, Jada Scott, Carolina Perez-Tobon and Asal Johnson, Ph.D., M.P.H., Stetson University

82. *Identifying genotypes of Acropora cervicornis that are resilient to white band disease.* Alana L. Boyles and Erinn M. Muller, The University of Tampa

83. *Never walk alone: How safety tips influence beliefs about rape and feelings of safety.* Jessica Potter, Elizabeth R. Brown and Curtis Phills, University of North Florida

84. *Joint Graphical Lasso and Deep Learning Methods for Dynamic Brain Connectome Prediction.* Joey Velez-Ginorio and Guo-Jun Qi, Ph.D., University of Central Florida

85. *Effect of size on Drosophila m. visual acuity.* Jamie Theobald and Zoila Brummer, Florida International University

86. *Discovery of Aminoacyl-tRNA Synthetase Inhibitors as Anti-Cancer Agents.* Larry Nguyen, Xiao Liang, Ravil N. Kaybullin and Xin Qi, University of Florida

87. *Effect of Diet on Growth in Podocnemis Unifilis: Assessing Optimal Diets for Turtles in Conservation Oriented Head Start Programs.* Katie L. Robinson and Mason B. Meers, The University of Tampa

88. *Ontogenetic Patterns Displayed in the Dental Morphology in Belonesox belizanus.* Hannah Saucier and Mark McRae, The University of Tampa

89. *Hydrothermal Synthesis of Lanthanide Series Plumbites.* Alexandra T. Barth, Kristen A. Pace, Jared T. Stritzinger, Mark Silver and Thomas E. Albrecht-Schmitt, Florida State University

90. *Crossing the Border: The Consequences of the Immigration System*

on an Undocumented Family. Sandra Chavez and Leslie Anderson, University of Florida

91. *Elucidating the Role of P53 in Limiting Metastasis in Drosophila melanogaster.* Adrian Acuna, Brian Brenner and Lei Zhou, University of Florida

92. *Females of a moth with two-celled ears discriminates acoustic stimuli with different temporal patterns.* Jessica Hernandez, Francisco Coro, Ph.D., and Jorge Riera Diaz, Ph.D., Florida International University

93. *Effects of second hand smoke on plant height, biomass and morphology.* Kirstin Cutshaw and Ramona Smith-Burrell, Ph.D., Eastern Florida State College

SESSION THREE

1. *Nurse2Nurse International Education Exchange: A Cambodian Exemplar.* Khang Vo, Brittany Reeser, Rebeca Siguenza and Karen Simon Reed, University of Florida

2. *Genetic Differentiation Among Florida Populations of Diadema antillarum.* Luke Chandler, Linda Walters, Ph.D., and Eric Hoffman, Ph.D., University of Central Florida

3. *Left Brain vs. Right Brain: An Analysis of Functionality in Cervantes' Don Quixote.* Michael Scimeca and Martha García, Ph.D., University of Central Florida

4. *Urine, The Future of Agriculture?* Madelyn Pandorf and Treavor Boyer, University of Florida

5. *Laminar profile underlying the propagation of CSD: from single neurons to population activity.* Darlene Ramos, Sarahy Garcia, Yisel Frometa, Javier How and Jorge Riera, Florida International University

6. *The Role of Red Blood Cell Derived Microparticles in Sickle Cell Disease (SS) Murine Models.* Gabrielle Clark, University of Central Florida; Caitlin Powell Sok, Georgia Institute of Technology; and Edward Botchwey, Ph.D., Georgia Institute of Technology

7. *Prediction of Preeclampsia with the use of the Electrocardiogram and Photoplethysmography.* Ana I. Calderon, Savya, Tammy Y. Euliano, M.D., University of Florida

8. *Monitoring Privacy in Mobile Health Apps.* Jeremy Cason and Hongmei Chi, Florida A&M University

9. *Flash Atomization of Biofuels and a Comparison of Droplet Size Distributions Produced by Various Commercial Spray Generating Devices.* David Perez, Florida State University; Kristina Fong, University of Alabama at Birmingham; Mebougna Drabo, Ph.D., Alabama A&M University; Thomas Butcher, Ph.D., Brookhaven National Laboratory

10. *Discovery of Novel Carbocyclic Analogs of Nucleosides for Cancer Therapy.* Tracoyia Roach, Larry Nguyen, Katherine Cisneros, Ravil N. Khaybullin and Xin Qi, Florida A&M University

11. *Sensationalism of North Korea in International News Articles.* Mae Espinosa, Allison Lang and Tatum Shannon, Florida State University

12. *Competitive and non-competitive reality TV shows — An analysis of cognitive stimulation, interactivity and audience engagement.* Ana Oliveira-Beuses, University of Florida

13. *Family and Peer Influence on the Frequency of Swearing.* Emily Simpson, Joshua Duarte and Brianna Bishop, University of Central Florida

14. *Intersection between CEOs' Influences and PAC Contributions.* Esther O. Oyetoro, Florida State University

15. *Social Movements and Their Impact on Modern-Day Democracies: A Comparative Case Study in Latin America.* Shauna N Gillooly, Florida State University

16. *Individual Differences in Working Memory Capacity and the Role They Play in Performance on a Feedback v. No Feedback Vigilance Task.* Jenny A. Walker, Ben D. Sawyer, Gabriella M. Hancock, Waldemar Karwowski, Valerie K. Sims and Peter A. Hancock, University of Central Florida

17. *Fluctuating asymmetry and molecular quality in house crickets, Acheta domesticus.* Leanne Jalique, Alicia Carabarin, Mernyka Webster, Chelsea Bain, Jean Sylvain, Roudy Charles, Anton Stremousov, Kirill Stremousov, Lusanda Nogxina, Foumi Oni, Darrell Henry, Ariana Connor, Angel Tapia, Michelle Valdes, Autumn Leone and Michael Robinson, Barry University

18. *Abundance and Methicillin resistance of Staphylococcus aureus in the water and oysters of the Hillsborough River during the spring.* Kelly Fryar, Michael L. Middlebrooks and Bridgette Froeschke, The University of Tampa

19. *Tolerance of and Recovery From Desiccation in Intertidal Pneumatophore Epiphytes in Mangrove Basin Forests.* Elaine M. Kurr, Jayde A. Zimmerman and Kevin S. Beach, The University of Tampa

20. *Identification of six "mystery" substances using three distinct analytical techniques in a forensic science laboratory.* Leora Hilbert, Jenna Cote and Sulekha Coticone, Florida Gulf Coast University

21. *Sensing of biologically relevant anions with a luminescent europium(III) complex.* Kayla H. Felix, Katherine Johnson and Eric J. Werner, The University of Tampa

22. *Intersensory Processing Efficiency and Language in Infancy.* Jenelly M. Sotomayor, Kasey C. Soska and Lorraine E. Bahrick, Florida International University

23. *Genes4Vaccines: A computational model that utilizes comparative genetics to identify DNA and protein sequences for novel vaccines.* Courtney Astore, Rebecca Elsishans, David Durkee, Jason Guo, Jayk Barker, Christopher Hodge, Nicholas Kosan, Traci LaMoia and Yan Ortiz, University of Florida

24. *Chromatin Remodeling Complex Proteins Act as Age-Dependent Regulators of the Heat Shock Response in C. elegans.* Mark Noble, Andrew Deonarine, Lori-Ann Bowie and Sandy D. Westerheide, University of South Florida

25. A*nti-Predator Defenses of the Sacoglossan Sea Slug Elysia clarki.*

POSTERTITLES

Kristen A. Ewen and Michael L. Middlebrooks, The University of Tampa

26. *The effects of education on self-esteem and body image.* Marvin Hoo, Simone Camacho, Michelle Aiello, Aaron Necaise, Alesia Albury and Mustapha Mouloua, Ph.D., University of Central Florida

27. *Indian, Pakistani and Native Kashmiri Perspectives on the Kashmir Conflict.* Shreya Labh and Houman Sadri, University of Florida

28. *Examining the binding of 4-nitroquinoline-1-oxide to phiX174 DNA using Mung Bean nuclease and Topoisomerase I assays.* Elizabeth Tinoco and Stephen Winkle, Florida International University

29. *Occupy Tallahassee: An Analysis of Social Interactions Observed in a Localized Occupy Wall Street Movement.* Katelyn Schulze, Jesse Klein, Ph.D. and Daniel Lanford, Florida State University

30. *Determination of pKa and Reaction Kinetics for Fluorescent Rhodamine B Spirolactam.* Nia Harmon and Joe Accardo, Florida State University

31. *Who's making the decision? Effects of Pretrial Publicity on Jury Deliberations.* Haley Roberts, University of South Florida

32. *Identification of the Fungal Symbiont in the Pine Specific Bark Beetle, Xyleborus pubescens.* Morgan Hull and Jiri Hulcr, University of Florida

33. *Problems of Automating a 3D Printer for Public Vending.* Matthew Caixero, Scott Kent, Alexander Seifans and Garveen Sindhu, Embry-Riddle Aeronautical University

34. *Emphasizing Individual Responsibility within an Undergraduate Project Structure.* P. Augustus Galarnyk and Roxanna L. Stein, Embry-Riddle Aeronautical University

35. *Genotype to Phenotype: Immunophenotyping Studies in T1D.* Roshini Pudhucode, Howard R. Seay, M.S., Kieran M. McGrail, Daniel J. Perry, Ph.D., Mark A. Atkinson, Ph.D., Clive Wasserfall, M.S., and Todd M. Brusko, Ph.D., University of Florida

36. *City of Light: History on Stage.* Danielle Wirsansky, Florida State University

37. *Protein Disulfide Isomerase Prevents and Reverses the Fibrillization of Immunoglobulin Light Chain 6aJL2.* Diego Castillo, Lucia Cilenti and Ken Teter, University of Central Florida

38. *Observations and Simulations of Electromagnetic Waves in the Van Allen Radiation Belts.* Miles Bengtson, Morgan Matheny, Sara Rosborough and Anatoly Streltsov, Embry-Riddle Aeronautical University

39. *The relationship between sexual imagery in media and sexual cognitions.* Jennifer L. McDonnell and Chrysalis L. Wright, Ph.D., University of Central Florida

40. The Analysis of the Market for Mass-Produced Virtual Reality Technology. Mari Kyle, Florida State University

41. *Computational Assessment of Information Behavioral Interaction Against Organizational Insider Threat.* Jeremy Hickson and Hongmei Chi, Florida A&M University

42. *Morphological Descriptions of the Lips of Canine Ascarids (Nematoda: Ascrididae) Using Scanning Electron Microscopy.* Alexis Vedder, Wayne Price and Stanley Rice, The University of Tampa

43. *Model of Acceptance and Use of Mobile Applications.* Daniel Ko, University of Tampa

44. *Autonomous Satellite Recovery Vehicle (Rocket-Deployed Quad-rotor).* Francisco Pastrana, Devonte J. Grantham and Shane Williams, Embry-Riddle Aeronautical University

45. *Joule-Class Free-Space Divided Pulse Amplified Picosecond Laser.* Ahmad Azim, Benjamin Webb, Nathan Bodnar, Michael Chini, Lawrence Shah and Martin Richardson, University of Central Florida

46. *I 'Dune' Want to Grow Up: Analyzing Frank Herbert's Dune in Response the Death of Adulthood in American Culture.* Abraham "Eli" Mullican, Eastern Florida State College

47. *Time Resolved Analysis of Chromatin Structure in Response to Cocaine: a Genome Wide Sequencing Project.* Cole Friedes, Lauren Cole and Jonathan Dennis, Florida State University

48. *Development of a Fine-Scale Laser-Based Water Level Sensor.* Joshua Benjamin and David Kaplan, University of Florida

49. *A stimulating approach to therapies for spinal cord injury patients (literally).* K.A. Schwanebeck, A. Caballero, A. De Guzman, K. Samuel, A. Sexton, V. Zhu, H.B. Denson and D.M. Baekey, University of Florida

50. *Generation of a Novel PheS Counterselection Marker for Mycobacterial Gene Inactivation.* Ashelyn Sidders, Carolina Felix, Sandra Geden and Kyle H. Rohde, Ph.D., University of Central Florida

51. *Analyses in Support of the WFIRST Supernova Survey.* Miles Currie, Florida State University; David Rubin, STScI; Greg Scott Aldering, Lawrence Berkeley National Laboratory; Charles Baltay, Yale University; Parker Fagrelius, LBNL/UC Berkeley, David R. Law, STScI; Saul Perlmutter, LBNL/UC Berkeley; Klaus Pontoppidan, STScI

52. *Folkloric Structures in a Byzantine Epic.* Ravital Goldgof and Lily Shelton, Florida State University

53. *Self-Monitoring and Anorexia: Putting a Face on a Potentially Fatal Disorder.* Sarah Cozza and Christopher Leone, University of North Florida

54. *Integration and Implementation of the Quine-Mccluskey simplification algorithm in an interactive smartphone game.* Oleksii Levkovskyi and Kevin Lopez, Florida Atlantic University

55. *Stranger v. Non-Stranger Sexual Assaults in Indian Country.* Nickolus Knowles and Marshall Jones, Florida Institute of Technology

56. *The Effects and Regulation of the Synthetic Peptide Multi-11 on Root Growth in Arabidopsis thaliana.* Kiona Elliott, Kevin Folta, Ph.D., and Zhilong Bao, Ph.D., University of Florida

57. *Live Imaging of the Genome Regulatory Factor BSF53a Gives Insight to Control of Genome Response.* Ashley L. Ward and Jonathan H. Dennis, Florida State University

58. *The Microwave Plasma Torch.* Ashley Windom, Michelle Miranda and Kenyon Evans-Nguyen, The University of Tampa

59. *Is the Doctor in? The Effects of Emigration on the Health Care Systems in Poland and Romania.* Gabriela Wolk and Anca Turcu, Ph.D., University of Central Florida

60. *Army Suicide: Number of Deployments and the Core Constructs of the Interpersonal Theory of Suicide.* Daniel P. Hubbard, Florida State University

61. *Regulation of Transcription Factor Yin Yang 1 (YY1) at Serine Residue 247.* Reema Tawfiq, Erin Apple, Myra Hurt, Ph.D., and Raed Rizkallah, Ph.D., Florida State University

62. *The Social Nature of Cosmetic Surgery.* Dillon Jepsen and Harry Barbee, Florida State University

63. *Mental Rotation with Martial Arts Experts.* Michael E. Torres and Valerie K. Sims, Ph.D., University of Central Florida

64. *Interface Nanoengineering to Improve Bond Strength to Low Surface Energy Materials.* Amelia Stark and Kyle Gobble, University of North Florida

65. *Ernest Hemingway's Religious Influences in the Writing of* A Farewell to Arms. Kimberlee McMillin, Florida State University

66. *The Effects of Recycled Crushed Aggregates on Portland Cement Concrete Mixes.* Jose Castano, Valentina Cherednichenko, Cassandra Hitt, Daniel Tacher and Claude Villiers, Ph.D., Florida Gulf Coast University

67. *Insularized Ringneck Snake Evolution.* Thomas Carpino and Eric Hoffman, Ph.D., University of Central Florida

68. *Effect of cannibalism in frogs on their gut microbiome and parasite susceptibility.* Lauren A. Shea, Sarah A. Knutie, Marinna Kupselaitis, Christina L. Wilkinson and Jason R. Rohr, University of South Florida

69. *Revisiting Trumbo's Four Principles for Bivariate Map Color Selection.* Georgianna Strode, Benjamin Thornton, Victor Mesev, Derek Morgan, Nathan Johnson, Evan Rau and Xiaojun Yang, Florida State University

70. *Characterization of Basigin, TLR4 and MCT1 gene-product expression in murine myocardium.* Grace E. Morse and Judith D. Ochrietor, Ph.D., University of North Florida

71. *Ceramic and 3D Printing.* Ediel Dominguez and Anna Calluori Holcombe, University of Florida

72. *Comparison of Quantity and Overall Quality of Trace DNA Evidence Collected from Substrates Found at Crime Scenes.* Chad Hogan and Sulekha Coticone, Ph.D., Florida Gulf Coast University

73. *Study on The Molecular Taxonomy of Plants Species Using DNA Barcoding.* Kevin Sanchez Jimenez and Eunice Laurent, Valencia College-West Campus

74. *Understanding adaptations to a water-scarce environment in the epiphytic species Tillandsia recurvata.* Jaimie Kittle, Arnold Morales, Montana Knight and Takashi Ueda, Florida Gulf Coast University

75. *A comparison between age, growth and maturity of the United States' Graysby grouper (Cephalopholis cruentata) and Coney grouper (Cephalopholis fulva).* K.M. Lo, University of South Florida; W. Bubley, SCDNR; T.I. Smart, SCDNR; M.J.M Reichert, SCDNR

76. *The Cytotoxic Effects of Daidzin on H-460 Lung Cancer Cells.* Ricardo J. Vallejo and Roslyn N. Crowder, Stetson University

77. *Effects of Fetal Bovine Serum in Growth Media on Puerarin-induced Jurkat Leukemia Apoptosis.* Kenneth John Massa and Roslyn N. Crowder, Ph.D., Stetson University

78. *The importance of Financing and Marketing for a Non-Profit Organization in a Competitive Market.* John Permenter, Kimberly Reid and Latika Young, Florida State University

79. *Can Independent Redistricting Commissions Lead Us Out of the Political Thicket?* Barry Edwards, University of Central Florida; Angel Sanchez, University of Central Florida; Tyler Yeargain, University of Central Florida; Michael Crespin, University of Oklahoma; Jessica Hayden, University of Oklahoma

80. *Building a Trustworthy Robot — Robot Colors and Perceived Trust.* Peter Hancock, Nicolette Leibowitz, Kimberly Stowers, Jacob Stawicki and Anjelica Doriety, University of Central Florida

81. *Diverse Leader Identity.* Jasmine Richardson, Kathy Guthrie, Ph.D., and Vivechkanand Chunoo, Florida State University

82. *Are we what we eat? A statistical study of the effect of nutrition in early childhood on societal economic development.* Andrea Jo and Alfonso Rodriguez, Ph.D., Florida International University

83. *Photovoice Methodology: Examining Serious Relationships in which One Partner has a Mental Illness.* Amanda Rio, University of South Florida

84. *Identifying and Evaluating Degenerative Joint Disease in the Lumbar Vertebrae of the Archaic Windover Population.* Alyssa Frey and Geoffrey Thomas, Ph.D., Florida State University

85. *Fortune Telling and the Excludability of Religious Freedom.* Charles McCrary and Nicole MacMillan, Florida State University

86. *The Physiological and Behavioral Effects of Sleep deprivation: An Integrated Analysis.* Christopher Sarmiento, Lauren D. Hill, Maggie Lorenzetti, Ana I. Fins, Travis J. A. Craddock and Jaime L. Tartar, Miami Dade College

87. *Analysis of the expression of the Basigin subset of the immunoglobulin superfamily in mouse brain.* Tavia N. Hall and Judith D. Ochrietor, University of North Florida

88. *Baseline Study for the Identification of Intestinal Parasites in Gopher Tortoises Found in Blazing Star Preserve and Pine Jog Preserve.* K. S. Haizlett, J. Huffman, E. Frazier, Ph.D., and J. Caruso, Ph.D., Florida Atlantic University

89. *Effects of various journal writing prompts on subjective ratings of stress.* James Oskam, Kate Barber, Alison Long, Maggie Harding and Shannon Whitten, Ph.D., University of Central Florida

POSTERTITLES

90. *Executive Functioning and Response to Intervention: Project KIDS.* Mia C. Daucourt and Sara A. Hart, Florida State University

91. *Preserving and Promoting University History: Exploring Emerging Heritage Programs.* Kelly Scandone, Florida State University

92. *Regulatory Focus, Perceptions of Value Similarity and Romantic Relationship Quality.* Alec Gallion and Paul Fuglestad, Ph.D., University of North Florida

93. *Comparative Computational Analysis Of Phylloplanin Proteins Present in Different Plant Species.* Joanna Burr and Padmanabhan Mahadevan, The University of Tampa

94. *Examining Convergent and Discriminant Validity of a Novel Set of Executive Functions.* Rachel West, Danielle Hergert, Geoffrey Potts and Cynthia Cimino, University of South Florida

SESSION 4

1. *Variability of Familial ALS pathogenesis: Does SOD1 protein conformation play a role?* Adriana Sari, Jacob Ayers and David Borchelt, University of Florida

2. *Gender Differences in Alcohol Abuse, Dependence and Poisoning Resulting in Emergency Visits, Hospitalizations and Death in Volusia County.* Dominique Drager, Rachel Lee and Laura Gunn, Ph.D., Stetson University

3. *Molecular Modeling of PrPc and PrPsc and Their Theoretical Functions.* Elizabeth Nicole Panek and Audrey Shor, Saint Leo University

4. *Developing learning paradigms in Aplysia californica to help understand circadian rhythm.* Valentina N. Saracino, Eric Noakes, Harini Krishnan and Lisa Lyons, Ph.D., Florida State University

5. *Lesions and language: the cerebellum's role in language recovery following perinatal stroke.* Jairo Munoz, Carolina Vias, Sophia Tchir, Jefferson Salan, German Lopez, Ania Suros, Matteo Grudny and Anthony Steven Dick, Florida International University

6. *Equivalent circuit model and capacitance-voltage spectroscopy of matrix-assisted pulsed laser evaporated conjugated polymer thin-film solar cells.* Océane Boulais, Florida Atlantic University; Adrienne Stiff-Roberts, Duke University; Wang-Yao Ge, Duke University

7. *Immune Responses of Human Males and Females in Association with Autoimmune Disorders.* Tung Q. Doan, University of Florida

8. *Using a Standard Field Programmable Gate Array as a Time to Digital Converter.* Lyle Josey, Chase Kuehner and Chiu Choi, Ph.D., University of North Florida

9. *Using a Visual Programing Language to Interact with Visualizations of Electroencephalogram Signals.* Chris S. Crawford, Marvin Andujar, France Jackson, Ivens Applyrs and Juan E. Gilbert, University of Florida

10. *Effect of temperature on head regeneration of Hydra littoralis.* Joseph Goode and Ramona D. Smith-Burrell, Eastern Florida State College

11. *Breast Cancer Survivors' Adherence to Physical Activity Recommendations.* Cecelia V. Ferguson, Sarah L. Eisel and Stacey B. Scott, University of South Florida

12. *Sacrificing one to save the many: compassionate or cold-blooded?* Jacob Goldstein-Greenwood, Florida State University

13. *Coupling electrophysiology with anatomy: visualization of stimulated and recorded spinal neurons with silver juxtacellular labeling.* A. Sexton, A. Caballero, K. Schwanebeck, K. Samuel, V. Zhu, A. De Guzman, L. E. Denholtz, S. Posgai, S. Patel, K. A. Streeter, H. Denson and D. Baekey, University of Florida

14. *Investigating Working Memory and Health Outcomes in Preschool Children.* Patricia Murphy-Powell, Jody S. Nicholson and Tracy P. Alloway, University of North Florida

15. *Mere Thought and the Theory of Planned Behavior: When Thinking Means Doing.* Robert Gargrave, Christopher Leone and Katie McCann, University of North Florida

16. *In Silico phrenic nerve modeling as a tool to improve quantification of respiratory signal integration.* A. De Guzman, A. Caballero, K. Samuel, K. A. Schwanebeck, A. Sexton, V. Zhu, H. B. Denson and D. M. Baekey, University of Florida

17. *Engineering Clonal Human Cell Lines Stably Expressing a Single p73 Isoform.* Irena Gushterova, The University of Tampa; Ricardo A. Cordova, The University of Tampa; Jong Y. Park, Moffitt Cancer Center; L. Michael Carastro, The University of Tampa

18. *Water and the Maya.* Josie Bready, The University of Tampa

19. *Polyphenon E Treatment Affects p73 mRNA Levels.* Ricardo A. Cordova, The University of Tampa; L. Michael Carastro, The University of Tampa; Christopher D. Cole, The University of Tampa; Jong Y. Park, Moffitt Cancer Center

20. *The effects of acute aerobic exercise on neurophysiological, biochemical and self-report measures of emotion processing.* Sebastien Salzmann, Christopher Sarmiento, Jose Antonio, Ph.D., and Jaime Tartar, Ph.D., Nova Southeastern University

21. *Analysis of the regulatory sequences of a cauliflower gene by protoplast transformation and GUS histochemical and fluorescence assays.* Ryan Koscielniak, Jason Hoop, Melissa Sanchez and Marilyn Cruz-Alvarez, Ph.D., Florida Gulf Coast University

22. *Mobile Apps Making Strides in Language Education.* Grace Montgomery, Florida State University

23. *Evaluating the Leach rate of Chromated Copper Arsenate from CCA Treated Lumber in Water.* Lynta Thomas, Ph.D., and Franklin Thornburgh, Eastern Florida State College

24. *Reactions of Iron Molecules with Ozone: Determining Reaction Mechanisms.* Trí Lê, Gregory Miller and Joshua J. Melko, University of North Florida

25. *Heigh-Ho to Let It Go: The Evolution of Gender Performance in Disney Princess Films*. Ricci Allen, Breanna Dennes, Hayley Kessler and Samantha Gomes-Compton, Ph.D., University of South Florida

26. *Genetic structure of a hybrid zone between the killifish Fundulus heteroclitus and F. grandis in Northeast Florida.* Natalia Gutierrez and Matthew R. Gilg, University of North Florida

27. *Thoracic Intraspinal Microstimulation (ISMS) Evokes Frequency Dependent Activation of Respiratory Efferents*. K. A. Samuel, K. A. Schwanebeck, A. Caballero, A. De Guzman, A. Sexton, V. Zhu, H. B. Denson and D. M. Baekey, University of Florida

28. *You've Got Mail: First Steps in Brief Online Email Training Design and Evaluation*. Jake R. Mathwich, Keaton A. Fletcher and Wendy L. Bedwell, Ph.D., University of South Florida

29. *Relationship between Leadership Effectiveness, Personality and Video Game Experience in a Military Simulation*. Jacob Werchan, Christopher Fahey, Katlin Anglin, Jason Kring and Joseph Keebler, Embry-Riddle Aeronautical University

30. *A Case Study on Networking upgrade with Inter-organizational Collaboration.* Chris Mosteiro and Ted Tramonte, Florida Gulf Coast University

31. *Functional Analysis of FePer1 5' Regulatory Sequences in Transgenic Arabidopsis Plants; Developing a Novel Biosensor for Monitoring Plant Stress Levels.* Samuel Minkowicz, Karolina Czarnecki, Adrian Pena and Takashi Ueda, Florida Gulf Coast University

32. *Investigating Ground Penetrating Radar (GPR) Potential for Detection of Gopher Tortoise Subsurface Nests within South Florida Soils.* Sarah Mitchell, Jessica Huffman, Evelyn Frazier, Ph.D., and Xavier Comas, Ph.D., Florida Atlantic University

33. *In-sourcing Information Technology Versus Outsourcing Information Technology, A Case Study.* Kervens Cherenfant, Samuel Diramio and Dominic Capizzi, Florida Gulf Coast University

34. *The Effects of Overly Motivated Individuals on Group Morale.* Brian Haughton and Hema Mason, Ph.D., Albany State University

35. *Music Ensembles and the Autistic Social Experience in College.* Jeffrey Edelstein and Michael Bakan, Ph.D., Florida State University

36. *Serving the homeless in Jacksonville: Organizational strengths and needs.* Ashley M. Kushner and David R. Forde, University of North Florida

37. *Design of coaxial nozzle and fabricate a porous calcium-alginate hydrogel scaffolds by customized 3D bioprinter.* Chance Mata, Maohua Lin and Yunqing Kang, Florida Atlantic University

38. *The Islamic State: Origins and Expansion.* Ryan Hart and Patricia Campion, Ph.D., Saint Leo University

39. *REBOOT laboratory.* Sarah Morell, Rob Duarte, Carolyn Henne, George Boggs, Denise Bookwalter, Jeff Beekman and Robby Nowell, Florida State University

40. *Adenosine Deaminase Associates with Self-Reported State Anxiety and Evening Melatonin Levels*. Franklin S. Hiffernan and Jaime L. Tartar, Nova Southeastern University

41. *The effectiveness and value of virtual leader behaviors.* Robert Gray, Sarah E. Frick and Wendy L. Bedwell, University of South Florida

42. *A Key to Septobasidium of the Southeastern United States*. Gabriel Somarriba and Andrea Lucky, Ph.D., University of Florida

43. *Is it Good to be Bad? Taboo Words Reduce Tip-of-the-Tongue States for Young Adults.* Jori Mansfield, University of Florida; Danielle K. Davis, University of Florida; Lise Abrams, University of Florida; and Lori James, University of Colorado-Colorado Springs

44. *Uniformity of Skin Temperature Distributions in Ultra-Thin Thermal Ground Planes Compared to Copper Heat Spreaders*. Itza Beltran, Shanshan Xu, Ryan J. Lewis, YC Lee and Ronggui Yang, University of Central Florida

45. *Determining Polyhydroxylated Fullerene Interactions with Amyloid-Beta 42 Oligomerization and Understanding their Role in Aß-Induced Oxidative Stress in Neural Stem Cells.* Kiminobu Sugaya, Ph.D., and Alexander Torres, University of Central Florida

46. *Does Speaking Two Languages Improve Non-Linguistic Executive Functions?* Maria Panameno, Luz Delgadillo, Morgan Musgrove and Mercedes Fernandez, Ph.D., Nova Southeastern University

47. *Threats to Aviation: A Causal Analysis of Homeland Security.* Dennis Rumpel and Priscilla McDonald, Embry-Riddle Aeronautical University

48. *Arrestin-1 Regulates Glucocorticoid Receptor Expression in Cancer Cells*. Xzaviar Solone, Hamsa Thayele Purayil, Yehia Daaka, Bethune-Cookman University and University of Florida

49. *Taxonomy of plants through DNA Barcoding with the use of RuBisCo.* Nebat Ibrahim, Valencia College

50. *The Development of Intonation in Second Language Spanish.* Mercedes Puig, Carolina Gonzalez, Anel Brandl and Amy Bustin, Florida State University

51. *Academic success among former delinquent youth: Motivating factors*. Kimmie Henderson and Jennifer Wolff, University of North Florida

52. *Two Terms of the Cuban Counterpoint: Transculturation in the Poetry of Nicolás Guillén.* Alanna Fulk and Celestino Villanueva, Ph.D., University of Central Florida

53. *On the Expected Increase in Mobile Transactions Authenticated Through Biometrics*. Loren Barcenas and Koray Karabina, Florida Atlantic University

54. *My Dispersed Ones: The Search for an Ethiopian Place in Twentieth Century America.* Ebony Taylor, University of Florida

55. *Cortical Auditory Evoked Responses of Older Adults with and without Probable Mild Cognitive Impairment.* Anthony Asta, Jennifer J. Lister, Aryn L. Harrison Bush, Ross Andel, Courtney Matthews and Jerri

POSTERTITLES

D. Edwards, University of South Florida

56. *Generation Rated X: Personality Traits, Sexual Attitudes and the Effects of Sexually Explicit Media on Attraction Among Men.* H. Christopher Eckstein, University of Central Florida

57. *Expression profile of Monocarboxylate Transporters and Basigin gene products in the mouse cornea.* Randall Maniccia, Joseph Fong and Judith D. Ochrietor, University of North Florida

58. *How the Hong Kong educational system has impacted students' self concept.* Yin Shan Chung and Dina Wilke, Ph.D., Florida State University

59. *Faking Gravity.* Dylan Whitman, South Florida State College

60. *Environmental repercussions of American diets.* Shannon Conley and Samantha Miker, Florida State University

61. S*ocial Media Activism and the SOA Watch Movement.* Summer Harlow, Ambar Martin and Carly Gillingham, Florida State University

62. *Astronaut Farmers: Growing Food in Space.* Christian Reitnauer and Keysha Pecor, South Florida State College

63. *Lung Cancer Mortality in Volusia County: How Does Volusia Measure Up to the Healthy People 2020 Objective?* Audrey Cherin, Fidel Vasquez and Laura Gunn, Stetson University

64. *The Science Behind Science Fiction:* Star Trek: The Original Series *and* The Martian. Alexis Drzewucki, Heather Oyola and Katherine Oyola, South Florida State College

65. *Role of carboxyl end helical domain in unusual high stability of Anabaena Sensory Rhodopsin Transducer oligomeric assembly.* Stephon Hercules, Sharita Ellison, C. Ainsley Davis and Vishwa Trivedi, Bethune Cookman University

66. *Early-Childhood Exploration and Cognitive Development.* Nicholas Emord and Ayshka Rodriguez, University of North Florida

67. *On the Origin of the Moon.* Abubakr Hassan, University of North Florida

68. *The Effects of Invasive Grass and Drought on Arthropod Communities.* Michelle Dunbar and Andrea Lucky, Ph.D., University of Florida

69. *The impact of endocrine disrupting compounds found in waste water effluent on the embryonic development of Oryzias latipes (Medaka fish).* Zachary Loeb, University of Central Florida

70. *Development of an Allelopathic Biofilm as an Alternative to Commercial Boat Bottom Paint.* Amanda Smith, Kathy Siegler and Ray Menard, St. Petersburg College

71. *Can we plant newly restored sites to resist invasion from Phragmites australis?* Allison Bechtloff, Carrie Reinhardt Adams, Candice Prince and Leah Cobb Lee, University of Florida

72. *Unusual High Strain Hardening of Carbon Nanotube Networks: Mechanisms and Experimental Results.* Devin Justice, Rebekah Sweat, Ayou Hao and Richard Liang, Florida State University

73. *Observing Myrmecophilus relationships between Odontomachus brunneus and Lamellaxis micrus.* Joshua Hildebrandt and Andrea Lucky, Ph.D., University of Florida

74. *Comparison Between FTIR and Boehm Titration for Activated Carbon Functional Group Quantification.* Chad Spreadbury, Regina Rodriguez and David W. Mazyck, Ph.D., University of Florida

75. *Solar Powered Electrocoagulation system with granular sand filtration for Phosphorus Removal from Surface Water.* Daniel Franco, Jabari Lee and J.-Y. Kim, Ph.D., Florida Gulf Coast University

76. *The Role Perspective-Taking Plays in Reducing Overweight Biases.* Sandra Khalaf and Curtis Phills, University of North Florida

77. *Culture and Commerce in the Music Industry: An Economic Analysis.* Nikolina Kosanovic, University of South Florida

78. *Politics and Aesthetic Discourse: Landscape Reform in Urban Eighteenth-Century Lima.* Taylor L. Crosby, Florida State University

79. *The effect of residue K288 on the thermodynamic profile of the leucine transporter (LeuT).* Justin Pomeroy and Kelli Kazmier, Rollins College

80. *S.I.A.M Eco-Dolphin.* Francisco Pastrana, Evan M. Dort, Eric Osorio, Zhouyang Fu and Mengshu Qing, Embry-Riddle Aeronautical University

81. *Contribution of different alleles of CAULIFLOWER, APETALA1 and FLOWERING LOCUS C 2 genes to flowering phenotype in Brassica oleracea.* Brandon Califar, Sandra Londoño, Inna Timshina, Daniel Dorado, Franco Migliolo and Marilyn Cruz-Alvarez, Florida Gulf Coast University

82. *Isolation and Evaluation of Antibiotic-Producing Marine Bacteria from Florida's Gulf Coast.* Marielena Torres, Danielle Pearman and Eric Warrick, State College of Florida-Manatee/Sarasota

83. *Design and Synthesis of Precursors for Deposition of Metal Nanostructures.* James McDaniel, University of Florida; Kelsea Johnson, University of Florida; Yung-Chien Wu, University of Florida; Joseph Brannaka, University of Florida; Julie Spencer, Johns Hopkins University; Rachel Thorman, University of Texas at Dallas; D. Howard Fairbrother, Johns Hopkins University; Amy Walker, University of Texas at Dallas; and Lisa McElwee-White, University of Florida

84. *Sugar substitutes have a bacteriostatic growth attenuation effect on the prevalent and commensal gastrointestinal species, Bacteroides fragilis.* Lester S. Manly, Ramasai T. Kalyanam, David T. Ha, Morsal Osmani, Vincent S. Volante and Charles B. Coughlin, University of North Florida

85. *The development of a Cancer Biology training curriculum for Community Health Workers based on a Systematic Review.* Kimbel Bradley, Bethune-Cookman University

86. *Neuroprotection in Ischemic Stroke by Angiotensin II Type 2 Receptors: Uncovering the Role of Budding Neurons.* Allison T Harmel, Douglas M Bennion, Jacob D Isenberg, Jonathan Alexander, Marcello Febo, Eduardo Candelario and Colin Sumners, University of Florida

87. *Probing Mechanisms of Carbon Monoxide and Carbon Dioxide Cations Reacting with Atomic Nitrogen and Oxygen.* Jake Tenewitz, Tri Le and Joshua J Melko, University of North Florida

88. *So What Do I Pay You For Anyway? The Relationship Among Teaching Evaluations, Rate My Professor Evaluations, Gender and Salary.* Kyle Goldman and Randall Croom, University of Florida

89. *A Nutrient Enrichment Experiment at Silver River: Using the benthos box to determine effects of added nutrients on stream metabolism.* Sarah Power, Courtney Reijo and Matthew Cohen, University of Florida

90. *Does Expressive Writing Improve Exam Scores?* Charles Fitzsimmons and Katherine Hooper, Ph.D., University of North Florida

91. *Ecosystems in Peril: Juvenile Recruitment in Cypress Domes at the University of Central Florida.* Jennifer Elliott, Mary Bibler, Amy Compare, Jacqueline Meyer, Chelsea Petrik and Chelsey Sprouse, University of Central Florida

92. *A mesogenic oligomer with alternating electron acceptor and donor units for organic electronic applications.* Samantha T. Mensah, Lydia Sosa-Vargas, David Kreher, Fabrice Mathevet and André-Jean Attias, University of Central Florida

93. *Environmental effect on Egfr gene expression and subsequent caste determination in the eusocial insect Camponotus floridanus.* Katherine A. Hargreaves and Michelle M. Osovitz, St. Petersburg College-Clearwater

94. *Non-target effects of mosquito control pesticides on the coral Acropora cervicornis at elevated temperatures.* Arien Widrick, University of North Florida; Rich Pierce, Mote Marine Laboratory; and Cliff Ross, University of North Florida

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Session 1

(1) **Juxtacellular Silver Labelling of Neuronal Recording Sites in the Spinal Respiratory Network.**

A. Caballero, K. A. Schwanebeck, A. Sexton, S. Patel, A. De Guzman, K. Samuel, V. Zhu, H. B. Denson, K. Streeter, and D. M. Baekey
University of Florida

Cervical spinal cord injury often results in respiratory impairment due to damage of neural pathways. While several supportive and clinical approaches are currently being developed, a poor understanding of spinal respiratory circuitry is limiting the identification of therapeutic targets. To address this, our laboratory is using a custom multielectrode array to record ensembles of respiratory related neurons in the cervical spinal cord of naïve and SCI rats. While functional network models can be built from these recordings, determining the anatomic recording sites for each electrode presents a significant challenge. Using the technique developed by Spinelli (1975), we employed juxtacellular silver labelling to identify the location of neuron recordings and directly relate anatomic position of neurons to specific roles in the spinal respiratory network. Preliminary data confirm that electroplating silver to the tips of the electrodes does not interfere with recording capabilities while subsequent histology distinctly labels the location of each recording site. Initial imaging created silver labels spanning several neurons, adequately identifying spinal nuclei from which recordings were made, but not sufficiently discreet to identify the exact neuron being recorded. Several variables determine the extent of the labeling and we are continuing to refine the technique to achieve single cell identification. As a future direction, we plan to couple this technique with immunohistochemical staining to further phenotype the neurons recorded. We suggest that this combination of recording, labeling, and staining will eventually lead to more comprehensive and efficient mapping of the respiratory spine.

(2) **The Effects of Metacognitive Prompting on Music Learning.**

Kelly Rosch, Dr. Valerie Sims, and Dr. Stephen M. Fiore
University of Central Florida

Metacognitive prompting is an educational tool that stimulates awareness of one's own learning process. It is helpful during learning because it helps students correct their own mistakes as they make them, instead of after a learning episode. Expert musicians use metacognitive strategies during practice, while novice musicians typically do not. This study aims to measure the effects of various types of metacognitive prompting on the performance of novice piano students. We predict that students who receive metacognitive prompting during the learning episode will perform with greater rhythm and pitch accuracy than students who do not receive any prompting. This study has wide implications in education, both in the classroom and in workforce training environments.

(3) **Study on the Placement of Zinc in HeLa cells using SNAP-tag Technology.**

Eden Gordon, Nick Accardo, and Dr. Lei Zhu
Florida State University

Most people agree that vitamins, or micronutrients, are beneficial, but few actually understand the impact just one micronutrient can have on the human body. One of the most important micronutrients required by the human body is zinc. Zinc can be found in cells throughout the body, most notably in neurons. It is instrumental in basic bodily functions including cell division, cell growth, the senses of smell and taste, defense against disease, and the release of insulin in the bloodstream. A deficiency or an excess of zinc can be extremely detrimental, causing anything from hair loss to hypogonadism. This study seeks to enhance the scientific community's understanding of zinc's role in the body at a cellular level using SNAP-tag technology. This begins with synthesizing molecules that undergo zinc coordination-mediated fluorescence change. In other words, these molecules emit light when bound to zinc. These molecules can be localized to specific organelles using SNAP-tags. The resulting molecular complexes are bound to specific proteins within cells derived from a HeLa cell culture, making it possible to essentially dye the areas within a cell that contain zinc. The cells can then be viewed under a microscope, under which it is possible to visualize zinc distribution in a human cell. These findings may be significant to the medical, chemical, and biochemical communities. The findings of this research will lead to a deeper understanding not only of SNAP-tags as a new technology, but also of the importance of zinc in the human body.

(4) **Singing Ebola: Music, Media and Cultural Messages in Liberia.**

Michael P. Rivera
Florida State University

In response to the most recent Ebola outbreak, West African musicians have composed songs with the intent to convey informational messages on the disease. Similar to the HIV/AIDS music of the past few decades, a number of these songs are not only written by artists and activists independently but also in collaboration with non-governmental organizations (NGOs) that exert their own influence over local music industries. Drawing from web-based music sources (i.e. Soundcloud and YouTube), this study examines how Liberian artists and collectives convey health information while at the same time present varying cultural and political perspectives. In my analysis, I follow a function-based classification model (Tucker 2014) to organize these pieces into the epidemic's timeline. A data coding process further identifies linguistic themes and mechanisms that embody the complex power relations between Africa and the West. In doing so, I consider the role Ebola music has played throughout the course of the epidemic in Liberia and how these multiple narratives socially, culturally, and politically construct the disease.

(5) **A genetic suppressor screen identifies RNA-binding protein SSD1 as a regulator of proteasome subunit levels.**

William C. Howe and Robert J. Tomko Jr.
Florida State University

The 26S proteasome is the largest and most complicated cellular peptidase complex, and is responsible for the majority of regulated and quality control proteolysis in eukaryotes. The abundance of proteasomes is dynamically altered in healthy cells to match the cellular proteolytic load. However, sustained perturbations to this homeostasis frequently occur in human disease, and disruption of protein turnover promotes or exacerbates numerous human cancers and neurodegenerative disorders. Despite this, very little is known about how the abundance of

the proteasome is controlled in vivo. To address this knowledge deficit, we conducted a genetic screen in Saccharomyces cerevisiae to identify novel genes or pathways regulating proteasome abundance. We isolated SSD1 as a high copy suppressor of the rpt6-Δ1 proteasome mutant, which has reduced steady-state proteasome levels. Our phylogenetic analysis suggests that SSD1 is orthologous to the human DIS3L2 gene, which is implicated in Perlman syndrome, a disease characterized by congenital overgrowth and predisposition to Wilms' tumor. The SSD1 gene encodes an RNA-binding protein with links to translational control. SSD1 overexpression suppressed growth defects in a subset of proteasome mutants tested, indicating a selective mechanism of suppression. Consistent with this selective suppression, overexpression of SSD1 in both wild type and rpt6-Δ1 yeast increased the protein levels of some, but not all, proteasome subunits, and increased the abundance of specific proteasomal assembly intermediates. Our ongoing studies test the hypothesis that Ssd1 acts as a translational enhancer for select proteasome subunit mRNAs, thereby increasing proteasome levels in vivo.

(6) **Alcohol Dependency on a "Dry" College Campus.**

Chelsea Basley and Hema Mason, Ph.D.
Albany State University

Based on research, the prevalence of alcohol dependency and addiction has shown to be higher among college students, ages 18-24, than their counterparts who do not attend college. Often this behavior negatively impacts college students academically, biologically, socially, and psychologically. Unfortunately, some students ignore these negative consequences and continue to consume alcohol at a high and damaging rate (SAMHSA). The purpose of this study was to evaluate the leading social causes of heavy alcohol consumption among Albany State University students, and measure the potential negative social and physical impacts of heavy alcohol consumption. Further, this study sought to examine the issue of recreational alcohol use vs. addictive alcohol use, and measure the likelihood of students who would seek professional help if it was determined to be needed. Five surveys, $\alpha \geq .7$, were administered to 30 participants. Each survey focused on: reasons for and frequency of consuming alcohol, negative consequences from consuming alcohol, understanding the severity of alcohol use, and the willingness to seek professional help. Results indicated that there were no correlations between social acceptance and heavy alcohol consumption and that participants did not partake in heavy alcohol consumption and therefore had a high sense of social responsibility. Moreover, this sample revealed an overall mild physical dependency to alcohol. Finally, participants had moderately positive attitudes toward seeking professional help. Additional research and plans include: (1) increasing the sample size and (2) administering a more robust scale that measures alcohol dependency. This will potentially result in different findings.

(7) **In vitro Analysis of the Efficacy of Probiotic Use During Antibiotic Application.**

Taylor Culbertson and Chris Petrie
Eastern Florida State College

Antibiotic effectiveness is in sharp decline, resulting in an epidemic emergence of resistant microorganisms. The result is a steady decline in successful treatment application in healthcare. The cause of this trend can be traced to several sources. The potency of antibiotics has not changed, but the microorganisms' resistance has. This is due to natural selection stemming from

the over-use of antibiotics. Antibiotics are a necessity in treating a bacterial infections, but can have adverse effects, and destroy many beneficial flora in the patient's GI tract. Alternative treatments are currently being explored and many still include the application of antibiotics. This project will introduce the idea of combining probiotics with an antibiotic dosage. This will re-establish damaged gut flora and provide a competitive environment against other harmful drug resistant bacterial growth in the patient's GI tract. Probiotics are used as commonly as an over the counter health supplement, but little data exists on the efficacy of their appliance. Medical practitioners are beginning to use probiotics in clinical settings to improve patients' health. Here, we show that administering a probiotic after a scheduled antibiotic dose will help restore the good flora within an in-vitro test. The data indicates positive growth of lactobacillus in a petri dish after an antibiotic was administered, demonstrating that beneficial bacteria can be restored during antibiotic regimens.

(8) **Stroking Away Stress: The Effects of Stroking One's Pet on Perceived Stress as a Function of Attachment.**

Anna Burns, Leah Boepple, and Judith Bryant, Ph.D.
University of South Florida

Pets have been used in a variety of settings in hopes of helping humans reduce stress, but it has been thought that one must have an attachment towards the pet in order to receive these benefits. The effects of physically affectionate interactions with an animal on changes in perceived stress were examined, with level of attachment to the animal serving as a moderator. Eighty-six dog and cat owners completed online surveys containing questions about their perceived stress and attachment towards their pet. Participants were randomly assigned to either an experimental or control group. Over a six-day period those in the experimental group were instructed daily to increase their amount of physical affectionate interactions with their pet, while the control group received a fact about an animal each day. On the seventh day of participation, participants were asked to complete the online surveys once more. Participants given instructions to increase physical affection reported a greater change in perceived stress than did participants who were not given these instructions. Neither level of pet attachment nor its interaction with instructions predicted stress reduction. All participants indicated some form of attachment towards their pet and there was a narrow range of pet attachment scores, so the relevance of attachment needs to be explored more in future research. Overall, these findings suggest that a simple intervention such as increasing the amount of physical affectionate interaction with one's pet can help one reduce stress.

(9) **Real-time effects of Prescribed Fire on Gopher Tortoise (Gopherus polyphemus) Burrows and Their Occupants.**

Frank Robb and Chris Petrie
Eastern Florida State College

Tortoise burrows are assumed to provide adequate shelter for animals seeking refuge from fires. However, a true analysis of the exact conditions occurring during prescribed burns remains undocumented. In this study, we present preliminary data describing the burrow crowding and thermal conditions of several burrows observed during recent burns. This data will increase our understanding of the function of burrows in a pyrosuccessionally maintained community.

(10) **The effects of being Hispanic on Health.**

Luis Puesan and Scott Landes
University of North Florida

Studies have shown that there was an association between being Hispanic and an increase in health. The reason this was worth noting was because Hispanics are the 2nd lowest earning ethnic group, yet outlive whites who are the majority population in the United States. In this paper, I explore that Hispanics below the poverty line have better health than non-Hispanics below the poverty line, as well as Hispanics above the poverty line have better health than non-Hispanics above the poverty line. In addition, I explore the differences in self-reported health between Hispanic subgroups in comparison to non-Hispanics. In order to explain this, I utilize data from the 2001-2003 National Health Interview Survey. This data allows Univariate, Bivariate and Multivariate analysis on the effects of Hispanic ethnicity and poverty status on reported health. Specifically, I test the following hypothesis: Hispanics living above poverty level will have better health than non-Hispanics living above poverty level; Hispanics living below poverty level will have better health than non-Hispanics living below poverty level. These results will aide in understanding the possible relationship between Hispanic ethnicity and health status in the United States; as well as a better understanding of the pattern of health among Hispanic subgroups in the United States.

(11) **ERP implementation is not the end: a case study about ERP implementation and upgrade.**

Malayna Renberg, Konnor Wagner, and Laura Ospina
Florida Gulf Coast University

Enterprise Resource Planning (ERP) solutions have evolved from reorder point and materials management focused systems (ROP and MRP) based on mainframes to responsive and integrated re-source planning systems based on client-server architectures and web platforms. Through data standardization and process integration, ERP systems have the potential to facilitate communications and co-ordination, enable the centralization of administrative activities, reduce IS maintenance costs and increase the ability to deploy new IS functionality. This study focus on both implementation and post-implementation issues of ERP systems. A case study method is adopted to describe, analyze, and discuss all the problems raised from a typical ERP implementation and it's package upgrade. Lessons and issues, such as customization, user expectations, security, staffing, etc., will help researcher and practitioners in ERP studies.

(12) **Pump It Up! Providing insulin pump treatment intervention for children with Type 1 Diabetes.**

Kimberly Driscoll, Ph.D., Rebecca Lynch, Haley Stephens, John Wilcox, Sydney Elise, Kenzie Hendrix and Jenna De Francesco
Florida State University

Insulin pump technology is a significant form of treatment that is utilized by many people who have different forms of diabetes, primarily type 1 diabetes. Type 1 diabetes is an autoimmune disease affecting the functionality of insulin producing beta cells within the islets of Langerhans

of a human pancreas, causing irregularities in metabolic blood glucose control. Type 1 diabetes is primarily diagnosed within the pubertal developmental years of juvenile children growing into adolescence. Increasing prevalence of type 1 diabetes diagnoses among younger age groups has prompted the investigation of how well children are educated of their disease in order to constantly treat their diabetes while using insulin pump technology systems. A series of standardized insulin pump protocol assessments were constructed to test the knowledge of children with type 1 diabetes over a period of time. Assessments were taken with multiple forms of questionnaires that were given to child participants at scheduled appointments that corresponded to appointments made with their Endocrinologist practice over a longitudinal period of time. Responses to the questionnaires were kept and recorded over time to assess whether or not children taking the assessments were improving insulin pump treatment knowledge. The aim of this study is to act as an intervention to improve diabetes care knowledge for families and children affected by this condition, as well as to assess the overall competency of children who facilitate care for themselves using insulin pump technology.

(13) **Tamoxifen's effects on the Acoustic Startle Reflex and Prepulse Inhibition of the Acoustic Startle Reflex for Aging CBA Ovariectomized Mice.**

Carlos J. Cruz, McKenzie Lynn Watson, Xiaoxia Zhu, Tanika T. Williamson, Alaa W. Taha, Robert D. Frisina, and Joseph P. Walton
University of South Florida

Drug-induced ototoxicity is a condition that occurs when a drug's interaction with the body produces damage to the auditory system resulting in adverse effects such as hearing loss. In this study, Tamoxifen's possible ototoxic capabilities are investigated in ovariectomized (OVX) CBA mice, as Tamoxifen blocks estrogen from binding to estrogen receptors (Thompson et al., 2006). In the present study, OVX (n=4), control female (non-OVX, n=6), and male (n=5) CBA mice at 11 months of age were treated with 20 mg/kg of Tamoxifen for 14 consecutive days. Testing consisted of measuring the Acoustic Startle Reflex (ASR) of mice in response to 55-115 dB SPL sound intensities and Pre-Pulse Inhibition (PPI) of the ASR, which measured the auditory sensory gating capabilities when 20, 40, 55, and 75 dB SPL pre-pulses were presented before the startle generating stimuli (110 dB SPL). ASR and PPI data were collected at a baseline age of 11 months, one week after treatment at 13 month, and one month post-treatment at 14 months. Findings indicate that PPI initially increased one-week post-treatment of Tamoxifen, at the 40, 55, and 75 dB SPL pre-pulse sound levels, and then decreased one-month post treatment. Startle data did not significantly change post-treatment. These results suggest that repeated 14-day Tamoxifen administration, versus a single 14-day administration, could possibly improve auditory processing and sensory gating capabilities. The potential mechanism is that Tamoxifen acts as a cell-receptor agonist in already estrogen-deprived OVX mice. Work supported by: NIH-NIA P01 AG009524

(14) **Visual Exploration of Software Clusters.**

Somalia Jamall and Sandeep Reddivari
University of North Florida

Software clustering techniques are employed commonly to aid the reverse engineering process. These techniques attempt to automatically discover natural groupings of large numbers of

software entities, such as the set of all files comprising a software system. Their goal is to decompose the problem of understanding a large piece of software into smaller and easier-to-manage subproblems, thus reducing the effort involved in recovering the system structure. In particular, the software entities to be clustered are represented as nodes of a dependency graph. A visual clustering algorithm then maps each node to a position in the two-dimensional space. If the nodes of a software system's dependency graph are to be clustered, then a software clustering algorithm recovers the system structure based on the dependencies in the graph. Our work on visual clustering goes one step further and argues that it is not sufficient to just partition a set into equivalence classes. In addition, visual clustering renders each node into the two-dimensional space and introduces rigor to the renderings. The result of visual clustering is a holistic picture that can effectively convey the landscape of the software system. Our research goal is to extend the visual clustering by concentrating on the static dependencies in the code base. We plan to develop a prototype tool and call this tool extension SDVisu (static-dependency-based visual clustering) which takes as input the dependency graph whose nodes are source code files and edges are static dependencies between the files.

(15) **Objectivity and Themes in Press Coverage of the Devyani Khobragade Incident.**

Matthew Hebron
Florida State University

As India is a key strategic partner of the United States, it is important to understand how Indian media covers US-India diplomatic incidents. Doing so can best prepare US diplomatic leadership to appropriately respond to international incidents and to design foreign policy specific to the Indian context. The December 2013 arrest of Indian diplomat Devyani Khobragade made international headlines for the nature and manner of the incident. This incident provided an opportunity to investigate the level of subjectivity in the English-language Indian press, and lends insight into how the media may have influenced a deterioration in US-diplomatic relations. Keywords about the incident were used in Academic Universe, a news database, to identify all articles from December 13, 2013 to January 16, 2014 published in The Times of India and The Hindu, the largest English-language Indian press. Condensing Vos' (2011) defining characteristics of objective journalism, articles were coded on a 1-4 rating scale according to by their level of objectivity in terms of: 1) emphasis on verifiable facts; 2) framing; and 3) article or editorial. In addition, meaningful themes from each article were identified and categorized. At time of submission, multiple key themes have emerged. Notable recurring themes include "Indian Nationalism," "Humiliation of Devyani Khobragade" and "The Status of Diplomatic Relations." Analyses are ongoing and are expected to be completed by the time of presentation.

(16) **A Study on Aging: Depression and Anxiety in Elderly Populations.**

Elizabeth A. Hull, Yasmine S. Humeda, and Dr. Angelina Sutin
Florida State University

The purpose of the Florida Longitudinal Study of Aging is to examine how physical, cognitive, and emotional well-being change together with age. The specific method of research carried out in this laboratory is to examine data gathered from subjects interviewed at Westminster Oaks and Westminster Gardens Retirement Communities in Tallahassee, FL. Subjects were asked to recall several categories of memories from different points in their lifetimes. The stories of the

memories told by the subjects were videotaped for future use in the lab. The participants also filled out surveys regarding their mental health symptoms. The specific task of the research assistants was to code a picture snapshot of the subject for a variety of personality characteristics to create a standard measurement technique, in addition to conducting participant interviews. The researchers then coded each video on the basis of a set of characteristics. Analyses were run on the surveys filled out by the patients; they were evaluated for a number of mental health factors. The goal of this specific aspect of the study is to examine how age is related to symptoms of depression and anxiety. Results of these calculations showed that increasing age is correlated with less depressive symptoms, while there is no measurable correlation between aging and anxiety. This research helps to better understand age differences in psychological distress in older adulthood as well as give insight into the factors that contribute to aging in older adults. The study is ongoing and additional data is currently being collected.

(17) **Fulfilling Psychological Needs and Improving Life Satisfaction through Sport Consumption Activities: A Comparison with Non-Sport Activities.**

Jeeyoon Kim, Casey Coholan, Adrianna Alonso, and Daniel Prewett
Florida State University

How does sport consumption activities (i.e., sport participation, sport spectating, sport media viewing) affect one's happiness (i.e., subjective well-being)? Answering the question is critical to fulfill the ethical creed of sport marketers and to effectively utilize 'well-being' as a marketing strategy. Thus, the existence and degree of sport consumption activity's influence on one's baseline and momentary fluctuation of happiness is examined in this study. Introducing fulfillment of detachment-recovery, autonomy, achievement, belonging needs as the psychological process linking sport consumption activities to well-being benefits, the types and degrees of need fulfillment related to the three sports consumption activities and the link between need fulfillment and one's subjective well-being state are examined as well. A survey-based field study was conducted based on ecological momentary assessment. With a panel of 300 respondents, each respondent was signaled via mobile 2-3 times per week over 6-9 weeks to report on the type of activity engaged at the time of signal, subjective well-being state, and need fulfillment experience in relation the respective activity. The data of 2,720 responses made by 238 respondents will be analyzed with multi-level structural equation modeling. Results will be presented at the conference. Potential findings are to verify the well-being effects of the three sport consumption activities, and to identify the types of needs effectively fulfilled in the activities. Findings will be useful for deriving effective strategies to promote well-being benefits in sport consumption activities.

(18) **Onna-bugeisha: Female Samurai in Tokugawa Japan.**

Erin Trumble
Florida State University

This study reviews how female samurai came to exist as well as their impact on the Boshin War, and aims to offer a more complete understanding of the importance of women in war in Japanese society. To understand why women were allowed and encouraged to hone martial arts skills in an otherwise extremely patriarchal society, the culture surrounding this practice was studied. Analysis of three specific women, Nakano Takeko, Matsudaira Teru, and Yamamoto Yaeko and

their defense of Aizuwakamatsu Castle was used to understand the importance of women during the Boshin War. Confucian ideals, spread to Japan from China, influenced the Japanese way of thinking about women's role in society. The household, while ruled by the husband, was the woman's domain. In Japanese culture this idea was expanded to mean that protection of the household was women's responsibility in the absence of men. Women, particularly the wives and daughters of samurai, were trained to be able to defend their homes. All three of the women studied had leadership roles in defending the Aizuwakamatsu Castle. Although the Aizuwakamatsu Castle fell, if not for these women and the hundreds of others at their command, it would have fallen a great deal sooner.

(19) **Free to be Accountable: Extended Self as a Moderator of Cheating among those Primed with Determinism.**

Vincent M. Iula
University of Central Florida

Given a materialistic account of the universe, the idea that people might not have free will has been the source of much consternation. This has led to suggestions that it may be wise to avoid public discussion of this topic lest it lead to a general moral decay. This concern has found legs in research which has demonstrated that individuals, when primed with the notion they lack free will, tend to cheat more and prefer less retributive punishment. The current research suggests that, when primed with the idea our actions are determined, dualistic intuitions serve to regard those aspects related to self that one might classify as "other" (e.g. genes) as disengaged from what we experience phenomenologically to be our "true self". These disengaged parts then become a convenient place to foist responsibility. In one experiment, participants were deceived into thinking they are being tested on cognitive functioning when, in fact, the dependent measure was the degree to which they cheated on a task. Preliminary data analysis supports the hypothesis that the cheating effect noted in prior research would be moderated by the introduction of a second prime – one that extends the concept of self beyond dualistic intuitions and serves to cross the phenomenological boundary to encompass our genetic, developmental and environmental histories. In a second online survey experiment, it was hypothesized that this very prime would also moderate a preference toward less punishment. Preliminary indications are that this hypothesis will be supported as well.

(20) **How threat and objectification affect women's eating behavior and mathematics performance.**

Rebecca Roberts, Sam Hawkins, Elizabeth R. Brown, and Olivia Suddarth
University of North Florida

Body objectification (when an individual is regarded only for their body) is associated with eating disorders, negative self-image, and low self-esteem (Fredrickson & Roberts, 1997). For example, women who self-objectify (tried on a swimsuit), compared to a control condition (tried on a sweater), perform poorer on a mathematics test and exhibit decreased eating behavior (Fredrickson et al., 1998). Because body objectification is prevalent in society, might environmental cues help decrease the consequences of body objectification? Because environmental threats cause a shift from typical preferences (Brown et al., 2011) by cuing that something is wrong in the environment and needs to be fixed (e.g. Schwarz, 2002), we will

examine environmental threats as a buffer. In an experimental between-subjects study, participants will write about "problems on campus" (environmental threat) or "watching tv" (control) and review a Facebook page with objectifying or non-objectifying comments. Next participants will complete a taste test (assessing their eating behavior) followed by two mathematics tests. We anticipate an interaction will emerge between threat and objectification. Women in the threat condition will eat more and perform better on the mathematics test regardless of whether or not they were exposed to objectification. Women who are not threatened but exposed to objectification will eat the least and perform the worst on the math tests compared to the other three conditions. Future research will develop interventions to disrupt the consequences of body objectification.

(21) **Teaching Leadership – A Case Study on the Criticality of a Culturally Competent Approach in Educational Initiatives.**

Inam Sakinah
Florida State University

Education empowers. This is the eloquent mantra in which a disproportionate number of international development initiatives appear to be fundamentally rooted. However, for education to be truly empowering, its rendering must occur form a culturally competent framework. Without the values, priorities, and opportunities present within the cultural context of a community informing the curricular basis and teaching approach of any educational development program, empowerment, sustainability, and most importantly, relevance to the societal reality is impossible. Through examining the experience of administering a leadership course in the context of indigenous Amazonian communities located within the Eastern region of Ecuador, this research aims to serve as a case study for why cultural competence is vital not only for a program's effectiveness and longevity, but also for its capacity to empower and catalyze positive social change. The project commences with a brief overview of relevant literature that illustrate the broader significance of cultural competence in the realm of education and international development. Data from field research is then employed to evaluate the detriments of failed cultural competence and the methods that have been pursued to address this illiteracy. The ensuing analysis serves as a basis for exploring how this newfound cultural awareness can become the foundation for cultural competence that ensures educational curricula are not simply cognizant of a different cultural context but more importantly align their priorities and guiding framework with the cultural reality, in the process, expanding their relevance and impact.

(22) **Locating High Affinity Binding Sites of the Carcinogen 4-Nitroquinoline-1-Oxide on PhiX174 DNA Using Restriction Enzyme Activity Assays.**

Jessie Limonta and Stephen Winkle
Florida International University

Previous studies have suggested that the carcinogen 4-nitroquinoline-1-oxide [NQO] exhibits a high degree of selectivity in its binding to DNAs. Restriction enzyme activity assays have been employed to probe the sequence selectivity of a variety of compounds, including the carcinogen acetoxyacetyl, to DNAs. In this study, restriction enzymes, chosen to have different reaction sequences and to possess one or two cleavage sites, are used to examine the binding of NQO to the sequenced DNA phiX174. Samples of the DNA are reacted with varying concentrations of

NQO and then digested with one of the restriction enzymes. The digestion products are then separated on electrophoresis agarose gels. From the relative intensities of starting [undigested] DNA gel bands and digestion product gel bands, enhancement or inhibition of cleavage by the bound NQO can be observed. The results of the digestions with the different enzymes are compared to detect sequence selectivity. With the enzyme DraI [cleavage sequence TTTAAA], NQO showed enhancement of enzyme cleavage activity. NQO produced inhibition of cleavage at the enzyme XhoI site [CTCGAG]. The results of these experiments show that NQO shows selectivity in its binding activity on phiX 174 DNA. Locating the preferred binding sequences for NQO on this DNA will allow for binding studies with these specific sequences. These sequences can be compared to the determined sequences for other carcinogens to provide understanding into how carcinogens act on the DNA.

(23) **Springfield and Eastside Urban Forestry Plan Project.**

Daniel Norez, Kelly Rhoden, and Madison Masters
University of North Florida

There are many positive benefits to trees in an urban environment. Not only do trees contribute to cleaning our air and water, planting trees can promote public health, save energy, and reduce crime rates. The central research question of this project is what trees can be planted in the urban environment to help improve community issues. By creating an urban forestry plan, we are able to determine the "right tree for the right place." An undergraduate anthropology student is utilizing ArcGIS software to create multiple maps to assess the many known benefits of trees and develop a planting strategy for the Historic Springfield and Eastside neighborhood in Jacksonville, FL. Two undergraduate public health students are researching past studies and health-based databases in order to find statistics about the target population. The public health students will also research native trees to compare the cost benefits and health benefits of each tree. By working with Groundwork Jacksonville, we are able to make connections with planting trees and improvements to air quality, water quality, microclimate creation, food, flood control, phytoremediation and neighborhood aesthetics. A final guide of tree care and maintenance will be provided to the neighborhood in which the trees will be planted, in order to maintain positive long-term tree growth. The conclusion of this study is to have a community tree-planting guide; academic quality urban forestry plan for Springfield and Eastside; a reusable application on the benefits of urban trees and their care and maintenance.

(24) **Constitutive Expression of Buckwheat Fagopyritol Synthase in Transgenic Glycine max: A Novel Strategy for Plant-based Drug Production for Type-II Diabetes.**

Coedy Sears, Louis Mausser, and Zachary Osking
Florida Gulf Coast University

The metabolic condition known as non-insulin dependent (Type II) diabetes mellitus has grown into a worldwide pandemic due to the dependence on high glycemic index foods such as white rice and bread in developing countries. In the United States, two people die every five minutes from this disease. The goal of this research is to develop transgenic soybean plants (Glycine max) capable of constitutively expressing fagopyritol synthase enzymes in the soybeans that can be used as a treatment for insulin resistance. Fagopyritol synthases are naturally found in low concentrations in buckwheat (Fagopyrum esculentum) seeds but soybean plants can convert

soybean UDP-galactose and D-chiro-inositol into fagopyritols, compounds that are analogs of insulin mediators deficient in individuals with non-insulin dependent type II diabetes. Since soybean cells naturally produce these substrates, ectopic expression of buckwheat enzymes will hopefully lead to significant production of fagopyritols in soybean tissue. Two methods of infection were used in attempting to create the transgenic soybean plants: embryonic tissue infection and cotyledonary node infection. In each method, soybean cells were subjected to infection with Agrobacterium harboring a synthetic fagopyritol synthase gene construct then grown on a selective medium. Once the transgenic cells are produced, the extent of fagopyritol production will be assessed by biochemical techniques such as gas chromatography. This research may lead to the development of affordable, edible plant-based drug delivery systems for treatment of human type-II diabetes.

(25) **Garbage on the Green: an Annual Campus Waste Audit.**

Caitlin Kengle
University of North Florida

Since its inauguration, the University of North Florida (UNF) Environmental Center has focused on promoting and increasing sustainability. In 2007 the Environmental Center began an annual waste-auditing program called Garbage on the Green to gauge the campus waste stream. The data obtained from the program are used to educate students, faculty, staff, and community members and provide empirical evidence for recommendations to improve campus sustainability. This project summarizes the results from the ninth annual waste audit, which took place Thursday, October 22, 2015. The waste audit analyzed a 24-hour waste stream that was collected from four locations on campus: two academic buildings and two outdoor courtyards. More than 100 volunteers helped sort, categorize and weigh the collected waste. The data from the waste audit are analyzed and compiled into the 2015 Garbage on the Green annual report. The report describes the methods used in the audit – adopted from the Environmental Protection Agency – as well as analysis and discussion of the data. The data obtained through the audit are then compared to the University's actual diversion rate. The data show trends in waste disposal by location as well as individual material consumption and disposal rates and practices. From these data, focused and researched recommendations can be made for future improvement of the university's diversion rate.

(26) **The Argippaeans: A Comparison between Kurgans in the Altai Region and Herodotus.**

Rachel Wood, Dr. Nancy de Grummond, and M. Lynette Thompson
Florida State University

The Altai and Tuva regions of Eurasia have uncovered a vast wealth of archaeological material from Scythian-era kurgans, or burial mounds. Though much research has been conducted on these materials, very few researchers have compared these finds to the writings of the Greek historian Herodotus, 440 BCE. Though the information presented by Herodotus on the Scythian peoples seems far too fanciful to have a basis in reality, there are truths lying beneath this fancy. The Argippaean people in the Histories have similarities to the burials of individuals within the areas earlier mentioned. Such can be seen in the human remains and the cultural materials found within kurgans. In my research I used multiple translations of Book IV of the Histories as well as

articles written by scholars specializing in the Scythian people. Using these resources I compared the cultural materials and the description of the Argippaeans by Herodotus to draw conclusions on the similarities between the historical account and modern archaeology and art history. Tentatively, there are many connections between the Argippaeans and both the burials of individuals, especially women, and the grave goods found within an archaeological context. In order to gain a more concrete answer I hope to see the archaeological materials in person so that I may become more positive in my results. More information on the truth behind the Argippaeans must also come from further excavations in the region, leading to a larger survey of materials to be compared amongst each other and the Histories itself.

(27) **Communication about HIV/AIDS on YouTube: Implications for College Health.**

Brittani Powell, Delores C.S. James, Ph.D., and Cedric Harville, II
University of Florida

Background: Adolescents and college-aged students account for nearly a quarter of new HIV/AIDS infections, due to factors such as unprotected sexual contact and low perception of risk. The use of YouTube has been found to enhance learning among college students. The goal of this project is to conduct a content analysis of HIV/AIDS YouTube videos targeted to college students. Methods: Videos were searched via YouTube during the 24 hour period of September 22, 2015 using the keywords, "college+HIV," "college+AIDS," "black college+HIV." An electronic database was created to store urls and video titles. Inclusion criteria were: (1) videos that targeted college-aged students ≥18 years, (2) videos ≤10 minutes (3) videos in English, (4) videos that discussed HIV and/or AIDS, (5) non-duplicate videos not repeated. A codebook was created to adequately reflect video content. Videos (n=73) were coded and initial statistical analysis completed using JMP 12. Results: Videos lasted on average 220.96±145.52 seconds and were on YouTube for 45.58±31.19 months. Fifty-one percent originated from individual users and 78% of videos were from college students among whom 51% attended PWI's. Sixty-three percent of videos were to raise awareness and increase knowledge about HIV/AIDS, whereas only 38% promoted getting tested for HIV/AIDS, and 29% educated about using safe sex practices. Conclusion and Implications: YouTube could possibly represent an effective method of improving college sexual healththrough education and wareness. Health education and promotion efforts via YouTube should also discuss altering negative sexual health behaviors and increasing HIV/AIDS testing among college-aged students.

(28) **Investigation of a new hypoxia model to induce cardiomyocyte proliferation in zebrafish.**

Fabio Frech, Johan Sanchez, Kevin Williams, and Brenda Schoffstall
Barry University

Although human cardiomyocytes are capable of some cell division, this response is neither sufficient to repair damaged cardiac tissue nor efficient to compensate for pathological stress. In response to forced swimming exercise to induce excessive cardiac overload stress, Danio rerio (zebrafish) hearts respond with high proliferative capability. Zebrafish cardiac stress models are used to identify molecules that could be targeted to initiate cardiomyocyte proliferation in humans. We are developing a new zebrafish cardiac stress model using extreme hypoxia exposure as the stress event. Other hypoxia models expose zebrafish to harsh chemicals to either

reduce O2 in water or to induce anemia in fish; we propose a chemical-free model, using an anaerobic chamber. We first determined the length of exposure time in an extremely low oxygen environment that is sufficient to induce excessive cardiac stress, but not death. Preliminary results indicate that dissolved oxygen (DO) levels in individual fish tanks within the hypoxia chamber can be reduced by an average of 84%, as compared to water exposed to air, after 2 hours. After 10 hours, effects of hypoxia are too severe, inducing a 50% death rate. We are currently collecting data at other time points to determine optimal exposure time required to induce a significant cardiac stress that would result in cardiomyocyte proliferation similar to that seen with excessive exercise stress. This hypoxia model can be used to study molecular mechanisms that may act as a "switch" to turn on proliferation in zebrafish cardiomyocytes. Support NIH-NIGMS RISE Grant, R25GM059244-15, Barry University

(29) **Healthy Habits for Life: Does preschool nutrition knowledge predict eating behavior?**

Ali Simons, Taylor Claxton, and Jody S. Nicholson
University of North Florida

Children who are malnourished are at risk for poor physical, cognitive, and social development. Preschool serves as a sensitive period for children from low-income households. Interventions must consider children's cognitive capacity to change their behavior based on their knowledge. The current study investigated how knowledge predicts preschool food choices and two tools to measure nutrition knowledge and behavior. Preschool children (n = 236) at Head Starts in the southeast were provided a nutrition curriculum on healthy and unhealthy foods. We modified the Preschool Snack Selection Tool (Sigman-Grant, et al. 2014) to assess the children's knowledge and preferences. We asked them to name 26 foods, identify which they would choose, and classify healthy options. A plate study was conducted to measure intake of nutrient-rich foods. Children were served protein, grain, fruit, vegetable, and dairy. We photographed and weighed plates before and after children ate then coded the quality and quantity of food consumed. Children were able to name unhealthy foods more often, identify foods correctly as healthy about half the time, and chose to eat the unhealthy options more often. Children ate most of their grain and protein, but half did not eat any of fruit, and a third did not eat any vegetables. There was not a relationship between nutrition knowledge and food preferences. The extent to which preschoolers can understand nutrition and make choices based on their knowledge is unknown. This study has important implications for how we can create effective intervention for increasing healthy food preferences during preschool.

(30) **Does Early Diagnosis of Reading Disorder Impact College Success?**

Byllingston Jean and Dr. Anthony F. Greene
University of Florida

The purpose of this study is to explore whether early diagnosis of reading disorders improves college success compared to being diagnosed later in life. Reading disorder (dyslexia) is a specific learning disability that affects reading and related language-based processing skills. Children with reading disorder typically struggle with word recognition, spelling, writing, phonological processing or other language and memory tasks. For this study, I will be recruiting students at the University of Florida (UF) diagnosed with a reading disorder from ages 18-24,

any gender and classification (freshman – senior). Participants will be asked to take an online Qualtrics survey. Flyers will also be posted in various locations on the UF's campus, moreover, I will post flyers on Facebook. We aspire to prove that earlier diagnoses will positively impact college success. Our findings will help students struggling with dyslexia and advocate for services to better assist them. We also hope to bring greater awareness and education to school systems about the symptoms and early signs of dyslexia.

(31) **Application for Tissue Scaffolding and Biocompatible Membranes Research.**

Katty Pierre-Charles and Dr. Sylvia W. Thomas
University of South Florida

The Opuntia or "Prickly pear" is a common plant of the cactus family traditionally known for its remarkable healing properties and its assistance in treating common illnesses. Native to Mexico and widely distributed around the world for industrial and commercial purposes, the plant's high water storage and mucilage material content makes it viable for its use in medical applications, such as wound healing and wound dressing. The purpose of this research report is to investigate the chemical composition and potential scaffold structures of the Opuntia plant for the optimal application of tissue scaffolding and bio-compatible membranes. Through the research, it was found that co-spinning nanofibers of Opuntia's mucilage and a synthetic or bio polymer enhanced the durability while overcoming the limitations of trying to electrospin a biomembrane from a natural material. A similar case investigates co-spinning poly(lactide-co-glycolide) (PLAGA) and chitosan. Resembling the extra-cellular matrix, electrospun nanofibers are optimal for tissue scaffolding in the sense that the controllable properties of porosity, fiber size, concentration, chemical composition, and pore size distribution can influence cell behavior like proliferation, mobility, and cellular adhesion. The results of this research to find the optimal scaffold structure for the Opuntia plant is still in progress mainly focused on bilayer scaffolds which is proven to support proliferation, cellular adhesion, and distribution. The results are still in progress.

(32) **Revolutionary Cuba in the 1960s: Creating and Commemorating a New Man.**

Jany Mendez
University of Florida

On September 26, 1960, Fidel Castro announced in the United Nations General Assembly that Cuba would become the first country in Latin America to eradicate illiteracy. Thousands of young men and women traveled to rural areas to teach guajiros how to read and write. The Revolution required a new society, a new man with new habits, and most importantly, a new History. On September 22, 1961 Fidel Castro declared Cuba a territory free of illiteracy. My project seeks to analyse the process of political regeneration in the Cuban Revolution through the literacy campaign of 1961. What role did literacy play in the revolutionaries' political project of creating a new man with new habits? What is the difference between the official narrative of the literacy campaign and the one remembered and celebrated by the people? How did the ideology of a new man develop through the martyrs of the literacy campaign? The answer comes from a wide variety of sources such as, newspapers, advertisements, films and televised debates. I showcase the life of Ernesto Chavez, a voluntary teacher that participated in the literacy campaign. This collection includes an interview, more than fifty pictures, official correspondence

between state officials and Ernesto Chavez, and letters to his family and friends describing his experience. Political regeneration, through the literacy campaign, became the means of creating a new society by un-teaching the masses the past and teaching them the revolutionary present.

(33) **Adaptive Therapy Treatment of Tamoxifen: Which Method Works Significantly Better?**

Libia A. Garcia, Pedro M. Enriquez-Navas, Robert J. Gillies, and Robert A. Gatenby
H. Lee Moffitt Cancer and Research Institute

This particular research focuses on Nu/Nu (nude) mice, that are preclinical models of estrogen receptor positive in breast cancer. The mice undergo a specific regimen of treatment known as Adaptive Therapy (AT). The mice receive tamoxifen and are separated into different groups and categories under an algorithm treatment schedule developed within in the lab. AT is an evolutionary treatment approach towards modulating and achieving a fixed population of tumor cancer cells1. The goal for the AT experiment is striving to maintain tumor size under "control"1. If a cure is not possible, seeking towards AT can reach and prolong the maintenance of survival and have the tumor burden under control. The AT approach evolves in response to temporary and spatial changes of tumor microenvironment1. There's different methods of administering drug hormonal therapy to the mice that correlates the same approaches in actual clinical trials. It mimics similar methods on how human trials receive their treatments. In this case, we tried gavage (oral doses), intraperitoneal "infusion-IP", or through subcutaneous injections. The mice were given 200uL of Tamoxifen in the beginning of the experiment, but was reduced to 100uL. Compared to our previous mice studies of IP and subcutaneous injections of tamoxifen the results produced negative side effects and the mice did not live long enough. Only to make it between 4 to 6 weeks. As compared to the mice treated with gavage, their survival went further to 19 weeks. (1Gatenby RA, Silva AS, Gillies RJ, Frieden BR. Adaptive therapy. CancerRes 2009;69:4894–903.)

(34) **Antimicrobial activity of tropical spice extracts against Issatchenkia orientalis and Escherichia coli O157:H7.**

E. B. Olasoji, I. M. Ogunade, D. H. Kim, and A. T. Adesogan
University of Florida

This study examined the antibacterial effects of ethanolic extracts of ten spices against Issatchenkia orientalis (IO), a spoilage yeast, and Shiga toxin-producing Escherichia coli O157:H7 (EC). The agar disc diffusion method was implemented to assess antimicrobial activity and inhibition zones. IO and EC cultures were spread on the surface of agar plates. Paper discs impregnated with each spice extract were placed on agar plates, and incubated for 24 h. Minimum inhibitory concentration (MIC) of spice extracts was determined by macrobroth dilution. Serial dilutions of extracts were combined with each microbe. Tubes were incubated and the OD600 were measured at 0 and 24 h. Results were analyzed using SAS. For IO, the inhibition zones for Clove (19.25mm), Bayleaf (15.75mm), and Ginger (14.88mm) were greater ($P = 0.0001$) than the control (12.75mm). For EC, the inhibition zones for Green Pepper (19.33mm), Alligator Pepper (18.67mm), Rosemary (18.83mm), Turmeric (15.33mm), Nutmeg (16.50mm), African Guinea Pepper (16.67mm), Bayleaf (15.50) and Ginger (15.67mm) were greater ($P = 0.0048$) than the control (11.67mm). For IO, the MIC of Alligator Pepper and

Ginger was 32mg/mL, Green Pepper and Clove was 16mg/mL, and Nutmeg was 8mg/mL. The MIC obtained during the EC trials for Green Pepper, Alligator Pepper, and Bayleaf was 16mg/mL, Ginger was 8mg/mL, Nutmeg and African Guinea Pepper was 4mg/mL and Turmeric was 2mg/ml. This study demonstrated that extracts of spices from tropical environments have potential antimicrobial activity against Issatchenkia orientalis and Escherichia coli O157:H7, which can be cost effective and more accessible alternative for low-income farmers.

(35) **Aminobisphosphonate Polymers via RAFT-SCVP and a Multicomponent Kabachnik-Fields Reaction for the Treatment of Osteosarcoma.**

Justin D. Hochberg, Patricia R. Bachler, Brent S. Sumerlin, and Kenneth B. Wagener
University of Florida

Aminobisphosphonate hyperbranched polymers were synthesized via reversible addition-fragmentation chain transfer self condensing vinyl polymerization (RAFT-SCVP). Following polymerization, multicomponent functionalization reactions were completed. Functionalization was confirmed via NMR and IR spectroscopy. The final polymers were analyzed by DLS, GPC and TGA to determine the hydrodynamic radius, degrees of polymerization and branching, and thermal response. Linear analogs of the hyperbranched polymers were synthesized for comparison. This is the first example of utilizing a multicomponent reaction on RAFT-derived hyperbranched polymers. Possible applications of these materials include anti-cancer therapy as well as metal chelation.

(36) **Finite Element Analysis of the Small Punch Test.**

Alex Strebeck
University of Central Florida

In modern engineering, it is often desired to study component material properties while using only minimal amounts of sample material. The small punch test is an emerging materials test which can investigate a material using miniature-sized specimens. This holds promising for the use of non-destructive testing of serviced components and machinery. With the use of finite element analysis, a model may be created to allow a fundamental understanding of these miniature-specimens. Simulation models, complimented with various material data, have provided a favorable method of obtaining material relationships and properties. The results of these simulations show good correlation between simulation models and data received from small punch tests. From diverse simulation runs, data and material relationships can be studied to promote understanding and optimization of the small punch test. With the advancement of these simulations and the advancement in the understanding of the small punch test it may be possible to obtain material properties from the Small Punch Test alone. Accurate finite element analysis is crucial to achieve a timely solution for the advancement of the small punch test.

(37) **Redefining the extracellular markers of human regulatory T cells improves research methods and has important implications for T1DM cellular therapies.**

Leeana D. Peters, Howard R. Seay, Wen-I Yeh, and Todd M. Brusko
University of Florida

Regulatory T cells (Tregs) have been at the forefront of immunological research in recent years due to their suppressive capacity and tolerogenicity. Tregs, functioning as negative regulators of the immune response, are integral to our understanding of the pathogenesis of autoimmune disorders. Unfortunately, establishing a unique phenotype for this minority subset based on extracellular markers has proven difficult. The current phenotypic classification of Tregs as CD4+CD25+CD127 lo/- stems from experiments analyzing the IL-7 receptor, or CD127, which has been shown to interact with the FOXP3 promoter and is downregulated upon Treg activation. Previous experiments in The Brusko Laboratory, however, have shown contamination in this subset from helper and effector T cells, as well as the less suppressive peripherally induced Treg (pTreg), all of which could further propagate an immune response. Expression of CD226, a molecule which competes with the Treg negative regulator TIGIT for binding to the common ligand CD155, and a known autoimmune susceptibility locus, has been linked to inflammatory cells. Previous experiments in our lab have determined that cells possessing CD226 produce IFNγ, thus we postulated that isolating CD226- Treg would result in a purer and more stable population that could be utilized in cellular therapies. The experiments performed substantiate our hypothesis of an indirect relationship between CD226 expression and FOXP3 purity, suppressive capacity, and demethylation at the TSDR, a marker of lineage stability, with CD4+CD25+CD226- Treg being the most pure in terms of FOXP3 expression, highly suppressive, and highly demethylated at the TSDR.

(38) **Governance and Integrated Urban Infrastructure Solutions for Environmentally Sustainable, Healthy, and Livable Cities.**

Dr. Rick Feiock, Portia Dinoso, Jonathan Lubin, Minsun Song, Nohelia Orozco, and Mary Meade
Florida State University

The purpose of this research is to explore infrastructure solutions across different sectors such as energy, transportation, water/wastewater and urban farming, connecting biophysical and social systems in advancement of urban sustainability, health and livability. Previously, large infrastructures such as power grids, large roadway networks and food distribution systems from faraway states and countries, were solutions for cities. Emerging research focuses on a new movement that emphasizes local systems such as urban farms, bike share systems, car share systems, and local solar generation. Our research attempts to identify the best combination of large and local solutions in order to achieve high functionality, urban sustainability, and more desirable places to live by examining infrastructure in cities in the US and India. The research is being conducted across different industries and universities through different themes. At Florida State University, we are looking at energy efficiency programs in the city of Tallahassee. We intend to identify the solutions needed in social institutions and infrastructure design to best enhance environment, health, and livability in the city. Currently, we are examining energy audits and the success of various energy efficiency programs on the local level. We are looking at an individual's behavior towards environmental and monetary sustainability in alignment with

policy changes. With the data gathered, we intend to identify the best local and large solutions for Tallahassee and comparatively analyze these results with other conclusions drawn by partnered universities.

(39) **A Survey of Benthic Cyanobacteria from the Middle Basin of the St. Johns River.**

Danielle Tipley and Dr. Dale Casamatta
University of North Florida

The St. Johns River is an integral part of an ecosystem in Florida that stretches all the way from Indian River County to Duval County. The St. Johns River is one of the lowest flowing rivers in Florida, leaving it extremely susceptible to nutrient pollution due to its inability to quickly flush out any extraneous input. Nitrate nitrogen is a huge source of pollution in the springs of the St. Johns River as a result of urban development and agricultural use of fertilizer. The excess nitrates stimulate the growth of filamentous algae, and can be related to harmful algal blooms in the springs as well (Knight and Notestein 2008). Benthic cyanobacteria, including the genera Dolichospermum, Lyngbya, and Oscillatoria, are extremely adapted to effectively cycle nutrients like nitrates regardless of their abundance. Samples were collected from multiple sites in areas of the middle basin of the St. Johns River. Benthic sampling was conducted in each location as well as standard water quality parameters. Upon examination of isolates and preserved samples it was clear that species of Oscillatoria and Lyngbya could be found at each site. Through this experiment, we were able to experience the diverse ecosystems that are contained within the St. Johns River and get an idea of the extent that these anthropogenic pollutants are affecting our River through the abundance of certain species of cyanobacteria. A continuation of this survey has taken place in order to strengthen the relationships that have been established in these findings.

(40) **Examining the relationship between self-report and cognitive measures of executive function.**

Nora Jean-Baptiste, Casey Hammer, Danielle Blinkoff, Rachel West, Geoffrey Potts, and Cynthia Cimino
University of South Florida

Researchers and clinicians typically measure executive functions in various samples to detect executive dysfunction that may be the result of neurodegenerative diseases. Research examining associations between self-report and performance-based measures of executive function has demonstrated disparities in assessing impairments in patients and non-clinical samples, resulting in weak correlations between these two measures. The current study assessed the Behavioral Rating Inventory of Executive Functions (BRIEF) and executive function within a healthy, college sample to elucidate the relationship between self-report and performance-based measures in attempt to improve assessment techniques in clinical settings. Participants (N=59, Mage=19.73, SD=1.91) completed the BRIEF first and were then administered neuropsychological measures of Working Memory, Inhibition, and Cognitive Flexibility in a randomized order. Stroop Interference was related to BRIEF subscales Shift, Plan/Organize, and the total BRIEF score. Trail Making B was related to the BRIEF subscales Shift and Inhibit. The majority of the non-executive performance-based measures were not related to the BRIEF subscales. These findings suggest that the weak relationships between performance-based and

self-report measures may be due to the possibility that these tasks measure different constructs or aspects of executive functioning.

(41) **Evaluation of a Novel Test Platform for Fatigue Experiments in Combined Extreme Environments Analogous to Hypersonic Flight Conditions.**

Michael Sedlack, Thomas Bouchenot, Abdi Jasmin, Michael Keasey, Nicholas Stoll, and Dr. Ali P. Gordon
University of Central Florida

In light of the combined extreme environment (CEE) to which hypersonic fuselage components will be subjected, the prediction of failure and lifespan are of the utmost importance. Typical ascent-cruise-descent missions will expose panels to thermal cycling, while aerodynamic pressure facilitated by Mach 5.2 cruise speeds will superimpose mechanical vibration at acoustic frequencies. Additionally, the geometric constraint to be placed on these relatively thin structures will cause conventional mechanical fatigue with compressive mean stress. In this study, a universal column buckling test frame has been configured to allow for closed-loop feedback control of cyclic mechanical and thermal loading. The custom-made graphical user interface (GUI) associated with this test device allows users to design cyclic load profiles that idealize the thermomechanical loading of critical panels. Data collected with this device can subsequently be used to create a model of thermomechanical fatigue in conditions analogous to hypersonic flight, an area in literature that is currently lacking. Preliminary test data will be presented, as well as any fatigue models or life-cycle predictions made with such data. Special attention will be paid to the unique capabilities of the test platform, and particularly on the capabilities of the platform that facilitate testing in conditions analogous to hypersonic flight. The various challenges associated with the design and tuning of a novel test platform will also be presented.

(42) **The Silenced Voices: Women Diarists of Early America.**

Jesse Long
The University of Tampa

Diary-keeping was a common practice among citizens of early America. Many such diaries revolve around the American Revolution. Families and friends used diaries and letters to communicate with each other while separated during the war. Once together again the diary served as a way to become reacquainted with each other and what had transpired while apart. What is found within these diaries provide insight into this time period that isn't found in history books. During the American Revolution women were left at home while their husbands went to war, were captured or exiled. During this time women wrote about their trials revolving around the war and how they went about protecting themselves and their children. In the diaries women are seen taking matters into their own hands and doing what is necessary for their family's protection, including situations or actions that would not have been deemed acceptable for a women during this time. Margaret Hill Morris hides a loyalist under her house and protects him from Tory hunters. Elizabeth Sandwich Drinker twice travels and obtains an audience with George Washington to argue for the release of 20 Quakers exiled to Virginia. In addition, many loyalists such as Elizabeth Lichtenstein Johnston were given 24 hours notice or less to evacuate her home and leave America. Johnston records her evacuation and subsequent travels, and

provides further insight into the lives of loyalists in America. The diary serves as an outlet for expression in a time when women were unable to.

(43) **The Effect of Sexist Humor on Women's Victim Blame.**

Samantha Shepard
University of Central Florida

Prejudiced norm theory, introduced by Ford in 2004, proposes that in a context where an individual believes that discrimination is tolerated, they will express their prejudice. Victor Raskin defines verbal humor as a non-bona-fide, versus true bona-fide, mode of communication; a joke transcends usual social rules and is seen as playful, with its message being interpreted in a non-critical way. Humor creates a space where communicating otherwise socially unacceptable information becomes momentarily tolerable; like telling a sexist joke. Past research has shown that exposure to sexist humor (versus non-sexist) causes men high in hostile sexism to discriminate against women. Prompted by the lack of research on how sexist humor affects women, this study seeks to replicate and extend a past study, using a female population. Using a between-subjects design, participants will be exposed to a sexist joke or non-sexist joke, then read a vignette of an acquaintance rape with a female victim. Victim blame, perceived seriousness of the rape, and suggested jail sentence length for the rapist will be measured. Benevolent, Hostile, and Modern Sexism will also be measured, as high prejudice has been shown to mediate the effect of sexist humor on discrimination. Implications of the study will be discussed.

(44) **Special Euclidean Relativity.**

Robert Bauer
University of Central Florida

The only valid transformations of spacetime under the four fundamental postulates of the homogeneity of space and time, the isotropy of space, and the principle of relativity are the Lorentz transformations, the Galilean transformations, and the Euclidean transformations. The former two are well-studied in physics, one being the fundamental transformations of Einstein's Special Theory of Relativity (SR) and the other being the standard transformations utilized in Newtonian kinematics. The latter of the three, the Euclidean transformations, have essentially gone unstudied. Thus, we present the Euclidean transformations and develop special relativity in the setting of Euclidean spacetime, Special Euclidean Relativity (SER). Moreover, we demonstrate the differences between the standard results of SR and their analogs in SER. Such results include the comparison of lengths and time intervals between frames in uniform relative motion, the addition of velocities, and mass-energy relations.

(45) **Subjective and Objective Education Measures as it Relates to Mini Mental Status Examination Performance.**

R. T. Corona, A. L. Sardina, K. L. Bartlett, R. Andel, and A. A. Gamaldo
University of South Florida

The Mini Mental Status Examination (MMSE) is a clinical instrument used to assess mental status and detect cognitive impairment. Previous research has observed that the MMSE may not

adequately account for the effect of lower levels of education and literacy, particularly in older blacks (Albert, Teresi 1998; Manly, Jacobs, Touradji, Small, Stern 2002). As a result, some may be incorrectly identified as cognitively impaired. Limited research has included objective and subjective measures of education quantity and/or quality. The current study will explore two aims: (1) how various measures of education are related; (2) the relationship between the MMSE items and the various measures of education. Analyses were conducted on a sample of 67 black adults ranging in age from 55 to 86 years (M = 64.16). Participants were administered the MMSE, years of education, an objective measure of education quality (WRAT-3), three subjective measures of education quality (rating quality of secondary education, reporting favorite school subject, and reporting extent of homework completion). Higher scores on the WRAT-3 were associated with higher levels of education ($r= 0.58$, $p < .001$) and reporting at least a good secondary education($r= 0.48$, $p <0.01$). Better performance on the MMSE was associated with higher scores on the WRAT-3 ($r=0.052$, $p <.001$), reporting at least a good secondary education ($r=0.49$, $p < 0.01$), and higher levels of education ($r=0.50$, $p<.001$). In conclusion, various measures of education should be considered when interpreting MMSE scores, particularly in older Blacks.

(46) **Status Update: An Examination into the Influence of Social Media Use During Learning and the Affect on Memory Recollection.**

Valerie Kessler, Megan Bell, Shayne Gutzmore, and Zachary Jennings
University of Central Florida

This study's purpose was to identify if social media use during learning has an influence on memory recollection. Twenty-four college aged participants were given a fourth grade FCAT reading passage and twelve of them used social media while reading the passage and twelve of them did not use social media while reading the passage. After reading the passage, a twenty question quiz was given to determine memory retention. The number correct out of twenty questions was recorded and analyzed. Participants in the Social Media group had a significantly lower memory recall ($M=11.83$, $SD= 3.95$) compared to the control group ($M=17.42$, $SD= 1.08$; $t= (24) = -4.722$, $p<0.003$). Although our study had limitations, it found very significant results that using social media while learning new material actually hinders processing and memory. Future research could study differences against using Facebook, which is primarily a one way medium, against something such as texting, which is primarily a two way medium. With students, it is especially important to study how social networking sites affect learning and memory, and since social networking sites are so prevalent, it would be ideal to find ways to tie social media into learning without sacrificing the material that is being learned.

(47) **Characterization of 3DP Polylactic Acid under Monotonic and Cyclic Torsional Conditions.**

Jose E. Cotelo[1], Harrison T. Bearden[1], Jonathan Torres[2], Kevin Smith[2], Bas van Deurson[3], and Ali P. Gordon[2]
[1]John Brown University, [2]University of Central Florida, and [3]Ultimaker, Geldermalsen, Netherlands

A key challenge in developing new uses for 3 dimensional printing rapid prototyping technology is the gap in knowledge about the interactions and characteristics of various print conditions and

how they affect the mechanical properties of components. This study presents the effects of various print parameters and heat treatments on the torsional monotonic and fatigue response of specimens fabricated using fused deposition modeling (FDM) with polylactic acid (PLA). The ASTM E143 standard was the most relevant to this study and was used in the fabrication and monotonic testing of specimens, while the ASTM E606 standard was used in fatigue testing. Variables in production include wall thickness, infill density, vertical orientation, filament color, and post-print heat treatment at 100°C. Wall thickness, infill density, and orientation were tested across the useable range of the FDM machine. Colors analyzed include a variety in intensity from white to black, while heat treatment was conducted at regular intervals of time. The manipulation of these variables is used to characterize the mechanical properties of components under cyclic and monotonic shear loading. The relation of production variables and the manner in which they influence the mechanical properties provides insight to the feasibility of using FDM for rapid manufacturing of components for experimental, commercial, or consumer-level use. In this study, results are presented for both monotonic and fatigue torsional loading. Conclusions are delivered with guidelines for mechanical property optimization via manipulation of FDM pre and post-processing parameters.

(48) **Genetic characterization of populations of the African jewelfish (Hemichromis letourneuxi) introduced to the waterways of Florida.**

Lorenzo A. Gayle, Youssra El Hanaoui, Mitchell D. Hartwig, Heather A. Muse, Brandon Saiz, Emily J. Williams, Pamela Schofield, and Natalia M. Belfiore
The University of Tampa

The invasive species, Hemichromis letourneuxi, or the African jewelfish, is a fish commonly sold in the aquarium trade. It was introduced by unknown means to Florida waterways as early as the 1960's. Before the 1970s, the species was restricted to the Miami area, but has since spread west and north rapidly. It is tolerant of a wide range of aquatic conditions, freshwater and brackish, including shallow, vegetated or rocky areas of canals, tidal creeks, culverts, rivers, and marshes. This invasive species is causing problems to other aquatic species, including native shrimp and snails because of its predatory nature, and because of competition for spawning sites with some native fish species. We have obtained jewelfish from six Florida populations, spread throughout the current range of this introduced species. We are testing a suite of nuclear and mitochondrial markers for variation in this species. Using variable DNA sequence data, we are estimating the historical relationships among jewelfish populations using Bayesian phylogenetic reconstruction. In conjunction with geographic information and the timing of arrival of this species in different drainages, we will estimate the times of introduction, the mode of spread, and where the initial introduction(s) occurred. Understanding this history could help prevent or slow down future introductions or spread of these fish. Conservation organizations can develop strategies with agencies, including the Florida Fish and Wildlife Conservation Commission and the US Geological Survey, to limit the spread of the African Jewelfish throughout Florida waterways.

(49) **Calvinism, Natural Law, and the Way Evangelicals Think Politically.**

Austin Fitzgerald and Dr. John Kelsay
Florida State University

This research focuses on the work of David VanDrunen and David Little, drawing upon how they interpret John Calvin's view of the law, specifically natural law. The goal of this research is to establish whether or not natural law, in the Reformed tradition, sets a precedent for what VanDrunen would call the "Protectionist" view or the "Perfectionist" view. The "Protectionist" view argues that natural law allows for civil government to protect, and only protect, it's citizens. This is the view of David VanDrunen and can be compared to Conservatism, or even Libertarianism. The "Perfectionist" view argues that the natural law allows for more than protection, but that civil government should inspire virtue in it's citizens. This view can be closely tied with Liberalism and left-wing political ideology. David Little represents the more liberal approach to natural law. Through understanding how contemporary scholars interpret John Calvin and the natural law tradition, this research seeks to identify an accurate understanding of Calvin's political position on civil government, as well as why evangelicals today view the role of civil government the way they do.

(50) **Development of a Colorimetric Assay for Sex Determination in Ancient DNA.**

Courtney Powell, Alexandra Smith, and Dmitry Kolpashchikov
University of Central Florida

This research focuses on the development of a colorimetric assay for identification of biological sex using ancient DNA (aDNA) isolated from the archaeological skeletal remains. If successful, the technology will be used for portable, easy-to-use, and expedited determination of biological sex in human remains. First, we isolate aDNA from human skeletal remains and then amplify a fragment of the amelogenin gene, a biomarker of human sex. The amplification efficiency is analyzed by gel electrophoresis and compared with that of synthetic analytes and control DNA isolated from contemporary specimens. For the colorimetric/visual assay, the analyte is recognized by the sensor's two hybridization probes, one specific for either sex chromosome and one non-specific. The sensor, specific to the amelogenin X-allele, produces a color change in the presence of both male and female DNA. The sensor specific to the amelogenin Y-allele produces a color change only in the presence of male DNA. Therefore, analysis of the response of the two sensors enables sex determination. If successful the method can be extended to the analysis of other characteristics of ancient humans based on aDNA analysis.

(51) **Fluctuating asymmetry: A biomarker for environmental stress.**

Jamie Hamilton[1], Yvis Nicholas[2], and Paulette S. Reneau, Ph.D.[1]
[1]Florida A&M University and [2]Nova Southeastern University

Developmental homeostasis is the ability of an organism to adjust, through self-regulation, to environmental or genetic stress during development and stay within the norms of development. Genetic and environmental stress has been shown to increase developmental instability. Most often this instability can be gauged by evaluating fluctuating asymmetry (FA) – small random deviations from symmetry in bilaterally paired structures. Some studies assess the influence of stress on development by evaluating fertility and mortality. These studies require marked

modifications over a longer period of time. Fluctuating asymmetry, therefore, may be useful in identifying potential harm before a population has been particularly affected by such influence. The study hypothesizes that fish living in environments subject to low oxygen and temperature fluxes show fluctuating asymmetry. Gambusia affinis, the Western Mosquitofish, was collected from two waterways - a river subject to high temperature fluctuations and low oxygen levels (affected site) and a spring with constant temperature and high dissolved oxygen (reference site). All fish (n=20) were assessed for morphometric and meristic data. Replicate measurements were made for each and averaged to minimize measurement error. Analysis of Variance (ANOVA) was used to determine significant differences between sites. All statistical analyses were done using SPSS 16.0 (SPSS Inc, Chicago, IL). Individuals collected from affected river showed considerable difference in FA as compared to the reference site. These findings demonstrate FA as a useful tool for detecting biological changes in stressful environments.

(52) **Practical Investigation of open-sources software for Environmental Data.**

Jonathan Cobb and Hongmei Chi
Florida A&M University

Data analytics is the process of examining data to uncover hidden patterns, unknown correlations and other useful information that can be used to make better decisions. Data analytics is playing an ever increasing role in the process of scientific discovery. NOAA has published vast data resources and tremendous volume of high quality environmental data. The goal of this poster is to present a practical investigation of data analytics tools that can be used to analyze environmental data set and provide environmental information to decision maker s. Through this poster, we will give a comprehensive perspective of each popular tool and initiate discussion towards benchmarking key features and considerations of data analysis techniques and open-source software.

(53) **The DEA's Expulsion From Bolivia: An Analysis of U.S. Counternarcotics Abroad.**

Ashley Reynolds
Saint Leo University

In 2008, the Bolivian government expelled the DEA over accusations of conspiracy to overthrow President Morales. As the poorest country in Latin America, Bolivia lacks the resources, training, and talented professionals available to the DEA, yet Bolivia has reduced coca production by more than a third. This is contrary to the expected outcome and suggests there are flaws with how the DEA handles counternarcotics operations abroad. I analyzed the DEA's counternarcotics using the Viable System Model (VSM). VSM analyzes the performance of organizations within their environment. It specifically looks at the operation system, the metasystem, and the environment in which the system exists. The DEA is facing challenges at several levels. Management and oversight is over-bloated, making accountability difficult. Internal and external politics hamper DEA efficiency and can deteriorate relationships with host governments. Environmental factors were not accounted for in the DEA's enforcement strategy, including traditional uses of coca, extreme poverty, and lack of alternative sources of income. The DEA does not currently address root causes of narcotics production; because of this, new illicit crops continue to be planted in the place of crops the DEA eradicates, making costly DEA operations ineffective. In light of this analysis, my recommendations are: make the environment

a larger factor in DEA decision making; remove the DEA from politics as much as possible; and target causes of drug trafficking, not symptoms. By addressing these issues, the DEA can prevent expulsion from other countries and improve effectiveness of its counternarcotics operations abroad.

(54) **Post Stroke Activation of Angiotensin II Type 2 Receptors Shows Sustained Neuroprotective Effects in Aged Rats.**

Jacob D. Isenberg, Douglas M. Bennion, Allison T. Harmel, Jonathan Alexander, Marcello Febo, Eduardo Candelario-Jalil, and Colin Sumners
University of Florida

The renin angiotensin system is a promising target for stroke neuroprotection and therapy through activation of angiotensin type II receptors (AT2R). Compound 21 (C21), a selective non-peptide AT2R agonist, has been shown to exhibit neuroprotection and improve stroke outcomes in preclinical studies. However, these beneficial actions of C21 have not been demonstrated to occur beyond 7 days post stroke. We hypothesized that systemic administration of C21 would exert sustained neuroprotective effects in aged rats. Aged adult male Sprague Dawley rats (18-20 months, 700-800g) underwent ischemic stroke by intraluminal transient middle cerebral artery occlusion and were randomly divided into two groups that received intraperitoneal (IP) injections of either 0.9% NaCl or 0.03mg/kg C21 at reperfusion (90 min), 24h, and 48h after stroke. All animals received blinded neurological exams at 4h, 24h, 72h, 7d, 14d, and 21d post-stroke. Infarct size was assessed by magnetic resonance imaging at 21 days. Post-stroke treatment with C21 significantly improved neurological function, as evidenced by neurological testing using Rotarod and somatosensory dysfunction exams. C21 treated animals showed sustained improvement in function beginning in the first +24 hours after stroke and persisting through at least three weeks post-stroke. Furthermore, infarct volume measured at 21 days post-stroke was also significantly reduced by treatment with C21. Our findings indicate that targeting of the renin-angiotensin system, specifically by stimulation of AT2Rs with C21, improves neurological function in aged rats with stroke over a sustained period of 21 days. These findings encourage further research into the renin-angiotensin system and specifically AT2R.

(55) **The social media activism of SOA Watch.**

Carly Gillingham and Ambar Martin
Florida State University

Social media has had a profound effect on every aspect of our society. From how we shop to who we elect for office. The realm of political and social activism has been equally affected by the proliferation of social media and while there is research on how social media has been used to facilitate spontaneous action there is not a lot of information on how protesters use social media to coordinate action and which social mediums are prefered. This study seeks to breach that gap. Furthermore, by studying a movement that is older than Zuckerberg himself, this project also seeks to learn how traditional movements have utilized this newfound tool. This study looked at the social media posts made by School of the Americas Watch activists during the November vigil at Fort Benning, Georgia for the years of 2014 and 2015. The research covered all major social media platforms (Facebook, Twitter, Reddit, etc.) and coded questions on how and why different individuals and groups were using particular social media platforms.

While the study has not reached any definite conclusions, the implications seem to be that this group of protesters have been reasonably successful at including social media into their traditional offline protests. It also appears as if this group of activists select social media platforms depending on which one(s) best fit their needs.

(56) **Comparison of resveratrol derivatives for anti-cancer activity in estrogen receptor-positive versus estrogen receptor-negative breast cancer cells.**

Evan Roberts, Ellen Vann, and Lyndsay V. Rhodes
Florida Gulf Coast University

Resveratrol is a stilbenoid that has shown to have a wide range of anti-carcinogenic effects as well as many other health benefits including potent anti-oxidant activity. Although these anti-carcinogenic effects have shown promising for future research and cancer treatments, results seem to vary greatly between different cancer types. Although resveratrol is a phytoestrogen, shown to work through estrogen receptors (ER) as a mixed agonist/antagonist, anti-carcinogenic effects have been observed in both ER-positive and ER-negative breast cancer cell lines suggesting an alternative ER-independent mechanism. In vitro analysis testing the effects of twelve resveratrol derivatives on cell proliferation and viability of ER-positive (MCF-7) and ER-negative (MDA-MB-231) breast cancer cell lines was conducted. Four of the compounds ((E)-4-(3, 5-dimethoxystyryl) aniline, (Z)-4-(3, 5-dimethoxystyryl) aniline, (Z)-methyl 4-(3, 5-dimethoxystyryl) benzoate, (Z)-1, 3-dimethoxy-5-(4-methoxystyryl) benzene) significantly inhibited MCF-7 cell proliferation and reduced cell viability in a dose dependent manner, while the remaining compounds showed lesser or negligible effects. Anti-proliferative effects were also observed in the ER-negative MDA-MB-231 cell line indicating the existence of alternative pathways of resveratrol activity independent of the estrogen receptor. The anti-proliferative compounds identified were further analyzed to determine correlations between structure and function of more and less active compounds to propose new derivatives with enhanced efficacy. Further research is needed to determine the pathway(s) through which these compounds are exhibiting the effects observed as well as determining the effects of novel derivatives with potentially greater anti-carcinogenic effects.

(57) **Aversive Racism and Selection Decisions: 1989, 1999, and 2015.**

Jason English, Alyssa Finner, James Kozachuk, Samantha Shepard, and Jacob Walters
University of Central Florida

The aversive racism theory, supported by Dovidio & Gaertner in 2000, states individuals will exhibit less explicit racism over time, but will unknowingly discriminate in ambiguous situations. Dovidio and Gaertner sought to measure explicit and aversive racism of White students against Black students, by using a self-report measure of prejudice and selection for employment decisions respectively, over ten years. Participants assessed potential employees, Black or White, with qualifications that were clearly strong, ambiguous, or clearly weak. The study found no significant differences between clearly strong or weak applicants, regardless of race. However, participants rated Blacks significantly lower than Whites in the ambiguous condition. Over the decade, explicit racism decreased, but aversive racism remained the same. We sought to elaborate on this research, using the same measures in an online survey. Our results did not support the aversive racism theory; instead, in the clearly weak and ambiguous

conditions, there were no significant differences of how White and Black applicants were rated on qualifications, and in the clearly strong condition, Black applicants were rated as significantly more qualified than White applicants. However, on the basis of hiring, no significant differences were found between Black and White applicants. Since clearly strong Black applicants were rated higher in qualifications but not hired more than Whites, it appears as though this could be an example of reverse discrimination caused by levels of high (versus low) prejudice. To better conclude the implications of our study, more research on reverse discrimination is needed.

(58) **Analysis of Cellulose Hydrolysis Kinetics.**

Deanna Bousalis and Dr. John Telotte
Florida State University

My research involves analysis of the enzymatic hydrolysis of cellulose in hopes of improving methods of breaking down cellulosic waste that can be fermented into biofuels. The most abundant resource available for development of biofuels is lignocellulosic biomass. In order to convert lignocellulosic biomass into a useful form, it must first be pretreated to separate the cellulose from other components. Our group has utilized N-methyl morpholine N-oxide (NMMO) for this purpose. The cellulosic material we have used thus far is Avicel® PH-101, a manufactured crystalline material composed of short cellulose chains useful in our study but not economically or commercially viable as a real biomass source. A more suitable material is dissolving pulp, which contains longer-chain cellulose more similar to real agricultural waste. I have developed a new procedure for the creation of thin films of dissolving pulp cellulose solution, which several enzymes adsorb to and break apart. A device known as the Quartz Crystal Microbalance (QCM) is used to study these adsorption and reaction processes. Future research includes further data collection and analysis of the kinetics of these reactions and modification of our current procedure to accommodate materials containing longer strands of cellulose.

(59) **Polyvinylidene fluoride based gel electrolyte membranes for electrochemical capacitor applications.**

Tasha Williams
University of South Florida

In this investigation, we report the fabrication and use of gel electrolyte membranes in electrochemical double layer capacitors used in energy storage devices. Highly porous ultrathin polyvinylidene fluoride (PVDF) gel electrolyte membranes were fabricated using breath figure method. Processing conditions such as humidity, casting thickness, drying time and conditions have been systematically varied in order to produce membranes with porosity > 60% and high electrolyte uptake. These ultrathin membranes were then used in development of high energy density electrochemical capacitors. Limited research has been conducted on these membranes with a solid process that works. This new area of research is important and allows us to look at membranes differently and further develop a process that works in an electrochemical capacitor.

(60) **Artistic/Architectural Applications of Tensegrity Structures.**

Jennifer Egelfeld, Kenn von Roenn, Mari Kyle, and Andrew Burk
Florida State University

The primary goal in conducting this research is to collect information about the architectural and historical use of tensegrity and tensile membrane structures in order to use this data in artistic applications. Initially, the research consisted of the history of tensegrity/membrane structures, focusing on the work of R. Buckminster Fuller, Kenneth Snelson, and Frei Otto, as well as the structural properties and materials from which previous structures have been built upon. Currently, the focus of the research lies within the construction of models to properly develop an understanding of the behavior of tensegrity structures that cannot be obtained through computer generation. My responsibilities involve reading and summarizing online texts, as well as preparing two- and three-dimensional tensegrity-based sculptures inspired by Snelson's work using Adobe Illustrator and SketchUp, respectively. With these online experiments, I will build onto them in physical form to further understand the real-life behavior of these structures. Ultimately, through these studies of tensegrity, the creation of further artistic and architectural projects will be feasible.

(61) **Vibrant expression through clothing: cracking the color, patterns and style code of the Rajasthani women of India.**

Kimberly Connor
Florida State University

This presentation will explore the fashions and fabrics of the women of Rajasthan and how clothing can be used as a means of expression. India is renowned for its splendid textiles and incredible use of colors and patterns. From the "Golden City" of Jaisalmer to the ancient city of Ajmer a variety of unique and intricate traditional garments and their construction methods have been passed down from generation to generation. Each part of the garment serves a purpose and ties the identity of the individual to a region or caste. Through firsthand observations and historical research we will reconnoiter the purpose and function of dress, the identity and relationship the wearer has to the item and how color and pattern is used as an expression of self and culture.

(62) **Mechanisms of Neuronal Survival Under Conditions of Oxidative Stress.**

Howard M. Retz and Howard M. Prentice, Ph.D.
Florida Atlantic University

Parkinson's disease is an irreversible and progressive brain disease that affects approximately 5,000,000 people worldwide and it has been shown oxidative stress plays an important role in the progression of the disease. The production of free radicals by oxidative stress is a causative agent for neuronal cell death. Glutamate is a neurotransmitter that can induce the production of oxidative stress and free radicals in neuronal cells. Taurine is a known neuromodulator that can combat free radicals and reduce oxidative stress. The objective of this study is to determine the value of Taurine in enhancing neuronal cell survival upon oxidative stress challenges. Primary cortical 12 (PC12) rat neuronal cells will be pre-treated with different concentrations of taurine followed by Glutamate or Cobalt Chloride administration to induce oxidative stress. The

viability of the cells will be tested using the Adenosine Triphosphate (ATP) assay. Preliminary results show that treatment with 10 mM Glutamate decreases PC12 viability by 50%. Pre-treatment of with 1 mM Taurine for an hour improved the cell viability by 25% after Glutamate challenge. Pre-treatment with Taurine at 10 mM and 20 mM, resulted in cell viability values of 85% and 91% respectively. Values were obtained as averages of three independent experiments. We are now furthering this study by determining the protective effects of taurine in PC12 after Cobalt Chloride administration. Determining the efficacy of Taurine in preventing neuronal cell death induced by oxidative stress may increase our understanding for treatment of Parkinson's disease.

(63) **The Effects of Trait Mindfulness on False Memory for Emotional Word Lists.**

Lindsey Johnson and Travis W. Conradt, Ph.D.
Florida Institute of Technology

Previous research has found that mindfulness exercises left participants more susceptible to false memory due to less accuracy in their reality-monitoring (Wilson et al., 2015). However, researchers manipulated mindfulness instead of looking at individual differences in mindfulness levels and examined false memory recognition for neutral word lists. Building on this previous study, the present study will examine whether a participant's trait of mindfulness predicts false recognition for positive versus negative emotionally valanced word lists. Participants in the current study (data collection in progress) will first be administered the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R), a 12-item self-reporting survey assigning a score to a base level of mindfulness (Feldman et al., 2007). Following the CAMS-R, participants will be presented with both positive and negative emotional word lists designed to induce false memories through strong emotional associations. The word lists appear equally in all list positions in a sequence, alternating emotional valence to provide counterbalance. Participants will be given a brief distractor task before being administered a recognition test. Consistent with Wilson et al. (2015), we predict that higher mindfulness scores will predict higher overall rates of false recognition. Also, because mindfulness is used as a therapeutic tool to increase emotional regulation (Barnhofer et al., 2011), we predict that participants with lower mindfulness scores will show a greater difference in false recognition rates between positive and negative emotional word lists. All data is expected to be collected, analyzed, and ready to present prior to the Florida Undergraduate Research Conference in 2016.

(64) **Basic DNA Barcoding for Exotic Plants.**

Justin Santiago and Eunice Laurent
Valencia College

DNA barcoding is a useful tool for affordably cataloging organisms. Using primers for amplifying the gene that codes for the large subunit of the enzyme RuBisCO, which is found in photosynthetic plants, it is possible to categorize plants based on the minute differences in this well-preserved gene. The sample provided by the Valencia College East campus greenhouse was morphologically identified as Plectranthus tomentosa and was purified, amplified and then sent to be sequenced. The Nucleotide sequence was then analyzed using BLASTN to compare to other sequences. This process can also be used to confirm or disprove identification based on morphology. The results determined that this was not the true identity of the plant and pointed to

Plectranthus carnosifolius. Quality of the sequence, and limited entries in the BLASTN databanks can however make it difficult to obtain a positive identity. Future resampling and resequencing to obtain a higher quality sequence is required to confirm results.

(65) **Impact of Data Analysis Software on Traffic Congestion of Special Events in Southwest Florida.**

Gabriel Perez and Dr. Claude Villiers
Florida Gulf Coast University

The population in Lee County, located in southwest Florida, has growth tremendously over the two past decades. It also had the most temporary residents "snowbirds" than any other counties in the State. This condition along with high variation in driver population, frequent special events, as well as seasonal parades and festivals creates a dynamic and challenging traffic condition. To manage traffic flow in the area, Lee County Department of Transportation (LCDOT) has been actively deploying advanced traffic monitoring technologies in their roadway infrastructures. These devices generate an abundant amount of data which in turn creates a daunting task to effectively measure the true benefit of these technologies in supporting traffic management and operations. The purpose of this study is to describe the traffic management system deployed during the last three (3) seasons of the Red Sox baseball spring training in Fort Myers, Florida. Also, emerging new methods of travel data collection and their effectiveness were evaluated. Based on the analysis conducted, it was found that baseball spring training had significant impact in the traffic flow on the major and adjacent roads leading the stadium and within the vicinity of the ballpark. The percentage difference in travel time during games days versus non-games days was peak as high as 627% in westbound traffic in 2014. During peak congestion, it is not uncommon to find traffic delay of over 10 minutes within the vicinity of the ballpark alone. Also, data collected from Bluetooth and other new systems were effective. The strategic planning put in place by LCDOT and the research team, parking strategy used by park officials, traffic management by law enforcements, and the variable message signs (VMS) contributed to traffic congestion reduction for three 3 consecutive years. Most noticeable reduction was observed in the eastbound traffic. It is encouraging to continue looking for innovative ideas to further improve traffic congestion due to baseball spring trainings. Lessons learned from this study can be applied in the surrounding counties to manage the congestion arising from special events, spring training, and concerts.

(66) **Engineering of a Weather Balloon System.**

Sergei Bilardi, William Griffin, Erik Parker, and Kari Slotten
Embry-Riddle Aeronautical University

The goal of this project is to design and build a payload that is lifted to the stratosphere, 100,000ft, and records various atmospheric data such as pressure, temperature and humidity, while recording images during the ascent. The payload contains several computers responsible for individual functions. An Arduino is used to interface with the sensors inside and outside the payload, while a TinyTrak is used to transmit data from the sensors and GPS module to an FM radio. All data and images are transmitted to a ground station consisting of several transceivers and directional antennas. Images are taken using a Raspberry Pi that is programmed to take images and transmit them to a another radio. A link budget is calculated to determine the best

ground station layout while antenna modeling is conducted to design the payload antennas. The inner structure of the payload is modularized to allow for integration of electrical equipment, while the outer structure is shock and water resistant while maintaining ventilation with the external air. This integrity is necessary because the payload is expected to land in the Atlantic Ocean sixty miles from its initial launch position. Adding this protection will enable the payload to be recoverable so, if found, additional images, not transmitted, can be recovered from the internal SD card. In addition to collecting atmospheric data, this project helped the team learn many stages of engineering such as designing, building and testing various types of equipment.

(67) **Analysis of the Data Collected from a Weather Balloon System.**

Kari Slotten, Sergei Bilardi, and William Griffin
Embry-Riddle Aeronautical University

The purpose of this project is to analyze and interpret atmospheric sensory data obtained by a weather balloon system. The payload includes an internal temperature sensor, pressure sensor, 3-axis translational accelerometer, GPS receiver, and an external temperature sensor and humidity sensor. Each sensor reads and transmits every 4 seconds between the attitudes of 20ft and 100,000ft. These values will be used to calculate the theoretical speed of sound at the time of each transmission which will be compared to the value given by the ultrasound. These values will also be compared to the values predicted by NOAA or NASA. Data from the accelerometer will be compared and plotted against altitude to assess how the balloon's ascent changes over time and to characterize the 'layers' of the lower atmosphere. The internal and external temperature of the payload will be compared to establish the rate of heat transfer through the housing. A camera will record images periodically throughout the flight. Analysis of the data will allow for comparison between predicted and experimental values of temperature, pressure, and speed of sound. This will serve to increase understanding of atmospheric conditions at various altitudes and how experimental measurements can vary from predictive models. At the altitude at which space becomes visible, the team will compare density calculated from images to that measured by the other instruments. This project has already increased the team's appreciation of the challenges which face high altitude vehicles.

(68) **Preventing Suicide on Campus: Training Resident Assistants as Gatekeepers.**

Kirsten Christensen and Martin Swanbrow Becker, Ph.D.
Florida State University

Suicide is the second leading cause of death among college students. Despite many universities having implemented suicide prevention programs, there have been no previous known between-groups design research studies on campus examining the efficacy of such programs. This study seeks to assess the efficacy of using Resident Assistants (RAs) as gatekeepers in suicide prevention in order to recognize students in distress and connect them with resources. RAs in one-half of the residence halls on campus received one-hour of specialized training in suicide prevention while the remaining RAs received one-hour of training in stress and time management. Both RAs and residents were surveyed during the following academic year. Results examine the impact of the training on RAs and residents and inform changes and improvements to suicide prevention Resident Assistant training. This poster will examine the RA

trainings, resident surveys, how our data up to this point has shaped further RA trainings, and my role as an undergraduate assisting with this research study.

(69) **The Ethics and Conflicts of Biomedical Research.**

Stephanie Holz and Janis Prince
Saint Leo University

This presentation explores the ethics of biomedical research and its decision-making guidelines. The presentation will focus particular attention on conflicts that may arise between the four pillars that guide biomedical research. Every day we each make a series of choices. In the medical field, making the correct decision is crucial to ensure patient confidentiality and just treatment. There are four main principles on which biomedical ethics are founded; along with HIPPA law, they guide the decision-making process. These guidelines can be divided into the pillars of autonomy, beneficence, non-malfeasance, and justice. Autonomy focuses primarily on informed consent. Beneficence means to do good overall. Non-malfeasance entails refraining from harming the person(s) affected by a decision. Finally, justice is the ability to do what is right. Often, these pillars will seem to conflict with one another as one considers a particular case; however, they can also be combined to answer some of the most difficult questions faced in such an impacting field. As a bonus, these pillars stand as a firm foundation in general for non-medical issues that may occur in everyday life.

(70) **CCW/Restrictions Abstract.**

Ryan Tanski
The University of Tampa

The topic of gun restrictions in the United States has become very controversial over the last few decades. The purpose of this study is to examine the effect of increased gun restrictions and increased Concealed Carry Weapons (CCW) permits on the number of violent crimes committed. Previous studies of violent crime and gun control laws or strictness of laws (such as “Shall Issue” vs. “May Issue” laws) do not incorporate CCW levels. The estimates for the impacts of gun laws on violent crime when excluding CCW levels may be bias due to possible misspecification. To measure the impact, panel data is collected on violent crime rates, historical CCW levels, African Americans per population, household income, unemployment, population and restrictions at the state level for all 50 states and the District of Columbia from 2010 to 2012. Using a Fixed Effects Ordinary Least Squares regression, I show the conditions under which more restrictive laws may reduce the violent crime rate and how the number of CCW permits impacts this result. The regressions suggest that both an increase in permits and restrictions decreased violent crimes, a result that was robust under different models and robustness tests. These results suggest that the political landscape around guns and gun control may not need to be so polarized, but find a middle ground on the issue.

(71) **The Behavioral Role of Carbon Monoxide Neurotransmission in the Anterior Hypothalamus.**

Christopher Robison, Ph.D., Kia Adams, and Elaine Hull, Ph.D.
Florida State University

Carbon monoxide (CO) is a molecule that acts as a gaseous neurotransmitter with implications in neuroendocrine control. The study of CO as a gaseous neurotransmitter developed from previous studies of another gaseous neurotransmitter, nitric oxide (NO), in the medial pre optic area (MPOA). NO stimulates dopamine release in the MPOA, thereby promoting male rat sexual behavior. CO also exists in the MPOA, but the role CO plays in the MPOA had not been studied. In these experiments, the enzyme that produces CO, heme oxygenase-2 (HO-2), was used in the MPOA of sexually experienced male rats. An HO-2 antagonist impaired copulatory ability and increased anxiety-like behaviors in the elevated plus maze and the open field test. It was determined that CO neurotransmission in the MPOA promotes copulation and attenuates stress responses. My contributions to these experiments included recording and analyzing the behavior of the male rats in the elevated plus maze, the open field test, and their sexual experiences. In addition to behavioral analysis, I assisted in the histological procedures used to quantify the immunofluorescence of CO producing enzymes in the MPOA of the sexually experienced male rats. This research was conducted as a part of Christopher Robison's Ph.D. dissertation.

(72) **A Study on Proprioception and Touch Perception in Object Discrimination.**

Francesca Riccio-Ackerman, Liliana Rincon Gonzalez, Ph.D., and Ranu Jung, Ph.D.
Florida International University

Somatosensation is the combination of a number of different receptors that sense touch, temperature, pain, and proprioception, which provide sensory feedback for the body as a whole. In the hand, an especially important ability is object discrimination. Whilst receptors for touch confer senses of pressure, vibration, and object slippage, proprioceptive receptors are needed to provide information concerning joint position, the stretching of skin, and to give an idea of bodily orientation in space. The effect of proprioception on touch perception is yet to be determined. This study will determine the relationship between proprioceptive and touch senses. First, the just noticeable difference (JND) will be calculated for objects with varying stiffness levels to study touch perception. Then, the JND in stiffness will be calculated for objects with different sizes. The change in object size results in altered hand position (a proprioceptive change), and can therefore be used to analyze the effect of proprioception on touch perception. We expect to see an effect of object size (proprioception) on the perception of stiffness (touch). Determining the just noticeable difference (JND) in object stiffness adds to a more comprehensive understanding of somatosensation and has applications in physical therapy and prostheses development. Providing somatosensation and more specifically, the ability to differentiate objects would relieve the amputee from constantly relying on vision while using the prosthesis. Therefore, this study has the potential to affect not just multiple fields of study, but the numerous patients who can benefit from a more comprehensive understanding of perception.

(73) **The Quality Effects of Text Messaging in Maternal and Infant Well-being.**

Dr. Cynthia White-Williams Ph.D. and Aliza Williams
University of North Florida

Approximately 10 to 15 percent of new mothers in the United States experience postpartum depression. Among low income and ethnic minority women, the incidence is considerably higher - 21 to 53 percent. The concern is that both women and their children will face negative repercussions. The Magnolia Project, a Northeast Florida Healthy Start Coalition initiative, specifically focuses on the well-being of minority women during their childbearing years in Health Zone 1, a socially disadvantaged community in Duval County. Studies show smart phone ownership in United States is similar across racial and ethnic groups; 87 percent of African-Americans as well as Hispanics and 80 percent of Whites (Whitaker et al, 2012). In light of recent research, The Magnolia Center has implemented text messaging as a tool to support adherence to plan of care and treatment goals. Our objective is to analyze to what extent does text messaging in case management increase postpartum visits and to what degree does text messaging influence emotional well-being. A case control study will be used to examine the impact made from utilizing text messages in lieu of face-to-face visits to improve maternal and infant health in high-risk populations. The primary investigator proposes to match participants that receive the intervention with participants who did not based on analyzing the data using propensity score matching. The outcome of this study has significant implications as the Northeast Florida Healthy Start Coalition is seeking to expand the use of the SMS-text messaging tool across the state of Florida.

(74) **Call me—or text me—on my Cell Phone: Texting in Class as Deviant Behavior.**

Beverly Mejias and Janis Prince
Saint Leo University

Young adults ages 18-24, along with teenagers ages 13-17, are the two most prolific cell phone users (Harman and Sato 2011). Despite reported negative outcomes due to overuse of cell phones, students continue to use them in classrooms. This research project examines some of the factors that are related to this phenomenon and more specifically looks at cell phone as a deviant behavior in the classroom. Deviance is sometimes defined as a violation of any rule. However, others argue that deviant behavior requires more than a rule breach but must also include provoking disapproval, anger, or indignation (Thio 1978). For this study, two sections of the same class taught by different professors, each 50 minutes in length, were observed for four consecutive weeks. Both instructors used the same syllabus and it stipulated that students were not to use cell phones during class. Data analysis was based on field notes. Class A was mostly female, and Class B had a majority of males. However, the cell phone use in Class B was significantly less than in Class A. Professors of the two classes exhibited two distinct teaching styles which also appeared to have an impact on cell phone use in class. Students in the lecture-based classroom, which was also mostly female, were far more likely to text during class. Given the disruptive nature of cell phone use in class and its prohibition by these instructors, from a sociological viewpoint, student cell phone use may be viewed as deviant behavior.

(75) **Differences in Tarsal Morphology between Arboreal and Nonarboreal Ants.**

Andrew Nisip and Dr. Andrea Lucky
University of Florida

Ants dominate many terrestrial and arboreal habitats worldwide and often possess special adaptations for success in specific environments. Arboreal ants are under strong selective pressure to grip tightly to tree surfaces, as falling from a tree can require an energetically costly and dangerous return trip to the nest. This study examined the tarsal hairs on the legs of arboreal and non-arboreal ants, which are thought to be important to grip strength. Hair number, length and density were assessed using Scanning Electron Microscope (SEM) images of the tarsi of eight ant species with a range of arboreality: Camponotus floridanus, C. impressus, Crematogaster minutissima, Dorymyrmex bureni, Odontomachus brunneus, Pogonomyrmex badius, Pseudomyrmex gracilis and P. pallidus. Results indicate that specialized arboreal ants have shorter, denser tarsal hairs than ants that are strictly ground-dwelling. However, ants that are somewhat arboreal show variability in tarsal hairs. As many species of ants can be restricted to either the arboreal or non-arboreal life, this study allows us to better understand what morphological structures contribute to the arboreal-ness of certain ant species.

(76) **Sex differences in Physiological and Self-Reported Reponses to Stress.**

Ezana Assefa, Jose Serrano, Jessica Garcia-Brown, Ph.D., Thomas J. Fagan, Ph.D., and Jaime L. Tartar, Ph.D.
Nova Southeastern University

Risky behaviors, such as increased sensation seeking and aggression, are more likely to be observed in men compared to women- especially during the late teens and early adulthood. These risky behaviors in men have also been linked to decreased pain perception, low physiological arousal, and enhanced physiological arousal to stress. However, the extent to which risky behaviors are associated with physiological arousal and stress responses in women is currently unclear. In order to address this uncertainty, we examined self-reported risky traits in a group of young, healthy men and women and compared these responses to physiological arousal (heart rate, blood pressure) as well as biochemical (cortisol and alpha amylase) and self-reported responses (a visual analog scale and state anxiety) to an acute stress challenge (the cold presser test, CPT). Results showed that relative to women, men scored higher on physical aggression, verbal aggression, and hostility subscales as well the composite score on The Aggression Questionnaire (all p's <0.05). Men also scored higher on the disinhibition and experience seeking subscale and the composite score on The Sensation-Seeking Scale ($p<0.05$). Relative to men, women anticipated that they would experience more pain and experienced more pain both during and after the CPT ($p<0.05$). Interestingly, however, women had lower levels of post-stress salivary alpha amylase levels than men. Combined, these data support the idea that sex differences in the risk taking-arousal interaction are complex and suggest that women's perceptions of their expected and realized pain are dissociated from their physiological responsivity.

(77) **Synthesizing ranking functions from query embeddings for image retrieval.**

Michael Lopez-Brau, Fareeha Irfan, and Boqing Gong
University of Central Florida

Image retrieval is the process of taking a query from the user, usually in the form of a string of text, and comparing it with some other known piece of information of an image to return a ranked list of the most relevant images to the query. Two ways to search for an image are by using its metadata (e.g., tags associated with an image) or its content. A problem with using metadata is that the image must be properly annotated—this is infeasible and laboriously intensive for humans to perform for images in extremely large databases. On the other hand, content-based image retrieval can be used to learn the features of an image that makes visual recognition simple to humans. Our proposed approach seeks to construct a system that can rank images using only the query and the image contents. In our experiment, images from the Microsoft COCO dataset are ranked using a ranking SVM. We then build a deep neural network to simulate the functional relationship between the query and the relevance of a particular image. By comparing the values of relevance for each image to the values obtained by the ranking SVM, we determine the structure of the deep neural network.

(78) **Identification of Plant Species via Utilization of Polymerase Chain Reaction and DNA Barcoding.**

Asima Khan
Valencia College

It is estimated that our planet is home to 8.7 million species of which only 1.2 million are known. These numbers suggest that 86% of species are unknown despite modern day technology. Of the known species, one-third are threatened and left vulnerable to extinction. Thus, it is crucial to identify unknown species, obtain knowledge of what exists and discover our effects on them. In accordance, one current goal at Valencia is to identify and classify plants from the East Campus greenhouse using DNA barcoding targeted towards a small DNA segment of RuBisco (Ribulose-1,5-bisphosphate carboxylase/oxygenase), a gene that is highly conserved across plant species. The DNA segment was isolated and purified from a plant sample of an unknown species of genus Equisetum, then amplified using PCR (polymerase chain reaction) and visualized on gel electrophoresis. The nucleotide sequence of the DNA segment was obtained and the species was then classified by BLAST searches and phylogenetic analysis. Upon analyzation it was determined that the plant sample is more closely related to Equisetum giganteum due to an error score of zero. Furthermore, out of 498 base pairs only five mismatches were present.

(79) **Detection of Lagenidium giganteum in plant axil metagenomes.**

Paula Leoro Garzon, Isabel Olivera, Andrew Gonedes, Gregory Edwards, and Aurelien Tartar
Nova Southeastern University

The entomopathogenic oomycete Lagenidium giganteum is known to infect and kill mosquito larvae and therefore has been seen as a potential biological control agent against disease vector mosquitoes. Phylogenetic analyses have consistently demonstrated that L. giganteum is a close relative to plant pathogens (Phytophthora and Pythium spp.). In addition, a recent transcriptome analysis showed that L. giganteum expresses oomycete genes that have been associated with

plant infection. These observations suggest that L. giganteum might have evolved from a plant pathogen to an invertebrate pathogen, and have retained the ability to establish symbiotic or pathogenic interactions with plant tissues. To test this hypothesis, a metagenomic survey of plant material has been initiated. Specifically, water samples collected from plant axils were processed for metagenomic DNA extraction, and Polymerase Chain Reactions (PCR) were performed in an effort to detect L. giganteum. These PCR reactions used a L. giganteum-specific primer set that was designed to selectively amplify a fragment of the cytochrome c oxidase subunit one (cox1) gene. The cox1 gene sequence has been previously used to barcode oomycetes, and is the default DNA barcode approved by the Consortium for the Barcode of Life (CBOL). Preliminary results indicated that the L. giganteum cox1 gene can be readily amplified and sequenced from metagenomic DNA isolated from plant axil water samples, suggesting that this oomycete is able to colonize environments that are consistent with a close relationship to plant tissues. These results provide a basis to explain a proposed evolution from plant pathogen to entomopathogen.

(80) **Investigating the potential role of TGFβ receptors in tumor angiogenesis and the development of cancer.**

Patricia Varacallo[1], James Hawker[2], and Iain Duffy[1]
[1]Saint Leo University and [2]South Florida State College

There are many growth factors and receptors that play, or are suspected to play, a critical role in angiogenesis and tumor development. They include transforming growth factor beta (TGFβ) and TGFβ receptors. Other studies have demonstrated that Bone morphogenetic protein 9 (BMP-9) and Activin A can signal through a type I TGFβ receptor, Activin-Like Kinase 1 (ALK-1). We show that ALK-1 and the co-receptor endoglin can signal in endothelial cells by the TGFβ ligand. ALK-1 and endoglin may also be involved in cell-cell interactions. We screened endothelial cells and various cancer cell lines for expression of TGFβ receptors using quantitative RT-PCR. This was done to further explore the function of TGFβ receptors in angiogenesis and cancer. Research support was funded by Saint Leo University.

(81) **China's Evolving Economic and Political Relationships with Russia and Japan.**

Jana Nudelman
Florida International University

This project endeavors to evaluate what China's aims are in the international arena through the analysis of China's bilateral relationships with Russia and Japan over the past decade. Although China is claims to be a peaceful actor, Western suspicions of China and allegations of an arms race in East Asia undermine China's claim. Some allege that China's goal is global hegemony; if so, may be safer to consider China's rise as an aim for regional hegemony rather than the peaceful actor it claims to be. If China's goal is global hegemony, then regional hegemony is a necessary step towards this goal. Both relationships are dynamic. Domestic opinions that the Chinese and Japanese hold towards each other continue deteriorating. Sino-Japanese relations may worsen due to expanding suspicion of Japan's relationship with the U.S. and ideological differences, especially with Shinzo Abe's break away from Japan's former pacifism. In regards to Russia, the relationship is more ambiguous, potentially worsening due to the distrusting nature of authoritarian regimes, but also potentially improving due to ideological similarities (especially in opposition to Western dominance) and collaboration through the Shanghai Cooperation

Organization. This research mainly uses books for background information and white papers as evidence for the arguments made in the books. News articles and broadcasts are also used. With Western powers feeling threatened by China as a potential global hegemon, this research will determine if these fears are justified based on China's actions within its regional circle of influence.

(82) **Analysis of Growth Characteristics on Solid Media and Effects of Dissolved Oxygen in Liquid Media for Three Fungal Candidates.**

Jonathon Niño Charari, Aldo Lobos, and Valerie Harwood
University of South Florida

An investigation of the growth of three candidate fungal species was performed on two different media. The central hypothesis of this study is that growth on Sabouraud dextrose agar (SBA) will produce more biomass of Aspergillus niger, Penicillium chrysogenum and Penicillium simplicissimum than Czapek dox agar (CDA). Triplet fungal cultures were grown on SBA and CDA. Mean hyphal growth was measured (radius/mm) from point of inoculation to furthest point of growth for five days. One µl of a standard spore suspension (2*108 spore/ml) of A. niger was placed at the center of each plate (three SBA plates and three CDA plates) and incubated at 30˚C. Results from growth of A. niger on SDA: Day 1 (6.3mm), Day 2 (18.3mm), Day 3 (30.3mm), Day 4 (41.7mm), Day 5 Complete coverage. Results from growth of A. niger on CDA: Day 1 (2mm), Day 2 (6.7mm), Day 3 (11.3mm), Day 4 (16.7mm), Day 5 (21.3mm). Preliminary results indicate that SDA produced longer hyphal growth than CDA within five days. The data collected in this experiment and subsequent experiments will assist in determining optimal growth conditions for the three fungal candidates. A dissolved oxygen (DO) probe will be utilized in future experimentation to gather data for the effect of DO on growth and acidification in liquid media.

(83) **Effect of Meditation on Creativity, Affect, and the Brain.**

Robert Gray, Christina Salnaitis, Rebecca Anderson, Ander Baranda, Jaclyn Dell, Alexis Dias, Jesse McDuffie, Annie Meier, Hannah Morris, Devin Plant, Lauren Prestwood, Jessi Smith, and Emily Trip
University of South Florida- St. Petersburg

The central research questions of this study are "How does a short meditation affect the brain?" and "Does a short meditation session affect creativity, positive affect, and negative affect?" The purpose of this research is to replicate a similar study and expand our understanding of meditation, creativity, affect, and the brain. Participants experienced a 15-minute guided meditation or a 15-minute control activity. The PANAS was given before and after the meditation or control activity to measure the positive and negative affect of the individuals. The Remote Associates Test (RAT) was given before and after the meditation or control activity to measure the creativity of the individuals. During the experiment each participant's brain blood oxygen metabolism was measured using functional near infrared spectroscopy. The meditation group showed significantly lower negative affect, which replicates a similar study, and shows that even one short meditation session impacts a person's mood.

(84) **The Validity and Feasibility of Using Recycled Concrete Aggregate (RCA) in Hot Mix Asphalt (HMA).**

Fritznel Saint Louis
Florida Gulf Coast University

The purpose of this research project is to determine the validity and feasibility of using recycled concrete aggregate (RCA) in Hot Mix Asphalt (HMA) and to compare both the volumetric and performance properties of HMA mixtures constructed with (RCA) to conventional HMA mixtures. To achieve this objective, two mix designs were selected with one containing only virgin aggregates and the other made with a combination of 80% of virgin aggregate and 20% RCA. The virgin mix was a replicate of an actual Superpave mix that was placed on a state highway in the State of Florida. The volumetric properties for both mixtures were analyzed to evaluate performance of both mixes. Superpave IDT including Creep Test and Water Damage Test were also performed. Based on the analysis conducted, RCA has rougher surface textures and lesser amount of flat and elongated and more angular shape particles. These characteristics of the RCA created a stronger aggregate skeleton in the aggregate distributions, which in turn increased the VMA and the resistance to permanent deformation in the mixture. RCA mixture had demonstrated greater rutting resistance as compared to the virgin mix. RCA was very sensitive when it was subjected to water damage. TSR values were reduced by over 40% on the mixture containing RCA. Further testing and investigation are needed to fully understand the conditions of this reduction. This research showed that the Department of Transportation would achieve significant saving if RCA is used in HMA mixtures.

(85) **Plankton dynamics of a species-poor Bahamian saltwater lake: which prey do lined seahorses (Hippocampus erectus) prefer?**

Katie-Lynn Roberts, Dr. Heather D. Masonjones, Dr. Rebecca Waggett and Elizabeth Pendergrass
The University of Tampa

Relatively little is known about the diet preferences of seahorses, except that they are ambush predators. Sweetings Pond, a tidal salt lake on the island of Eleuthera (The Bahamas) contains an unusual high-density population of lined seahorses (Hippocampus erectus). These anchialine ponds often have unique biota differing dramatically from nearby coastal ecosystems, even varying in planktonic composition. In this study, we investigated diet preference of lined seahorses by comparing available planktonic dietary components. Replicate 2-minute, surface plankton and 2-min tows above the seafloor were collected with a 150 μm 0.5 m net at each end of the 1600 m long lake just after dawn and before dusk across October 2015. In addition, 12-hour light traps collected benthic organisms overnight at each sampling timepoint. A non-lethal gastric lavage technique was performed to assess seahorse diet breadth, anesthetizing animals with a 0.05% clove oil solution and flushing food items through their continuous gut with fresh water following the methods of Castro and colleagues (2008). Animal size, reproductive condition, and gender were assessed using photographs taken at each sampling event. Overall, the plankton community of the pond was dominated by calanoid copepods, with calanoids, harpacticoids, and cyclopoids observed in all tows, and amphipods, annelids, metazoans, echinoderm larvae and shrimp observed intermittently. Few differences were observed by either time of day or location of tow. .Light traps were characterized by copepods and shrimp, with

additional genera represented that were not observed in plankton tows. Seahorses across size and gender consumed predominantly copepods, with few differences observed except that larger animals preferred larger foods. Seahorse numbers globally are on the decline due to overfishing and habitat degradation, and thus, Sweetings Pond animals represent a unique opportunity to study a healthy, intact population to gain a deeper insight into seahorse food requirements on a larger scale.

(86) **Examination of Virulence Based on the Morphology of the California and Panama Strains of Batrachochytrium dendrobatidis.**

Shelby Wood and Dr.Taegan McMahon
The University of Tampa

Chytridiomycosis, a disease caused by the pathogenic fungus Batrachochytrium dendrobatidis (Bd), has caused hundreds of extinctions and extirpations of amphibians all over the world. We do not fully understand how the fungus grows and develops, which is an essential key in understanding how it impacts amphibians and other organisms that it can infect. Here, we examined the morphology of two virulent strains of Bd, a strain from California and a strain from Panama, with an electron microscope. We compared the morphology of the two strains to further our understanding of how the fungus grows, and to compare the similarities and differences between two strains, which are from very different parts of the world. Overall the strains were fairly similar, however, there was a significant difference in zoosporangia size. Zoosporangia produce the infective stage of Bd, and so this difference in size may affect Bd population growth and virulence. Differences in strain morphology may help us understand the difference in virulence, which are currently still unexplained.

(87) **Genetic Differentiation Among Florida Populations of Diadema antillarum.**

Luke Chandler, Dr. Linda Walters and Dr. Eric Hoffman
University of Central Florida

This project used molecular genetic markers (microsatellites) to determine the extent of genetic diversity among populations of the long-spined, black sea urchin Diadema antillarum in Biscayne Bay, the Florida Keys and Dry Tortugas. These data were essential for promoting conservation of this species after a disease-induced bottleneck killed approximately 90% of individuals in the 1980s, as well as forwarding Mote Marine Laboratory's and the Florida Fish and Wildlife Conservation Commission's (FWC) efforts for D. antillarum captive-breeding and release. I obtained needed permits and collected tissue samples by using non-invasive sampling of regenerative tube feet. Tissue samples were collected from wild D. antillarum from six locations: 1) Upper Keys (Key Largo area), 2) Middle Keys (Marathon area), 3) Lower Keys (Summerland Key area), 4) West of Key West (Key West National Wildlife Refuge area), 5) Dry Tortugas, and 6) a site on the southeast coast of Florida (Biscayne Bay). Specifically, this project aimed to (1) examine samples from 6 sites to determine multiple south Florida locations exhibit different genetic signatures and harbor different levels of genetic diversity, and (2) examine samples from 2 brood stock populations to determine whether D. antillarum brood stock housed at Mote Marine Laboratory and the Florida Fish and Wildlife Conservation Commission and the offspring produced by these urchins contain variation indicative of a single population or multiple Florida populations and if they contain the genetic variation necessary to meet the

FWC's genetic policies that would allow them to be released throughout south Florida as part of a comprehensive coral reef restoration strategy. Overall, we found that native populations exhibit similar levels of genetic diversity and are not genetically differentiated from each other. Moreover, our data indicate that there are no genetic distinctions between native populations and broodstock populations reared in a captive-bred setting. This project informs resource managers working with D. antillarum that broodstock can be released into Florida waters without regard to where in Florida the parent generation was collected. The return of D. antillarum has drastically improved coral abundance in other Caribbean locations; a comparative study of coral versus urchin abundances in Belize, St. Croix, Barbados, Jamaica, Bonaire, and Grenada showed that D. antillarum-grazed areas increased coral abundance 10-fold. With a successful broodstock program here in Florida, we can hopefully supplement numbers of native D. antillarum and see the benefits of this species with regard to coral abundance as has been seen elsewhere.

(88) **Investigating Detailed Abundance Patterns in the Hyades Cluster.**

Drake Williams
The University of Tampa

We have derived the paramters and abundances of up to 17 elements for seven stars within the Hyades open star cluster, through an analysis of high-resolution, high signal-to-noise ratio spectra obtained via the Harlan J. Smith 2.7 m telescope and the 2dcoude cross-dispersed echelle spectrometer at the McDonald Observatory. Four of the stars are solar-type dwarves while three giants were also analyzed to better calculate an overall metallicity of the entire cluster. In addition, we investigated whether there are differences in various stellar abundance trends across the open cluster. Here we present the results of our abundance analysis and stellar parameter derivations of the seven stars and discuss the implications of stellar abundance patterns across star clusters.

(89) **Abundance Analysis of 10 Kepler Planetary Hosts.**

Zachary Vaz
The University of Tampa

This study aims to identify possible connections between the detailed chemical abundances of stars and the existence of small planets discovered by NASA's Kepler spacecraft. We have analyzed high quality Keck/HIRES spectra of the planetary hosts Kepler-65, Kepler-93, Kepler-97, Kepler-98, Kepler-102, Kepler 128, Kepler-406, Kepler-408, Kepler-409, and Kepler-411 and derived the abundances of up to 17 elements for these stars. Results from previous studies have suggested that stellar abundance patterns or "signatures" may indicate the presence of planets, possibly terrestrial planets in particular. Should such patterns exist, they could be used to identify stars with small planets. Here we present the results of our abundance analysis of 10 stars with a variety of exoplanet systems discovered by Kepler and address the hypothesis that chemical abundance signatures can indicate the presence of small planets.

(90) **Is there a Paternal Role in Fetal Alcohol Syndrome?**

Mariana Ruiz, Peter Nwokoye, and Dr. Stephanie Bingham
Barry University

Though the precise mechanisms of Fetal Alcohol Syndrome and Fetal Alcohol Spectrum Disorders (FASD) are poorly understood, evidence suggests that alcohol interferes with many molecular, neurochemical, and cellular events that occur during development. Investigations of FASD have heavily focused on the effects of maternal alcohol exposure. Using zebrafish as a vertebrate model, we are investigating the effects, if any, of paternal ethanol exposure on events surrounding embryogenesis by exposing male fish to ethanol prior to breeding. The resulting offspring are then collected and observed for phenotypic responses in terms of survival, morphology, etc. Preliminary results suggest that while paternal exposure on its own results in a decreased number of offspring, there are no obvious phenotypic effects. Supported by MBRS RISE grant R25GM059244-15, Department of Biology, Barry University; Department of Energy Grant DE-FG02-06CH11438.

(91) **Effects of Ethanol and Thiamine on Embryonic Rattus rattus Brain Cells.**

Pedro Sanchez
Barry University

HSP90 is a protective protein that functions as a chaperone, along with other proteins, to assist in proper protein folding (Wandinger, et al, 2008). Embryonic day 18 neurons of Rattus rattus were cultured and maintained in vitro at 37˚C in a 95% air/ 5% CO2 incubator. The cells were treated with ethanol, thiamine, or ethanol and thiamine on DIV 1 and DIV 2. The treated cells were fixed using Histochoice fixative on DIV 8. Immunocytochemistry with a mouse monoclonal HSP90 antibody was done to determine the effects of ethanol and thiamine on HSP90.Thiamine is an essential B vitamin that is not naturally produced by mammals (Aldinger, 2016). It is suggested that long-term ethanol use decreases the B vitamin in neurons which, in turn, causes cell death (Thomas and Marshall, 2005). The purpose of this study is to determine whether the HSP90 protein will be decreased after treatment of ethanol, thus leading to cell death, and whether thiamine could reverse the effect on cell survival or HSP90 expression. Reversal of ethanol-induced thiamine deficiency could be beneficial in conditions such as Fetal Alcohol Syndrome and Wernicke - Korsakoff syndrome (Thomas and Marshall, 2005). We purpose to modify the methods to study further the interactions between ethanol and thiamine in cortical neurons. Supported by Biology Department, Barry University.

(92) **Can Cuban Tree Frogs Avoid Deadly Chytrid Fungus.**

Electra Scott and Taegan A. McMahon
The University of Tampa

Amphibians are at risk due to their sensitivity to environmental change. They have been decimated by the deadly fungus Batrachochytrium dendrobatidis (Bd), which is causing dramatic declines in populations and leading to species extinctions. We examined whether Cuban tree frogs Osteopilus septentrionalis were able to detect Bd and its metabolites. We exposed frogs to four different treatments, (live Bd, filtered Bd metabolites, dead Bd zoospores without metabolites, and control exposed to Bd during second observation). Frogs were exposed to

treatments before (naïve to Bd) and after infections (Bd experienced) to see if infection experience increased avoidance behaviors. After each exposure, behavior was monitored to see if Cuban tree frogs avoided the exposure treatments. Determining if different species of amphibians have behavioral avoidance may lead to more informed conservation efforts.

(93) **The Impact of the Deep Water Horizon Oil Spill on Porewater Nutrient Distributions.**

Marissa Macri
The University of Tampa

In 2010, the Deepwater Horizon oil well exploded in the Gulf of Mexico, resulting in the largest oil spill in US History. An unexpected result of the release of oil at approximately 1500 meters was the formation of an oil/seawater emulsification that did not rise to the surface which created a layer of oil that eventually came in contact with sediments near the shelf break. Porewater samples from sediment cores near the Deep Water Horizon oil spill site were obtained on an annual basis from 2011 through 2013 and analyzed for inorganic nutrients; nitrate, nitrite, ammonium, phosphate, and ortho-silicic acid. There is a dearth of porewater analysis in this region, largely due to how difficult it is to acquire samples and the artifacts associated with increasing temperature and oxidation that occur during sampling, making this a unique dataset. Temporal and spatial variability will be analyzed to evaluate the impact of oil spill on porewater nutrient distributions and sedimentary denitrification rates.

Session 2

(1) **Project Panther LIFE.**

Juan Carlos Espinosa and Jonathan Viera
Florida International University

Florida International University (FIU) in partnership with Miami-Dade County Public Schools (M-DCPS) and Parent to Parent of Miami, Inc. continues to implement and expand a postsecondary transition program for students with intellectual disabilities (ID) entitled Project Panther LIFE: Panther Learning Is For Everyone. Panther LIFE will annually prepare a maximum of 30 students with ID to complete a well-rounded, structured, and individualized curriculum and a system of supports through partnerships that will result in a certificate. The objectives of Project Panther LIFE in Year 5 will include: (1) The recruitment, preparation, and retention of students with ID that meet project eligibility criteria; (2) Initial and ongoing advising, academic mentoring, peer coaching support, and job coaching; (3) The development of self-determination and advocacy skills for students and families enrolled in the program; (4) The development and application of independent living skills through participation in the Summer Residential Program; (5) The ongoing evaluation of the program leading to revisions and modifications in program development and expansion, functioning, implementation, and requirements; (6) The successful completion of students with ID from the program; and (7) The successful and paid employability of students with ID from the program. This certificate, non-degree program of study will allow students to access and participate in a variety of University courses, varied job shadowing opportunities throughout campus, supervised employment

internship experiences in the community, summer residential program, and other required program and community activities through a system of supports from academic mentors, peer coaches, faculty, and project personnel.

(2) **Synoptic-scale Precursors and Characteristics of High-end Tornado Outbreaks in the Southeastern Region of the United States.**

Benjamin D. Dillahunt
Embry-Riddle Aeronautical University

The atmospheric conditions and patterns preceding high-end tornadic outbreaks (HETO) are important to understand as such events often lead to loss of life and property. This study examines the synoptic conditions in the days surrounding a HETO to identify large-scale atmospheric structures that can be used to improve forecasts of HETOs. Tornadic events were ranked for these times by number of tornado reports and the top 75 are defined as HETOs. Generally, there are four ingredients needed for severe weather: lift, moisture, instability, and vertical wind shear. For HETOs, strong vertical wind shear, low lifted condensation levels and veering wind profiles typically are present as well. These variables are taken into consideration when analyzing large-scale patterns of mass fields such as 500hPa heights, 250hPa winds, total wind shear, equivalent potential temperature, etc. The domain for the HETOs in this study includes Alabama, Georgia, Kentucky, Mississippi, the Carolinas, and Tennessee. Tornadic events are examined using NCEP reanalysis from January 1st to May 31st, years 2001-2014, as this period best describes the primary severe weather season for the Southeast. The goal of this study is to compare HETOs to lesser tornadic outbreaks and to events that consist of severe, non-tornadic weather; these results can then be implemented into pattern recognition techniques for short to medium range forecasts of severe weather events.

(3) **To Hydrate or Chlorinate: A Regression Analysis of the Levels of Chlorine in the Public Water Supply.**

Drew Doyle
University of Central Florida

Public water supplies contain disease-causing microorganisms in the water or transport ducts. In order to kill off these pathogens, a disinfectant, such as chlorine, is added to the water. Chlorine is the most widely used disinfectant in all U.S. water treatment facilities. Chlorine is known to be one of the most powerful disinfectants to restrict harmful pathogens from reaching the consumer. In the interest of obtaining a better understanding of what variables affect the levels of chlorine in the water, this presentation analyzed a particular set of water samples randomly collected from locations in Orange County, Florida. Thirty water samples were collected and had their chlorine level, temperature, and pH recorded. A linear regression analysis was performed on the data collected with several qualitative and quantitative variables. Water storage time, temperature, time of day, location, pH, and dissolved oxygen level will be the independent variables collected from each water sample. All data collected will be analyzed through various Statistical Analysis System (SAS®) procedures. The assumptions for the regression analysis held for this chlorine model. When a water sample is collected later in the day, it will read a lower total chlorine level. Overall, a water sample with a lower temperature will have a lower chlorine level. The longer a water sample is left to sit out it will read a lower total chlorine level. The western region

contains, on average, the least amount of chlorine in comparison to the eastern and northern regions.

(4) **Photoreactivity of 2-Methoxy-4-(2-phthalimidinyl)phenylsulfonyl Chloride.**

Tracy-Lynn Cleary and Dr. Paul Sibbald
Stetson University

2-Methoxy-4-(2-phthalimidinyl)phenylsulfonyl chloride(MPS-Cl) is a fluorescent probe used in labeling phenols and cresols. Desirable properties of fluorescent labeling agents are moisture and light stability. However, photochemically induced reactivity of 2-methoxy-4-(2-phthalimidinyl)phenylsulfonyl chloride(MPS-Cl) was observed in aqueous and organic solvents under ultraviolet irradiation. Reaction parameters and product characterization will be discussed.

(5) **Who gets tested? Exploring factors influencing getting an STI/HIV test in college students.**

Tyler G. James and Sadie J. Ryan, Ph.D.
University of Florida

In this project we explored sociodemographic and behavioral predispositions to getting an STI/HIV test in a college population. We conducted a secondary analysis on a comprehensive sexual health survey at a major southeast university. We also examined the relationship between STI knowledge and getting tested. We discuss the implications for practice and programs in context of our findings.

(6) **Monolingual V. Bilingual Neurological Developments.**

Mariam Fawaz, John Van Hook and Tiffany Baglier
University of Florida

In our academic society it is highly encouraged to learn more than one language. Learning other languages is beneficial to globalizing professions and strengthens efficiency in critical thinking. Knowing two or more languages has been praised but is an area that linguists still need to research. This study investigates how language retention depends on the brain's plasticity at different ages. The premise of this study is to demonstrate the importance of language acquisition at a young age; moreover, this study will argue that knowing two or more languages has benefits regardless of how and what level it is used. Studying the differences of monolingual versus bilingual cognitive developments will explore and essentially reveal how plasticity of the brain is related to the brain formation of a different language. Plasticity of the brain can be best researched at an early level of childhood, like elementary students. For future goals I hope to track the progression or regression of mental plasticity of monolinguals and bilinguals through aging.

(7) **Effectiveness of State Incentives for Adoption of Anaerobic digestion systems in the U.S.**

Anh Sam and Xiang Bi
University of Florida

Anaerobic digestion (AD) systems can reduce methane emissions and ground water contamination by turning livestock wastes into renewable energy. However, the adoption of AD systems is costly, and the initial capital investment is formidable especially for medium and small farms. To promote adoption of AD systems, the EPA and state governments have implemented various incentive programs providing technical and financial assistance. The objective of this study is to examine the effectiveness of state-level incentives in promoting the adoption of AD systems in the U.S. We compile a panel data for 48 states in the U.S. from 2002 to 2014 on the state-level adoption rate of AD systems, livestock production, and incentive programs to promote the adoption of AD systems. We compare the effectiveness of performance-based incentives, loan, and tax credit while controlling for state-level adoption of renewable portfolio standards and net metering, climate, livestock production, and types of AD systems. We expect to find that adoption rates for AD systems are significantly greater with performance-based incentives than with loan and tax credits.

(8) **Hebrew and Computer-Mediated Communication: The Effects of a Language Manipulation on Perception, Identity, and Preservation.**

Tamar Nir
University of Central Florida

Computer-mediated communication (CMC) research has focused on the ways in which online text manipulations can affect language. However, the research has neglected to evaluate how CMC affects languages other than English. We are investigating a CMC manipulation of Hebrew called Fakatsa. Fakatsa is used by adolescent females and is characterized by manipulations to orthography, morphology, typography, and lexical borrowings to represent "cutesy" ways of speaking. In this study, participants rate random snippets of text that resemble Fakatsa girls' statements in either standard Hebrew or Fakatsa Hebrew. The topics range from frivolous subjects, such as fashion, to serious subjects, such as politics. The ratings are of the participant's perception of the supposed writer's creativity, intellectuality, religiosity, political identity, etc. and the participant's comprehensibility of the text. This study is currently ongoing. Once sufficient data is collected, a 2 × 2 between-subjects ANOVA will be used to compare ratings between the factors of Frivolous vs. Serious text and Standard Hebrew vs. Fakatsa Hebrew. It is hypothesized that participants over 30 will rate the Fakatsa writer negatively depending on topic when compared to the standard Hebrew writer and that participants under 30 (but above 15 years old) will rate the Fakatsa writer either neutrally or positively on all questions regardless of the type of topic when compared to the standard Hebrew writer. The results of this study will help increase our understanding of how society perceives and comprehends CMC, CMC's manipulations on language, and how CMC affects language preservation.

(9) **Biodiesel Production via Genetically Altered Lipase from *Proteus mirabilis* Transesterification in Methyl Acetate.**

Alaina McDonnell, Jake Altier, Demetrius Carey, and D. Scott Witherow
The University of Tampa

Lipase catalyzed biodiesel production presents a potential methodology that exceeds the traditionally utilized acid/base protocols. Advantages include economic favorability and convenience due to more efficient catalysis, which leads to less time, starting material, and energy required for production. A lipase has been previously genetically engineered for methanol tolerance and was shown to be an effective catalysis for transesterification reactions utilizing methanol to produce fatty acid methyl esters, or biodiesel, and glycerol. An alternate acyl acceptor to methanol, methyl acetate, produces a fuel stabilizer, triacetin, as opposed to glycerol when used in the transesterification. This methodology has not been previously utilized with the characterization of these genetically engineered lipases, which are also described as dieselzymes. Dieselzyme mutations have been expressed in E.coli using a pET28 bacterial expression vector and purified utilizing immobilized metal ion affinity chromatography. Kinetic optimization was performed for three mutants using p-nitrophenyl palmitate as substrate at varying pHs and in methyl acetate versus methanol reactions. Further investigation of the dieselzymes includes use of synthetic triglycerides as substrate to continue kinetic optimization.

(10) **Characterization of fosfomycin resistance mediated by *Enterococcus* Fos B.**

Christine Whitehead, Brett Linamen, and Zanna Beharry
Florida Gulf Coast University

The increased and improper use of antibiotics has led to the rise of antibiotic resistant bacteria. Recently, clinics have seen the development of “superbugs” that do not respond to any currently prescribed antibiotics. These bacteria have undergone a genetic shift that favor stronger and broader resistance to antibiotics. The antibiotic fosfomycin has shown promise in killing several different antibiotic resistant bacteria, however, fosfomycin resistance is becoming an increasing problem. For fosfomycin to be a successful treatment option for “superbugs”, the mechanism of its resistance needs to be better understood. Fosfomycin is often used to treat infections of *Enterococcus* sp., however, plasmid mediated resistance has been reported. This resistance is due to the plasmid encoded fos b gene, which chemically modifies fosfomycin by attachment of a thiol containing compound. Our long-term goal is to understand how the fos b enzyme evolves to confer fosfomycin resistance. In this project, we established that our cloned Fos B confers resistance to fosfomycin by transforming the plasmid into *E. coli* and determining the minimum inhibitory concentration for fosfomycin. Directed evolution was performed using XL-1 Red E. coli to generate M2 and M1B mutants of the fos b gene that had a higher MIC than wild type fos b strain. Inhibitors tested were chosen based on known natural supplements for urinary tract infections and bacterial infections. These inhibitors were tested on the strongest mutant strains to determine possible uses of these supplements on organisms with the fos b gene.

(11) **Alignment free phylogenies of giant viruses.**

Shane Dorden and Padmanabhan Mahadevan
The University of Tampa

The availability of whole genome sequences of giant viruses provides a tantalizing opportunity to look more closely at the phylogeny and evolution of these viruses. Since the genomes of these viruses are relatively large, the speed of alignment free methods to determine their phylogeny is particularly appealing. Alignment free phylogenies of several of the largest giant viruses including Pandoravirus, Mimivirus, Moumouvirus, and Pithovirus were constructed using distance measures such as Euclidean and Jensen-Shannon. Differences were found in the phylogenies constructed using different distance measures. These phylogenies were also compared to phylogenies using the traditional alignment approach and differences were found between these methods as well. The phylogenies were also used to determine the correlation of evolutionary distance to conserved gene order between these viruses. The results provide greater insight into giant virus phylogeny and their gene order conservation, as well as the differences between using alignment free versus traditional approaches to phylogeny construction.

(12) **Methionine Sulfoxide Reductase Expression in Response to Anoxic Stress Conditions in *Drosophila melanogaster*.**

Evgeniya Rakitina and David Binninger, Ph.D.
Florida Atlantic University

Anoxia is the condition of oxygen deficiency. Mammals poorly tolerate anoxic stress. In contrast, *D. melanogaster* endures hours of anoxia with no apparent problems. In response to anoxia, flies suppress overall energy levels and enter protective comma - spreading depression. Animals recover from comma after being returned to normal oxygen levels. Period following reintroduction of oxygen is characterized by abundance of Reactive Oxygen Species (ROS), which oxidize vital molecules in cells. Methionine is exceptionally susceptible to oxidation by ROS, but can be catalytically restored by enzyme Methionine Sulfoxide Reductase (Msr). Currently, little is known about the relationship between Msr activity and recovery from anoxic stress in *Drosophila*. Expression of Msr genes in response to anoxia is the subject of this study. Methods used are anoxia chamber to induce protective comma in flies, followed by *Drosophila* Activity Monitor to record average recovery times. Western Blot analysis is used to visualize expression patterns of Msr A/B genes before and after anoxic stress. Preliminary results show, that single mutant flies do not take significantly longer than wildtype flies to recover from spreading depression. Furthermore, survival of single mutant flies following anoxia is also comparable to wildtype. However, double mutants take significantly longer to recover from anoxia and a greater number of Msr-deficient flies die as a result of anoxia. Failure to recover from anoxia becomes more pronounced as the animals approach senescence. These studies have the potential of offering new insight into the role of oxidative damage during reperfusion period following cardiac stroke.

(13) **Antimicrobial Effects of Essential Oils on Infectious Bacteria.**

Emily Ruple, Taylor Anderson, Vanessa Rowan, Ph.D. and Sanaz Dovell, Ph.D.
Palm Beach Atlantic University

The purpose of this project was to investigate the antimicrobial properties of essential oils against six common infectious pathogens. The inhibitory effects of twelve essential oils were screened against three gram positive bacteria (*Streptococcus pyogenes, Streptococcus pneumoniae, and Staphylococcus aureus*) and three gram negative bacteria (*Klebsiella pneumoniae, Escherichia coli, and Pseudomonas aeruginosa*) using the disk diffusion method. Of the twelve undiluted essential oils screened, five oils were selected for further testing based on their ability to inhibit the bacterial growth for all six of the tested bacteria. The minimum inhibitory concentrations (MIC) of *Origanum vulgare L*. (oregano), *Cinnomomum zeylanicum* (cinnamon bark), *Syzygium aromaticum L*. (clove bud), *Thymus zygis* (red thyme), and *Melaleuca alternifolia* (tea tree) essential oils were determined using the broth microdilution method. Concentrations ranged from 0.025% to 0.8% (v/v) of essential oil in broth. *Cinnomomum zeylanicum* showed the highest antimicrobial activity against all bacteria tested, with an average MIC of 0.2% for *P. aeruginosa* and 0.05% to 0.1% for the other bacteria tested. *Origanum vulgare L*. and *Thymus zygis* showed an average MIC ranging from 0.05% to 0.1% for all bacteria except *P. aeruginosa*. *Syzygium aromaticum L*. had an average MIC ranging from 0.2% to 0.4% for *K. pneumoniae, S. aureus, S. pneumoniae,* and *E. coli*. *Melaleuca alternifolia* had the lowest antimicrobial activity with a MIC of 0.8% for *K. pneumoniae, S. pneumoniae, E. coli,* and *S. pyogenes*. These results show that essential oils are good candidates for fighting common infectious pathogens.

(14) **Substance Use Progression and Initial Treatment Entry: Characterizing the Role of Race.**

Christian C. Garcia, Ben Lewis, Lauren A. Hoffman and Sara Jo Nixon
University of Florida

A number of important studies suggest that race may influence patterns and prevalence of substance use. However, racial differences in the trajectories of substance use remain largely unexplored. Through working relationships with treatment facilities across North Florida, our laboratory gathered data from inpatient treatment seekers who completed detailed substance use histories and provided demographic and socioeconomic information. Although the initial sample was racially diverse, only Caucasian (n = 656) and African American (n = 296) groups were adequately sized for meaningful analysis. Primary endpoints of interest were substance use milestone ages and rates of progression between milestones. Analyses of covariance (ANCOVA) were conducted, interrogating differences in milestone ages and use progression as a function of race, while controlling for socioeconomic status. Separate analyses were conducted for alcohol use and illicit drug use. Analyses of alcohol indicated few racial differences in use progression. However, a marked difference in the timecourse to treatment was observed. African Americans received treatment approximately 7 years later than Caucasians, despite first experiencing alcohol problems at equivalent ages. In contrast to alcohol, racial differences were noted throughout the progression of illicit drug use. Although Caucasians initiated use earlier, African Americans progressed more rapidly to regular and problem use. Further, consistent with the alcohol-abusing sample, Caucasians received treatment 5 years earlier than African Americans.

Racial disparities in progression to treatment were identified across substances. These racial disparities have important implications for public health policy, suggesting the need for further investigation into potential sociocultural influences underlying these differences.

(15) **The Influence of Right and Left Frontotemporal Stimulation on Visuospatial Creativity.**

Nicholas Milano, Annika Goldman, Adam Woods, John Williamson, Leah Acosta, Damon Lamb, Han Zhang and Kenneth Heilman
University of Florida

This study tests the hypothesis that visual spatial creativity will be increased by transcranial direct current stimulation (tDCS) of the right hemisphere and decreased by stimulation of the left hemisphere. As the right hemisphere is important for visuospatial cognition, the right frontal lobe may be more important for visuospatial divergent thinking. Semantic dementia, characterized by atrophy of the left frontal and anterior temporal lobes, is sometimes associated with the development of visual artistic creativity which may be related to right hemisphere disinhibition. tDCS at 2 mA has been shown to induce neuronal excitability. Thus, left frontal and anterior temporal stimulation may decrease visuospatial creativity, whereas right frontal and anterior temporal stimulation may increase visuospatial creativity. 19 healthy participants completed the abbreviated Torrance Test of Creativity (ATTA) following both tDCS (current=2 mA) and sham tDCS. Electrodes were placed over the left or right dorsolateral prefrontal cortex (anode) and ipsilateral anterior temporal lobe (cathode). Participants were split into two groups: right (n=9) and left (n=10) hemisphere stimulation. There was a significant effect of left versus right hemisphere stimulation on the ATTA figural (visuospatial) originality score ($p=.035$) driven by a significant decrease in figural originality following left hemisphere stimulation ($p=.039$). These results show that visuospatial creativity can be modulated by stimulation of the left versus right frontal and anterior temporal lobes. The decrease in visual spatial originality following left hemisphere stimulation supports the hypothesis that visuospatial creativity is increased in semantic dementia due to right hemisphere disinhibition.

(16) **Assessing the Functional Capacity of Regulatory T-Cells Derived from Cryopreserved Umbilical Cord Blood for the Treatment of Type 1 Diabetes.**

Ashley Bushdorf, Howard R. Seay, Kristi T. Balavage, Leeana Peters and Todd M. Brusko
University of Florida

Type 1 diabetes (T1D) is characterized by destruction of pancreatic β-cell by autoreactive T-cells which results in chronic hyperglycemia. Regulatory T-cells (Tregs) are responsible for the maintenance of self –tolerance and immune-regulation by suppressing the actions of T-cells. The hypothesis that autoimmunity is a breakdown in self-tolerance suggests that autologous Treg infusion after ex vivo expansion may be an option to restore self-tolerance in patients with T1D. Umbilical cord blood (UCB) typically yields a pure, stable Treg population, making isolation and expansion very effective. We hypothesized that Tregs derived from cryopreserved UCB would retain their functional capacity after isolation and in vitro expansion, proliferative capacity, and the ability to become activated. To assess this, CD4+CD25+CD127-/lo Tregs were obtained using FACS isolation from cryopreserved UCB (n=5), fresh UCB (n=3), and adult peripheral blood from controls (n=3). Following a 14-day expansion of each sample type, 4-day

in vitro suppression assays were conducted using anti-CD3/anti-CD28 activation and allogeneic, adult peripheral blood mononuclear cells (PBMCs) as responders. The cryopreserved UCB Tregs had high functional responsiveness, based on CD25 levels. Notably, the cryopreserved UCB Tregs expanded 21 days maintained the same level of function as Tregs expanded 14 days (68.501± 8.107% CD4+ percent suppression and 66.195 ± 8.350% CD8+ percent suppression by day 14 Tregs; 73.289 ± 2.242% CD4+ percent suppression and 70.455 ± 3.439% CD8+ percent suppression by day 21 Tregs). These results suggest that Tregs derived from cryopreserved UCB represent an option for immunotherapy that will be explored further in pediatric T1D patients.

(17) **Invaders in the Night: Sleep Apnea and Sub-Clinical Renal Injury.**

A. Rampersad, S. Bozorgmehri, A. Ishani, I. Weiner, S. RamachandraRao, R. Beyth and M. Canales
University of Florida

Background: Sleep apnea is common in patients with CKD. We postulated that sleep apnea may cause renal injury through repeated ischemia-reperfusion. The current study correlated overnight changes in urinary excretion of renal injury biomarkers with severity of sleep apnea. Method: 39 consecutive participants in the SNORE Study, a longitudinal study of sleep apnea and kidney function decline, underwent overnight sleep study and provided spot urine samples before and after sleep. We measured urinary NGAL, L-FABP, KIM-1, and urinary cystatin-c (cysc) levels, and correlated differences between AM and PM levels (AM-PM) with severity of sleep apnea or hypoxia. Sleep apnea was defined by the apnea-hypopnea index (AHI, events/hour); hypoxia was % total sleep time <90% SaO2 (%TST90). Data were log-transformed to normalize distribution. Results: Patient characteristics: Mean age, 73.6±8.4 years; 90% male; 87% Caucasian, 13% black; BMI, 29.4± 4.2 kg/m2; MDRD eGFR, 34.3±8.1 ml/min/1.73m2; Median urinary albumin/creatinine ratio, 46 mg/g Cr [IQR 9-357 mg/g Cr]. 69% had sleep apnea (AHI≥5); median AHI, 10 [IQR 2-23]; median %TST90, 15 [IQR3-22] with 34% %TST90≥10%. Higher %TST90 was correlated with higher AM KIM-1 values (r=0.40, p=0.01) and greater increase in urinary KIM-1 (AM-PM) (r=0.32, p=0.04). None of the remaining biomarkers correlated with %TST90. Also, none of the overnight urinary biomarker changes correlated with AHI. Conclusion: The correlation of KIM-1 with hypoxia suggests that SA may contribute to CKD through ischemic renal injury. Future studies with larger sample size and in non-CKD populations are needed to further test this hypothesis.

(18) **A Pilot Study Exploring Modifying Factors Related to Pregnant Women's Behavior and Perception of Electronic Smoking Products.**

Irene Lopez Llorente, Megan Scipione and Mary Martinasek, Ph.D.,
The University of Tampa

Background: Evidence points to potential carcinogens, environmental secondhand pollutants and nicotine overdose in young children. Methods: IRB approved paper surveys in English and Spanish were administered by three public health students at a public health department during pregnancy check-up visits (n=60). Analysis: The 24 question surveys were then entered into excel and then into SPSS for data analysis by two public health students. Results: Of the sixty participants, twenty had tried an electronic product and 75% had used the product within the prior three weeks. Primary reasons for usage was for where cigarettes were banned, an effective

quit aid and considered a healthier option. Discussion: Modifying factors such as socioeconomic status, perception, knowledge and media information are important to understanding behavioral change.

(19) **Response Differences in Modes of Data Collection: Telephone vs. Online.**

Ryan Gondek, Monique Hall and Jimmy Mauk
Florida Atlantic University

Does the mode of data collection influence respondent's behavior? Specifically, do telephone interviews or online surveys lead to more extreme responses? Many may assume that there is no difference in survey responses conducted online or over the phone. However, prior research suggests that respondents give more extreme responses over the telephone than in an online survey. We would like to test if what has been found previously holds for the Hispanic population. Hispanics are the fastest growing ethnic minority in the United States and thus they are having an increasing impact on the culture, the marketplace, and politics within the country and so gathering accurate data on their sentiments is essential. We collected our data through a hybrid approach using telephone and online surveys, providing a more representative sample and more accurate results. We collected 500 completed surveys, 250 from telephone and 250 from online surveys. We found that there is a statistically significant difference in responses between modes. Based on our results we can argue that surveyors must be cautious when reporting results from polls since there is drastic difference in responses from those being surveyed depending on the mode of data collection.

(20) **Hispanic Voters Opinions are being shaped by Social Media.**

Ryan Clukey, Paul Donovan, Meetchelie Paul and Marina Giral Lores
Florida Atlantic University

Social media sites are quickly becoming the biggest source of information in the world. Particularly, political and economic news is being communicated widely on Facebook, Linkedin, Youtube, and Twitter in real time with no costs incurred. Using a hybrid data collection approach of 500 completed surveys from the National Hispanic population, our results show that the majority of younger Hispanic voters rely on social media for their political news. In fact, over 84 percent of those who are between 18 and 34 years old are more likely to get their information from social media than any other source. Furthermore, our findings indicate that the younger Hispanic population are the most likely to find the political news on the internet trustworthy. The sharing of political news is evolving and shifting more towards social media. If political campaigns want to target the largest and fastest growing minority group in the United States, they should move their attention towards social media as a major platform of allocating their political information.

(21) **Extracellular Matrix Stiffness Modulates Connective Tissue Growth Factor and Yes-Associated Protein Expression.**

Ashnee Patel, Liya Pi, Altin Gjymishka, Yiannia Protopapadakis, Marda Jorgensen and Bryon E. Petersen
University of Florida

Fibrosis in the liver arises as a result of liver injury and is a major contributor to advanced liver disease. Connective Tissue Growth Factor (CTGF) is a mediator of fibrosis that binds to extracellular matrix proteins to regulate cell growth. Yes-associated protein (YAP) is a potent oncogene that binds to the CTGF promoter to promote cell proliferation and survival. The aims of our study were to determine the effect of matrix stiffness on CTGF/YAP expression. WBF 344 adult liver stem cells were plated on hydrogels of varying stiffness. RT-PCR analysis for CTGF was performed after 48 hours. Expression of YAP and f-actin was performed by immunofluorescence after 48 hours. We observed selective expression of CTGF in cells grown on soft or stiff matrices, but not in matrices of intermediate stiffness which correspond to normal liver stiffness. On immunofluorescence studies, YAP was expressed in all conditions, but more active nuclear localization was detected in the stiffer condition. We conclude that matrix stiffness regulates CTGF expression in liver cells. Liver cell growth can be affected by changes in extracellular matrix stiffness in a liver with fibrosis.

(22) **Soil Nematodes a Potential Long-Term Reservoir Host for Chytrid Fungus.**

Nichole A. Laggan, Electra F. Scott, Sarah Cuccinello and Taegan A. McMahon
The University of Tampa

Batrachochytrium dendrobatidis (Bd) is a prolific pathogenic fungus that has engendered a mass decline of amphibian populations. However, Bd does not impact amphibians exclusively, it is known to infect other species, such as crayfish and soil nematodes. It is unclear whether Bd can survive long-term with soil nematodes (*Caenorhabditis elegans*), which and have a similar length lifecycle to Bd. *C. elegans* were cultured with Bd to monitor species interactions, and they were also cultured with just E. coli as a population growth control. Four cultures were destructively sampled every four days for a 40 day period, and the number of zoospores, zoosporangia, and *C. elegans* were quantified. We found that Bd and *C. elegans* are capable of surviving utilizing one another as a food source for a long duration of time (40 days), over several generations, with no additional forms of sustenance. The respective increase and decrease of the two populations correlated to one another, as well. Thus, *C. elegans* may be a reservoir host for Bd.

(23) **Healthcare and Hispanics: The Disparity In Healthcare Coverage and Affordability Between Genders.**

Monica Escaleras Ph.D., Erik Rodriguez, Jonathan Sanchez, and Shannon Lee Bowie
Florida Atlantic University

Across ethnic groups, Hispanics are among many millions of Americans at high risk of lacking the opportunity for healthcare coverage. Indeed, healthcare has remained the top priority for Hispanics in the population. Nearly one in three people uninsured in the U.S is Hispanic. The Affordable Care Act was signed, in hopes of allowing those demographics with high rates of

uninsured individuals to be able to afford healthcare. The policy seems to be working for many minorities, specifically Hispanics. However, we suspect that there is a gender gap in regards to healthcare coverage and affordability among Hispanics. To formally test the hypothesis of a gender gap in healthcare coverage and affordability we conducted two surveys, one in September 2014 and another in April 2015. A hybrid method of automated telephone calls and online surveys were utilized in order to collect our sample data. Both surveys exhibited that there is a continual increase of Hispanic enrollment in the Affordable Healthcare Act. There is evidence that overall Hispanics find it easier to afford healthcare overtime and that the percentage of females that are uninsured dropped. However, a gender gap still exist between healthcare coverage and affordability. The potential reasons behind this imbalance could be the barriers that obstruct continued expansion of health insurance for both Hispanic men and women under the Affordable Care Act.

(24) **Alice in Wonderland Syndrome in Patients with Frontal Lobe, Temporal Lobe Lesions, or Shunting.**

Joel C. Greenup, Roberto J. Diaz, Bennett L. Schwartz, and Ricardo J. Komotar
Florida International University, University of Miami Hospital

The purpose of this research is to thoroughly explain a rare neurological disorder called Alice in Wonderland Syndrome (AIWS) and accurately derive its origin within the brain. AIWS is a visual-time perception complication, where the individual experiences distortion in spatial and depth perception alongside perceiving time in an altered manner. The first phase of the project involves a systematic review with a meta-analysis of existing literature in conjunction with applying chaos theory in an attempt to either bring order to the array of precursors this syndrome has, or in hopes of potentially finding a new chaotic attractor within the areas of the brain this disorder afflicts. The second phase of the project involves a screening diagnostic survey of participants who have frontal lobe meningiomas, temporal lobe meningiomas, or shunts in place where we identify AIWS and Non-AIWS participants. We also use the medical records to further validate answers received from the surveys. The final phase involves providing assessments on depth, spatial, and time perception to the control and AIWS groups in order to examine which area(s) of the brain is affected by this syndrome. By identifying AIWS as a neurological disorder, which should be recognized by medicine, we would begin to eliminate the existing stigma people may experience for having such an abstract set of symptoms, which is an actual disorder. Furthermore, this research will allow for precise consideration of etiology and symptomology people experience in hopes of directing future research on the neuronal mapping of such a rare ailment.

(25) **Investigations on the cost of resistance in a coevolving population of *E. coli* and T3 phage.**

Sarah Sherman, Jeremie Brusini, and Marta Wayne
University of Florida

We used *Escherichia coli* and T3 phage to study the coevolutionary process between host and virus. Microbes are ideal organisms for such research because they have short generational times and large population sizes, and hence evolve quickly. When infecting *E. coli*, T3 phage targets lipopolysaccharide receptors on the bacteria membrane. This receptor is also involved in

important functions for the host fitness, such as the structural integrity of the membrane. Therefore, we hypothesized that gaining resistance to the phage would result in important fitness drawbacks for the bacteria, i.e. that the bacteria would incur a "cost of resistance." We carried a community of clonal populations of bacteria and phage in an environment supplemented with glucose for 17 days, and aliquots were saved daily at -80C. The infection assays revealed that the bacteria evolved resistance to the phage gradually; day 1 bacteria showed no resistance, middle time point bacteria showed partial resistance, and day 17 shows an alternate mechanism of complete resistance. The growth rate experiments for bacteria from days 1, 8, and 17 showed that resistant strains of bacteria presented the greatest fitness costs, with slower growth rates and lower growth plateaus. The experiment enhanced our understanding of the mechanisms of host-parasite coevolution, which includes the fitness costs that arise among the adaptation and counter-adaptation of host and virus.

(26) **Identification and isolation of previously unreported oxylipin biosynthetic genes from fruit of *Vaccinium corymbosum* using an integrated sequence-data based methodology.**

Lorenzo N. Bizzio, Joo Young Kim, Keun Cho, Jim W. Olmstead, David G. Clark, and Thomas A. Colquhoun
University of Florida

The oxylipin biosynthetic pathway is responsible for the formation of certain short chain volatiles from fatty acid precursors. These "green leaf volatiles" have been implicated as significant contributors to the unique flavor profile of the southern highbush blueberry (*Vaccinium corymbosum spp*.). As such, the genes encoding enzymes responsible for synthesis of these volatiles present attractive targets for blueberry flavor improvement via molecular breeding efforts. Here we announce the development of an information based research pipeline geared towards the identification, isolation and cloning of these blueberry oxylipin biosynthetic genes. We focused our efforts on screening for the genes of the primary pathway enzymes lipoxygenase (LOX), hydroperoxide lyase (HPL), and alcohol dehydrogenase (ADH). Utilizing blueberry EST databases, fruit tissue RNA-seq data and preliminary whole genome shotgun sequences, primers were designed for use in a PCR-based cloning strategy. The first round of results led to the confirmed identification of one alcohol dehydrogenase and two hydroperoxide lyase gene fragments which were subsequently fully cloned and the coding sequences transformed into prokaryotic vectors. These results indicate that targeted molecular cloning efforts based on information integrated from a wide variety of sequence databases presents a promising avenue of research for the isolation, identification and cloning of blueberry oxylipin biosynthetic genes. Once isolated and stored in the appropriate vectors, further work in the functional characterization of these genes and their specific roles in volatile biosynthesis can be performed using tools such as RNA interference, quantitative PCR, heterologous gene expression, in vivo overexpression experiments and comparative genomics studies.

(27) **The Role of Mapping in the Formation of South America's Political Boundaries and Territorial Disputes.**

Justin Franco and Gretchen Scharnagl
Florida International University

The purpose of the research is to analyze the political context in which maps were used in South America, from the colonial era of the 15th century to the 20th century. Extensive literature exists concerning the regional disputes that dominated South America during the 19th and 20th century, however this research offers additional insight into the conflicts by analyzing how the use of mapping in territorial disputes changed from the 19th to the 20th century. A main area of focus for the research will be to examine the political basis for South America's current territorial boundaries by illustrating the fragmentation of Spain's South American Empire through the use of historically accurate maps. Territorial disputes that arose following the collapse of Spain's South American Empire will be studied in order to determine the effects that mapping and diplomacy had in furthering rival boundary claims. Initial findings indicate that the decentralization of Spain's colonial empire during the 18th century facilitated its fragmentation during the struggle for independence in the 19th century. A preliminary analysis of maps from professional academic collections conclude that the use of mapping to further territorial claims was more widespread during the regional conflicts of the 20th century. Also the use of mapping to further territorial claims was especially common in countries that exhibited no political authority over the disputed territory, such as Venezuela's claims to the Essequibo Region of Guyana.

(28) **Investigation for the kinetics of electrochemically modulated separation of dysprosium and neodymium.**

Ever Velasquez, Shannon Anderson, Mikael Nilsson, and Egwu Kalu
Florida State University

Currently, alternative energy is essential in the advancement of society to reduce dependence on petroleum, a non-renewable fuel source. Nuclear energy is a promising alternative because it is a low-carbon emission energy source that has the ability to be sustainable and used to meet the ever-rising energy demands. Nuclear research is essential in fully maximizing this alternative energy in order to minimize waste and improve fuel cycles. Dysprosium is a rare earth metal that is created from the splitting of U-235 and Pu-239 in nuclear reactors. By extracting this rare earth metal from nuclear waste, it can be utilized as a resource to numerous industries and technology. This project investigated the liquid-liquid extraction kinetics of dysprosium between an aqueous and organic phase using an applied external potential. This will demonstrate that both the metal ion and lactate species will be transported across the aqueous/organic phase boundary using an electric driving force. The use of an applied field for the process of mass transfer may provide a different transport process than the classic liquid-liquid extraction approach of vortex stirring. The feasibility of this process will be measured by neutron activation analysis and radiotracer techniques at various temperatures, as well to understand the underlying thermodynamics of the systems utilized for measuring distribution ratios.

(29) **Windover: Examining Dental Attrition Patterns in a Florida Archaic Hunter-Gatherer Population.**

Casey Johnson and Dr. Geoffrey P. Thomas
Florida State University

Dental attrition has been around since the creation of teeth. In today's time, we have methods of repairing and protecting our teeth; however, early hunter-gatherer groups were not as fortunate. Windover, a population of hunter-gatherers unearthed in Titusville, Florida, has copious amounts of dental attrition. My approach to this problem was to see if there were any patterns in the wear, possibly from habitual practices, gender roles, or diet. Sketches of dental wear patterns were recorded and rated using the Scott rating system. Only adult molars were observed so far. The scores of each quadrant on each molar were recorded and analyzed using statistical analysis. A pattern seemed to be of significance on the second molar on both the left and right jaw. One quadrant seemed to always be worn much less than the rest of the molar. Maxillary patterns were less evident, but resembled a less, more, less, more pattern of wear when looking across quadrants. Further statistical analysis will be conducted. The variables of male to female and age will also be taken into consideration to determine who exactly exhibits the pattern. An additional population, Indian Knoll, housed at the University of Kentucky, will hopefully be examined as well to compare the patterns among each hunter-gatherer population.

(30) **Existentialism & Borderline Personality Disorder in “The Tunnel.”**

Joaquin Van Thienen and Robert Saba
Florida International University

How can the author’s knowledge and experiences influence his interpretation of culture and medicine in literary works? The purpose of this study is to interpret the condition of Juan Pablo Castel, Ernesto Sábato’s character from the short novel "The Tunnel", one of the most relevant pieces of literature in Argentina and Latin America after World War II. I believe that this character shows symptoms of Borderline Personality Disorder, and there's a strong correlation between this diagnosis and the author's philosophical beliefs. This study contributes to multiple disciplines because it is interdisciplinary on different levels: the first intersection lies between the disciplines of psychology and literature; the second one has to do with languages, since I combined bibliography in English and in Spanish in order to reach a conclusion; and lastly, I approached the character's interpretation from a medical, descriptive perspective (symptoms described in the DSM-5) and from a more holistic, and dynamic perspective such as existential psychotherapy. In order to interpret this character, I first analyzed previous research done on the author's social and cultural context, and then examined different approaches to existentialism and borderline personality disorder. My conclusion shows a relationship between Juan Pablo Castel's condition and Ernesto Sábato’s exposure to existential philosophy.

(31) **Spatial distribution and antibiotic sensitivity of *Staphylococcus aureus* in the Hillsborough River.**

Rhianna Seferian, Ann Williams, Padmanabhan Mahadevan and Bridgette Froeschke
The University of Tampa

The Hillsborough River is Tampa's primary potable water supply and used frequently for recreational activities including boating, kayaking, fishing, and swimming. However, the Florida Department of Environmental Protection (FDEP) has identified regions of the poor water quality. The overall purpose of our study was to quantify the abundance and determine antibiotic susceptibility of *Staphylococcus aureus* from seven discharge locations in a one-mile section of Hillsborough River (from The University of Tampa (UT) to Tampa General Hospital). The concentration of *S. aureus*, at each site, was quantified using water filtration methods following EPA standards. Overall, there was a significant higher abundance (cfu/mL) of *S. aureus* at UT than any other site. Antibiotic susceptibility was tested using the Kirby-Bauer method on 10 random isolates from each site for each event. Out of the 470 isolates, 166 were classified as Methicillin Resistant *S. aureus* (MRSA). The MRSA isolates were further tested with tetracycline and vancomycin. Out of the 166 MRSA isolates, 88 were also resistant to vancomycin (VRSA) and one MRSA isolate was resistant to both vancomycin and tetracycline. DNA extraction and Next Generation sequencing was conducted on 10 random isolates of collected MRSA, 9 random isolated of VRSA and 1 isolate resistant to vancomycin and tetracycline to examine the MecA gene, a candidate known to have multiple variants that allows for resistance in *S. aureus*. This can help aid in the correct administration of antibiotics for those infected with *S. aureus* from the river.

(32) **Tripodal CMPO ligands as potential lanthanide extractants: A systematic study of ligand structure and selectivity in acidic aqueous media.**

Michael G. Patterson[1], David A. Hardy[1], Shannon M. Biros[2], and Eric J. Werner[1]
[1]The University of Tampa, [2]Grand Valley State University

Nuclear power is currently an effective source of alternative energy, but hazardous byproducts of primarily lanthanide (Ln) and actinide (An) metal cations dissolved in acidic solutions require further processing. Presently, carbamoylmethylphosphine oxide (CMPO) ligands are used to extract the radioactive Ans via the TRUEX process. Inspired by reports of novel, multipodal CMPO ligands, our work has focused on the preparation of tripodal derivatives in hopes of selectively targeting Ln cations and improving current remediation processes. In particular, a tripodal TREN-capped CMPO ligand developed previously by our group, TREN-CMPO-OEt, proved to have a high affinity for terbium(III) relative to other Lns. To further probe this result, our group investigated the ligand structure systematically. A novel ligand, TRPN-CMPO-OEt, analogous to the TREN-capped structure but with an additional C atom in each arm of the cap, was synthesized in order to investigate the dependence of Ln extractive selectivity on the central capping scaffold. TREN-CMPO-Ph, which replaced the ethoxy substituent of each CMPO unit with a phenyl group, was also tested for Ln extraction potential. The photophysical properties of the Eu(III) and Tb(III) complexes of each ligand were also explored, in hopes of understanding how these ligands may promote Ln luminescence and to determine the number of metal-bound solvent molecules within each complex in the solution state.

(33) **Influence of Adherence to Clinical Practice Guidelines of Low Back Pain Treatment on Patient Outcomes.**

Emiangeliz Gonzalez Luna and Dr. William J. Hanney
University of Central Florida

Introduction: Low back pain is one of the most common disabilities in the United States, and one of the most common conditions treated by physical therapists. Issues on low back pain treatments arise with the variance of treatments for low back pain that can lead to inappropriate therapies. With many variations in treatment, clinical practice guidelines have been proposed to standardize care in order to improve treatment outcomes. This study will use a systematic review to analyze the influence of clinical practice guidelines on perceived patient outcomes. Methods: Between the months of June and August 2015, a comprehensive search of the Pubmed, Medline (EBSCO Host), and CINAHL (EBSCO Host) databases was performed by two independent reviewers. The search was restricted to articles that were published in a peer-reviewed journal, published in the English language, examined patient outcomes with a determined scale, reported at least one outcome measure, and specified either non-specific or acute low back pain. Results: 53 articles were revealed, with four articles meeting the criteria. Considering a maximum total score of 26 points on the modified Downs and Black checklist, articles scored between 16 and 21 points. There is evidence to support the trend of better patient outcomes with adherence to clinical practice guidelines in regards to treatment duration, pain and disability scores, and patient perceptions. Conclusion: Due to a lack of high-level evidence on the strength of association between clinical practice guidelines for low back pain treatment and patient outcomes, no definitive conclusions can be made.

(34) **Microbiology Bar Growth from Ten Hookah Pipes in the Community.**

Zachery Rivera, Alexandra Ferrer, Mary Martinasek and Eric Freundt
The University of Tampa

Hookah smoking involves a type of water-pipe used to smoke shisha, a form of tobacco, by one or more people at a time. Hookahs vary in size, yet are similar in structure and contain various surfaces that can harbor bacteria. The communal nature of hookah usage may represent an important mechanism for disease transmission. In this study, we evaluated the microbial communities present on various areas of hookah pipes from community hookah bars. Ten hookah devices from ten different hookah bars (n=10) were swabbed in three different areas (hose, hose connector, and mouthpiece) for a total of thirty cultures. The bacteria were grown and isolated on nutrient agar. The isolated bacteria were then characterized to determine gram morphology, growth on selective and differential media, and their catalase and coagulase activity. Antibiotic susceptibility for several isolates was also evaluated. Genomic DNA was then isolated and subjected to PCR to amplify the 16S ribosomal RNA gene. PCR products were then bi-directionally sequenced to identify the isolates. Our results suggest that hookahs provide an environment that can support various species of bacteria. This ability to support bacterial life combined with group sharing of hookahs can potentially contribute to the spread of disease. This spread of pathogens can be minimized by installing regulations regarding the sanitation of hookah pipes, which are currently lacking.

(35) **OPSCI Statistical Analysis: Female Increasing and Decreasing Percentages within Specific Engineering Disciplines.**

Joanna Rivero, Geoff Potvin and Zahra Hazari
Florida International University

With STEM careers continuing to have a lack of participation of women, this research project attempts to synthesize various studies that have tried to explain possible reasons why women aren't involved in engineering as whole to aid in analyzing the statistical increase or decrease of women in specific engineering disciplines. The study will attempt to understand how certain engineering disciplines attract more women in the undergraduate years, in order to provide insight into strategies that may help recruit women to other fields which have either stagnated or decreased the percentage of women participants over time. Using pre-existing data drawn from the Outreach Programs and Science Career Intentions (OPSCI) study as part of the Physics Education Research Group (PERG) at FIU, this study will use the statistical software language and environment "R" and "RStudio" to analyze divergent trends between different engineering majors. The analysis will then be extended to disaggregate by student gender to study the flow of women's interests to and from particular engineering majors. A key visualization tool in this will be Sankey diagrams as well as associated tables, graphs, and inferential statistical tests. This project is intended to bring more insight into how to change the way STEM careers are framed for women in order to provide more opportunities for women to become engaged in these pursuits. This project is also meant to influence engineering disciplines to change their traditional ways of teaching to attract and retain females that choose to study engineering.

(36) **How to Give Plants Cancer: A Study on Gall Formation.**

Dillon Pierce, Brendan Murphy and Ashley Spring, Ph.D.
Eastern Florida State College

Gall formation is a damaging phenomenon for plant life, whereby benign tumors are commonly caused by parasitic bacteria, fungi, and insects. The purpose of this study was to determine whether the phenomenon can be replicated using another plant and examine another potential vector for gall infection. The hypothesis was mistletoe extract would cause gall formation in proportion to dosage; the higher dosage producing the bigger galls. Fresh mistletoe was ground and diluted to different levels with deionized water before injection into the stems of tomato plants to test this hypothesis. The result was a significant increase in gall size with increasing concentration, as predicted. Armed with the information gleaned from this study, horticulturalists can now recognize a source of gall infection and defend against it.

(37) **Effects of Freshwater Intrusion on Saltwater Species of the Indian River Lagoon.**

Daniel Moffitt and Ashley Spring, Ph.D.
Eastern Florida State College

Freshwater intrusion into the Indian River Lagoon can decrease the salinity, adversely affecting saltwater organisms in the area. Therefore, it is hypothesized that decreased salinity will decrease saltwater organism's health and alter activity levels. This was tested by recording health, behavior, and mortality in two algal species, one bivalve, and one crustacean placed in salinities of 10, 20, and 25 ppt. Over the course of 10 days, immediate changes in salinity were observed

in all organisms; crustaceans had the most adverse effects exhibiting stressed behaviors and high mortality. Immediate changes in salinity will cause stress and mortality; therefore, limiting freshwater intrusion into the lagoon system needs to be part of the management plan to support managed stocks and maintain species diversity.

(38) **Comparing Volcanic Rocks in the Mount Rogers Formation.**

David Gallagher, Mary Beck, S. W. Novak and D. W. Rankin
Valencia College and the National Science Foundation

Introduction/Abstract: 760 Million years ago (Ma), the supercontinent of Rodinia underwent a failed rifting event resulting in bimodal volcanism, rhyolite and basalt of the Mount Rogers Formation. Three rhyolite volcanic member formations within the Upper Mount Rogers Formation in southwestern Virginia are the Buzzard Rock Member, the Whitetop Member, and the Wilburn Member. (Mbr.) By comparing phenocryst percentages, compositions and sizes, along with the locations of the rhyolites, we studied the stratigraphic relationships between the Buzzard Rock Mbr., the Whitetop Mbr., and and the Wilburn Mbr. Methods: By determining phenocryst size, type, and percentage of rhyolite samples observed adjacent to Grayson Highlands Park Road, we can identify the rhyolite members associated with the samples. 32 samples were observed at 6 locations along the road. Phenocryst size, type, and percentage were recorded for each sample. Results: Sites 1 & 2 were rhyolites of higher percentages than Upper Mount Rogers Formation. Site 3 were basalts. Site 4 was Whitetop. Sites 5 & 6 were rhyolites with different percentages than Upper Mount Rogers. Conclusions: Referring to Rankin's geologic map of the area, Sites 1, 2, & 3 fall under Novak and Rankin's "other volcanics" indicating Lower Mount Rogers Formation, consistent with our results. We determined that Site 4 was Whitetop Mbr., agreeing with Rankin, 1993. Sites 5 & 6 were rhyolites that do not fit under the current description of any Upper Mount Rogers members.

(39) **The Culture of Sex Trafficking in India.**

Krista Buda
University of Florida

Human trafficking is the third largest criminal industry in the world and is a growing issue. Asia has the highest rates of trafficking, with India being one of its most effected countries for sex trafficking. Based on literary review, archival research and my own field work this paper identifies underlying causes of sex trafficking in India, arguing that a post-colonial patriarchal culture, with a corrupt government and unstable law enforcement system drives India’s sex trafficking problem. This paper delves into the effect the culture has on the prevelance of human trafficking due to their gender inequality and lack of value placed on women in their culture. This coupled with a sexually oppressive culture lends itself to success in many of the known tactics of human traffickers. Likewise, the failing public justice seems means many public officials are often willing to take bribes that favor traffickers and public officials lack the resources and policies to make effective cases against traffickers. This coupled with a lack of resource and cohesion to prevent, stop, and take to trial human traffickers leaves India particularly vulnerable to these crimes. To address India’s growing sex trafficking problem it will have to create change in its public and governmental opinion of women and of sex as well as more policy reform and accountability for their justice system and preventive efforts. These long

term goals should be complemented with an immediate financial and legal support for nonprofits as well as resources for victims of these crimes.

(40) **PCR detection of *Wolbachia* endosymbionts in mosquito and nematode species.**

Athul Abraham, Daniel Icenhour, Marilyn Koletzke, Olivia Meitzner, Andrew Sorrentino, Vince Centonze, John Whitlock, and Jennifer Bess
Hillsborough Community College

Wolbachia is a Gram-negative bacterium and common endosymbiont of insects and nematodes. Its role in mosquito and nematode evolution and control has yet to be fully explored. Moreover, *Wolbachia* antigens have been implicated as a factor in the inflammatory process associated with nematode infections, highlighting their medical importance. Because mosquitoes and nematodes themselves have symbiotic connections, learning more about the distribution of *Wolbachia* in both taxa can aid in understanding ecological interactions and evolution of symbiosis. Mosquitoes were collected using octanol-baited light traps and nematodes were collected from a variety of vertebrate hosts including fish, reptiles and mammals. PCR was used to target *Wolbachia* genes using DNA extracted from mosquito and nematode tissues. PCR amplicons were further analyzed by nucleotide sequencing, Blastn search and sequence alignment. The results of this study suggest that the *Wolbachia* can be found in a variety of mosquito and nematode species within our local area. Additionally, there is significant genetic diversity among the various *Wolbachia* nucleotide sequences compared.

(41) **Can Tarpon See Inside Their Natural Habitat?**

Leah Coleman[1], Lorian Schweikert[2], Ashley Spring, Ph.D.[2]
[1]Eastern Florida State College and [2]Florida Institute of Technology

The electrophysiological study of vision, known as electroretinography (ERG), is a valuable method for studying visual function in live animals. The hypothesis of this study is juvenile Atlantic tarpon, *Megalops atlanticus*, are most sensitive to the dominant wavelength of light found in their habitat. ERG was performed on three juvenile tarpon to determine how visual function is related to the light environment and the spectrum of light available to tarpon was measured by performing spectroradiometry. The dominant wavelength of light available in the tarpon's environment aligned with their peak wavelength sensitivity at 550 nm. This enables a better understanding of visual adaptations to environmental light.

(42) **Effects of garlic and ginger on bacterial growth.**

Sarah Khaireddin, Ray Ward and Ashley Spring, Ph.D.
Eastern Florida State College

Modern research supports the antimicrobial properties of garlic and ginger, which have been used medicinally throughout history. This experiment explored the synergy between garlic and ginger in varying ratios against growth of three different bacteria during three days post-inoculation in nutrient agar. A mixture of the two provided the largest zone of inhibition against both *E. coli* and *S. aureus*, while pure garlic was most effective against S. pneumonia. Investigating naturally antimicrobial compounds provides valuable insight into the constantly evolving field of antibiotics.

(43) **Mrs. Robinson Syndrome: The Impact of Sex Stereotypes and Socioeconomic Stereotypes on Attitudes toward Child Sexual Abuse.**

Kelsey L. Eagen, LouAnne B. Hawkins and Christopher Leone
University of North Florida

Researchers have recently determined that people hold less negative views of child sexual abuse between a female perpetrator and male victim. The purpose of this study is to determine if sex stereotypes and socioeconomic stereotypes influence this finding. Two hundred forty participants will be randomly assigned to read one of eight scenarios about an adult-child sexual encounter in which the adult's socioeconomic status (low vs. high), adult's sex (male vs. female), and child's sex (male vs. female) are manipulated. Participants will then complete three 30-item Semantic Differential scales (Osgood, Suci, & Tannenbaum, 1957) indicating their attitudes about the a) sexual interaction, b) adult, and c) child. Prior to reading the scenario and after completing the attitude measures, saliva samples will be collected to perform stress cortisol assays. We hypothesize 1) participants will report less negative attitudes about child sexual abuse when the perpetrator is female and the victim is male, but this finding will be most pronounced when the female perpetrator is high SES and 2) participants will have less increase in cortisol after exposure to scenarios in which the perpetrator is female and the victim is male, but this finding will be most pronounced when the female perpetrator is high SES. Three ANOVAs (one for each attitude measure about the sexual encounter, adult, and child) will be performed. An ANCOVA will be performed to assess the impact of these scenarios on cortisol levels while controlling for initial cortisol levels. Implications, limitations, and future directions will be discussed.

(44) P**hotopositive Behavior in the Kleptoplastic Sacoglossans *Elysia clarki* and *Elysia chlorotica*.**

Rachel Moline and Michael L. Middlebrooks
The University of Tampa

The sacoglossan sea slugs *Elysia clarki* and *Elysia chlorotica* exhibit the ability to sequester chloroplasts derived from their algal food source a process termed kleptoplasty. Furthermore, these chloroplasts continue to photosynthesize within the slugs, providing them with a source of food. Due to this, the sacoglossans demonstrate a need for the light in order to photosynthesize, but also have a need to protect their chloroplasts from light degradation. This experiment set to investigate the behavioral responses to light through determining whether *Elysia clarki* demonstrates positive or negative phototaxy under increased periods of starvation, as well as a preliminary investigation of the phototaxic behavior of *Elysia chlorotica*. *Elysia clarki* demonstrated positive phototaxy, spending the majority of their time in the light across all starvation treatments, while *Elysia chlorotica* also displayed strong photopositive behavior. Based upon this, it can be concluded that *Elysia clarki* and *Elysia chlorotica* may likely rely on biochemical adaptations rather than a behavioral adaptation in order to prevent chloroplast degradation and prolong photosynthesis.

(45) T**he private versus public nature of infidelity: Self-monitoring and romantic jealousy.**

Taylor Frances Drury, Christopher Leone and Tiffany Lucille Andolina
University of North Florida

Self-monitoring is one's ability and motivation to control his or her appearance (Snyder, 1974). Although a lot is known about the correlates of self-monitoring and romantic relationships (for review, see Fuglestad & Snyder, 2010), very little research has been conducted on self-monitoring and reactions to infidelity. It may not be that self-monitors differ in what type of infidelity they find more distressing. Instead, the context in which the infidelity occurs may be where differences lie. Given that high self-monitors are motivated by social status, a public transgression could ruin this social image. Given that low self-monitors are motivated to be true to themselves, whether a transgression is public or private may not matter to them. Using MTurk, participants will complete a modified version of Buss's (1999) infidelity scenarios, Snyder's (1974) 25-item Self-Monitoring Scale, and a measure of attachment (Fraley, Waller & Brennen, 2000). The latter was included to control for a plausible third variable. We will manipulate the nature of the affair to be either public (i.e., affair known to family, friends, coworkers) or private (i.e., only the partner knows). We expect to find that high self-monitors will experience more jealousy from a partner's public affair than from a private affair. We also expect to find that for low self-monitors, the context of the infidelity will not influence their experience of jealousy. If we obtain the expected results, we will expand the current literature not only on self-monitoring but also on romantic jealousy.

(46) **"Red and Blue Tinted Glasses:" Political Perceptions of Ingroups, Outgroups, and Ourselves.**

Erik Clarke and Christopher Leone
University of North Florida

Political views are an important part of our world and undoubtedly susceptible to ingroup-outgroup biases (Munro, Weith, & Tsai, 2010). However, our own views and the views we ascribe to our ingroups may not be isomorphic (Marks & Miller, 1987). We addressed this possible discontinuity as follows. Participants completed several measures of political views (Feldman, 1988; Tetlock. 1986, 2000; Wilson, 1989). They did so once in terms of views they personally endorsed and then once in terms of views they ascribed to either a prototypical conservative or a prototypical liberal. Order of tasks (self versus other) was counterbalanced. Participants were randomly assigned to describe a prototypical conservative or liberal. With the exception of the Wilson scale, higher scores on these measures were indicative of increasingly liberal views. Demographic information including party affiliation (i.e., ingroup identification) was also collected. We performed two sets of correlations on scores for the aforementioned measures of political beliefs and values. When comparing people's views of others, scores on the Wilson measure were negatively correlated with the scores on our other three measures. That is, participants ascribed more conservative views and less liberal views to a prototypical conservative (and vice-versa for a prototypical liberal). When indicating their own views, scores on the Wilson measure were positively correlated with the scores on our other three measures. That is, participants endorsed both conservative and liberal views for themselves. In sum, we found evidence for both ingroup-outgroup stereotyping as well as self-enhancement.

(47) **Early Transition Metals as Inexpensive Substitutes for Ruthenium in Hydroxylated Polypyridine Complexes.**

Carlos Alberto Acosta Jr., Alan Rodriguez Santiago and Raphael Raptis
Florida International University

This Project examines the electrochemical and photo physical properties of hydroxylated first row transition metal (FRTM) polypyridyl complexes. In particular, we will focus on how these FRTM stand up to ruthenium regarding the aforementioned properties so as to better judge their potential in applications such innovations in cancer treatment and solar power. Ruthenium is a second row transition metal with an immense variety of applications and uses thanks to its interesting electrochemical and photo physical properties. While the publications regarding the coordination chemistry of ruthenium polypyridyl complexes are plentiful, only recently has work been done on hydroxylated ruthenium polypyridyls and there is not much of it, however, what is available is promising. For this reason we would like to explore the coordination chemistry of these ligands with the first row transition metals. After the synthesis of the complexes we plan to conduct typical structural characterization analyses such as NMR, MS, X-ray, and elemental analysis. Of particular interest to us are measurements of quantum yield and lifetime of the exited states as well as electrochemical measurements of redox potentials at various states of excitation. The electrochemical and photo physical properties of these complexes will be compared to those of ruthenium complexes. The completion of this project will expand the largely unexplored yet fertile field regarding hydroxylated FRTM polypyridine complexes. It will pave the way for the development of molecules that may one day be used to harvest solar power, in the form of natural fuels such as hydrogen and oxygen gas.

(48) **STEM Attitudes and Beliefs: Evidence from Elementary Classrooms.**

Megan Keller, Tyler Keller and Kimberly McDowell
Florida Golf Coast University

The primary purpose of the exploratory study was to examine attitudes and beliefs towards Science, Technology, Engineering, and Math (STEM) among teachers and elementary students. Participants included a total of 13 teachers and total of 220 elementary student participants. Participants completed an online survey exploring their attitudes and beliefs regarding STEM. Teacher surveys focused on STEM instructional beliefs and student surveys focused on STEM attitudes and career aspirations. Descriptive statistics will be reported as well as a series of multiple regression analyses to determine if teacher beliefs predict student attitudes. Results and discussion will be presented at the conference as data analyses are still ongoing. Preliminary results indicate that teacher STEM beliefs vary based on grade level and school demographics and student attitudes towards STEM vary as a function of teacher beliefs.

(49) **Inconsistencies in Female Hair Color Preferences.**

D. Delvescovo, A. Miller, and J. Wortham
The University of Tampa

Abstract: Females have often been classified as the “choosier” sex. Research on the hair color preference of females has not yielded consistent results. Familiarity has been shown to influence what people find attractive. However, previous studies have not tested female preferences in

other females and did not consider parental influences on hair color preference. Knowing the preferred hair color choice of a population would be beneficial to the multi-million-dollar cosmetology industry. We predicted that females would choose hair colors similar to their own, or their mothers', as most attractive in other females. We also predicted that females would have boyfriends with hair colors similar to their fathers'. Both of these hypotheses are based on familiarity. Results indicated that females did not choose other females based on their own, nor their mother's hair colors, and they did not select boyfriends with hair colors similar to their father's. However, we determined that female choice in hair color matched the distribution of hair color in the sample population. Thus, this lead us to infer that female hair color choice may be influenced by the availability. Female choice varied by geographic region. Brunette, blonde, and red hair were chosen in the same frequency that they were available in each geographical region in the USA surveyed. The frequencies in which hair colors are available in the environment is the only variable that is related to female choice in hair color. Females do not fit models predicted in psychology based on familiarity.

(50) **Culture Change in Nursing Home: Addressing Regulatory.**

Melissa Villalta and Marshall Kapp
Florida State University

The goal of the "Culture Change in Nursing Homes: Addressing Regulatory" project is to make suggestions to nursing home regulators for amending regulations and enforcement practices in these institutions. This is in an effort to improve the nursing home environment, and by extension residents' quality of life. The research assistantship position entailed summarizing published articles about the Culture Change movement, reviewing a Proposed Regulation by the Centers for Medicare and Medicaid Services, developing a timeline for significant events in the Culture Change implementation in nursing homes, and compiling a list of acronyms for organizations and policies that pertain to the movement. These tasks were a small portion of the overall project, but these findings will be utilized to demonstrate to nursing home regulators, as well as providers, that Culture Change is beneficial to residents, and it will not expose nursing homes to an increased risk of negative legal consequences.

(51) **Cre recombinase has minimal effect on dendritic complexity of cultured hippocampal neurons.**

Mariana Ruiz[1], Laurel Kelnhofer[2], Yu Gao[2], Xinyu Zhao[2]
[1]Barry University and [2]University of Wisconsin-Madison

Neurogenesis is the formation of new neurons and it is most active during prenatal development. In adults, neurogenesis mostly occurs in the hippocampus and sub-ventricular zone. We believe that methyl-CpG binding proteins (MBDs) regulate adult neurogenesis, specifically methyl-CpG binding domain protein 1 (MBD1). MBD1 is known to mediate gene repression by binding to methylated DNA. To investigate the role of MBD1 played in neuronal maturation, we try to delete MBD1 through in-vitro cultured primary hippocampal neurons using Cre-LoxP system, which involves Cre protein expression in neurons. However, overexpression of Cre through in-vitro cultured hippocampal neurons can be toxic to neurons. To test the effect of Cre-Loxp deletion of MBD1 in in-vitro cultured neurons, we first, decided (1) to determine if Cre shows toxicity in wild-type neurons, then (2) determined if Cre has an effect on MBD1 deletion

affecting maturation in MBD1 conditional knockout (cKO) neurons. First, Cre toxicity was tested by transfecting Cre and dCre into wild-type neurons and we found that it has minimal effect on dendritic complexity. Second, an assay was developed to transfect MBD1 cKO neurons with Cre and dCre. We found that there was no statistical significance shown for dendritic complexity up to 3 days after a transfection is performed, leading us to believe that a 3-day timeframe may be too short.

(52) **Excluding The Problem: Bennett on Counterfactual Test and Backtracking.**

Katelyn Hallman and Dr. Jonathan Matheson
University of North Florida

In this paper, I explain and assess Karen Bennett's solution to the exclusion problem. The exclusion problem is a problem for any theory which holds that the mental is distinct from or irreducible to the physical. In brief, the problem is that if the mental and physical are distinct, and each is causally sufficient to bring about their effects, then our actions would frequently be overdetermined. I begin by explaining and motivating Bennett's formulation of the exclusion problem. Bennett's formulation of the problem is unique in that it is not a pointed argument against any one particular view; rather, her formulation sets up the problem as a set of inconsistent claims, at least one of which must be denied to remove the inconsistency. I then explain and motivate Bennett's solution. Bennett creates a counterfactual test for overdetermination, which is meant to show that the non-reductivist account of mental causation does not result in rampant overdetermination. Next, I explain and motivate a recent objection to Bennett's solution by Chiwook Won. Won's charge is that Bennett's counterfactuals are not necessary for overdetermination. However, I will show that Won does not assess the counterfactuals in Bennett's test correctly and, thus, Bennett's solution remains viable.

(53) **Society's View of Bollywood and the "Perfect Woman:" Is She Really Perfect?**

Hawa Allarakhia
University of South Florida - St. Petersburg

This paper explores the portrayal of "perfect" women in Bollywood films. Its drastic change during the twentieth century from the character of traditional servant to the westernized version seems to reflect the cultural identity of India during and after British rule. In addition to characterization, production elements also had an impact on how society saw women. The purpose of this research was an attempt to overlap my Indian culture with my semester inquisition of postcolonial studies, which is appropriate for this year's conference. The methodology I used was investigation of four different films spanning various decades and application of my findings to prior knowledge. I concluded that what appears to be a downward spiral from traditional to modern might actually be progression as the Indian woman has become the "perfect" combination of both East and West. This was not the goal set out by those in the Bollywood film industry. Some would call it an outward representation of a nation asserting its independence from British rule.

(54) **Bio-inspired Dinuclear Copper Oxygenation Catalysts: synthesis, characterization, and reactivity studies.**

Susana Herrera and Raphael Raptis
Florida International University

Dinuclear copper assemblies are encountered in the active centers of various oxidases involved in the oxidation of organic substrates by dioxygen. The role of the protein backbone in these metalloproteins is to hold the two Cu-centers in close proximity as to allow a two-electron oxidation of the Cu (I) rest state to the Cu (II) catalytically active form. The objective is to synthesize a dinuclear copper complex by different approaches using a pyrazole ligand and introducing substituents on the bipy site. Furthermore, the investigation of the reactivity of the Cu (I) complex towards oxidants other than dioxygen and the reactivity of Cu (II) complex towards organic substrates follows along the same line of work. At the next stage, reactions of the copper complexes with substrates will be monitored by spectroscopic methods (UV-Vis and NMR) and the reaction products will be characterized by standard and mass spectroscopic methods. Electrochemical studies (cyclic voltammetry) will be employed to define redox stability and redox reactivity of the copper complexes. The new copper complexes thus prepared will be structurally characterized by X-ray crystallography. The coordination geometries around the Cu-centers of both complexes are significantly different than those of known oxygenases and their synthetic model compounds. This creates the expectation of new chemistries that may be mediated by the new copper complexes. This would be a great way of controlling biological processes, creating catalyst substituents for organic reactions, and even considering the role of these metalloproteins in infectious and neurodegenerative diseases.

(55) **The CSI Effect: Evaluating Forensic Crime Novel Readers.**

Claire D. Scott-Bacon and Dr. Ryan Winter
Florida International University

This study evaluates the extent as to whether the so called “CSI effect” correlates to individuals who read forensic crime novels. The CSI effect is a term used to describe a perceived influence that watching forensic investigative television shows has on juror decision making. It is believed jurors’ decisions are influenced by high quality fictional and non-fictional forensic evidence television programs, and because of these influences, juror expectations and standards regarding any forensic evidence presented at a real trial have been raised to higher levels. Despite extensive research on the effect and potential jurors’ viewing habits, there is little research taking into account a potential jurors’ forensic evidence crime novel reading habits. This study will address this problem by gathering and assessing data derived from a questionnaire after participants have read a vignette describing a real homicide trial involving forensic evidence and render a verdict. In doing so, I hope to achieve the following: (a) confirm sufficient general support that the CSI effect exists to warrant further empirical investigation; (b) confirm which effect readers of forensic crime novels are more likely to display; an opposite CSI effect (guilty) or the general CSI effect (not-guilty); (c) determine whether or not there is an independent effect or a correlation with forensic crime novel readers; (e) determine whether or not the effect has any interaction effects with individual characteristics or demographics; (f) determine whether or not the effect has a direct or indirect effect on a juror’s decision-making in reaching a verdict.

(56) **Functionalizing Diatoms with Titanium Dioxide for Solar Cell Applications.**

Chris Dowdy, Dalton Reith, Samuel Trappen, Dr. Chris Coughlin, Dr. Melba Horton and Dr. Sesha Srinivasan
Florida Polytechnic University

Diatoms, eukaryotic phytoplankton, obtain energy by means of photosynthesis. Diatoms use nutrients from their water environment to create a silicon glass shell around themselves. These glass shells, called frustules, form essentially an exoskeleton for the organism. Diatomic shells vary in size from two to 500 microns. After the plankton die, these frustules can be harvested for unique applications. This project will functionalize different shapes of diatoms by chemically cleaning them and adding a nanoconductor to their surface, titanium dioxide. The nanoconductor will be added using a solution to gel chemical reaction. The functionalized diatoms will then be placed inside a solar cell as a percolative network. The titanium dioxide nanoparticles lose electrons when excited by electrons and an electric current is created. This network of functionalized diatoms mimics a plant's thylakoid and the photosynthesis process. Established research has shown that this concept can lead toward greater efficiencies in solar energy production. This project will functionalize and test different designs of diatoms in an effort to learn which shape is the most efficient for solar energy production. Both disk shaped (*Thalassiosira baltica*) and hourglass shaped (*Didymosphenia geminata*) silicon frustules will be functionalized and tested inside solar cells for this experiment. The ability to grow the silicon level of a solar cell and use less precious metal has the potential to lower the cost of photovoltaics significantly. The knowledge gained can be a noteworthy step in developing more efficient solar cells and augmenting the overall production of solar energy.

(57) **A comparative survey of *Gopherus polyphemus* hemoparasites in four different South Florida habitats.**

Brian Cooney, Dana Elhassani, Evelyn Frazier, Ph.D. and Joseph Caruso, Ph.D.
Florida Atlantic University

The gopher tortoise (*Gopherus polyphemus*) is a keystone species, for its burrows house more than 300 species of animals. Habitat destruction and its consequent fragmentation have led to a decline in populations within southeastern ranges of the United States. *Haemogregarina* (intracellular protozoan parasites) have previously been identified in the blood of gopher tortoises. High levels of blood parasitaemia have shown to be a potential indication of stress resulting from overcrowding. The goals of this study are: (1) to characterize hemoparasite species through the use of Polymerase Chain Reaction (PCR) from tortoise blood samples and the ticks attached to tortoises and (2) to determine if free ranging gopher tortoises that live in poorly maintained habitats exhibit higher prevalence and parasitaemia levels within their blood when compared to tortoises inhabiting better maintained sites with prescribed fires. Research goals will be examined at four sites: Blazing Star Preserve (BSP), Pine Jog Preserve (PJP), Florida Atlantic University Preserve (FAUP), and Johnathan Dickinson State Park (JDSP), to determine both hemoparasite prevalence and parasitaemia levels. PJP and JDSP are sites currently practicing fire management and herbicides, whereas FAUP utilizes mechanical and chemical management while BSP is not managed. We hypothesize that parasitaemia will be higher in poorly managed sites as a result of crowding, when compared to well managed sites.

This study will benefit current conservation and management practices for gopher tortoises in South Florida and help provide a baseline study for reptile hemoparasites.

(58) **"The Pinball Wizard and the Miracle Cure:" The Who, Meher Baba, and Drug Renunciation, 1969—1975.**

Holland Hall
University of Florida

This project examines The Who album "Tommy" in its historical and cultural context. Primary sources consulted include the album, primary songwriter Peter Townshend's memoir, and a documentary in which The Who explains the conception of "Tommy." The narrative of "Tommy" is one that echoes Townshend's personal spiritual journey, which led him to become a devout follower of Meher Baba—an Indian spiritual leader who gained a substantial following within the Western counterculture of the late 1960s and early 1970s who purported that drug use inhibits human spiritual growth. "Tommy" exposes the plight of a "deaf, dumb, and blind" boy, which Townshend uses as a metaphor for a human who has lost his spiritual perception. The 1969 album credits Meher Baba as the "Avatar." Townshend did not create "Tommy" to be a "proselytizing vehicle for Meher Baba," but rather aimed to express "spiritual yearnings during post-psychedelic times." With Townshend's objective in mind, it is possible to examine "Tommy" as an auditory relic that helps explain the Western counterculture's fascination with Asian religious influences toward the end of the 1960s. The author of this project also spent a weekend doing fieldwork by attending a spiritual retreat at the Meher Spiritual Center in Myrtle Beach, South Carolina, in November 2015. This fieldwork was intended to provide the author with a more thorough understanding of Baba's following in America. Further research at the center illuminated that the Spiritual Center was actually instrumental in Townshend's own early religious experiences regarding Meher Baba.

(59) **Neighborhood environment and community health promotion; the case of Spring Hill.**

Tyler Bowling, Emily Carey, Gregory Fernandez, Jackie Pollack, Brittany Zwerver and Asal M. Johnson
Stetson University

Purpose: The purpose of this qualitative study was to describe characteristics of the neighborhood environment and to understand how those factors were related to health. This study was part of a larger multiphase study aimed at identifying and addressing the health needs of the predominantly minority community of Spring Hill in Deland, Florida. Methods: The study is a collaboration between the Florida Department of Health of Volusia County (DOH-VC) and Stetson University students. To conduct this study, we employed qualitative techniques including ethnographic field observations and focus group interviews. A town hall meeting was organized by DOH-VC to discuss the public health needs of Spring Hill with residents from the community. Focus groups were conducted at this meeting. We analyzed the patterns and similarities of field observations and focus group transcripts. Conclusion: The residents reported a lack of infrastructure as the main obstacle to proper health. The community lacks sidewalks and adequate lightening, which discourages physical activity and increases the risk of chronic diseases. The lack of public transportation limits health care access and employment opportunities. Additionally, residents identified several social issues as main barriers to good

health including high drug related activities, domestic violence, high unemployment, lack of programs to rehabilitate younger residents with incarceration records and police apathy toward the community. Significance: The findings of this study will inform the community health needs assessment tool. This is important as residents voices should be reflected in needs assessment tool to ensure questions are relevant to the community being surveyed.

(60) **Not in Kansas Anymore: Effects from a Special Traveling Children's Museum Exhibit.**

Kathleen Barakat, Alicia Carrillo, Diana Ropel, Stephen Blessing, and Jeffrey Skowronek
The University of Tampa

We investigated how embedding activities within a narrative enhances learning and memory at a children's museum. Using a previous design from Blessing, Skowronek, and Quintana (2013), for the current study we created an iPad application that families used as they toured a traveling museum exhibit, one based on The Wizard of Oz. The application also tested the children with adaptive quizzes after each activity and provided explanations to the parents about the underlying cognitive-developmental principles of the activities. Participants were N=30 (males=9) children between the ages of 4 and 7 visiting a southwestern Florida children's museum with one of their parents. We found high correlations between families who enjoyed using the application and how well they enjoyed its structure, as well as between the child's familiarity with the story and enjoyment of the narrative. Those in the condition involving a fuller narrative surrounding The Wizard of Oz spent significantly more time on activities than those in a less detailed narrative. Those parents with children at age 5 rated the activities higher than the other children, indicating that the application targeted the proper age group. One limitation to this study was the low number of participants; larger involvement in future research may shed more light onto the utility of technology, such as iPad applications, in enhancing children's informal learning.

(61) **Talking It Out vs Calling It Off: Self-Monitoring Differences in Conflict Resolution with Multiple Audiences.**

Lori Sterling and Christopher Leone
University of North Florida

According to Haferkamp (1987), three kinds of conflict resolution exist: cooperative (i.e., listening and open communication between parties), uncooperative (i.e., negative attitude and pronounced desire to "win") and denial-avoidant (i.e., refusal to acknowledge conflict). However, little research exists on conflict resolution in regards to multiple audiences. Fleming et al. (1990) define a multiple audience problem as a situation in which an individual must relay different messages to different audiences. These problems can be solved through audience segregation (i.e., separating opposing audience completely) or role distancing (i.e., giving verbal distancing cues and avoiding situations). Success for these behaviors requires someone with the ability and desire to act according to the situation at hand such as a high self-monitor. According to Snyder (1974, 1987), high self-monitors are motivated by social appropriateness (i.e., they want to be the "right person at the right time"), whereas low self-monitors are motivated by self-congruence (i.e., they want to be themselves). In our research, we will evaluate the relationship between conflict resolution styles and self-monitoring. We propose that when faced with a

multiple audience problem with high conflict, high self-monitors will more likely engage in audience segregation (i.e., cutting ties with one friend) while low self-monitors will more likely engage in cooperative conflict resolution. Furthermore, we propose that when faced with a multiple audience problem with low conflict, high self-monitors will more likely engage in role distancing while low self-monitors will more likely engage in denial-avoidance conflict resolution.

(62) **How Facebook Use Affects Mood.**

Kathleen Greene, Caroline Barakat, Amanda Lee Carr, Philip Ash, Briana Mansour, Victoria Veronesi, Erin Koterba, Michael Stasio, Renee Patrick, Cynthia Gangi and Erica Yuen
The University of Tampa

Use of social media has increased significantly in the past few years as newer platforms are introduced and updates to older ones are implemented. While the popularity this new form of communication has acquired is impressive, it brings into question the effects prolific utilization might have on psychological processes. This study examined the possible effects on mood that using these sites might cause and if they were tied to specific or general functions of networking. Participants (N = 312) were randomly assigned to perform one of four activities: browse the internet (control condition), browse others' Facebook profiles passively, actively interact with others on Facebook, or actively update their own Facebook profile. Analyses were done on the Positive and Negative Affect Scale (PANAS) for both positive affect and negative affect, comparing the mood prior to website use with mood after use. A between-groups repeated-measures ANOVA conducted on all four conditions for PANAS Positive Affect found a significant interaction effect, $F(3, 308) = 2.697$, $p = .046$. Follow-up ANOVAs found that all three experimental groups had a greater decline in positive affect compared to the control group. A between-groups repeated-measures ANOVA conducted with all four conditions for PANAS Negative Affect found no significant interaction effect, $F(3, 308) = 0.902$, $p = .441$. The results suggest a greater decline in positive affect following Facebook use for the three experimental conditions compared to the control condition, while negative affect was not significantly different for any of the conditions.

(63) **Incarceration Rates: A Comparison of Incarceration Rates of Small Towns versus Large Towns.**

Daniela Scantlebury
The University of Tampa

The Federal Bureau of Investigation Statistics reveal that cities are safer places to reside in comparison to smaller towns. Cities in the United States grew safer in 2008, whereas small towns grew more dangerous, as stated in the Preliminary Annual Uniform Crime Report. Among the states, Florida is the leader in its use of imprisonment where it is third in the nation in incarcerated populations and incarcerates at a high rate compared to the national average. Analysis of covariance design, was used to test the main and interaction effects of incarceration rates (continuous y), over time in years (continuous x) among small and large counties (categorical variable). The design was chosen to analyze and compare the difference of incarceration rates of 22 counties; 11 large and 11 small, and determine whether the pattern of incarceration rates are higher in small counties. The ANCOVA design revealed a significant

difference in incarceration rates between small and large counties over a five year time span (2011-2015), with a p-value of 0.0013 where small counties accounted for the higher rates. There are several factors that could contribute to this phenomenon such as the peak of lead-gasoline occurrence from 1970-1980, attributing to high crime rate in cities, which later fell, upon the removal of lead from gasoline by 1991. Even so, such decrease in crime rate/ incarceration rates in big cities and no movement of crime rate/ incarceration rates in smaller towns can appear as though there was an inflation in rates in small towns.

(64) **Prospect in Harnessing Brain-derived Neurotrophic Factor (BDNF) Extracted from Fetal Neural Tubes to Combat Neuro-Ophthalmologic Manifestations in Visual Motor Deficit (VMD).**

Chidera O. Nwosu
University of Miami

Introduction: Brain-derived neurotrophic factor (BDNF) is a protein that is programmed by the BDNF gene. It is an adherent of the neurotrophic family of growth factors and related to c-Nerve Growth Factor. Neurotrophic factors (NF) are major intermediaries of neurogenesis – with elevated levels being in fetal neural tubes. This NF may be extracted in treatment per ventral neural tube explants with the trkB ligand Brain-Derived Neurotrophic Factor (BDNF) which in calamity may result to a significant increase in the number of motor neurons - if especially targeted in the pars compacta of substantia nigra – the pragmatic cultivation of motor neurons via BDNF extract (in retrospect) may render deficits caused by lesions in that region - void. Objective: Obliquely noted – is the rarity of modulating VMD - a characteristic seen in people with other learning disabilities such as Dysgraphia. The prospect of up surging BDNF synthesis by pharmacological means may be a viable therapy mechanism for persons with such disorder. Methodology: Meta-analytic imploration comprised of studies obtained from NCBI, research gate, Medscape, Wiley and NIH from inception to current time assessing potency of validity in regards to BDNF contesting Visual Motor Deficit. Results: Methodical evidence collected from over 70 studies suggest the significance of great prospect – although specific targets and stages necessitate identification for exact quantification. Research and experimental studies have revealed that such a prospect may indeed combat Neuro-Ophthalmologic Manifestations in Visual Motor Deficit. Recommendations: Contrivance of further discussion following the interdependence of pars compacta and VMD should be derived.

(65) **Development of niobium-based SPME fiber by sol-gel technology.**

William Smith and Thomas Jackman, Ph.D.
The University of Tampa

Solid-phase microextraction (SPME) fibers have numerous advantages of alternative methods for determining concentration and extraction of trace organic compounds such as low-cost, simplicity, and ease of preparing samples. Commonly used silicon-oxide fiber fragility made them non-ideal for research and courses and thus generated interest in using niobium wire as a high strength alternative. The SPME fiber is produced through anodization of Nb wire at various voltages to alter the oxide layer thickness followed by a sol-gel coating process. The coating could be viewed using a scanning electron microscope to conform well aligned coating. After the wire is coated it is used in combination with gas chromatography (GC) to extract volatile

hydrocarbons with high selectivity. The SPME fiber was tested against niobium oxide wire as a negative control. Work is still being conducted to optimize coating and absorption factors but the fiber is expected to have high durability, stability over a broad pH range as well as at high temperatures during desorption in GC.

(66) **Cooperativity and competition in the binding of 4-nitroquinoline-1-oxide and actinomycin D to phiX174 DNA.**

Juan Medina and Stephen A. Winkle
Florida International University

Past research on the carcinogen 4-nitroquinoline-1-oxide (NQO) and on the anticancer antibiotic actinomycin D have shown that, separately, they bind cooperatively and selectively to DNA. This cooperative and selective binding behavior arises from allosteric effects the DNA experiences upon being bound by the agents. Studies using restriction enzyme assays also show that when bound to DNA, actinomycin alters the binding of other agents that also have an allosteric effect on DNA. Thus we are interested on the effects that either NQO or actinomycin has on the cooperative binding of the other. Samples of phiX174 DNA are incubated with a fixed concentration of actinomycin and varying concentrations of NQO and subsequently reacted with restriction enzymes chosen to have differing enzyme reaction sequences. Alternatively, a fixed NQO concentration and varying actinomycin concentrations are used. Reaction products are then separated on electrophoresis gels to determine the relative amounts of starting material DNA and of the enzyme cleavage products. The results suggest that at certain locations on the DNA, actinomycin and NQO each influence the binding of the other. For example, when using the restriction enzyme Stu I [reaction site AGGCCT], both NQO and actinomycin D caused an inhibition of cleavage separately. The combination of both agents also produced inhibition. These results suggest that the manner in which these compounds interact with the DNA is sequence-specific. These studies provide further insight into the bindings and reactivities of carcinogens and antitumor drugs with DNA.

(67) **Is meditation good for the heart: A study of the effect of compassion meditation on heart rate variability among veterans with PTSD.**

Michelle Aiello and Ariel J. Lang, Ph.D., M.P.H.
University of Central Florida

The present study investigates the effects of Compassion Meditation (CM) on heart rate and heart rate variability (HRV) among veterans with Post-Traumatic Stress Disorder (PTSD). CM is a meditative practice focused on the wish that others and the self may be free of suffering. Past research has found various connections between HRV and meditative practices. In addition, CM is associated with positive mood, a sense of belongingness, and reduction of anxiety. Data for these analyzes were drawn from the first phase of a feasibility and proof of concept study of CM for veterans with PTSD. Seven veterans diagnosed with PTSD were recruited to complete CM in two-hour group sessions once per week for eight weeks. Veterans' heart rate is recorded for 5 minutes before, during, and 5 minutes after each of the eight sessions. It is hypothesized that veterans' resting HRV will increase from before to after the group while heart rate during meditation will decrease over the 8 weeks. If the results support this hypothesis then, CM may

regulate the autonomic nervous system of veterans dealing with PTSD, providing an insight into one mechanism by which CM may be effective to reduce PTSD symptoms.

(68) **Coercive Field Enhancement in Microstructured Manganite Thin Films.**

Hector Felipe Lacera Otalora
University of Florida

Ferromagnets are useful devices that store data by reducing information into a binary "1" or "0." This binary can be represented by a magnetic structure that is driven by a current to generate a magnetic field that can change the state of the magnetization in a closely spaced magnetic medium. Magnetic materials used today as recording heads include Nickel, Iron, Cobalt and alloys of these three such as Permalloy (Ni80Fe20). However, the anisotropies of these materials are such that their coercive field is high. The high coercive field require a greater input field to change the state of the ferromagnet to the state desired [1]. Perovskite manganese-oxides (manganites) have generated interest due to the complex behaviors that they exhibit, including colossal magnetoresistance (CMR) and colossal electroresistance (CER) [2]. Effects such as these rely on a small external perturbation (magnetic or electric field) to cause large changes in the resistance of the sample. Manganite thin films such as (La1-xPrx)1-yCayMnO3 (LPCMO) can show such effects, which partially arise due to phase competition of ferromagnetic metallic (FMM) and antiferromagnetic charge ordered insulator phases that can coexist with similar energies at low temperatures.

(69) **Species verification of *Magnolia virginiana* through DNA barcoding of rbcL gene.**

Katie A. Burket
Valencia College

DNA barcoding, the process of sequencing DNA from a specific focal point in the genome, is a current method of species identification. Currently, one recommended way of identifying plant species using this process is through the gene, rbcL. Also known as ribulose-1, 5-bisphosphate carboxylase oxygenase, rbcL is found exclusively in the chloroplasts of land plants, algae, and cyanobacteria. Currently, one of the goals at Valencia College is the proper identification or verification of various plant species found on campus; therefore, the process of DNA barcoding is being undergone for these plants. In this study, the goal was to verify the identity of a magnolia tree, labeled as *Magnolia virginiana*. Samples were collected, and the DNA was isolated in accordance to the steps required for DNA barcoding. Both forward and reverse strands of the rbcL gene were isolated, followed by amplification through PCR and purification through gel electrophoresis, before being sent to Genewiz for sequencing. Upon receiving the DNA sequences, the strands were run through DNA Subway, and similar online databases containing documented plant sequences. Results indicated that while the sample was in the genus *Magnolia* as suspected, the sequence was too general to determine an exact species. This provides insight into both the nature of *Magnolia* as a genus as well as the limitations of rbcL as a target for DNA barcoding in plants. Further testing should be conducted on the *Magnolia* sample, preferably through a different genome than rbcL, which may provide successful identification.

(70) **Characterization of a Novel Mutant Involved in Centrosome Assembly.**

Briana Whitehead, Chunfeng Zheng and Timothy Megraw
Florida State University

Centrosomes regulate microtubules to control a wide variety of cellular processes. Autosomal recessive primary microcephaly (MCPH) is a neurodevelopmental disorder causing an abnormally small cerebral cortex during fetal development. Mutations in any one of 9 centrosome protein-encoding genes are involved in this genetically heterogeneous disease. These defects appear to stem from failure of proper centrosome assembly, where the centrosomal proteins are scattered and do not organize into the centrosome. To understand this pathology, I am mapping the gene that contains the 12-14 mutation, which resides on the X chromosome. I have been preforming meiotic recombination to map the location on the chromosome, but as of now no definitive results have come from this approach. Therefore, I will redo this recombination and once I obtain conclusive results I will conduct deficiency mapping to better refine its locus, and finally DNA sequencing to map the mutation at the molecular level. Currently it is seen that the 12-14 mutation was identified in a genetic screen as synthetic lethal with cnn, thus concluding that the mutation is genetic and the gene is interacting with cnn in the cnn disease network. The 12-14 mutant is maternal effect lethal which can be seen by the death of progeny during early cleavage defects. It is also noted that the 12-14 mutant males have poor fertility in comparison to the female mutants. Previous findings show that male infertility is associated with cytokinesis defects and immotile sperm.

(71) **Rugs and Silver, Artists and Craftsmen: The Development of Artistic Autonomy in Southwestern Native American Art.**

Victoria Anne Sunnergren and Dr. Karen Bearor
Florida State University

The two styles that best exemplify the cultural interaction integral to the artistic development of Native American art in the American southwest are Navajo weaving and Hopi silver overlay. These two styles show that the development of Native American art styles in the American southwest is the result of hundreds of years of social interaction and artistic experimentation. While much has been written on Navajo weaving, and to a lesser extent on Hopi silver overlay, this will be among the first scholarly works to link the two as similar models for the development of art styles under the forces of cultural interaction, and to link those models to the expression of gendered and racial identities in artwork. The somewhat surprising results of this research, as demonstrated here, is that what is perceived as traditional design has its roots in the dictates of early traders and other non-natives, and that contemporary artists in these fields are utilizing these techniques for autonomous artistic expression, in some cases defying assumptions of traditional gendered roles. This paper benefits greatly from my fieldwork during the summers of 2014 and 2015, which includes personal interviews and interactions with traders and artists, as well as general knowledge gained from time spent among the Native American arts community in the southwest. This paper also builds on existing research by art historians and anthropologists related to gender and racial expression among Native American communities.

(72) **Design, Construction and Optimization of a Low-Cost Portable Enterococci Test (PET) Kit.**

Margaret K. Parrish, Suzanne Young and Valerie J. Harwood
University of South Florida

The World Health Organization estimates that over two million deaths worldwide can be attributed to unsanitary water. Continual exposure to unclean water may also cause long term effects such as malnutrition through repeated bouts of diseases. High levels of fecal indicator bacteria (FIB) in freshwater environments are linked to increased risk of exposure to enteric pathogens. Standard methods for membrane filtration are used to quantify FIB in laboratories in developed countries, but many remote communities lack the proper infrastructure and financial support for such analyses. This disparity demonstrates the need for economical, portable, and criteria-specific testing equipment to become available to the public. A prototype test kit following current USEPA Method 1600 for membrane filtration to detect enterococci was developed in 2014; subsequent redesign has continued to increase its capabilities. The PET kit includes a membrane filtration unit, incubator with an option of testing for enterococci or *Escherichia coli* (*E. coli*), adapted from a commercial thermos with heating pads and powered by solar-charged batteries. Comparative laboratory testing using diluted stock culture of *Enterococcus faecalis* (*E. faecalis)* and field tests using environmental samples on mEI agar was conducted to establish the accuracy of the PET for enumerating enterococci, and has shown comparable recovery to standard laboratory methods and trials. Results indicated no significant statistical difference between the two methods. Based upon the results, it is feasible that economical, portable, and criteria-specific testing equipment may become available to the public in remote areas lacking access to laboratory based test methods.

(73) **Uncovering cardiovascular biomarkers of School Burnout.**

Joseph T. Leonard, Ross W. May, Greg S. Seibert, Marcos A. Sanchez-Gonzalez and Frank D. Fincham
Florida State University

The Family Institute of Florida State University conducted a correlational study to investigate the relationship between school burnout (three-dimensional affective response to school related-stress; Salmela-Aro et al., 2009) and cardiovascular health via 24 hour ambulatory blood pressure (BP) and electrocardiogram (ECG) monitoring. The intention was not only to replicate recent research and confirm the association between elevated ambulatory hemodynamics and cardiac sympathovagal tone but also to explore the relationship between school burnout and systemic inflammation (a relatively unexplored aspect of heart rate variability (HRV) and cardiovascular health). 88 undergraduate students (85% female, Mage = 20.56 years, SD = 2.53, 87% Caucasian) completed an online health questionnaire containing the 9 item School Burnout Inventory (SBI:Salmela-Aro, Kiuru, Leskinen & Nurmi, 2009) the 10-item Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977; Santor & Coyne, 1997) and the 20-item State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970). Participants were then fitted with Space Lab ambulatory blood pressure monitors and First Beat Body Guard ECG monitors that they wore for a period of approximately 24 hours. After controlling for similar affective symptomology (depression, anxiety) the results indicated that increased school-burnout is significantly related to elevated ambulatory blood pressure (systolic

and diastolic), markers of increased cardiac sympathovagal tone and systemic inflammation. The results collected support previous research linking school burnout to elevated ambulatory hemodynamics and cardiac sympathovagal tone and extend the search for school burnout biomarkers to include systemic inflammation.

(74) **Interannual Precipitation Variability surrounding the Alberto Manuel Brenes Biological Reserve, Costa Rica.**

Taylor M. Gibbs
University of Florida

Annual and seasonal precipitation totals are analyzed from rainfall stations surrounding the Alberto Manuel Brenes Reserve in the northwestern-central region of Costa Rica in order to determine the likely precipitation climatology of the newly acquired biological reserve. This is achieved through the combined use of interstation correlations and digital elevation model analysis. While annual results give a broad regional setting, seasonal results present distinct statistical variations across the small region. The observed differences are a consequence of complex large-scale physical factors, including local topography, seasonal shifts of the Intertropical Convergence Zone (ITCZ), strengthening of Trades creating a pause in precipitation (Veranillos de San Juan), influence of tropical cyclones, as well as southward-moving cold fronts traveling from North America, all of which produce opposing signals on the Caribbean and Pacific flanks of the mountains. We can further attribute this variation to local influences consisting of the cordilleras themselves, producing a well-defined boundary between rainfall regimes. Given these hemispheric and regional mechanisms, natural response of interannual variability is identified.

(75) **DNA Barcoding of Valencia East Campus Greenhouse Plant Samples for *Strophanthus* Identification.**

Iman Squires
Valencia College

DNA barcoding is a well-established method that has allowed for the direct and precise classification of plants using different loci, specifically the ribulose-1,5-biphosphate gene, which has been found to provide the most reliable results. Known as Rubisco, ribulose-1,5-biphosphate carboxylase oxygenase is found in plant cells and converts carbon dioxide into organic carbon-containing molecules such as glucose. The current study at Valencia aims to identify the plant species found at the East Campus greenhouse using DNA barcoding. With the purpose of identifying plants using rbcL primers, a fresh sample of Strophanthus species was collected for better isolation. Different procedures and techniques were then conducted to extract the DNA, followed by purification, amplification through PCR, and isolation by gel electrophoresis. Once the amplified DNA segment was successfully sequenced, a BLAST search was used to confirm the species identification and obtain the neighborhood-joining tree. The results showed close relation to Strophanthus divaricatus, with 105 mismatches out of 434 base pairs. DNA Subway indicates the sample is of the Strophanthus genus with the identity of the species remaining unconfirmed.

(76) **Engineering Efficiency and Sustainability in the Food, Energy and Water Nexus.**

Catherine Ninah and Debra Reinhart, Ph.D.
University of Central Florida

In order to understand how to reduce waste of food, energy, and water (FEW), we must first understand who are the stakeholders and what processes are involved. The more developed countries use the most food, energy, and water but also have the necessary technology and resources to reduce the waste. The risks and logistics involved with these essential items need to be evaluated and addressed. Our research is focused on how the waste of food into our environment can be avoided by reestablishing the life cycle and chain of food. These three areas are interconnected and the effects of energy and water waste on food waste need to be evaluated to better understand the system to propose alternatives. The results of our research will help the US Department of Agriculture and Environmental Protection Agency reach their goal of food waste to be cut in half by 2030. University students can be pivotal in bringing positive change at different levels. For humans to be able to reduce their ecological footprint, adjustments and decisions need to be made. Thus, this project will encompass different FEW initiatives created and actively joined by university students across the United States. Questions about their their source of motivation, differences in initiative ideas, success of planned events, and reduced waste will be answered and data will be analyzed. With this information, universities will be contacted to encourage more initiatives and reduce food waste. This selected demographic will be critical to reaching the 2030 target.

(77) **Authoritarianism and collectivism: Antecedents and consequences.**

Jasmine Samuel and Doan Modianos
University of Central Florida

Moral Foundations Theory (MFT) suggests there are five distinct moral dimensions, which define morality as a whole. MFT can be broken down into two groups binding: in group/loyalty, authority/respect, and purity/sanctity-which encompass group morality. Harm/Care, fairness/reciprocity are individualizing dimensions, which highlight individual morality. These distinct moral dimensions have show predictor ship of sociopolitical ideologies, and sociopolitical attitudes. Individualizing domains predict liberalism due to vested interest in individualism, and protection of others rights. Binding foundations predict conservatism, due to their interest in tradition and the overall group. Research has connected morality to indicate different sociopolitical attitudes. Sociopolitical Right-Wing Authoritarianism (RWA)- total belief in social cohesion and conformity, and Social dominance theory (SDO)- in-group dominance, these individuals believe out-groups are unequal. Some groups are disadvantaged, less equal. We reexamine this relationship, and extend further research to cultures and its effect on MFT, Collectivism and individualism relates to how people view themselves on the individual (Individualism) and group level (collectivism), with in their respected culture. Two additional dimensions that relate to individualism and collectivism are horizontal and verticalism. Which refers to horizontal- same, and vertical- different. Based on previous literature we hypothesize individuals who values MFT differently will also have varying political ideologies, sociopolitical attitudes, and hold differing self-view. 1000 participants were randomly selected to participate in this study. SPSS regression analyses are being conducted to examine the relationships between various demographic factors, MFT dimensions, political

ideologies, sociopolitical attitudes and individualism and collectivistic cultures. Both theoretical and practical implications will be discussed.

(78) **Preliminary findings: A systematic review of the effects of information and communication technology interventions on dementia family caregiver health.**

Karis Lee, Renessa Williams, Elizabeth Fehlberg, Aditi Patel, Michelle Santoni-Miranda, Robert J. Lucero, Ph.D.
University of Florida

Introduction Information and communication technology (ICT) consists of digital and analogue technologies, including hardware, software, networks, and media, that facilitate collecting, capturing, storing, processing, transmitting, exchanging, and presenting information and/or communication. Little is known about the effects of ICT on the health of dementia family caregivers (DFCs). We are conducting a systematic review of the literature to describe the effects of ICT interventions on the health of DFCs. Methods We searched PubMed, CINAHL, PsycInfo and Web of Science without date limits. We used a combination of search terms such as, ‘‘information,’’ ‘‘communication,’’ “technology,” ‘‘caregiver,’’ and ‘‘dementia’’ in English and Spanish publications. Systematic reviews and randomized control trials (RCTs) were included. Studies of DFCs of persons diagnosed with Alzheimer’s Disease, vascular dementia, fronto-temporal dementia, and dementia with Lewy bodies were included. Systematic reviews that included both RCTs and non-RCTs, and studies of professional caregivers, institutionalized persons with dementia (PWD), and family caregivers of deceased PWD were excluded. Results We found 523 articles and removed 21 duplicates. The first screening by KL and RW resulted in removing 203 articles. During the second screening, we found 13 systematic reviews that were not retrieved in the initial search, resulting in 312 articles. The secondary reviewers removed 300 articles, resulting in 12 studies to be included in this systematic review. Conclusion Based on our ICT definition, we identified a sufficient number of RCTs to conduct our systematic review. The quality of these RCTs is currently being evaluated to assess the validity of the trial results.

(79) **The Sound of Colonialism: Music and Its Impact on Cuba and Its People.**

Mauricio Cabrera
University of South Florida - St. Petersburg

Music; it is the sound of the soul. It is the poetry that comes from the heart and is written through the minds of extraordinary people and is eventually transposed into a written language for instruments and voices, and transcends any kind of rational understanding that the human intellect can piece together. It has its theories and principles, but music is something so free and unchained that it comes comfortably, sweeps you off of your feet, and mercilessly pleases your heart and soul until your body physically and emotionally feels nothing but the sound in your head and the rhythm in your feet. It is devoid of any covetous or avaricious intent and is simply where the soul takes asylum. That is why it is so enchanting that something as pure as music can not only help define a culture, but also give it hope. The music of Son has not only helped the people of Cuba define themselves and transcend from being just a country with a border to a nation of one people, but it has also helped the two vastly different cultures of the Spanish and African hybridize into one culture that is extraordinarily unique and flourishing. Throughout the essay, I will write about Cuba’s history, the music of Son and its evolution, and how music helps

give the Cuban people a sense of self-identity and optimism, despite all hindrances they face daily in a life suppressed by a communist regime.

(80) **Assessing Genetic Diversity within Natural Populations of Smooth Cord Grass to Ensure Effective Restoration Efforts.**

Michelle Gaynor, Dr. Linda Walters, and Dr. Eric Hoffman
University of Central Florida

The Indian River Lagoon (IRL) is one of the most biodiverse estuary systems in North America making it a conservation priority and the focus of many restoration efforts. Smooth cord grass (*Spartina alterniflora*) naturally occurs along the shorelines of the IRL and is often used in shoreline restoration due to its extensive rooting capacity and ability to halt shoreline loss. *Spartina alterniflora* functions as a keystone species and is therefore used as an indicator of ecosystem health. Most plant restoration efforts do not take into account the genetic implications of using clonal species (like *S. alterniflora*) to restore ecologically important habitats. Although clonal plants may be easier to raise with regard to number of clones reared, if the genetic makeup of the transplanted samples is not taken into account then the founded population is likely to be genetically depauperate. To understand whether restored populations exhibit natural levels of genetic variation, we will quantify the genetic diversity present within natural and restored *S. alterniflora* populations using microsatellite markers. Allelic richness, heterozygosity, effective population size, and population differentiation will be utilized to measure the difference in genetic diversity between natural and restored populations to determine if discrepancies exist. This study overall will allow me to identify a reliable method for selection of transplant individuals that will be useful in the long-term shoreline restoration efforts in the IRL.

(81) **Neighborhood jurisdictional boundaries and community health, the case of Spring Hill.**

Justin Baggs, Jada Scott, Carolina Perez-Tobon, and Asal Johnson Ph.D., M.P.H.
Stetson University

Purpose: Spring Hill is a neighborhood located in DeLand, Florida. Of the almost 700 acres, 260 are under the jurisdiction of the city of DeLand, while 438 acres remain in Volusia county territory. The purpose of this project was to understand residents' perspective on the fragmentation of jurisdictional boundaries and whether they perceived this fragmentation a barrier to the community's health. This study was part of a larger multiphase study aimed at identifying and addressing the health needs of the predominantly minority community of Spring Hill. Method: A group of Stetson University students, in collaboration with the Florida Department of Health of Volusia County (DOH-VC), conducted a descriptive study of Spring Hill. We applied qualitative techniques including ethnographic observations and focus group interviews. A town hall meeting was organized by DOH-VC to discuss the public health needs of Spring Hill with focus groups primarily from the community. We analyzed and synthesized data gathered from observational and focus group studies to examine residents' experiences regarding the fragmentation of jurisdictional boundaries. Conclusions/Significance: We found that those sections of Spring Hill that are annexed to the city represent higher quality of infrastructures, such as sidewalks and street lights. Residents were concerned about the jurisdictional divide as it created inconsistency in providing civic services to the community. There is no effective

communication between the city and county resulting in slow response from emergency services. As a result of this study, questions about community jurisdiction were added to the health needs assessment tool.

(82) **Identifying genotypes of *Acropora cervicornis* that are resilient to white band disease.**

Alana L. Boyles and Erinn M. Muller
The University of Tampa

White band disease in the Caribbean, which targets framework-building stony corals like *Acropora cervicornis* (staghorn coral), have become commonplace on reefs of the Florida Keys resulting in significant loss of this species. To combat this rapid decline, *A. cervicornis* is grown in nurseries in situ and transplanted onto affected reefs. In order for transplanting efforts to be the most successful, the transplanted corals should be resilient to disease outbreaks. To propagate resilient corals in nurseries, scientists should first determine whether varying genotypes differ in disease susceptibility. An experimental laboratory manipulation was conducted to test whether nine genotypes from an in situ nursery on Summerland Key varied in disease susceptibility. The corals were arranged in three distances from a diseased individual to test for genotypic resilience white band disease. Though the evidence suggests there is variation among genotypic susceptibility, the data was not significant. However, the B/O genotype was able to withstand contracting white band disease in all but one individual, suggesting this genotype may be more resilient than others. There was also no difference in susceptibility among distances from the diseased coral, although there was a trend of higher rates of disease infection at close distances. Our results suggest that there may indeed be differences in susceptibility among genotypes of *A. cervicornis*, although further study with higher replication is needed.

(83) **Never walk alone: How safety tips influence beliefs about rape and feelings of safety.**

Jessica Potter, Elizabeth R. Brown and Curtis Phills
University of North Florida

Safety tips may shape a university's climate by challenging or reinforcing sexual assault myths and misperceptions. We will examine whether a safety tip being directed at women ("Ladies:") or not and whether safety tip endorses ("Miscommunication can make you vulnerable to rape") or challenges ("It's okay to change your mind without an explanation") rape myths affects participants' beliefs about rape and feelings of safety. Participants will read a fictitious safety tip webpage, then report their feelings of safety, rape myth acceptance, and attitudes about the campus climate. We predict that participants who read rape myth-endorsing, versus rape myth-challenging, and participants who read women-directed, versus non-women directed, safety tips will express decreased willingness to report a crime, increased rape myth acceptance, and lower satisfaction regarding campus climate. We also predict an interaction between whether the safety tip is women-directed and endorses rape myths. Participants in the non-women directed condition will report higher willingness to report a crime, decreased rape myth acceptance, and increased satisfaction with the campus climate when they are exposed to rape-myth challenging as opposed to endorsing safety tips. However, when participants are exposed to women-directed safety tips, whether or not the tip challenges or endorses rape myths will not have an impact on the dependent variables. We will be one of the first to experimentally examine how campus

safety tips influence participants' beliefs about rape and feelings of safety. We hope our study encourages discussion about creating safer and more effective campus safety tips.

(84) **Joint Graphical Lasso and Deep Learning Methods for Dynamic Brain Connectome Prediction.**

Joey Velez-Ginorio and Dr. Guo-Jun Qi
University of Central Florida

The advent of Connectomics has given rise to an array of efforts dedicated towards furthering our understanding of the brain. In general, these investigations are concerned with discovering patterns in neural connectivity; hoping to uncover model pathways of neurological behavior. Utilizing the mainstay of Connectomics, brain connectomes, there exists an opportunity to expose current abstractions that induce collective comprehensions surrounding the brain. Within this scope, our intent seeks to establish a joint method; combining the frameworks of Graphical Lasso and Deep Learning architectures for dynamic hierarchical connectome prediction. This entails formulation of an algorithmic model of neural connectivity that not only considers the pair-wise relations of neurons, but intuitively takes into account the hierarchical structure of organized neural systems i.e. the brain. Specific to the purview of computational viability, previous experimentation suggests these frameworks yield measurable improvements in their capacity to interpret neural data as necessary; providing ample justification of the aforementioned proposal. In practice however, several considerations exist requisite to the efforts at hand. Of these, a peculiar focus on maintaining scalability and temporal structure throughout deems critical; as interpretation of high-dimensional data while abstaining from effects of temporal warping serve as kernels to our schema. Further developments within this framework aim to maintain efficacies throughout each task within our joint method; feeding time-series activation data of neurons and approximating higher-order structures of neural connectivity in a computationally efficient manner. Contingent on our success, the findings provide grounds for an enhancement in further inspections of neurophysiological phenomena.

(85**) Effect of size on *D. melanogaster* visual acuity.**

Jamie Theobald and Zoila Brummer
Florida International University

Historically, vision has been the subject of a great deal of study. Throughout evolution, two kinds of visual adaptations have arisen time and again, these are, lens eyes; found primarily in vertebrates, and compound eyes; seen in arthropods. This experiment, the first of it's kind, aims to explain how visual acuity relates to body size in arthropods; specifically, female *Drosophila melanogaster*, also known as the fruit fly. To measure the visual acuity, differently sized *Drosophila* will be mounted onto a rod and placed in a simulated perspective corrected environment. Here, they will follow the motion of a known attractant. Above the mounting rod will be an infrared sensor, used to track wingbeats and the direction of movement. The results will then be back-calculated and their ability to track the motion determined. This experiment can be related to the flight of other insects to show how size changes the interaction between a subject and the external environment. This will be the first experiment to use variable size as a possible determinant of visual prowess in *Drosophila*. In identifying the correlation between size and visual acuity, future studies will have a basis on which to compare their results when

conducting similar experiments on other arthropods and potentially even humans. Moreover, this experiment could be used to later determine a causal relationship between the number of ommatidia or lens facets and the size of the eye.

(86) **Discovery of Aminoacyl-tRNA Synthetase Inhibitors as Anti-Cancer Agents.**

Larry Nguyen, Xiao Liang, Ravil N. Kaybullin and Xin Qi
University of Florida

Aminoacyl-tRNA synthetase (aaRS) plays a significant role in protein synthesis due to its crucial involvement in the translation process. Inhibiting the activity of aaRS would decrease the protein producing ability of cells, thus destroying the protein supply for cell growth and causing cell apoptosis or other cell death. Since aaRSs could directly link to tumorigenesis as a result of their non-canonical functions in angiogenesis, immune responses and signal transduction pathway, we predict that derivatives of aminoacyl sulfamide as aaRS inhibitors are ideal model systems for developing new anticancer agents regulating cell growth and oncoprotein expression. Our cell viability assay illustrated that our aaRS inhibitors have demonstrated low micromolar IC50 values across a panel of cancer cells. The results also showed that the aaRS inhibitors demonstrated selectivity against different cancerous cell growth and these can be interpreted that the efficacy of the inhibitor is cell specific. Then we analyzed how our aaRS inhibitors affect cell growth and death on the panel of cancer cell lines. Each cell line were treated with the aaRS inhibitors and a no drug control (water) for 48 hrs and stained with annexin V/Propidium Iodide for flow cytometry analysis. Our cell apoptosis staining results demonstrated cell distribution shifts in the early apoptotic stage after the 48 hr drug treatment. Furthermore, we performed cell cycle/rest assays and these results demonstrated that aminoacyl sulfamides induced apoptosis and shifted the cells to the sub G0/G1 phase. Our study will lead to the discovery of novel aminoacyl-sulfamides for cancer therapy.

(87) **Effect of Diet on Growth in *Podocnemis unifilis*: Assessing Optimal Diets for Turtles in Conservation Oriented Head Start Programs.**

Katie L. Robinson and Mason B. Meers
The University of Tampa

As chelonian species have come under increasing pressures due to exploitation as a food source, efforts have naturally focused on options for conservation, including head-start programs. The success of head start programs depends on establishing economical means of rearing hatchlings to sizes that are more resistant to predation over relatively short time frames. This study examines the effects of three different diets on the growth of the Yellow-spotted Amazon river turtle, *Podocnemis unifilis* over a two-year period. Rates of growth differed among all three treatment groups, though the relationships between morphological variables were not affected by diet. Results indicate that turtles fed on a commercial gel diet may exceed the growth rates of animals fed on a more natural, vegetarian diet by more than 15% as measured by straight carapace length, or by more than 50% in body mass. The use of a vegetarian diet, however, reduces costs to less than 10% the cost of a commercial gel diet. The choice of diets for chelonians in head start programs is consequently a variable that must be weighed against other conservation objectives.

(88) **Ontogenetic Patterns Displayed in the Dental Morphology in *Belonesox belizanus*.**

Hannah Saucier and Mark McRae
The University of Tampa

Pike Killifish, *Belonesox belizanus*, are native to South America and Mexico, but are an invasive species introduced to Florida in 1957. Pike Killifish were collected in Tampa, Florida and were prepared for measurements and energy dispersive spectroscopy (EDS) analysis on an electron microscope. Measurements made through the electron microscope focus on the ontogenetic shifts in tooth morphology. EDS was applied to analyze iron levels and other heavy metals, which are usually indicative of a hard prey diet. Specimens were grouped by both life stages (neonate, juvenile, and adult) and gender. Jaws were removed and photographed on an electron microscope and measurements include tooth length, tooth width and jaw length. Individual teeth will be measured using electron microscopy to determine whether or not Pike Killifish exhibit allometric tooth growth. Linear regression analyses will be utilized to determine the growth pattern exhibited. Tooth morphology could be applied to understand shifts in diet through the different life stages.

(89) **Hydrothermal Synthesis of Lanthanide Series Plumbites.**

Alexandra T. Barth, Kristen A. Pace, Jared T. Stritzinger, Mark Silver and Thomas E. Albrecht-Schmitt
Florida State University

Comparative studies of structural variations in trivalent f-element lead oxoanions can provide insight into emerging periodic trends. Hexanuclear and pentanuclear lanthanide plumbite nanoclusters with the general formulas, [Ln6Pb18O2(OH)38][ClO4]12·8H2O (Ln = Y, Sm – Er) or [Ln5Pb17(OH)36][ClO4]13·nH2O (Ln = Tm, Yb, Lu), have been prepared from the reactions of lanthanide oxides with PbO in 1M perchloric acid under hydrothermal conditions. In the former compounds, the octahedral Ln6 clusters are found fully encapsulated within lead oxyhydroxide cages and terminating with stereochemically-active lone pair electrons on the Pb(II) centers. The smaller lanthanide ions yield hexanuclear clusters with one of the original vertices replaced by Pb(II) and lead networks that form a nest-like configuration around the Lb5Pb core. Structural variations and soft ferrimagnetism are described for the series.

(90) **Crossing the Border: The Consequences of the Immigration System on an Undocumented Family.**

Sandra Chavez and Leslie Anderson
University of Florida

The Mexican-American border, which costs American citizens about $28 billion annually to maintain, is not obstructing immigrants from taking the journey from their native home in Latin America to the United States of America. Families who travel through the dessert have a challenging time saving money to pay the coyote, and are often apprehended by the Immigration Custom Enforcement once they cross the Rio Grande. They are neglected by officials: asked to throw their items away, forced to stay in detention centers with their children, are not fed appropriately, and most prominently paperwork that they sign is not interpreted. ICE, the Department of Homeland Security, and President Obama have ordained for families and

unaccompanied minors to have priority in being released and not deported. This type of "protection" leaves undocumented immigrants in America without a sense of direction, and perhaps false aspirations that one day they will become documented. This research analyzes the participant observation methodology, background on the participants (an undocumented family), and findings of the research. The obstacles they face: language barrier, unfair treatment, taking advantage of their lack of financial means, education disparity, and the continuous fear are prevalent to their story. To conclude, their story is far too common: abused back home, looking for a better life, risks her and her children's life to obtain this, and than is stuck in a country where she is not welcome.

(91) **Elucidating the Role of P53 in Limiting Metastasis in *Drosophila melanogaster*.**

Adrian Acuna, Brian Brenner and Lei Zhou
University of Florida

Cancer is one of the leading causes of mortality worldwide, with over 8 million deaths per year. In over 50% of cancers, the tumor suppressor gene P53 is mutated. Since metastasis, the spread of cancer cells from one organ to another, is the predominant cause of lethality among solid cancers, a better understanding of P53's role in limiting metastatic development is of great importance. By using Drosophila as a model organism, such a role can be investigated via genetic manipulation. We previously demonstrated that in wild type Drosophila, cells forced to metastasize will undergo apoptosis, leading to no detectable neoplastic growth. However, if the animals lack the 33kb Irradiation-Responsive-Enhancer-Region (IRER), then clear neoplastic growth is observed. Since IRER contains a functional P53 binding site that directs cells to undergo apoptosis, we hypothesize that P53-induced apoptosis is required for restricting metastasis. If this is true, by inducing metastasis in P53 null animals, neoplastic growths should be observed. To test this, we have designed a genetic plan to induce metastasis in P53 knock-out models. First, P53 will be knocked out in the entire organism and metastasis will be induced by knocking down scribbled, a key cell polarity gene. If our hypothesis is verified, we will then test whether P53 function is required in metastatic cells or immune cells. The current state we are in is to recombine the driver Gals4 with the P53 null allele. Through these series of studies we will determine the role of P53 in eliminating metastatic tumor cells.

(92) **Females of a moth with two-celled ears discriminates acoustic stimuli with different temporal patterns.**

Jessica Hernandez, Dr. Francisco Coro and Dr. Jorge Riera Diaz
Florida International University

Behaviors evoked by acoustic stimuli are very convenient, because the stimuli and the phonoresponses can be precisely controlled and quantified. Several species of erebid moths (most arctiinae) interact acoustically with insectivorous bats by emitting acoustic signals when detecting bat calls. Some of these species also use acoustic emissions during their courtship behavior. In *Syntomeida epilais* (Erebidae: Arctiinae) both genders emit acoustic signals, modulation cycles (MC), during their courtship behavior. This species has sexual dimorphism in the repetition rate of their MC. It has been proposed that *S. epilais* females discriminate between male and female emissions based on this feature. Our aim is to test if this species, with only two receptor cells per ear, is able to discriminate also the temporal pattern of different acoustic

stimuli. We stimulated virgin females at the time of their mating behavior (between 3:30 and 6:30AM) with playback of male and female MC series recorded during their courtship behavior. We also applied series of 8 MC of female MC converted into male MC, and male MC converted into female MC, all these 4 stimuli at the same repetition rate and duty cycle. The females of *S. epilais* phonoresponded with more MC/s to the male emission, as well as to the female emission converted into male signal than to the other 2 stimuli. These results show that *S. epilais* females may use the microtemporal structure of MC presented repetitively as a cue for phonoresponding differentially to conspecific male and female acoustic emissions.

(93) **Effects of second hand smoke on plant height, biomass, and morphology.**

Kirstin Cutshaw and Dr. Ramona Smith-Burrell
Eastern Florida State College

This experiment identified differences in biomass, height, and morphology between pea plants exposed to second-hand cigarette smoke and control plants. I exposed a test group to thirty minutes of cigarette smoke once a week for four weeks, documented leaf morphology and plant height throughout the experiment, and measured biomass at the end. Results suggested that the average height and biomass were higher in the plants exposed to second hand smoke. The leaves of the test plants appeared to develop necrosis on all samples. There was no significant difference between heights and weights of plants exposed to second hand smoke and the control group. Further research should include varying exposure times, and continuing the experiment to identify differences in pea pods and germination rates in the next generation.

Session 3

(1) **Nurse2Nurse International Education Exchange: A Cambodian Exemplar.**

Khang Vo, Brittany Reeser, Rebeca Siguenza and Karen Simon Reed
University of Florida

Introduction: Cambodian nurses' professional practice lags behind their Asian counterparts due to limited exposure to assessment skills and access to culturally congruent educational materials. The faculty sponsor has a long-term relationship with Sonja Kills Memorial Hospital (SKMH) in Kampot, Cambodia. SKMH nurses expressed great interest in learning the anatomy/physiology of body systems, in competently assessing patients and practicing critical thinking as we do in the US. Our team developed culturally relevant cardiac/pulmonary health assessment educational media for them as currently none exists. Method: The Director of Nursing (DON) at SKMH secured the consent of 50 Cambodian nurses and midwives wishing to participate in the study. Our team met with them by Skype to introduce the project, to ascertain the Cambodian nurses' English speaking abilities, and to perform a needs assessment. DVDs and handouts were developed on anatomy and physiology and physical assessment of the pulmonary and cardiac systems and shipped to Cambodia. After viewing the DVDs, the Cambodian nurses completed a multiple choice and short answer post-test and program evaluation supervised by the DON at SKMH. Results: Preliminary results (N=3) of the pulmonary post-test revealed successful learning outcomes with an average score of 100%. Results from additional subjects are

forthcoming. Conclusion/discussion: Participants' results are a positive reflection of learning achieved after initial exposure to the designed media. Based upon feedback and test scores, additional media will be developed on more systems. This activity promotes development of Cambodia's nursing workforce and can improve the quality of delivered health care.

(2) **Genetic Differentiation Among Florida Populations of *Diadema antillarum*.**

Luke Chandler, Dr. Linda Walters and Dr. Eric Hoffman
University of Central Florida

The coral reefs are a quintessential member of their ecosystem, providing both food and shelter for those who inhabit it. The deterioration of coral reefs throughout the Caribbean beginning around 1983 resulted from the mass mortality of populations of the long-spined sea urchin, *Diadema antillarum*. Although from an unknown source, the current-like distribution of sea urchins' death running from Panama throughout the Caribbean and into Bermuda suggests a waterborne pathogen as being the perpetrator for the death of approximately 90% of individuals. Restoring the coral reefs may be possible using two brood stocks of *D. antillarum*, housed at Mote Marine Laboratory's and the Florida Fish and Wildlife Conservation Commission, for reintroductions. When restoring natural populations with captive raised individuals, it is crucial to ensure that genetic variation of the natural population is not changed by their reinstatement so as to avoid unexpected ecological consequences. For this reason, I will be using eight nuclear microsatellites to assess whether or not these captive brood stock populations have genetic diversity representative of wild populations near the Florida Keys. Assuming these nuclear microsatellites reveal similar genetic variation in both the brood stock and wild populations throughout the Florida Keys, I will infer that their reproductive success would cause an increase in the natural population of *D. antillarum* and likewise an expansion in the essential cover of the coral reefs.

(3) **Left Brain vs. Right Brain: An Analysis of Functionality in Cervantes' Don Quixote.**

Michael Scimeca and Dr. Martha García
University of Central Florida

The story of El ingenioso hidalgo Don Quixote de la Mancha sits at the crossroads of two defined eras of Spanish history, combining Renaissance ideals with Baroque elements into one Golden Age masterpiece. The theme of duality present throughout the work finds true expression in Cervantes' well-educated protagonist, Alonso Quijano. In him, the reader glimpses the struggle between antiquity versus early modernity, ideality versus reality, and instability versus sanity. I examine these competing natures in Don Quixote and in the greater work as a whole in order to elucidate the neurological and psychological factors associated with story elements. These medical themes and the underlying sociocultural facets will be investigated by thoroughly exploring Cervantes' treatment of human consciousness. In doing so, this study aims to answer the following questions: to what extent does Cervantes present relevant medical knowledge applicable to the Renaissance and Baroque period of Spanish history? How do these medical allusions and references influence the reader's perception of Don Quixote as insane? Could/Would a medical diagnosis of some neurologically or psychologically based disorder be applied? Finally, to what extent of the protagonist's behavior may be medically attributed and to what extent may be the result of sociocultural disconnection? I examine the work for episodes in

which Don Quixote experiences pronounced fatigue, forgetting spells, head trauma, sleep disturbances, and headaches. This psychoanalytical process of studying Spanish medicine through the lens of literature illuminates a scientific background and establishes a foundation for diagnosing the medieval knight in the first modern novel.

(4) **Urine, The Future of Agriculture?**

Madelyn Pandorf and Treavor Boyer
University of Florida

Our large dependence on chemical fertilizers in agriculture has not only placed a burden on Earth's non-renewable resources, but causes eutrophication and the release of greenhouse gases. My current research is studying different options of nutrient recovery to help alleviate some of our reliance on chemical fertilizers. My main focus is collecting and applying human urine on a farm plot to grow turnips and snap beans using four different fertilizer treatments of: no fertilizer, chemical fertilizer, urine, and urine with additions of phosphorus and potassium. Throughout the growing season plant tissue samples are taken and analyzed for nitrogen, potassium, and phosphorus. During the harvest period, yields are weighed and compared between treatments. The snap bean yield produced the expected result of the chemical fertilizer and urine plus phosphorus and potassium at almost the same yield, with urine slightly lower, and no fertilizer producing the lowest yield. The turnips are currently in their growing season. To compliment the fertilizer data, lysimeters are used to collect leachate every two weeks and analyze it for nutrients. The purpose of the leachate testing is to understand if certain fertilizers leach through the soil more than others. In addition, it can provide insight to quantify the amount of applied nutrients that are absorbed by the plants versus the portion that seeps into the soil. The goal is to show that urine fertilizer can produce competitive yields with chemical fertilizers, and that alternative fertilizers are a closed loop system through the recovery and reuse of nutrients.

(5) **Laminar profile underlying the propagation of CSD: from single neurons to population activity.**

Darlene Ramos, Sarahy Garcia, Yisel Frometa, Javier How and Jorge Riera
Florida International University

Cortical Spreading Depression (CSD) is a wave of complete neuronal depolarization that usually lasts for one to two minutes and can silence brain activity for a certain time after its occurrence. Sixty years after the initial discovery by Antonio Leão, the mechanisms for CSD propagation are still elusive. In this research project, we perform multisite recording of electric potentials to study laminar features of relevance for the CSD propagation in the cerebral cortex of rats. We perform two craniotomies on the same brain hemisphere. We drop 10 μL of potassium acetate (1M) on one of the craniotomies, which induces a CSD. Using an acute silicon-based electrophysiological probe, we record electric potentials from the other craniotomy while the CSD propagates through it. We perform spike sorting to determine the silencing patent of single neurons. Current source density analysis allows us to investigate disruptions in the spatial profiles of postsynaptic potentials. We perform laminar comparison of spiking rates and postsynaptic activities before, during and after a CSD. It is believed that a better understanding of the mechanisms for CSD propagation is critical to create effective therapeutic strategies for related brain disorder such as epilepsy, stroke and migraine. Our data will be useful in the future

to calibrate a computational model, which is currently being developed at the University of Minnesota.

(6) **The Role of Red Blood Cell Derived Microparticles in Sickle Cell Disease (SS) Murine Models.**

Gabrielle Clark, University of Central Florida; Caitlin Powell Sok, Georgia Institute of Technology; and Dr. Edward Botchwey
Georgia Institute of Technology

Sickle cell disease (SCD) is the most common blood disorder in the United States affecting about 100,000 Americans. Cell-derived microparticles play a role in the pathogenesis of SCD by provoking endothelial dysfunction. A recent study revealed that activated extracellular signal kinase 1/2 (ERK ½) is expressed significantly in human sickle red blood cell derived microparticles (SS RMPs), enhancing monocyte adhesion to the endothelium. This study aims to investigate: 1) how the adhesion and internalization of SS RMPs affect the endothelial cell (EC) morphology, and 2) if ERK ½ and phospho-ERK ½ is expressed in murine SS RMPs. ECs isolated from normal (AA) mice lungs were seeded onto a 96 well plate and co-incubated with latex beads, AA and SS RMPs, and imaged over a 6 hour time period. The ECs were also seeded onto glass coverslips and co-incubated with low, medium and high concentrations of AA and SS RMPs for 4 hours. Protein was isolated from AA and SS RMPs for a western blot analysis to determine the expression of ERK ½ and phospho-ERK ½. The results lead to a conclusion that adhered and internalized SS RMPs may play a role in endothelial dysfunction in SCD by inducing apoptosis. Also, based upon this current study, in murine models, ERK ½ and phospho-ERK ½ are not expressed in SS RMPs.

(7) **Prediction of Preeclampsia with the use of the Electrocardiogram and Photoplethysmography.**

Ana I. Calderon, Savya, Tammy Y. Euliano, M.D.
University of Florida

Introduction Preeclampsia is a disease of pregnancy, with potentially serious maternal and fetal consequences. The most common signs are hypertension and protein in the urine. The only cure is delivery, often prematurely, which raises infant morbidity and mortality. If preeclampsia could be predicted prior to onset of symptoms, treatment might reduce morbidity. Vascular reactivity changes pre-date hypertension, and may be measured using features of the ECG and photoplethysmogram (PPG). This technology may provide an opportunity for advance prediction. Purpose The purpose of the study is to determine whether features of the ECG and PPG predict preeclampsia. The ultimate goal is to develop a small, inexpensive, portable device that can predict which patients are likely to develop preeclampsia, and especially those who will suffer complications. Methods Inclusion Criteria at the Women's Health Center at UF Health Medical Plaza included women between 10 and 25 weeks gestation, focusing on those with risk factors for preeclampsia. After written, informed consent, four ECG electrodes were placed on the woman's torso, and a pulse oximetry probe attached to her right middle finger. Data collection continued for 20-minutes at each prenatal visit. Upon delivery, the presence of preeclampsia and its complications was recorded. PPG and ECG features were extracted from each data set and applied to a sequential feature selection algorithm to discriminate preeclampsia

from normotensive controls. Results The algorithm had a 0.91 sensitivity and a 0.77 specificity for predicting preeclampsia. Conclusions ECG/PPG may provide valuable prediction of preeclampsia. Data collection and device refinement continues.

(8) **Monitoring Privacy in Mobile Health Apps.**

Jeremy Cason and Hongmei Chi
Florida A&M University

The poster will advance theoretical understanding of fundamental issues related to mobile healthcare analysis, as well as the design and implementation of practical techniques to effectively protect patient privacy. The proposed novel tools is central to preventing privacy breaches for both study participants and regular individuals due to using mHealth apps, which will help patients and researchers in their endeavor to meet growing expectations in protecting privacy and provide privacy assurance when regular individuals use and share their mHealth data. The poster will contribute significantly and creatively to the limited base of knowledge in the area of preserving privacy in mHealth data analysis and mining.

(9) **Flash Atomization of Biofuels and a Comparison of Droplet Size Distributions Produced by Various Commercial Spray Generating Devices.**

David Perez[1], Kristina Fong[2], Dr. Mebougna Drabo[3], Dr. Thomas Butcher[4]
[1]Florida State University, [2]University of Alabama at Birmingham, [3]Alabama A&M University, and [4]Brookhaven National Laboratory

The atomization of solutions by nozzle spray technologies is commonly used in many fields including, but not limited to medicine, agriculture, and energy. Particle size distribution (PSD), as well as the uniform distribution, of solutions is an important aspect that can determine the efficacy and efficiency of their dispersal. The Sustainable Energy Technologies Department at Brookhaven National Laboratory is experimenting with industrial nozzles and flash atomization techniques in an attempt to develop a more efficient method to combust biofuels. In order to familiarize ourselves with the atomization processes, various nozzles and solutions were tested with Malvern Spraytec, the primary measurement instrument for this project. We ran trials using a few types of common commercial nozzle products, measuring and comparing spray PSD patterns between the spray nozzles. When we became familiar with this experimental setup, the group started working with fuel spray nozzles and began comparisons between the PSD of atomized and flash atomized biofuel. After running several experiments, it was determined that, in the case of at-home commercialized products such as nasal spray nozzles and standard spray nozzles, high pressure and high velocity resulted in a more narrow distribution of smaller particle sizes, ideal for the efficiency of spray solutions. The use of flash atomization methods on water also significantly reduced particle size and produced a more efficient PSD. Incorporating what we learned from different nozzles and flash atomization techniques on water, the next step in our research is to test these techniques on biodiesel.

(10) **Discovery of Novel Carbocyclic Analogs of Nucleosides for Cancer Therapy.**

Tracoyia Roach, Larry Nguyen, Katherine Cisneros, Ravil N. Khaybullin and Xin Qi
Florida A&M University

Carbocyclic analogs of nucleosides (CAN) acts as chain terminators to inhibit the DNA synthesis following their incorporation into growing DNA chain. Our research efforts show that CANs have significant effects on cell growth, cell cycle arrest, and apoptosis and related cell death. We have synthesized 16 novel CAN compounds and all of the new derivatives will be tested to verify whether those structural variations might alter their biological activities. Then we obtained IC50 values for all of the 16 CAN compounds in six cancer cell lines including: A549 (Lung cancer), PC3 (Prostate cancer), HCT116 (Colorectal cancer), DU145 (Prostate cancer), MDA231 (TN Breast cancer), and MCF7 (Breast cancer). Additionally, we probed the mechanism of action through cell apoptosis staining and cell cycle arrest experiments. CAN 11 was most effective for killing cells in the cell lines. Furthermore, African-American men and women have more risk factors for being diagnosed with prostate cancer and breast cancer. With this study, we hope to alleviate this health disparity by synthesizing a drug that is more specific in inhibiting these cancers.

(11) **Sensationalism of North Korea in International News Articles.**

Mae Espinosa, Allison Lang and Tatum Shannon
Florida State University

The start of 2013 brought major changes to both the Korean peninsula and East Asia as a whole, including Park Geun-Hye's election in South Korea, Kim Jong-Un's new leadership in North Korea, and Shinzo Abe's election in Japan. Since then, news stories about North Korea have received an increased amount of international media coverage. Such news articles about North Korea are often falsified or sensationalized in international media, but to what extent does this alter news representation of the nation? Media, especially online news, continues to increasingly affect foreign policy decisions and allows citizens to become more informed about events in the international community. Misinformation runs rampant when media stories, such as those about North Korea, are hard to confirm due to the country's self-isolation and lack of credible news sources. The analysis of this issue is imperative, as media bias impacts the public's perception of North Korea's presence in international politics. An analysis of online newspaper articles will be conducted by evaluating rhetorical devices present in news stories about North Korea. This interpretation of potential bias in international media coverage of North Korea could demonstrate how such bias is perpetuated globally, including in the United States, England, Russia, China, Japan, and South Korea. We are sampling one article per month from one credible news source per country starting from January 2013 to December 2015, planning to add more articles in the future as the project continues. As we are still gathering evidence, we lack definitive conclusions.

(12) **Competitive and non-competitive reality TV shows – An analysis of cognitive stimulation, interactivity, and audience engagement.**

Ana Oliveira-Beuses
University of Florida

Reality-based television programming has become a topic of interest. However, many questions about its appeal remain unanswered. For example, some have suggested that people may be drawn to such shows because they don't provide as much cognitive stimulation, thus, implicitly labeling all reality shows as low in cognitive appeal (e.g., Nabi et al., 2003). The present study set out to address some of these questions. Specifically, the following three hypotheses were tested: (1) competitive reality TV programs are more cognitively stimulating than non-competitive reality TV shows; (2) competitive reality TV shows are more interactive (i.e., involves viewer's participation) than non-competitive reality TV shows; and (3) reality TV shows of higher cognitive content and interactivity will have higher ratings. To test these hypotheses, a content analytical approach was used. Twenty five reality TV competitive and twenty five non-competitive shows were selected for the study. Each show was coded on its level of cognitive stimulation, viewer's interactivity, and its popularity rating. Cognitive stimulation was operationalized in two ways: by the level of attention the show demanded from its viewers and its linguistic complexity. As predicted, competitive reality television programs were more cognitive stimulating but only in terms of its attentional load. Competitive reality shows also offered more viewership interaction than their non-competitive counterparts. Finally, interactivity but not the cognitive content predicted higher ratings. These findings suggest that people are drawn to those reality shows that elicit viewership participation and personal involvement.

(13) **Family and Peer Influence on the Frequency of Swearing.**

Emily Simpson, Joshua Duarte and Brianna Bishop
University of Central Florida

Swearing is an act seen as taboo throughout modern culture. Even though this habit is deemed negative, many continue to swear frequently every day. The purpose of this study is to determine who exerts the most influence on one's swearing habits. Seven hundred and sixty-three university students were asked via survey who (mother, father, siblings, friends, or peers) swore most frequently during their upbringing. These questions were compared through linear regression to predict their level of swearing. It was anticipated that peers would have a more significant impact on one's swearing frequency. However, it was found that an individual's mother had the highest correlational influence on swearing; although, peers also had a significant relationship.

(14) **Intersection between CEOs' Influences and PAC Contributions.**

Esther O. Oyetoro,
Florida State University

By asking and answering questions related to corporate finance, this research is intended to further prior research that have examined the relationship between corporate finance and politics. Specifically, this research is designed to understand the important role players in firms Political

Action Committees (PACs). A PAC is a political organization that pools campaign funds from its members and donates those contributions to campaign for or against candidates and legislations. About 10% of Congressional Campaign spending is sponsored by Corporate PAC contributions, so PACs makeup a sizeable portion in political fundraising. Because PACs can be a valuable tool in a company's business strategy, board members as well as CEOs and CFOs tend to donate funds to them. The goal of this research, "Intersection between CEOs' Influences and PAC Contributions," is to quantify the degree to which CEOs and CFOs influence the decisions in the allocation of a firm's PAC contributions. By collecting data on the personal contributions of CEOs and CFOs from 1992 to date and regressing the data collected with the firms' PAC contributions while these executive managers were in office, this research aims to find an overlap (or a lack therefore) between the executives' contributions and the firms' PAC contributions. The result may reveal a reasonable correlation or the presence of a different underlying influence which in unison will add to the existing knowledge about the function of PAC contributions in corporate finance.

(15) **Social Movements and Their Impact on Modern-Day Democracies: A Comparative Case Study in Latin America.**

Shauna N Gillooly
Florida State University

This paper examines the similarities and differences between indigenous social movements in Guatemala and Peru and how they have led, or not led, to the formation of indigenous political parties, renewed support, and a call to action for indigenous representation at the national level. The outcomes of this comparative case-study take an in depth look at how social movements can create impact within modern day democracies and through examining the social movement theories of framing, collective identity, coalition building, and resource mobilization, analyzes how social movements can gain enough momentum to affect change despite substantial political, social, and geographical obstacles. The social movements in both of these nations have faced opposition from existing bureaucratic institutions, dealing with additional issues such as a lack of physical infrastructure and a deficit of centralized organization within movements. This study compares the successes of Guatemala's movement in contrast with the lack of mobilization in Peru. Lastly, this paper investigates how social movements are the first indication that some sort of representative change needs to be made, and how modern day democracies can respond to that demand and continue to evolve in order to create the most accurate forum of representation for their populace.

(16) **Individual Differences in Working Memory Capacity and the Role They Play in Performance on a Feedback v. No Feedback Vigilance Task.**

Jenny A. Walker, Ben D. Sawyer, Gabriella M. Hancock, Waldemar Karwowski, Valerie K. Sims and Peter A. Hancock
University of Central Florida

While completing a lengthy, repetitive task, individuals often experience a natural decline in performance known as the vigilance decrement (Mackworth, 1948). This phenomenon negatively impacts output, and often breeds serious or dangerous consequences. Therefore, it is important that individuals develop a metacognitive understanding of their approximate response

accuracy over time. Moreover, research highlights the importance of feedback as individuals attempt to self-monitor performance and make decisions (Helton, Dember, Warm, & Matthews, 1999; Szalma et al., 2006; McLaughlin, Rogers, & Fisk, 2008).This study will examine the role feedback plays in performance on a vigilance task, as well how those results relate to individual differences in working memory capacity (WMC). WMC is an important factor because the presence of feedback requires additional cognitive resources, which may present a challenge to those with reduced simultaneous processing capabilities. Participants will first complete a brief training for a go-no-go version of the Mackworth Clock Task, followed by a 40-minute trial. In one condition, feedback will be provided in the form of a red X immediately after one commits a false alarm, miss, or non-response. In the second condition, no feedback will be provided. Participants will then complete an Operation Span task. It is hypothesized that individuals with a higher WMC will perform better on the task than those with a low WMC in the feedback condition. At the same time, in the no feedback condition, performance will be poorer overall, with little to no difference between the low and high WMC groups. Data collection is ongoing.

(17) **Fluctuating asymmetry and molecular quality in house crickets, *Acheta domesticus*.**

Leanne Jalique, Alicia Carabarin, Mernyka Webster, Chelsea Bain, Jean Sylvain, Roudy Charles, Anton Stremousov, Kirill Stremousov, Lusanda Nogxina, Foumi Oni, Darrell Henry, Ariana Connor, Angel Tapia, Michelle Valdes, Autumn Leone and Michael Robinson
Barry University

Mate choice by females provides benefits that increase their fecundity and/or their offspring's genetic quality. A male's genetic quality is manifested through developmental stability. Individuals with better genes are less susceptible to environmental stressors and develop more symmetrically. Previous work on male house crickets (*Acheta domesticus*) demonstrated that symmetry is correlated with important traits including immune function and mate signaling. Here we test if symmetry predicts quality at the molecular level by measuring testicular protein concentration (i.e., mating quality) and telomerase activity (i.e., molecular quality). Telomerase prevents the shortening of chromosomes that occurs during replication, and telomerase activity is often inversely correlated with the rate of aging. Trade-offs are common in nature, however, and males that maintain symmetry might pay a cost via reduced telomerase activity representing a cost to the offspring (and the mates) of these males. Symmetry in the tibia and wings of adult male crickets were positively correlated indicating asymmetry is an overall phenomenon and not more or less likely to appear in structures important to mate choice (i.e., the chirp-producing wings). Testes were removed, weighed, and frozen (-80°C) in PBS before measuring protein content and telomerase activity with the TRAPEZE Telomerase Detection Kit. Males with greater symmetry had higher protein content, there was no significant correlation between symmetry and telomerase activity. If a developmental trade-off exists at the molecular level it is apparently too weak to affect high quality cricket males. (Funding was provided by the NIH-NIGMS MBRS RISE: R25 GM059244-15 awarded to Barry University.)

(18) **Abundance and Methicillin resistance of *Staphylococcus aureus* in the water and oysters of the Hillsborough River during the spring.**

Kelly Fryar, Michael L. Middlebrooks, and Bridgette Froeschke
The University of Tampa

Water quality and antibiotic resistance are both major health concerns for the Hillsborough River and research is needed for comprehensive monitoring of the environment. A previous study on the water of the Hillsborough River during the summer showed a high abundance of *Staphylococcus aureus* and a large number of Methicillin resistant strains within the population. Oysters that inhabit the Hillsborough River serve as potential vectors of disease through consumption or skin breaking contact, causing them to be important in environmental monitoring. The purpose of this study was to investigate the abundance and antibiotic susceptibility of *S. aureus* in the oysters and water of the Hillsborough River during the spring. Water and oyster samples were collected from discharge sites along the Hillsborough River between the University of Tampa and the Tampa General Hospital. Water samples were filtered according to EPA standards while the oyster were swabbed on the inside and outside. The samples were analyzed for abundance of S. aureus with comparisons being made between abundance in the water and on the oysters. The Kirby-Bauer method was used to test *S. aureus* isolates in water and oyster samples for antibiotic resistance to common drugs such as sulfamethoxazole, clindamycin, vancomycin and tetracycline. Understanding the nature of *S. aureus* in the water and oysters of the Hillsborough River could be significant in understanding the need for future water quality improvement, determining the risk of consuming or handling local oysters, and determining the best strategy for antibiotic administration in cases of Methicillin resistant strains.

(19) **Tolerance of and Recovery From Desiccation in Intertidal Pneumatophore Epiphytes in Mangrove Basin Forests.**

Elaine M. Kurr, Jayde A. Zimmerman and Kevin S. Beach
The University of Tampa

Mangals provide hard substrates that host many species of macroalgae. These communities contribute significant amounts of fixed carbon to coastal ecosystems and provide essential nursery habitat. This study examines variations in community structure, stress tolerance and photosynthetic recovery of epiphytes in basin forests in Tampa Bay, FL over seasonal, horizontal (m) and vertical (cm) spatial scales. With increased distance into basin forests, pneumatophore density and height increased providing a greater amount of hard substrate for the attachment and growth of epiphytes. Biomass per pneumatophore surface area was lowest in winter and fall, increased in the spring and was highest in summer. Distribution of the biomass was spatially complex with variations driven by vertical and horizontal trends that altered with season. Tolerance and recovery from desiccation was measures by examining changes in photosynthetic yield both during emersion events and upon re-immersion. Photosynthetic yield was measured via pulse amplitude modulated chlorophyll fluorescence every 3 minutes during drying and recovery phases of experiments. Epiphytes growing higher on pneumatophores exhibited a greater ability to maintain and recover photosynthetic activity than those macroaglae from lower zones despite only being separated by 5-10 cm. Patterns in biomass distribution are in part explained by the ability of epiphytes in this community to both tolerate desiccation during

emersion and rapidly recovery photosynthetic activity upon re-immersion with flood tides. These findings highlight the remarkable ability "simple" algae to acclimate to their respective microclimate and recovery from stresses that would be lethal to most "higher" forms of life.

(20) **Identification of six "mystery" substances using three distinct analytical techniques in a forensic science laboratory.**

Leora Hilbert, Jenna Cote and Sulekha Coticone
Florida Gulf Coast University

It is widely known that active learning exercises in analytical chemistry are used to solve real life problems that can stimulate student interest. A specific area that stimulates student interest is the application of analytical chemistry in the field of forensic science. Based on the growing interest in forensic science, this laboratory utilizes three different analytical techniques. In the present exercise, students learn to apply presumptive, mid-level, and confirmatory tests to identify six unknown over the counter (OTC) drugs (Aspirin, Aleve, Diphenhydramine, Caffeine, Lidocaine and Pseudoephedrine). These drugs were chosen based on their availability, ease of acquisition and ability to mimic illicit when these tests are performed. Students will initially perform color spot tests, followed by thin layer chromatography and then Nuclear Magnetic Resonance (NMR) to learn the identity of an unknown substance. Two different reagents (Cobalt thiocyanate and Marquis) are used for presumptive testing consisting of color spot tests. The OTC drugs are dissolved in a range of solvents for thin layer chromatography (TLC) analysis to further identify the potential drug. Finally, using the organic structures of the drugs, students would be able to determine the identity of the drug based on the NMR confirmatory test. Once all three procedures have been completed, students would have employed three categories of analytical techniques used by most forensic scientists in drug identification.

(21) **Sensing of biologically relevant anions with a luminescent europium (III) complex.**

Kayla H. Felix, Katherine Johnson and Eric J. Werner
The University of Tampa

The luminescent and magnetic properties of the lanthanide metals are highly useful in biomedical and sensor applications. Gd(III) complexes, for example, are frequently used in magnetic resonance imaging (MRI) because of their capability to enhance differentiation within soft tissue due to their effect on endogenous water proton relaxation rates. Lanthanide complexes can also be effective as biosensors, for example to sense biologically relevant anions in the body's aqueous environment. In such a medium, lanthanide derived luminescence is generally quenched due to interaction of the metal ion with coordinating water molecules. Introducing a lanthanide complex into an aqueous solution of anions thus probes the binding efficiency of the anion by way of an increase in luminescence due to displacement of quenching water molecules. In this research, a tripodal pyridine/Schiff base ligand was prepared and its metal complexes with both Eu(III) and Tb(III) were studied. The TREN-tris-imine-pyridine (TRIPy) ligand effectively binds to both Eu(III) and Tb(III) in a hexadentate manner, which allows for the binding of additional substrates in solution. The luminescence properties of Eu-TRIPy and Tb-TRIPy were observed in various solvents and anion binding studies were performed in aqueous solution to evaluate the specificity and binding efficiency of biological anions to the Eu(III) complex. Upon exposure to several anions, including phosphate, carbonate, citrate, oxalate, and fluoride, Eu-

TRIPy displayed a significant increase in luminescence only when exposed to oxalate, showing specificity that could be used in medicinal applications.

(22) **Intersensory Processing Efficiency and Language in Infancy.**

Jenelly M. Sotomayor, Kasey C. Soska and Lorraine E. Bahrick
Florida International University

Intersensory redundancy (when multiple senses receive synchronized stimulation from one multimodal event) guides infants' attention to unified sensory information and facilitates learning of properties shared across sensory streams (e.g., synchronized speech and facial movements). Intersensory processing provides a critical foundation for language development but has not yet been directly linked to later developmental outcomes, because we previously lacked fine-grained methods for assessing individual differences in intersensory skills. This project investigates the developmental relations between intersensory perception and language in infants at 6 and 12 months of age tested longitudinally. Intersensory processing was assessed using the Intersensory Processing Efficiency Protocol (IPEP), while infants' looking patterns were recorded using an eye-tracking device. In the IPEP, participants view a grid of six dynamic social or nonsocial events with a soundtrack matching one of the events, across 48 8-s trials. To assess efficiency (speed and accuracy) of intersensory processing at 6 and 12 months, we calculated the latency to fixate the synchronous target, and how frequently and for how long infants attended to the target event. Language skill was assessed at 12 months using the MacArthur-Bates Communicative Development Inventory. I anticipate that infants with better intersensory processing efficiency at 6 and 12 months of age will demonstrate better language skills at 12 months. Knowing if and under what conditions intersensory processing predicts language development illuminates a previously undocumented developmental pathway, providing a baseline for characterizing typical development.

(23) **Genes4Vaccines: A computational model that utilizes comparative genetics to identify DNA & protein sequences for novel vaccines.**

Courtney Astore, Rebecca Elsishans, David Durkee, Jason Guo, Jayk Barker, Christopher Hodge, Nicholas Kosan, Traci LaMoia and Yan Ortiz
University of Florida

With the lack of efficient treatment for many devastating infections, the emergence of multidrug resistant bacteria, and the great promise for innovative vaccine design and research with genomics, vaccine research and development is experiencing a renaissance of interest from the global scientific community. An emerging field known as 'reverse vaccinology' uses a combination of whole-genome sequencing, in silico processing, and recombinant DNA technology to develop new vaccines. Only 1 for every 5,000 to 10,000 compounds screened is approved by the Food and Drug Administration. As a result it takes a long period of time to create a vaccine that will be completely approved, 10 to12 years. During the early stages of development the risk of failure is at its highest. This is because much of early stage development is based off trial and error of different components of a vaccine. To eliminate this dated guess-and-check methodology, an algorithm, Genes4Vaccines, will aid in predicting the specific DNA and protein sequences for antigens and/or virmugens of bacteria and viruses. Genes4Vaccines can be utilized in developing novel vaccines, as well as predicting their efficacy. By collecting

mass data on biological classification properties of current vaccines, such as molecule role and protein length, from publicly available databases and developing a statistical model, it is anticipated that Genes4Vaccines will be able to decrease the time and monetary investment in the early stages of vaccine development.

(24) **Chromatin Remodeling Complex Proteins Act as Age-Dependent Regulators of the Heat Shock Response in *C. elegans*.**

Mark Noble, Andrew Deonarine, Lori-Ann Bowie, and Sandy D. Westerheide
University of South Florida

The Heat Shock Response (HSR) is a highly conserved eukaryotic stress response that relieves protein aggregation and ameliorates misfolded proteins during cytotoxic stress events to prevent apoptosis. Recent studies in *C. elegans* have demonstrated that chromatin remodeling during the transition from larva to adulthood causes an abrupt decline in the HSR. To further our knowledge as to which chromatin remodeling factors may influence the HSR in an age-dependent manner, we have performed an RNAi sub-library screen of 62 chromatin remodeling factors across the larval stages to adulthood in *C. elegans*. We then treated the worms with or without heat shock at the young adult stage or 24 hours later during active reproduction. The regulators we identified to either positively or negatively influence the HSR in an age-dependent manner include Nucleosome Remodeling Factor (NuRF) complex members, SWI/SNF family genes, and histone deacetylases. Of these hits, PYP-1, an inorganic pyrophosphatase, stood out as our strongest hit. PYP-1 negatively regulates the HSR only after the onset of reproduction. After this transition, pyp-1 knockdown causes activation of both hsp-70 and hsp-16.2 transcriptional reporters during both non-stress and stress conditions. While pyp-1 RNAi does not affect development nor lifespan, it completely eliminates reproduction. We are interested in further characterizing PYP-1 function during the transition to adulthood as a way to epigenetically regulate the HSR upon aging.

(25) **Anti-Predator Defenses of the Sacoglossan Sea Slug *Elysia clarki*.**

Kristen A. Ewen and Michael L. Middlebrooks
The University of Tampa

Elysia clarki is a species of sacoglossan sea slug endemic to nearshore habitats of the Florida Keys. They are specialist herbivores which feed on and sequester chloroplasts of green macroalgae. Several sacoglossan species are able to synthesize chemical precursors or incorporate secondary metabolites from their algal diet in a process called kleptochemistry. Sacoglossan secondary metabolites can be an important predator defense that causes the slug to be unpalatable. These compounds or their modified forms can be detected in several slug species with a similar diet to *E. clarki*, specifically in the mucous secretions. The purpose of this experiment is to identify which, if any, anti-predator defenses *E. clarki* may exhibit, when potential predators are introduced. Little is known about the predator-prey interactions experienced by *E. clarki*, if any. However, based on overlap of habitat and opportunistic diet, a potential predator of this species of sea slug is the blue crab *Callinectes sapidus*. To increase the potential of interactions, *C. sapidus* was starved for four days at a time between each trial. Where they were introduced to *E. clarki*. As the duration of starvation increased, interactions with *E. clarki* should increase if there is no deterrent or defense mechanism being employed. Instead, the

initial trials showed a trend of fewer interactions as the crab and *E. clarki* were reintroduced in persisting trials. This suggests that there is an anti-predator defense mechanism in play as the crab was less likely to interact with the sea slug after initial contact.

(26) **The effects of education on self-esteem and body image.**

Marvin Hoo, Simone Camacho, Michelle Aiello, Aaron Necaise, Alesia Albury and Mustapha Mouloua Ph.D.
University of Central Florida

College students are typically exposed to a diverse range of social interactions and educational material on sociocultural dynamics. The effects that a college education has on an individual's self-esteem and body esteem are largely inconsistent. The aim of the current study was to measure the relationship between college education and three dimensions of self-esteem: overall self-esteem as measured by the Rosenberg Self-esteem Scale (RSES), body image concerns as measured by the Body Image Questionnaire-34 (BSQ), and body image dissatisfaction as measured by the contour drawing rating scale (CDRS). Multiple aspects of college education including GPA, campus involvement, course load, and employment were considered as barometers of educational engagement. The multiple regression model for CDRS scores compared to our educational variables produced an R squared of .106 [$F(9,150) = 1.99$, $p<.05$], but only GPA entered the model ($B= -.52$, $t= -2.13$, $p<.05$). The model for BSQ scores produced a statistically significant R squared of .114 [$F(9,150) = 2.15$, $p<.05$] with only gender entering the model ($B=27.03$, $t=3.31$, $p<.01$). Results suggests that education success may moderate the effects of education on self-esteem. In addition, bivariate correlation analysis suggests that the effects of education are dependent on the gender of the student; education may impact different dimensions of a male and female's self-esteem.

(27) **Indian, Pakistani, and Native Kashmiri Perspectives on the Kashmir Conflict.**

Shreya Labh and Houman Sadri
University of Florida

Since the end of British suzerainty in South Asia in 1947, ongoing conflict over the rightful political status of the states of Jammu and Kashmir has been a primary factor in driving politics, economics, and development in the subcontinent. Disagreement between India and Pakistan over Kashmir's future has created a perpetual rivalry with consequences for both states. Three wars have been fought over developments in Kashmir and both nations' positions on Kashmir have taken precedence in the states' policy and national attitude in the diplomatic, economic, and social spheres. Today, more than ever, a resolution to the Kashmir conflict is crucial in determining the future of South Asia. With both India and Pakistan possessing nuclear weapons, any escalation in conflict could prove to be catastrophic on a more massive scale than ever imagined. Furthermore, a solution to the conflict is necessary for the well-being of the Kashmiri people, who have undergone social, psychological, and economic traumas as a result of their division and placement under hostile states. This paper will begin by providing historical context for the current state of India-Pakistan relations and the Kashmir conflict, and then develop the perspectives of three major groups involved—India, Pakistan, and Kashmiri separatists—by analyzing ideology, institutions, and influential leaders in all three groups. In doing so, the paper will also analyze potential solutions and comment on their viability and potential implications.

Thus, a tentative conclusion will be reached on the best path to avoid further conflict and enhance diplomacy.

(28) **Examining the binding of 4-nitroquinoline-1-oxide to phiX174 DNA using Mung Bean nuclease and Topoisomerase I assays.**

Elizabeth Tinoco and Stephen Winkle
Florida International University

Previous studies have suggested that the carcinogen 4-nitroquinoline-1-oxide binds to DNA with marked sequence selectivity and cooperativity and that its binding affects the reactivity of enzymes with DNA which suggests that the binding alters DNA structure. Using Mung Bean nuclease, an enzyme that recognizes regions of altered DNA structure, and Topoisomerase I, an enzyme which unwinds DNA, the binding effects of NQO on DNA phiX174 structure are assayed. To examine the effects of NQO on phiX 174, samples of supercoiled DNA are incubated with varying amounts and concentrations of NQO and subsequently reacted with either Mung Bean nuclease or Topoisomerase I. Reaction products are separated through gel electrophoresis. Interpretation of gel electrophoresis thus far shows enhancement of Mung Bean nuclease activity for DNA at [NQO]/[DNA bp] from 0.07 to 0.3, while exhibiting inhibition of Mung Bean nuclease for DNA at [NQO]/[DNA bp] from 0.7 to 3.0. Results with Topoisomerase I suggest some unwinding of DNA may be produced by NQO binding. These results suggest that the binding of NQO to DNA alters the structure of DNA and provide insight into how NQO behaves as a carcinogen. The use of enzymes in examining binding effects of highly carcinogenic compounds such as NQO on DNA suggest employing enzymatic activity is an efficient method to observe distortion in DNA. With these studies, the effects of the carcinogen NQO can be better understood and can contribute to studies attempting to combat the effects of NQO on DNA.

(29) **Occupy Tallahassee: An Analysis of Social Interactions Observed in a Localized Occupy Wall Street Movement.**

Katelyn Schulze, Dr. Jesse Klein and Daniel Lanford
Florida State University

A study regarding The Occupy Wall Street Movement's extension in Tallahassee, Florida – Occupy Tallahassee – is being conducted to analyze the interactions of those who were at the core of its structure along with how the movement itself was organized. How did the interactions between the participants affect the efficiency of the social movement? The methodology for collecting both video and audio data - which was conducted by a team of graduate researchers - consisted of attending general assemblies, protests, and public speeches in order to record the occurrences. My specific role in the research process was coding the videos through categorizing and analyzing the interactions I observed among the social movement's participants. The study led to discoveries regarding patterns within social relationships. Males tend to lead groups individually while females lead in groups, older participants were scorned for speaking up or talking too long while younger participants did not receive any backlash for this behavior, and only college-aged students who frequently attended meetings were accepted by the group. The Occupy Tallahassee Movement was merely a case study to help explain a larger issue: social movements as a whole. Practical applications of this study include understanding the differences

between male and female leadership styles, how to identify and avoid age discrimination, and recognizing the importance of teaching the organization's structure and procedures to all participants. By learning from some of the downfalls of this case we can make future social movements more efficient.

(30) **Determination of pKa and Reaction Kinetics for Fluorescent Rhodamine B Spirolactam.**

Nia Harmon and Joe Accardo
Florida State University

The ring opening reaction of a spirolactam produces a fluorescent molecule when Rhodamine B and derivatized aniline are combined. The closed form of the spirolactam is non-fluorescent, however a proton acting as the analyte is able to trigger the production of the open form. The interest of this study is to examine how the addition of different substituents affects the fluorescent properties of the spirolactam but also to quantify its kinetic and thermodynamic parameters. The behavior of chemical compounds that exhibit fluorescence is of particular importance in industry and medical science applications. Approaches to characterize the kinetics and thermodynamics are key to understanding the pKa range required for the open form to occur as well as the rate at which the reaction takes place. These parameters are critical to the development of a biological tracer that meets the requirements of the actual applications. I am in the process of completing a multistep synthesis. Purification of the sample is carried out using extraction and column chromatography followed by analysis using Thin Layer Chromatography and Nuclear Magnetic Resonance spectroscopy. However, future work includes completing synthesis and learning techniques of titration and stopped-flow to determine kinetic and thermodynamic parameters for the spirolactam ring opening reaction.

(31) **Who's making the decision? Effects of Pretrial Publicity on Jury Deliberations.**

Haley Roberts
University of South Florida

Content analyses of 39 mock-jury deliberations were conducted to explore whether pretrial publicity (PTP), in the form of negative defendant or negative victim, and type of jury (Mixed or Pure PTP exposure) affects the content of jury deliberations. The results suggest that both PTP and jury type have an influential effects on jury verdicts and jury discussion and interpretation of trial evidence. Pure juries consisting of jurors exposed to negative defendant PTP (ND-PTP) spent the majority of their deliberation time discussing facts supporting the prosecution, and rarely used facts to support the defense. While Pure juries consisting of jurors exposed to negative victim PTP (NV-PTP) spent the majority of their deliberation time discussing facts supporting the defense, and rarely used facts to support the prosecution. However, Mixed juries, in which some jurors were exposed to unrelated PTP (U-PTP) while other were exposed to trial related PTP (NV-PTP or ND-PTP), appeared to be less influenced by PTP than those who deliberated on Pure ND or Pure NV juries. In addition, this study found that PTP exposed jurors were unsuccessful at following instructions reproaching them not to discuss PTP. To conclude, this research gives insight into how jury decision making may be biased through exposure to PTP and how jury composition can influence the deliberation process.

(32) **Identification of the Fungal Symbiont in the Pine Specific Bark Beetle, *Xyleborus pubescens*.**

Morgan Hull and Jiri Hulcr
University of Florida

Ambrosia beetles are tiny wood boring insects that live inside trees and grow fungal gardens for food. This farming symbiotic relationship between beetles and fungi is not only interesting, but it also has a major impact on the health of the trees. Some ambrosia beetles and fungi, particularly the invasive and exotic ones, can cause tree death epidemics. An example is the Laurel wilt disease, a vascular disease caused by the transmission of the deadly fungus *Raffaela lauricola* by the ambrosia beetle *Xyleborus glabratus*. The epidemic is now threatening the very existence of the avocado industry in Florida. In Florida, where pines generate more revenue than all other tree crops combined, the most common ambrosia beetle specific to pine is *Xyleborus pubescen*s. Despite its ubiquitous presence and potential for damage, its fungal symbiont has never been studied. In my study, I collected five beetles from a dead pine tree on a University of Florida property. I extracted the beetle mycangium (the "fungus pocket") and isolated the fungus. The identity of the fungus was determined by extracting its DNA, amplifying an identification marker using PCR, and comparing the marker sequence to a fungus DNA database. Identification of the fungus may help us understand the mystery of this beetle; why it is so specific towards pines and whether the host specificity is a feature of the beetle or the fungus. Studying this beetle-fungal relationship may contribute to our understanding of protection and management of pine-dominated industries and habitats.

(33) **Problems of Automating a 3D Printer for Public Vending.**

Matthew Caixero, Scott Kent, Alexander Seifans and Garveen Sindhu
Embry-Riddle Aeronautical University

This research focuses on analyzing the problems that would need to be addressed in order to automate a 3D printer and have it function in a public setting. Is it possible to automate a 3D printer so that it can function effectively and efficiently for public vending? The two main areas that we examine are maintenance requirements and preventing/automating possible errors. From there we go from system to system within the vending machine to find ways to reduce human interaction and design a cost effective solution for that problem such as a system to get to the printer for maintenance and a system to store finished prints. As we design systems to solve the identified problems, we find that focusing on mechanisms that would lower regular maintenance are more efficient than complete automation. As we finish our research we continue to further automate the printer while streamlining the process of public printing through digital tools.

(34) **Emphasizing Individual Responsibility within an Undergraduate Project Structure.**

P. Augustus Galarnyk and Roxanna L. Stein
Embry-Riddle Aeronautical University

Secondary education is a chance to increase a person's independence, professionalism, and creativity. Extra-curricular organizations have the ability to inhibit or catalyze these characteristics. But can a group of students support this mindset on their own - without authoritative guidance or faculty instruction? Is a responsibility-driven organization productive

for first and second year students? The undergraduate organization at the center of this study runs an organization that doesn't take attendance, that allows students to generate tasks and goals independently of the leadership, and that encourages groups to meet only when it serves those best in order to accomplish the singular objective of building a 3D-printing vending machine. The control group for this study is another undergraduate project who takes attendance regularly, whose leadership assigns tasks directly, and whose work is achieved within a set time by the majority of the participants. This study aims to highlight the effects the different structures have on the students and their project's respective successes or failures. An original poll will be administered to both groups after each semester of participation that will allow the students to self-report on their growth. This study then compares the results of both structures and offers its criticism. The preliminary results show that a responsibility focused structure leads to more than 75% of the students reporting that their communication, time-management, and leadership skills have grown due to the project. The project also sports a 87% retention rate going from 45 to 39 in one semester.

(35) **Genotype to Phenotype: Immunophenotyping Studies in T1D.**

Roshini Pudhucode, Howard R. Seay, M.S., Kieran M. McGrail, Daniel J. Perry, Ph.D., Mark A. Atkinson, Ph.D., Clive Wasserfall, M.S. and Todd M. Brusko, Ph.D.
University of Florida

The University of Florida (UF) with UF Health aims to lead a dynamic change in healthcare by successfully closing the gap between laboratory and clinical research. The UF Diabetes Institute (UFDI) serves as the umbrella organization under type 1 diabetes (T1D) and type 2 diabetes (T2D) are researched, and education, prevention, and treatment are coordinated. There have been roughly 2,800 donors profiled within the Diabetes Institute Study Bank, contributing to a database that contains assay results for T1D-associated autoantibody detection, T1D-associated single nucleotide polymorphisms (SNP) typing, C-peptide concentration, blood glucose levels, complete blood count (CBC), and flow cytometry analysis of immune cell subsets (the human immunophenotyping panel or HIP). The overarching objective of this analysis is to develop T1D therapies for limiting autoimmune destruction that are more patient-specific than those that currently exist. Earlier this year, researchers at the UFDI concluded that significant relationships were present between the CBC-derived whole blood lymphocyte concentrations and specific SNP by analyzing genes associated with lymphocyte signaling and activation (CD226, HLA-DQB1, IL10, IL2RA, STAT4, and TLR8). These results serve as the first indication that substitution mutations do control lymphocyte populations. Although the p-values were significant (0.0181, 0.0433, 0.0381, 0.0262, and 0.0376 respectively) and worth reporting here, we expect stronger relationship once the HIP data can be analyzed and lymphocyte subsets enumerated. This will clarify which cells are more involved in T1D disease progression and be potentially correlative to the levels of autoimmune destruction of insulin-producing beta-cells in the pancreas.

(36) **City of Light: History on Stage.**

Danielle Wirsansky
Florida State University

This project looks at the effect of Holocaust Education using theatre as a medium, starting with in depth studies on the effectiveness of Holocaust education in Florida and continuing with exploration of new means for this education. Only six states in the United States have an education mandate requiring public schools to teach about the Holocaust. To test the mandate's effectiveness In Florida, where it has been in effect since 1994, random Florida resident students were asked sample basic questions such as: Which country did Hitler lead? What kind of people were targeted? Many students are hard-pressed to answer the questions. Twenty years after the Florida mandate commenced, the current generation has much fewer ties to the Holocaust. Fewer witnesses remain as a resource to new generations. The times and the needs of students have changed, but the mandate has not. To fill this gap, I started introducing the subject in new and creative mediums, using theatre to bring the events to life and enable students to interactively learn about the Holocaust. Theatre is a particularly effective way to foster change, as it engages individuals and encourages them to take action. The focus of the project was an exploration of the "lost" sham city of Paris that was built by France during WWI to mislead German bombers, through a WWII perspective. This culminated in a musical, blending history and fantasy, which will be performed for the Tallahassee, FL community in late spring of 2016.

(37) **Protein Disulfide Isomerase Prevents and Reverses the Fibrillization of Immunoglobulin Light Chain 6aJL2.**

Diego Castillo, Lucia Cilenti, and Ken Teter
University of Central Florida

Antibody light chain (AL) amyloidosis is the most common type of amyloidosis, which is caused by the buildup of amyloid (abnormal protein). The disease results from the deposition of circulating amyloid fibrils of AL in and around tissues. Protein disulfide isomerase (PDI) is known to protect against amyloid-related neurodegenerative diseases such as Alzheimer's disease and Parkinson's Disease. The primary objective of this study is to determine if PDI can inhibit and reverse the aggregation of a clinically relevant AL protein, 6aJL2. Our studies use a peptide corresponding to the amyloid-forming region of 6aJL2 and Thioflavin T (ThT), a dye that becomes fluorescent in the presence of amyloid fibers. The aggregation of 100 μM AL peptide in the presence of PDI at various molar ratios was monitored over 18 h. PDI was added at the beginning of aggregation or at specific time intervals after aggregation had already begun. We found that 1:100 and 1:200 ratios of PDI: AL peptide effectively inhibited fibril formation. Even a 1:500 ratio of PDI: AL peptide had some inhibitory effect on aggregation. Experiments still in progress suggest PDI can also reverse the early stages of aggregation at a 1:100 molar ratio of PDI:AL peptide. PDI functions extracellularly in thrombosis (so it normally works in the bloodstream). Since PDI normally works in the bloodstream, our work suggest it could possible be used as a therapeutic for AL amyloidosis.

(38) **Observations and Simulations of Electromagnetic Waves in the Van Allen Radiation Belts.**

Miles Bengtson, Morgan Matheny, Sara Rosborough and Anatoly Streltsov
Embry-Riddle Aeronautical University

The Van Allen Radiation Belts are a region in space surrounding the Earth populated with high-energy protons and electrons trapped in the geomagnetic field. These energetic particles are extremely hazardous for spacecraft optical and electronic components as well as astronauts on the International Space Station. Natural or artificial events, such as coronal mass ejections from the Sun or high-altitude nuclear detonations, can increase the number density of these particles and their energy levels by several orders of magnitude, endangering our assets in space. Therefore, it is of national security interest to develop a mechanism to remediate this radiation from space. We present one promising remediation mechanism in which electromagnetic waves known as whistlers are used to precipitate the energetic particles out of the Radiation Belts. One important property of whistler waves is that they can be guided by channels of enhanced or depleted background plasma density, a process known as ducting. To study this ducting process, we compare wave and particle observations from the Van Allen Probes Satellites to numerical simulations based on wave theory. We demonstrate quantitative agreement between the computer simulations and the observations. The results of this study will be important for future experiments of launching whistler waves into the Radiation Belts from ground stations or space platforms.

(39) **The relationship between sexual imagery in media and sexual cognitions.**

Jennifer L. McDonnell and Dr. Chrysalis L. Wright
University of Central Florida

This thesis will attempt to analyze the relationship between the visual imagery used in music videos, and the sexual cognition of viewers. Sexual cognition is the awareness of one's own sexual behavior, and its implications. The visual content of music videos is analyzed focusing only on the imagery used and the character roles portrayed. The Heterosexual Script (Jhally, 2007) in particular is observed in most music videos, highlighting the sexual objectification of women and the dominant role of the male. The relationship between the visual imagery and sexual cognitions is explored with a number of theories, namely cognitive dissonance (Festinger, 1957), cultivation theory (Gerbner et al., 1994), Objectification theory (Fredrickson & Roberts, 1997), Social Learning theory (Bandura, 2001; 2002), and that of semantic constructs. Significant results would suggest that music videos have the potential to negatively alter an individual's sexual cognition, which subsequently can lead to risky sexual behavior. These results may be of particular concern for those in their teenage years as they are years of sexual development and enlightenment, as well as those college-aged individuals, as roughly 80% of rape occurrences are on college campuses. With a power as influential as the medium of music videos, it is daunting to think what a continuation or increase in the use of such a script may stir in the minds of such aged individuals, and the possible increase in victims that may arise from this.

(40) **The Analysis of the Market for Mass-Produced Virtual Reality Technology.**

Mari Kyle
Florida State University

The objective of this research is to explore the phenomena of VR through the marketing of its developing technologies, its future opportunities, and its potential of mass production. I spent the first half of my research gathering information on current VR and immersive environment trends. The second half of my research, I began analyzing the current market of virtual reality (VR) evaluating its advertising trends to explore the opportunities of VR in various fields such as education, art, psychology, and entertainment, etc. This research will analyze the market of VR during the '90s 'Fall of VR' and compare it to the market of the present. I interviewed the nations most revered VR and computer graphics pioneers and gathered from their discussions a set of strengths and weaknesses of current technologies. I then combined this inside-industry perspective with an audience perspective (backed in the market research form of a survey) in order to accurately study the present day market. Ultimately, these studies have revealed a change in target demographic and societal interest for VR. Through my industry studies, I can conclude that VR applications in entertainment are the most influential and renowned in popular media, suggesting a change in current advertising strategy.

(41) **Computational Assessment of Information Behavioral Interaction Against Organizational Insider Threat.**

Jeremy Hickson and Hongmei Chi
Florida A&M University

This poster makes an initial attempt to simulate a corporate computing environment and to uncover hidden intent within information exchange and interaction among online social actors. The lawful interception approach will be deployed in the lab to capture data and information among social actors in online environments. We will design and simulate insider threat scenarios in a controlled lab environment. Captured data will be analyzed with content analysis, LIWC (Linguistic Inquiry and Word Count) toolkits. The preliminary results of computational approach to analyze those captured data will be presented.

(42) **Morphological Descriptions of the Lips of Canine Ascarids (Nematoda: Ascrididae) Using Scanning Electron Microscopy.**

Alexis Vedder, Wayne Price, and Stanley Rice
The University of Tampa

Scanning electron microscopy was used to describe the anterior lip morphology of canine ascarids collected from Tampa and Gainesville, Florida. All specimens contained one dorsal and two ventrolateral lips of roughly equal size. Two distinct ascarids have been noted differing in number of denticles, lip shape, and papillae number on the ventrolateral and dorsal lips. The presence of two doublet papillae on the dorsal lip and one on each of the ventrolateral lips may indicate that one ascarid species falls into the genus *Toxascaris*. The ascarid most similar to *Toxascaris* has pointed triangular lips with two pores at the anterior end of the lip somewhat distal from the midline. The presence of roughly seventy denticles on one lip is congruent with previous studies that have characterized *Toxascaris*. The second ascarid, which is most similar to

previously described *Toxocara canis*, has a rounded lip shape with two medial pores. This ascarid can have 126-140 denticles on a single lip. The dorsal lip has two single papilla and the ventrolateral lips each have a single papilla. The results suggest that the presence of a single papilla, rather than a double papillae, on each of the ventrolateral lip combined with its lip shape and denticle number distinguishes it from *Toxascaris*. Future research is needed to further characterize the posterior ends of the ascarids, especially for males, and DNA analysis can confirm the identity of the specimens.

(43) **Model of Acceptance and Use of Mobile Applications.**

Daniel Ko
University of Tampa

The usage of mobile applications has exploded within the past few years because it offers benefits such as convenience, entertainment, and social functions. More recently, the emergence of app development tools allows users to create their own mobile applications, and make a profit off of their creations. However, with the millions of apps already created, more than 99.99% of them fail (Forbes, 2014). Accordingly, the purpose of this study is to determine the process in which people adapt specific mobile applications by focusing on the characteristics of the application, the user, and surrounding environment of the user. For this purpose, two types of applications: Hedonic (fun), and utilitarian (productivity/work) will be studied.

(44) **Autonomous Satellite Recovery Vehicle (Rocket-Deployed Quad-rotor).**

Francisco Pastrana, Devonte J Grantham, and Shane Williams
Embry-Riddle Aeronautical University

Society for Space has constructed a quad-copter capable of being launched from the payload bay of a rocket. The rocket would be projected to reach an altitude of 10,000 feet and then release the quad-copter to freefall until the desired altitude of 400ft or less. The quad-copters objective will be to collect atmospheric data as it descends. While descending, the data gathered will help us to understand UAV in high velocity/altitude environments. Extensive research has been conducted for the Autonomous Satellite Recovery Vehicle research project. This project began with the reconfiguration of a DJI phantom 2 quad-rotor. The DJI phantom 2 systems were placed on a new frame that would allow the arms to fold inwards to accommodate for the space constraints of a rocket. Reconfiguration was successful and flight tests were conducted. All flight characteristics were phenomenal, but we experienced problems getting the system to function autonomously on the new frame. We also were not able to create a way to appropriately use this systems for the overall goal. More research was conducted, this time on a built from scratch quad-rotor. We researched all of the necessary components for a built from scratch quad-rotor and designed and built what we have now.

(45) **Joule-Class Free-Space Divided Pulse Amplified Picosecond Laser.**

Ahmad Azim, Benjamin Webb, Nathan Bodnar, Michael Chini, Lawrence Shah and Martin Richardson
University of Central Florida

A novel picosecond laser utilizing divided pulse amplification in active, passive and hybrid configurations is presented. Spatial and temporal pulse division up to four replicas have allowed amplification to sub-joule levels while avoiding damage threshold intensities and substantial nonlinear phase accumulation. Amplification is achieved entirely in free-space with flash lamp-pumped Nd:YAG rods. We present the first ever hybrid coherent combination of pulses with a record combining energy of 216 mJ that could be further scaled to the multi-joule level.

(46) **I 'Dune' Want to Grow Up: Analyzing Frank Herbert's Dune in Response The Death of Adulthood in American Culture.**

Abraham "Eli" Mullican
Eastern Florida State College

This research discusses of the "The Death of Adulthood in American Culture" using Frank Herbert's Dune. "The Death of Adulthood" is a discussion that began in 2014 on sites ranging from The New York Times to Vulture, and from Big Think to Reddit. This discussion centers on the decline of narratives in American Culture concerning the transition into adulthood. Beginning with A. O. Scott's ideas on the "Death of Adulthood in American Culture", alongside Warren Bennis and Robert Thomas' leadership models, including the idea of personal "crucibles", from their book Geeks and Geezers, this research seeks to determine what constitutes adulthood and to determine if adulthood within American culture is declining. This research builds upon my paper that I presented at the Popular Culture Association / American Culture Association national conference in the spring of 2015.

(47) **Time Resolved Analysis of Chromatin Structure in Response to Cocaine: a Genome Wide Sequencing Project.**

Cole Friedes, Lauren Cole and Jonathan Dennis
Florida State University

In the eukaryotic cell DNA is organized into nucleosomes: 150 base pairs wrapped around 8 basic proteins. Position and placement of the nucleosome has been shown to be able to regulate access the underlying DNA sequence. It is assumed that nucleosomal distribution and organization can affect transcription of DNA sequences, however this assumption remains untested as there are few studies that measure nucleosome distribution in response to a common stimulus. Work from the Dennis lab indicates that widespread and transient nucleosome repositioning occurs in response to cellular stimuli. In this study I present cocaine-induced nucleosome redistributions at high temporal resolution for multiple time points (0’, 20’, 40’, 60’, 120’, 240’, 480’) as determined by MNase-seq. I show that nucleosomal distribution varies across multiple loci studied due to cocaine-induced cellular stimuli. This study will be one of the first to shed light on the molecular underpinnings of cocaine genomic response. This research is critically important because it offers a description of the first step in the response of a stimulus’ impact on the human genome.

(48) **Development of a Fine-Scale Laser-Based Water Level Sensor.**

Joshua Benjamin and David Kaplan
University of Florida

Evapotranspiration (ET) is a critical, but difficult to estimate, part of the global water cycle. A variety of methods exist to measure ET, but each have their own advantages and drawbacks. In this work we focus on the potential for using diurnal water level variation to estimate ET, and propose a novel sensor to measure fine scale (sub millimeter) water table variation using a laser-based sensor. The sensor consists of a phase-shift based laser rangefinder controlled by a Raspberry Pi microcomputer, and is designed to work in a remote environment with the potential ability to be deployed for several months at a time. This approach has the potential to eliminate measurement error associated with pressure and temperature sensitivity apparent in most commonly used pressure transducers, expanding our ability to estimate this important hydrologic flux. Preliminary results indicate a high level of accuracy in comparison to a pressure based transducer, but without noise and errors associated with changing temperatures and barometric pressure. Future tests will determine the sensor's ability to be deployed in a remote environment, and will see how it fares in a complex natural system in comparison with current technologies.

(49) **A stimulating approach to therapies for spinal cord injury patients (literally).**

K.A. Schwanebeck, A. Caballero, A. De Guzman, K. Samuel, A. Sexton, V. Zhu, H.B. Denson and D.M. Baekey
University of Florida

The NSCISC estimates 12,000 spinal cord injuries annually in the United States. A majority occur at the cervical level with many resulting in respiratory impairment due to interference with brainstem generated ventilatory drive reaching spinal motor targets. The resulting respiratory insufficiency often leaves patients reliant on mechanical ventilation, decreasing quality of life as well as longevity. Diaphragm and phrenic nerve pacing have provided alternatives to some patients, but better technology is needed to allow for coordinated respiratory muscle activation and adaption to varying metabolic needs. To address this, our laboratory is using multielectrode arrays in a rodent model to define spinal respiratory circuitry while using intraspinal microstimulation (ISMS) to trigger coordinated activity of thoracic respiratory muscles. Examining the neural substrate responding to electrical stimulation is one aspect of the research being performed. The hypothesis for this portion of the project is that repeated electrical activation of respiratory efforts may have persistent neural effects that can be translated to therapeutic strategies. The idea of activity dependent plasticity is well described in several neural systems and we hope to better define its role in the spinal respiratory circuitry by monitoring ensembles of respiratory related neurons during electrical activation of the system. Initial experiments using thoracic ISMS revealed recruited cervical interneurons whose activity persisted beyond the stimulation in a dose dependent manner with respect to stimulus intensity (increased current). We suggest that these neurons are modulatory to respiration and are currently developing strategies to enhance their activity through repeated stimulus exposure.

(50) **Generation of a Novel PheS Counterselection Marker for Mycobacterial Gene Inactivation.**

Ashelyn Sidders, Carolina Felix, Sandra Geden, and Dr. Kyle H. Rohde
University of Central Florida

Tuberculosis is second behind HIV as the most deadly disease caused by a single infectious agent, infecting an estimated 1 in 3 individuals globally. However, although we discovered the causative agent, *Mycobacterium tuberculosis* (Mtb), over a century ago scientists are still lacking reliable and efficient genetic tools to investigate specific genes that are involved in virulence. Additionally, none of the counterselection methods currently used in Mtb such as rpsL can be used to make gene knockouts (KOs) in *Mycobacterium abscessus* (Mab), an increasingly prevalent cause of death in Cystic Fibrosis patients. Our lab has been developing an optimized reverse genetics strategy for mycobacteria based on restriction digest- and ligation-free cloning and a suicide vector, pFCKO for homologous recombination. The goal of this project is to further enhance this KO methodology by developing a novel counterselection marker utilizing the PheS gene, providing a higher selectivity when screening for mutants that have undergone a double crossover event. Encoding for the alpha subunit of phenylalanyl-tRNA synthetase, PheS plays an integral role in microbial physiology by incorporating the amino acid phenylalanine during translation of proteins. We will create PheS variants (PheS*) via site-directed mutagenesis which have reduced substrate specificity that will readily misincorporate the toxic phenylalanine analog 4CP into proteins during translation, leading to death. The addition of a PheS* counterselection marker into pFCKO will allow for efficient selection of desired KO mutants whom have undergone a double crossover event, eliminating the PheS*-containing vector, will be able to grow on media containing 4CP.

(51) **Analyses in Support of the WFIRST Supernova Survey.**

Miles Currie[1]; David Rubin[2], Greg Scott Aldering[3], Charles Baltay[4], Parker Fagrelius[5], David R. Law[2], Saul Perlmutter[5], and Klaus Pontoppidan[2]
[1]Florida State University, [2]STScI, [3]Lawrence Berkeley National Laboratory, [4]Yale University, [5]LBN/UC Berkeley

The proposed Wide-Field Infrared Survey Telescope (WFIRST) supernova survey will measure precision distances continuously in redshift to 1.7 with excellent systematics control. However, the Science Definition Team report presented a idealized version of the survey, and we now work to add realism. Using SNe from HST programs, we investigate the expected contamination from the host-galaxy light to estimate required exposure times. We also present estimates of purity and completeness, generated by degrading well-measured nearby SN spectra to WFIRST resolution and signal-to-noise. We conclude with a more accurate prediction of the cosmological constraints possible with WFIRST SNe.

(52) **Folkloric Structures in a Byzantine Epic.**

Ravital Goldgof and Lily Shelton
Florida State University

We are examining techniques of oral composition as they are employed in individual Greek and Slavic manuscripts of the Byzantine romantic epic Digenis Akritis and related folk songs. Each

manuscript of Digenis Akritis is radically different from the others, displaying contrasting styles of composition that ricochet between romantic literary and oral epic forms. Since its first transcription in the twelfth century, compilers of Digenis have made varying use of the oral-traditional techniques of the formula and the theme. We are studying the theme in this romantic epic. According to Albert B. Lord, a theme is defined as a "group of ideas regularly used in telling a tale in the formulaic style of traditional song" ; "a repeated passage with a fair degree of verbal or formula repetition from one occurrence to the next." The Byzantinist Roderick Beaton has explored the theme in Digenis, but limited his study to Greek texts alone: we are extending our view to the Slavic texts. We follow Lord's definition more strictly than does Beaton, and are moreover analyzing each theme into its constituent parts. Once we have catalogued and analyzed themes and formulas in all texts of Digenis, we intend to use them to deepen our understanding of women's roles and identities in the traditional cultures of the Middle East and Southeastern Europe, work begun by Angeliki Laïou in her study "Sex, Consent, and Coercion in Byzantium."

(53) **Self-Monitoring and Anorexia: Putting a Face on a Potentially Fatal Disorder.**

Sarah Cozza and Christopher Leone
University of North Florida

Since the origin of the self-monitoring construct, there has been a substantial amount of research done on the two kinds of self-monitors (Fuglestad & Snyder, 2010). High self-monitors' actions are situationally specific because they want to be socially appropriate, whereas low self-monitors behave consistently across situations in order to be themselves. There has also been considerable research on eating disorders since they were first recognized in the 1950's (Engel, Reiss, Dombeck, 2007). Comparing these two sets of findings reveals that anorectic individuals and low self-monitors share several dispositions (interested readers should compare, for example, Liley, Watson, Seah, Priddis, & Kane, 2013 and Snyder, 1987). However, no research has directly established this connection which is the purpose of our research. Using the MTurk system to recruit participants, volunteers with clinically diagnosed anorexia nervosa will complete the Self-Monitoring Scale (Snyder, 1974) which has a long record of reliability and validity. Participants will also complete a subset of the Eating Attitudes Test (EAT-26; Garner & Garfinkel, 1979) and Eating Disorder Inventory (EDI; Garner et al. 1983). These two measures are designed to assess attitudes about eating and related behaviors. We expect that compared to high self-monitors, low self-monitors will be more likely to report high levels of reservation, emotional instability, excitability, opportunism, shyness, individualism, proneness to guilt feelings, self-insufficiency, and high tension. If such differences are found, this informative will be informative to the literature not only on eating disorders but also on self-monitoring differences in mental and physical health.

(54) **Integration and Implementation of the Quine-Mccluskey simplification algorithm in an interactive smartphone game.**

Oleksii Levkovskyi and Kevin Lopez
Florida Atlantic University

Logic Design is a compulsory prerequisite course in most computer science, computer engineering and electrical engineering bachelor programs in the United States. The most popular and/or desirable outcome for undergraduate students in computer science is to secure an

industrial position where programming is required as a skill in one form or another. While the theoretical and practical aspects of the "Introduction to Logic Design" course are tailored to moderately expose the student to a broader body of knowledge, the learning curve for a programming-oriented individual persists and may pose an academic performance problem. We have designed a game for mobile devices that is designed to aid students taking the Logic Design Course in understanding the practical side of the material, namely the techniques associated with Karnaugh Maps. The objective is to make the process of simplifying Boolean expressions using Karnaugh Maps both a challenging and rewarding experience, reduced to the compact and approachable format of a smartphone game.

(55) **Stranger v. Non-Stranger Sexual Assaults in Indian Country.**

Nickolus Knowles and Marshall Jones
Florida Institute of Technology

Research focusing on sexual assaults on Indian reservations is sparse, and those that have been conducted have only utilized surveys, which don't always yield reliable results. According to the Bureau of Justice Statistics (BJS) report, American Indians and Crime (2004), 41% of American Indians were victimized by a stranger, while 59% of the perpetrators were known to the victim. In this case, the BJS relied on the National Crime Victimization Survey (NCVS) to obtain their data, not official case information. In this study, the Center for Applied Criminal Case Analysis teamed up with the Federal Bureau of Investigation and analyzed actual cases on a reservation in the Midwest. Case information was copied and coded for many variables, including stranger and non-stranger incidents. Of 434 sexual assault cases on this particular reservation, 89.86% of perpetrators knew the victim in some way, while 2.3% of the perpetrators were a stranger. The results of this study disagree with the 2002 Bureau of Justice report that stated only 59% of perpetrators knew the victim. The results of this study will hopefully bring together researchers from the BJS and other agencies to further investigate sexual assaults on reservations.

(56) **The Effects and Regulation of the Synthetic Peptide Multi-11 on Root Growth in *Arabidopsis thaliana*.**

Kiona Elliott, Dr. Kevin Folta and Dr. Zhilong Bao
University of Florida

Food production is facing various obstacles including land degradation, dwindling natural resources and a rapidly increasing population. Plant biotechnology offers a series of tools that may be used to enhance cultivation of healthy and wholesome food. A novel approach called Biologically Active Random Peptides (BARPs), offers a new opportunity to produce safe, synthetic plant growth regulators. Evidence from root elongation assays suggested that the synthetic peptide Multi-11 can influence root growth. The ability to control root growth can have profound impacts on food production, carbon sequestration and the ability to grow plants in non-conducive areas. In this study, researchers examined the effect of Multi-11 on root growth through an in depth phenotypic and genotypic study. Transgenic Multi-11 and wildtype plants were grown on ½ x MS Agar petri-plates in white, far red, red/blue and dark light conditions, measured for daily root growth, and then PCR analysis was conducted to confirm that the transgene presence matched with the root elongation trait. Our results found that there was a significant difference in the root elongation between Multi-11 and wildtype plants and on

average Multi-11 plants had longer roots. However, there was no significant difference in the root growth of positive and negative plants in the segregating Multi-11 population. This suggests that other factors in the plants may be causing root elongation, not necessarily the transgene sequence itself, thus more investigation must be completed to further the understanding of Multi-11 and the possible applications it has for improving root systems.

(57) **Live Imaging of the Genome Regulatory Factor BSF53a Gives Insight to Control of Genome Response.**

Ashley L. Ward and Jonathan H. Dennis
Florida State University

Every cell in the human body has the exact same genetic make-up and starts with the same genomic organization. Development requires the regulation and reorganization of the genome in different ways for different cell types. There are many things responsible for the changes that are made during this process. ATP-dependent chromatin remodeler proteins are an important class of genome regulatory machines. It has been shown that ATP-dependent remodeling complexes containing BAF53a are necessary for normal developmental genetic reorganization in humans. Despite the central role for BAF53a containing complexes, little is known regarding the location and concentration of these complexes in the nucleus. To shed light on the spatiotemporal activity of this protein complex, we will fluorescently tag BAF53a to track it during its response to a stimulus in live cells. We know from previous work that chromatin remodelers work in a transient fashion. Therefore, we expect to see only a fleeting association of the remodelers with the genome, which we will capture using live fluorescent microscopy. These live images will reveal the regulatory mode of the BAF53a complex during genome response. This work will lay the foundation for further research on how different chromatin remodelers interact in response to a multitude of different stimuli. This insight will be a crucial factor in understanding the complex organization of the nucleus.

(58) **The Microwave Plasma Torch.**

Ashley Windom, Michelle Miranda and Kenyon Evans-Nguyen
The University of Tampa

Mass spectrometry is one of the most widely used instruments for sample analysis. With that being said it is greatly dependent on what ionization source is used for it to function in the way that user wants it to. Ambient ionization sources developed for mass spectrometry have dramatically simplified molecular analysis. However, elemental analysis with mass spectrometry still primarily relies on complex ionization methods such as the Inductively Coupled Plasma (ICP). Microwave Plasma Torch (MPT) ionization has the potential to combine both molecular and elemental ionization. Atomic and molecular analysis could then be performed on one instrument. The current studies build on previous research using the MPT for molecular ionization, focusing on using it for elemental analysis. The MPT is a robust ion source so it has the ability to handle different compounds with little negative influences. Elemental analysis using the MPT coupled to an ion trap mass spectrometer was characterized by building a controlled aerosol generating system. Aerosols of dissolved metals were introduced into the MPT. The influence of different parameters, such as gas flow rates, gas composition, and solution flow rates, on MPT ionization were tested using this system. These parameters changed

what elements were seen and their relative intensities. The goal of these characterization studies is to move towards a fieldable MPT mass spectrometer for combined atomic and molecular analysis on-site.

(59) **Is the Doctor in? The Effects of Emigration on the Health Care Systems in Poland and Romania.**

Gabriela Wolk and Dr. Anca Turcu
University of Central Florida

The "brain drain" phenomenon encompasses the mass movement of highly educated individuals. Highly-skilled and well-educated migrants are moving to more developed and urban settings, often in search of a higher standard of living and better wages. Since joining the European Union and the Schengen Agreement, Poland and Romania have experienced significant emigration which has subsequently affected their health care systems. Motivations for emigrating from these two countries and the effects emigration has had on patients and other doctors will be considered. The paper also seeks to compare policy responses to the mass medical emigration phenomenon in both countries, as well as the outcomes of such policies. The main methodology of study throughout this project entails a comparative analysis. An analysis of Poland's and Romania's health care systems will be performed initially. The analysis includes details on the causes and factors that bring about migration, the impact that emigration has had on patients, how doctors remaining in the sending country are affected, and what social upheavals and unrest result from such emigration. Following, the levels and flows of migration are considered for each country, looking at the type of people leaving, whether educated or not, and the range of professions, with a focus on health professionals that are migrating from both countries. After an analysis has been performed for both countries, the results will be compared to one another, paying special attention to any differences and potential reasons for these differences.

(60) **Army Suicide: Number of Deployments and the Core Constructs of the Interpersonal Theory of Suicide.**

Daniel P. Hubbard
Florida State University

Suicide has been among the largest and most perplexing problems plaguing the United States of America's Armed Forces in recent years. Research using the Interpersonal Theory of Suicide as a theoretical lens has provided insight into military suicide. However, much of the current literature generalizes findings from predominantly Air Force samples, and leaves the reader questioning if the results would be similar among Army samples. The present study aims to evaluate the core constructs of ITS (i.e. thwarted belongingness, perceived burdensomeness, acquired capability) and number of deployments to understand whether patterns present in a pure Army sample align with previous samples using primarily Air Force personnel. Multiple linear and logistic regressions were conducted producing a significant regression equation for acquired capability ($p<.0001$). Significant results were not obtained for thwarted belongingness and perceived burdensomeness. Overall, the analyses yielded similar results as previous studies, suggesting that number of deployments itself may not affect the responses of individuals from different branches when considering the constructs of ITS.

(61) **Regulation of Transcription Factor Yin Yang 1 (YY1) at Serine Residue 247.**

Reema Tawfiq, Erin Apple, Myra Hurt, Ph.D. and Raed Rizkallah, Ph.D.
Florida State University

This study aims to investigate the regulation of Yin Yang 1 (YY1) through its phosphorylation on serine residue 247. YY1 is a ubiquitously expressed multifunctional transcription factor that is involved in the regulation of a vast number of genes that are essential for development, differentiation, cell growth, and programmed cell death (apoptosis). Since expression and function of YY1 are known to be intimately associated with cell proliferation, the physiologic significance of YY1's activity has recently been applied to models of tumor biology. Over the years, an extensive amount of effort has been put underway to understand and identify the regulation of YY1 through post-translational modifications, specifically via phosphorylation. Our group has identified multiple modification sites on YY1 and explored the signaling pathways regulating these sites, as well as their functional relevance to the physiological role of YY1. We have previously identified serine 247 as potential modification site on YY1. However, the signaling pathways and the functional relevance of this site are not yet known. Using a series of approaches including computational sequence analysis combined with kinase inhibitor screening we identified a candidate cyclin-dependent kinase that is responsible for this phosphorylation. We are currently confirming these results with additional approaches, such as knocking down and overexpressing the kinase. In addition, we are investigating the impact of this modification on the transcriptional activity of YY1 and its effect(s) on cell growth and proliferation. Moreover, we have preliminary evidence that the phosphorylation YY1 serine 247 could be differentially regulated in cancer cells. These findings will have a significant impact on our understanding of the deregulated growth of tumor cells and might lead to better therapeutic interventions.

(62) **The Social Nature of Cosmetic Surgery.**

Dillon Jepsen and Harry Barbee
Florida State University

The research is to provide a qualitative assessment of cosmetic surgery and to understand the transformational social process involved. Cosmetic surgery is a medical endeavor that involves a lot of self-evaluation and reflection. The purpose of this research is to identify social aspects and components of cosmetic surgery. This includes the social processes of decision-making in choosing to have cosmetic procedures performed to an individual. To reach a sociological perspective, literature reviews were focused on cosmetic surgery and stratified medicalization (specifically biomedicalization of the body). Methods of research include the coding and transcription of YouTube videos, videos that give insightful anecdotes by individuals who have undergone cosmetic surgery. This research is currently on-going and has not reached conclusive findings, and the direction of the work has not been agreed upon.

(63) **Mental Rotation with Martial Arts Experts.**

Michael E. Torres and Dr. Valerie K. Sims
University of Central Florida

This research investigated whether expertise, specifically martial arts expertise, is transferable across domains, which would indicate spatial skills in one task can also apply to a seemingly unrelated one. In this study, reaction time during a mental rotation task was compared between experts and novices. Mental rotation tasks can provide insight into spatial ability and show how people are capable of mentally transforming two and three-dimensional objects in the real world. Participants were shown two images via the computer program SuperLab and had to decide if the images were the same or mirror reflections. The images were comprised of Shepard-Metzler blocks, people in martial arts poses, and people in neutral poses. The results suggest expertise is not transferable across domains. While experts outperformed novices with some of the martial arts stimuli, there was not a significant difference with the neutral poses. Novices performed better than experts with the Shepard-Metzler blocks. This suggests experts may have embodied some of the stimuli to facilitate faster reaction times. Further research must be conducted to validate the human figures used as stimuli and to investigate if any type of expertise is transferable across domains, which could assist in the development of employee training programs.

(64) **Interface Nanoengineering to Improve Bond Strength to Low Surface Energy Materials.**

Amelia Stark and Kyle Gobble
University of North Florida

In many technological applications low surface energy plastics, such as high density polyethylene (HDPE) are bonded to metals using adhesive glues, such as cyanoacrylate. For example, many devices which interface with the body, such as implantable devices, utilize these materials. However, due to the low-energy nature of the plastic, bonding of the adhesive to the plastic is poor and the mechanical strength of the bond is low. Conventional approaches to improve adhesion like roughening of the surface do not substantially increase the adhesion and the bond strength remains low. Chemical approaches to increasing the bond strength are limited for many applications, such as biomedical devices, due to toxicity. Here, to increase the bond strength between the adhesive and plastic, using cyanoacrylate and HDPE as prototype materials, we deposit low cost refractory metal, chromium and nickel, nanorods onto the HDPE prior to bonding. Chromium is chosen due to its ease of deposition and nickel is chosen for its biocompatibility. The metal nanorods are deposited onto the HDPE using thermal evaporation under the condition of glancing angle physical vapor deposition and are then bonded to polished 304 stainless steel with cyanoacrylate adhesive. The bonded joints are tested to the ASTM D3163 standard for shear strength and bond failure mode. Results indicate that the addition of the metallic nanorods to the HDPE surface increases bond strength ten-fold. The increase in bond strength may allow for the expansion of this bonding method to applications where the strength was previously too low.

(65) **Ernest Hemingway's Religious Influences in the Writing of A Farewell to Arms.**

Kimberlee McMillin
Florida State University

Ernest Hemingway has been an integral figure in literature since his first novel, The Sun Also Rises, was published in 1926. Following its immense commercial success, Hemingway went on to write other successes including A Farewell to Arms (AFTA), collections of stories as in In Our Time, and The Old Man and the Sea. His works have influenced, in some way, nearly every contemporary writer. As such, his influences play an important role in literature today. Hemingway maintains a religious undertone throughout AFTA, and the present study addressed where these undertones originated and why they were included. Private Hemingway records, including more than two volumes of his personal letters, were used to analyze his own religious influences, both in writing AFTA and in his life. Analyses of his novels and short stories were consolidated and reviewed. Any mention of religion ("Catholicism," "Priest," "Church," or the like) was recorded and grouped by subject area. Though the project is not complete, it appears that Hemingway's main religious influence came from his second wife Pauline Pfeiffer, to whom he was married while writing AFTA. This influence contributed both to him being more religiously inclined during this period and the religious subtext throughout AFTA. The current findings suggest that Pauline Pfeiffer and her family played a significant role in shaping Hemingway's religious ideas. This influence in turn influences countless writers of today. Exploring Hemingway's timeless writing can provide insight into America of the 1920s and 1930s, and America of today.

(66) **The Effects of Recycled Crushed Aggregates on Portland Cement Concrete Mixes.**

Jose Castano, Valentina Cherednichenko, Cassandra Hitt, Daniel Tacher and Dr. Claude Villiers, Ph.D.
Florida Gulf Coast University

The main objective for this experiment was to test Portland Cement Concrete mix that used recycled crushed aggregate (RCA) as a replacement for traditional virgin aggregates. The effects of different variations of RCA were evaluated, including the effects of cured and uncured concrete. Proper curing can increase the concrete strength which is always desirable, as well as provide qualities such as durability, resistance to freeze and thaw, and resistance to deicing chemicals. A control mix was made using a mix design containing only virgin aggregates approved for use in roadways in Florida. For the RCA mixes, the aggregates in the control mix design were replaced with RCA in different variations, depending on testing parameters. Cylinders were poured for all mixes with some undergoing the curing process and others not. All cylinders were subjected to load tests after 3, 7, 14, 28, and 56 days. The experimental mix design was based off given specifications with a 2500 psi compressive strength. The first load test was performed after three days with the control mixes, both cured and uncured, taking the highest compressive loads followed by RCA-25% cured and uncured. RCA+25% took the lowest compressive strength with a 2000 psi difference from the control mixes. As testing continued, the compressive strength of both control mixes and the RCA-25% cured mix grew steadily while the other mixes showed some interesting phenomenon. compressive strength in the RCA mixes. Also, further testing can provided a deeper understanding of the variability of concrete mixes and promote further research.

(67) **Insularized Ringneck Snake Evolution.**

Thomas Carpino and Dr. Eric Hoffman
University of Central Florida

The ringneck snake, *Diadophis punctatus*, has multiple subspecies endemic to North America. Two such subspecies include the peninsular southern ringneck snake, *D. p. punctatus*, and the insularized Key ringneck snake, *D. p. acricus*. The Key ringneck snake is not federally protected, even though it is state-listed as critically endangered within Florida. The lack in protection is partially due to the fact that prior to my study, *D. p. acricus* has not been assessed at a molecular level. The primary aim of my study is to determine whether the phylogenetic data of the Key Ringneck taxon corroborates the current taxonomic classification. To do this I will assess (1) genetic divergence of the Key ringneck snake (2) mitochondrial and nuclear phylogenies and (3) haplotypes of different mitochondrial genes. Within my study, I used four mitochondrial and three nuclear genes to compare the Florida Keys and mainland populations of snakes. My results thus far suggest that the individuals from the Lower Keys are genetically distinct from any other population. However, individuals from the Middle Keys are more genetically similar to samples found in mainland Florida and are in fact not genetically distinct. These very surprising results actually contradict current nomenclature of the Key Ringneck snake concept on a whole, and thus the naming of the Keys subspecies needs to be redefined. Furthermore, this study provides valuable insights into what to do from a conservation standpoint for the survival of the critically endangered taxon.

(68) **Effect of cannibalism in frogs on their gut microbiome and parasite susceptibility.**

Lauren A. Shea, Sarah A. Knutie, Marinna Kupselaitis, Christina L. Wilkinson and Jason R. Rohr
University of South Florida

Host life history strategies can significantly influence disease dynamics. For example, cannibalism, which can be an alternative feeding strategy for animals, increases nutrients necessary for developmental processes, such as the immune response to parasites. Diet can also alter the host gut microbiome (community of bacteria) and a disruption in the host gut microbiome can affect subsequent disease risk. In our study, we tested the effect of a cannibalistic diet in Cuban Tree frog tadpoles (*Osteopilus septentrionalis*) on the frog gut microbiome and susceptibility to a parasitic gut nematode *Aplectana*. Tadpoles were fed an herbivorous diet of Spirulina (control) or a cannibalistic diet of macerated conspecifics. After 6 weeks, a subset of tadpoles were necropsied and the gut bacterial DNA was sequenced to characterize the community. Post-metamorphic frogs were then exposed to *Aplectana*. The number of worms that penetrated the skin was quantified as well as the number of adult worms that established in the gut. We found that diet significantly changed the bacterial community structure of tadpoles. We also found that frogs fed an herbivorous diet as tadpoles were more susceptible to *Aplectana* worm penetration and had more adult worms established in the gut than frogs fed a cannibalistic diet. These results suggest that tadpole feeding strategy can have a significant effect on parasite susceptibility and that a shift in the microbiome may play a role in mediating this relationship.

(69) **Revisiting Trumbo's Four Principles for Bivariate Map Color Selection.**

Georgianna Strode, Benjamin Thornton, Victor Mesev, Derek Morgan, Nathan Johnson, Evan Rau and Xiaojun Yang
Florida State University

Bivariate maps show two phenomena on the same map, potentially revealing patterns more effectively than side-by-side univariate maps. It is important for mapmakers to know their map's purpose, and bivariate maps deserve the same careful planning as univariate maps. However, a lack of thoughtful usage of color during the design of bivariate maps challenges their usability as readers are forced to constantly refer to the legend to interpret the map. This paper proposes to operationalize Trumbo's (1981) Four Principles of thoughtful bivariate map construction by explicitly using color to support the map's purpose.. A well designed bivariate map can answer one of three types of questions, with each question type using a different arrangement of colors to focus attention on the appropriate data. Color theory and basic cartographic techniques were used to test and prove our theories This research interprets Trumbo's ideas of first determining the map's purpose and second selecting suitable color arrangements to direct focus for that purpose. Lastly, there are practical guidelines for implementing Trumbo's ideas for contemporary GIS purposes. Our results include a framework that allows cartographers to more effectively represent data on a bivariate map through certain color schema depending on their map purpose and data behavior.

(70) **Characterization of Basigin, TLR4 & MCT1 gene-product expression in murine myocardium.**

Grace E. Morse and Judith D. Ochrietor, Ph.D.
University of North Florida

Obesity is a condition exhibiting systemic effects that include hypertension, diabetes, and atherosclerosis. It has been determined that adipose tissue expresses immune molecules that may contribute to these effects. The long-term goal of this study is to examine the effects of obesity and inflammation in the murine myocardium, specifically examining potential biomarkers to predict cardiovascular disease. Previous reports establish Basigin, a glycoprotein member of the immunoglobulin superfamily (IgSF), as a heterotypic cell-adhesion molecule expressed in two splice-variant forms. Toll-like receptor 4 (TLR4), a pattern-recognition receptor, has been reported in murine myocardium during the onset of inflammation and ischemia. Monocarboxylate transporter 1 (MCT1), a proton-linked lactate transporter, has also been reported in murine myocardium during vascular remodeling following atherosclerotic conditions. Studies by this laboratory and others suggest that Basigin variant-2 and MCT1 interact to form a lactate metabolon between retinal Müller and photoreceptor cells. Therefore, the purpose of this present study was to investigate the relative expression of Basigin, TLR4, and MCT1 gene-products in murine myocardium. Murine myocardium was obtained via an accepted protocol and protein lysates were generated. Enzyme-linked immunosorbent assay (ELISA) was utilized to determine the relative expression of Basigin, TLR4, and MCT1 in murine myocardium. The presence of Basigin, TLR4, and MCT1 gene-products was confirmed at a level significantly greater than the negative control, bovine albumin serum (BSA). We concluded that expression of Basigin, TLR4, and MCT1 in murine myocardial tissue indicates their potential for use as immunological and metabolic, biomarkers for cardiovascular disease, respectively.

(71) **Ceramic and 3D Printing.**

Ediel Dominguez and Anna Calluori Holcombe
University of Florida

My research is based on the use of modeling software in junction with 3D printers in order to create ceramic artwork not easily attainable through traditional building methods. In theory, modeling on a computer allows for more efficient designing of intricate objects that can be turned into physical models through the use of a 3D printer. These models are then turned into molds for slip casting. Slip casting is the use of liquid clay to form a hallow clay piece within a plaster mold. The mold absorbs the excess water from the liquid clay and leaves a layer of solid clay within its walls. When the plaster mold is taken apart, a finished clay piece is revealed. Through this process I will to create a body of work that expands on our ability to create as artists and illustrates how these technologies are capable of being used for low volume production.

(72) **Comparison of Quantity and Overall Quality of Trace DNA Evidence Collected from Substrates Found at Crime Scenes.**

Chad Hogan and Dr. Sulekha Coticone
Florida Gulf Coast University

The ability to recover high quality DNA samples from a potential crime scene is paramount in the field of forensics. Crime scenes are highly variable settings that differ in layout and the types of surfaces found in them. The amount of recoverable DNA may differ based on the porousness and other distinguishable characteristics of the surface that is swabbed. Samples were prepared by depositing a known amount of saliva on various surfaces, followed by periodic swabbing of the surfaces at timed intervals. Insight into differences in recoverable DNA concentration due to surface characteristics (e.g. wood flooring, ceramic tile, plastic, granite, glass, and brick) was achieved through quantification of DNA by UV spectrophotometry. The extent of DNA degradation was determined by PCR followed by capillary electrophoresis using an ABI 310 instrument. Preliminary data after five months indicates the most DNA was recovered from the tile sample whereas the brick sample gave the least amount of DNA. The DNA obtained from the glass sample was also least degraded based on DNA profiles obtained from capillary electrophoresis. The results of this experiment will aid crime scene analysts with knowledge of the most desirable location to retrieve sufficient DNA samples at a given crime scene.

(73) **Study on The Molecular Taxonomy of Plants Species Using DNA Barcoding.**

Kevin Sanchez Jimenez and Eunice Laurent
Valencia College-West Campus

Plants provide the fundamental elements that make life on Earth possible. Yet, there are still a wide variety of unknown plant species that are unidentified. Luckily, Plant Taxonomy, the science that finds, identifies, describes, classifies, and names plants, has been paving the way to a more studied environment. In recent years technological advances (DNA Barcoding) have been made widely available to the public, therefore, giving individuals the opportunity to aid in the ongoing effort to increase the number of known plants in our environment. The aim of this study

was to use DNA Barcoding to research the molecular taxonomy of a variety of plant species collected at Valencia College. The research for this project was completed on *Kigelia africana*, commonly known as Sausage Tree. After obtaining the sample, the DNA was isolated, amplified, and afterwards shipped out to be sequenced by GENEWIZ. Once the sequenced DNA was obtained, the consensus was blasted using the data bank of the National Center of Biotechnology Information (N.C.B.I.). Results from the N.C.B.I. data bank illustrated that the closet match of the blasted DNA sequence was to *Kigelia africana*, with a 92% match rate. In conclusion, the N.C.B.I. blast illustrated gaps in the matches, specifically 10 out of 507 (1.97%).

(74) **Understanding adaptations to a water-scarce environment in the epiphytic species Tillandsia recurvata.**

Jaimie Kittle, Arnold Morales, Montana Knight and Takashi Ueda
Florida Gulf Coast University

Since the substrate upon which many epiphytes grow often will not retain accessible water, these epiphytes have developed numerous mechanisms that can enhance the efficiency of water uptake and retention for survival in conditions that often mimic those during drought. *Tillandsia recurvata*, commonly known as ball moss, is a Bromeliad species native to Southwest Florida, where long periods can occur with little rain. To better understand how *T. recurvata* has adapted to its environment, we conducted a three-part study. First, we observed the species' water retention by placing twelve collected samples in a desiccator and taking leaf cuttings every seven days for 35 days. This was evaluated using time series analysis to determine that *T. recurvata* has a relatively slow rate of loss in moisture content. Second, we observed water uptake via the trichomes, an exterior structure covering nearly the entire plant. Plants were exposed to dye, and quick-sections taken over time, showing water movement and how trichomes are an important mechanism in water uptake. Third, molecular studies were carried out involving a gene coding for a stress-related antioxidant, 1-Cys peroxiredoxin. This gene was considered since it is highly similar to a vegetatively-expressed gene found in the desiccation-tolerant species *Xerophyta viscosa*. Current research focuses on the cloning of the gene sequence and the analysis of its vegetative expression by RT-PCR. This work can help us understand responses of plants to lack of water, which has become an important consideration for drought resistance in crops.

(75) **A comparison between age, growth, and maturity of the United States' Graysby grouper (*Cephalopholis cruentata*) and Coney grouper (*Cephalopholis fulva*).**

K.M. Lo[1], W. Bubley[2], T.I. Smart[2], M.J.M Reichert[2]
[1]University of South Florida and [2]SCDNR

The Coney (*Cephalopholis fulva*) and Graysby (*Cephalopholis cruentata*) are small groupers rarely found along the southeastern United States coast. They were sampled from Cape Hatteras, North Carolina to Cape Canaveral, Florida. From 1993 to 2013, 46 Coneys and 71 Graysbies were obtained mostly from fishery-independent sampling methods using chevron traps and fishery-dependent sampling. Information concerning the samples were recorded, and the sampled fish had otoliths and gonads extracted, processed, and sectioned to examine. Each specimen was aged by counting the amount of opaque annuli present on the corresponding otoliths and reproductive tissue were examined under a compound microscope to determine the sex and reproductive phase that the specimen was in at the time captured. Von Bertalanffy curves were

created for the Coney and Graysby along with other graphs using the parameters provided. It was concluded that Coneys grow faster and mature at an earlier age and length than the Graysby. The Coney may also grow to a larger maximum size. Annuli seemed to be laid in July for both species. Although times of transitioning and developing were similar, the length of the spawning period differed when both the females and males of the species were compared. It was also discovered that the spawning (phase 3) and appearance of vitellogenic oocytes and 12-24-hour-old postovulatory complexes (POC) (phase C) in the gonads occurred earlier than in the Graysby's. Further research needs to be completed to confirm the conclusions of this experiment.

(76) **The Cytotoxic Effects of Daidzin on H-460 Lung Cancer Cells.**

Ricardo J. Vallejo and Roslyn N. Crowder
Stetson University

Daidzin is a phytoestrogenic isoflavone found in soy seen to have anti-cancerous effects on in vitro studies with skin and bladder cancer. However, there is little evidence showing whether it confers a cytotoxic effect on lung cancer. The purpose of this project was to investigate the effect of Daidzin in human lung H-460 cancer cells and to investigate whether it induced cell death. H-460 cells were treated with 10, 25, 50 and 100μM of Daidzin for time points of either 24 or 48 hours. Cell viability assays, Coomassie Blue and CCK (Cell Counting Kit) were performed in order to investigate H-460 lung cancer cell death and whether cellular metabolic activity was affected. The results showed that there was a positive correlation between the amount of dead cells and the treatment concentration, although only significant at the highest concentration of 100μM. Thus, the findings of this study pave the way for further investigations on treating H-460 cells with Daidzin concentrations and looking into apoptotic assays in order to determine if the reagent induces programmed cell death.

(77) **Effects of Fetal Bovine Serum in Growth Media on Puerarin-induced Jurkat Leukemia Apoptosis.**

Kenneth John Massa and Dr. Roslyn N. Crowder
Stetson University

This study evaluated Puerarin-induced apoptosis on Jurkat leukemia cells grown in media containing various concentrations of Fetal Bovine Serum (FBS). Puerarin is an isoflavanoid derived from the root of the Kudzu plant (*Pueraria lobate*) in Southeast Asia and has been used in many in vitro and in vivo studies over the past century (Dubey, 2008). We investigated the ability of Puerarin to cause cell death in Jurkat cells over a 12-week period. Puerarin-induced Jurkat cell death in a dose-dependent manner within media supplemented with 5% FBS in comparison to media supplemented with 10% FBS. Due to the fact that Puerarin was dissolved in Dimethyl Sulfoxide (DMSO), we performed additional experiments to examine the effect of DMSO on cell viability. Large volumes of DMSO did increase Jurkat cell toxicity. We also observed that more active Puerarin was present in growth media that contain lower concentrations of FBS. The addition of the glucose in Puerarin's chemical structure adds an additional level of complexity, lessening the amount of available Puerarin to interact with the cells. The cytotoxic effects of Puerarin were increased at 5% FBS compared to 10% FBS, yielding a p-value less than .05. Experiments performed with a Muse Annexin V Dead Cell Kit Assay and Muse Cell Cytometer were used to collect data with the use of Puerarin ranging from

200μM to 400μM concentrations and a time period of T=24 hr. In all, when assessing Puerarin's ability to induce Jurkat cell death, one must consider these external growth media factors.

(78) **The Importance of Financing and Marketing for a Non-Profit Organization in a Competitive Market.**

John Permenter, Kimberly Reid and Latika Young
Florida State University

Not for profit Organizations must rely on traditional business techniques in order to succeed in their competitive markets. In order to finance their own activities; whether it be education, community restoration, service, or global health, they must adapt and thrive as if they were a for profit business. With over 1.5 million non-profit organizations currently active in the United States alone, the competitive market often leaves the smaller non-profits unable to carry out their services. The competitive market that Non-Profits thrive in consists of competing for volunteers, donations, and grants. We can all name the larger organizations such as Humans Rights Watch, Doctors without Borders, or American Red Cross, simply because they built large corporation-like entities that absorbed their competition. My research, however, will focus on specifically International grass-root organizations in third world countries that are receiving less than 15,000 US dollars a year in donations, grants, etc. I spent three months this past summer interning on the marketing team of a non-profit organization located in Playa Samara, Costa Rica. Here I studied and learned the keys for a non-profit organization to compete against similar organizations in the region when only a limited amount of resources were available. By studying other organizations models and researching successful approaches, I have concluded a list of necessary methods used to become a thriving and healthy non-profit in today's world. A successful non-profit stems from happy investors, a happy community, and ultimately a fruitful mission.

(79) **Can Independent Redistricting Commissions Lead Us Out of the Political Thicket?**

Barry Edwards[1], Angel Sanchez[1], Tyler Yeargain[1], Michael Crespin[2], and Jessica Hayden[2]
1University of Central Florida and [2]University of Oklahoma

After much litigation, the United States Supreme Court has finally ruled in Arizona v. Arizona Independent Redistricting Commission that it is constitutional for citizens to create independent redistricting commissions (IRC) to draw their legislative lines. With the constitutional question settled, we are now left with the practical question: Do IRCs work? To answer this question the authors discuss the problem of gerrymandering and gridlock, which IRC attempt to resolve, as well as Arizona's response to this problem; clarifies what constitutes an IRC; evaluates empirical data and political science literature; and analyzes how IRC-drawn maps have faired in litigation. The outcome is a mixed picture among the different states, but with positive results in terms of increasing competitiveness and respecting basic constitutional principles. A final note is made regarding states that are in a position to benefit from the recent Arizona v. Arizona Independent Redistricting Commission decision.

(80) **Building a Trustworthy Robot.**

Peter Hancock, Nicolette Leibowitz, Kimberly Stowers, Jacob Stawicki and Anjelica Doriety
University of Central Florida

Trust in robots is crucial in medical, military, and everyday environments because we rely so heavily on the aid of robots in many situations. In order to rely on robots, we must trust them. Previous research has shown color to be a significant predictor of perceived approachability, playfulness, aggressiveness, professionalism, and masculinity, but there is currently insufficient research on color's relation to trust. This proposal aims to assess attitudes about robots and investigates how robot appearance, specifically color, relates to trust. As part of a larger study, participants' perception of robot color will be examined. We intend to examine what similar robot characteristics participants employ when asked to build a "trustworthy" robot using simulated robot software; we propose that similarities in color across participant built robots will be found. In order to account for individual differences, participants (200 college undergraduate students) will complete an array of surveys measuring their attitudes toward robots prior to creating a robot on a computer simulation called V-Rep. V-Rep is a fully-customizable robot simulator in which each object can be individually controlled. Participants will watch a fifteen minute tutorial which explains in depth how to use the simulation. After completing the surveys and training, participants will be asked "What do you think a trustworthy robot looks like?" and will be prompted to build a robot that resembles this in a fixed amount of time. Participants will then be given two post surveys regarding robot color and other characteristics they find trustworthy in a robot.

(81) **Diverse Leader Identity.**

Jasmine Richardson, Kathy Guthrie, Ph.D., and Vivechkanand Chunoo
Florida State University

The purpose of this project is to investigate the leadership identity development of students from diverse backgrounds in higher education. In institutions of higher education, leader identity is understood to be influenced by the development of student's self certain leadership skills. The leadership identity model described by Komivas, et al. (2005, 2006) provided a conceptual framework for this project. The model illustrated the cycle of developmental influences that are essential to the understanding of what contributes undergraduate leadership development; the leadership perspectives of students with diverse backgrounds; and the policies, programs, and practices that are effective in developing students into future leaders. The qualitative data collected for this project originated from interviews and focus groups with current Florida State University student leaders from different backgrounds in different stages of leader identity development. The final results will detail insights gained from students and enhance our understanding of undergraduate leader identity development.

(82) **Are we what we eat? A statistical study of the effect of nutrition in early childhood on societal economic development.**

Andrea Jo and Dr. Alfonso Rodriguez
Florida International University

The ability to fulfill personal and professional potentials is based on more than will. Nutrition and adequate care at a young age have widespread consequences for economic and social development. While basic medical and nutritional care is understood to be important, developing communities do not have direct access to these programs offered by state. This paper investigates whether nutritional status at early age, as measured by the availability and access to age-appropriate foods, affects the society and economy years after by using panel data from three continents: Central America, Asia and Africa. It also takes into consideration contributing family- and community-level factors. Does malnutrition in the early childhood stage detrimentally affect societal economic development? The answer to this question is the essence of public policy for early child development state programs due to the long term consequences of poor childhood nutrition. Widespread understanding of the relationship between economic development and schooling has overshadowed that between economic development and health. A positive correlation between health and economic prosperity has been widely documented, but the extent to which this reflects a causal effect of health on economic outcomes is very controversial. This statistical study will cover a mathematical approach to understanding the correlation values for each variable. The methodology covered in this study will be multiple regression analyses of international databases collected by the World Bank and UNICEF (United Nations Children's Fund). The established statistical process will estimate the relationship among variables from Costa Rica, Pakistan, and Ghana.

(83) **Photovoice Methodology: Examining Serious Relationships in which One Partner has a Mental Illness.**

Amanda Rio
University of South Florida

This research documents and presents examples of relationships where one partner has a diagnosed mental illness and the efforts made by partners without a diagnosed illness. Using photovoice methodology, this research aimed to gather photographs that depicted situations, such as dates, and living spaces of the couple. Over the course of a week, partners without a diagnosed mental illness were told to take 8-10 photos that would represent their relationship and depict how their relationship may differ from traditional relationships. After one week, the photos were returned and an interview was set up with only the partner without the diagnosed mental illness. Through interviews, it was found that the partner without a diagnosed mental illness had a lot of knowledge about their partner's struggles and were very accommodating to their habits and issues. Partners were also aware of their role in the relationship and understand the difficulties and sacrifices of being in this non-traditional relationship. These results tell us that while these relationships are supportive and understanding, they can be difficult and need patience and reassurance often. The illnesses do effect the relationship for both partners, causing irrational lows but also great support and trust. Mental illness is prevalent in our society and more research should be done on this topic.

(84) **Identifying and Evaluating Degenerative Joint Disease in the Lumbar Vertebrae of the Archaic Windover Population.**

Alyssa Frey, Florida State University Dr. Geoffrey Thomas
Florida State University

Degenerative Joint Disease (DJD) is one of the most common pathologies found in skeletal collections; it is a consequence of the stresses of walking bipedally. The goals of this study were to identify and evaluate aspects of DJD in the lumbar vertebrae, and draw a conclusion about the symmetry of vertebral arthritis between the sexes, and the age groups in the Windover population. Using the data collected, an evaluation scale used by Harriet Smith in 2008, based on the assertions put forth by Bridges, Waldron (1991,1993, and 1994) and Rogers (1991) for scoring DJD, was used to identify and evaluate the extent of DJD. In a previous study, it was established that the population was both sexually dimorphic, and asymmetric in the upper limbs based on sex (Thomas 2011). These results lead us to hope there might be signs of asymmetrical wear on the lumbar vertebrae of the same population, especially due to their sexual dimorphism. However, there were no significant differences between the sexes, or the age cohorts. What can be concluded is that due to these findings in regards to age, the younger generation of both men and women were under enough physical stress to create DJD in the younger generation. DJD was found in all age cohorts. While others found significant differences in the presence of DJD in other joints according to sex or age, it could be concluded that the lumbar vertebrae does not absorb the same "mini" traumas that create this habitual DJD.

(85) **Fortune Telling and the Excludability of Religious Freedom.**

Charles McCrary and Nicole MacMillan
Florida State University

Religious freedom has been a hallmark of American democracy since the ratification of the United States Constitution. However, have we been too cavalier in our assumption that religious freedom has been a universal liberty for all American citizens across time? Before the advent of the "sincerity test", in the eyes of the legal system, there were two categories of "knowledge". "Secular knowledge" was state-validated truth (like science) and "religious knowledge" was unfalsifiable, but protected under the first amendment. Therefore, this research postulates that before the advent of the "sincerity test", there was a third category, "superstition", subtly yet critically different from the category of "religion" that included beliefs that were labeled untrue, yet just as unfalsifiable as state recognized religions. These "superstitions" were then not protected under the first amendment, because they were branded as "false". This was not a stipulation for religions such as Catholicism. To support this postulation, this research analyzed primary sources and secondary accounts of the prosecution of fortune tellers. It analyzed the court cases of People v. Ashley and Davis v. State to support the notion that religious freedom was not universal, but exclusionary. Even though most of these defenses pleaded the first amendment, they were not acquitted. This research then concludes that, the knowledge binary in the legal realm was never truly "religious" or "secular", but actually "true" or "not true", where both were determined by the state, but the truth was protected by the state and the non-truth was not protected.

(86) **The Physiological and Behavioral Effects of Sleep deprivation: An Integrated Analysis.**

Christopher Sarmiento, Lauren D. Hill, Maggie Lorenzetti, Ana I. Fins, Travis J. A. Craddock and Jaime L. Tartar
Miami Dade College

Sleep deprivation (SD) impacts various aspects of health and behavior. Behaviorally, SD decreases cognitive performance and increases emotional instability. Physiologically, SD alters immune and endocrine processes. However, the findings on the physiological changes after SD are inconsistent. For example, some studies report decreases in immune functioning after SD while others do not. Through examining changes across behavior and physiology, we aimed to move beyond the typical single marker approach show the integrated effect of SD on humans. To that end, 23 participants (14 males) were tested during a baseline session and after 1 night of SD. In addition, typical sleep behavior of participants was assessed through 1w of actigraphy recordings. During baseline and the SD day (0700-0830), participants were tested on a series of clinical health measures, a suite of cognitive tasks, measures of hunger and satiety (ghrelin and leptin), HPA axis functioning (cortisol), and inflammation (IL1-β, IL-6, CRP). Findings from this study showed system-wide changes. There was a significant decrease in cortisol with a related increase in inflammation markers IL-6 and CRP, but no change in leptin or ghrelin. There were also deficits in cognitive task performance after SD and increased mood disturbance. Changes to behavioral and physiological measures were analyzed independently and in combination. Combined, these findings advance the understanding of the deleterious effects of SD by demonstrating systems-wide changes in humans after SD. These findings are particularly relevant for understanding the potential health costs in careers that commonly involve SD (e.g. medical professionals and military personnel).

(87) **Analysis of the expression of the Basigin subset of the immunoglobulin superfamily in mouse brain.**

Tavia N. Hall and Judith D. Ochrietor
University of North Florida

Basigin gene products are members of the immunoglobulin (Ig) superfamily and are structurally related to immunoglobulin molecules. Basigin protein possesses two extracellular Ig domains, a single transmembrane domain, and a cytoplasmic tail, whereas the splice variant Basigin-2 protein possesses three extracellular Ig domains, a single transmembrane domain, and a cytoplasmic tail. There are two other members of the Basigin subset of the Ig superfamily – the Neuroplastins and Embigin. Neuroplastin gp55 and Embigin are similar in structure to Basigin and Neuroplastin gp65 is similar in structure to Basigin-2. All five of these proteins are cell adhesion molecules within neural tissues and play various roles in development, structure, and function of those tissues. The purpose of the present study was to analyze the expression of the Basigins, the Neuroplastins, and Embigin during the development of the mouse brain. Mouse brains were obtained using an accepted protocol and RNA was isolated for use in quantitative reverse transcription polymerase chain reaction (q-RT-PCR) using primer sets specific for Basigin gene products, Neuroplastin gene products, and Embigin. The values obtained were normalized to 18s rRNA. It was determined that Neuroplastin gene product expression is ten times greater than that of Basigin or Embigin. Their relative expression levels remain the same throughout the life of the mouse. These data suggest that Neuroplastin gene products have a

more prominent role in the structure and function of the mouse brain than the other two members of the subset of the Ig superfamily.

(88) **Baseline Study for the Identification of Intestinal Parasites in Gopher Tortoises Found in Blazing Star Preserve and Pine Jog Preserve.**

K. S. Haizlett, J. Huffman, E. Frazier, Ph.D. and J. Caruso, Ph.D.
Florida Atlantic University

Gopher tortoise (*Gopherus polyphemus*) populations are diminishing in South Florida due to fragmentation of habitats as a result of urbanization. As a keystone species, gopher tortoises have important ecological roles. The goal of this study was to establish a baseline of intestinal parasites in two South Florida populations. One population resides in a fragmented and non-fire maintained site, Blazing Star Preserve, and the other in a fire maintained site, Pine Jog Preserve. Fire is a natural factor in these habitats reducing canopy cover and killing parasite eggs. The lack of fire in Blazing Star can lead to overgrowth of vegetation, forcing tortoises to crowd where lower vegetation is found. We hypothesize that tortoises from Blazing Star will have a higher degree of intestinal parasites, when compared to those from Pine Jog due to potential crowding. Data is currently being collected, and may provide insight to improve future management and conservation practices.

(89) **Effects of various journal writing prompts on subjective ratings of stress.**

James Oskam, Kate Barber, Alison Long, Maggie Harding and Dr. Shannon Whitten
University of Central Florida

Numerous studies have demonstrated the benefits of expressive writing on recovery from physical and emotional trauma (Pennebaker & Evans, 2014). The present study expands these findings by investigating non-traumatic stress, the effects of short versus longer-term writing, and by directly comparing several different writing prompts. Participants first took a battery of personality and demographic surveys. Following this, they rated their stress level on a scale of 1-10 and then were randomly assigned to 1 of 5 writing prompts: 1) Expressive - write about emotions 2) Creative - write in a fictional or poetic fashion 3) Reflective - analyze the problem and possible solutions 4) Open – participant's choice of prompt and 5) Control - describe the events of the day. They were then instructed to write for at least 15 minutes, after which they again rated their stress level. Finally, participants were given a link to return to the same writing prompt. A 2 (stress ratings before and after writing) X 4 (writing session number) X 5 (prompt) mixed model ANOVA was performed. There was a main effect of short-term stress such that self-reported stress was reduced after each writing session from an average of 3.64 (SE = 0.18) to an average of 3.09 (SE = 0.19). Additionally, initial stress ratings decreased over the first 4 sessions to a statistically significant degree, $p = .017$. Further, The session X prompt interaction was marginally significant $p = .06$, revealing that some prompts worked better across sessions.

(90) **Executive Functioning and Response to Intervention: Project KIDS.**

Mia C. Daucourt and Sara A. Hart
Florida State University

Recent achievement research suggests that executive function (EF), a set of regulatory processes that control both thought and action and enable an individual to work toward a goal and make judgments in novel situations, has a moderating effect on academic achievement. Additionally, recent research has suggested that children's individual traits moderate how they respond to educationally-based interventions. This project examines EF and its components—Inhibition, Updating Working Memory, and Shifting—as potential moderators of response to intervention. Method. The participants in this study were 440 children who participated in the questionnaire portion of Project KIDS, a broader project including approximately 3500 kindergarten to third grade children who had previously participated in one of nine different school interventions. EF and its three sub-components were measured by the BRIEF parent-rating form and tested as predictors of response versus nonresponse to intervention. Response to intervention was operationalized categorically, where "non-response" was defined as the bottom 25 percent of students and the remainder of students were considered "responders." Using Proc Glimmix in SAS 9.4, a logistic regression was performed in an HLM framework, where each of the EF factors was used to predict response versus non-response, while controlling for classroom-level nesting. Results. All EF measures were statistically significant predictors of response status, with the best predictor being the EF component of Shifting. Discussion. We will discuss the results, focusing on the implications of the EF and its components' influence on the different operationalizations of response to intervention.

(91) **Preserving and Promoting University History: Exploring Emerging Heritage Programs.**

Kelly Scandone
Florida State University

Universities are some of the oldest institutions in the nation but they are hardly considered by everyday individuals to be sites of history and heritage. Universities have only recently taken steps to preserve and promote their rich history on campus and online. This research looks at four universities across the southeastern United States with unique approaches to this issue: Florida State University, the University of Georgia, The University of Alabama, and Flagler College. Through online research and the visitation of these universities, this research documents and analyzes the methods implemented by these institutions. This is to evaluate methods currently in place and to explore ways in which these methods can be improved. In conducting this research the growing importance of preserving and promoting history and heritage on college campuses was clear. While these universities have made tremendous advances with their on campus methods, the implementation of more interactive and informative online methods is needed.

(92) **Regulatory Focus, Perceptions of Value Similarity, and Romantic Relationship Quality.**

Alec Gallion and Dr. Paul Fuglestad
University of North Florida

Research indicates that attitude and value similarities are important with regards to attraction and relationship development (Luo & Klohnen, 2005). Regulatory focus theory (Higgins, 1997) proposes two self-regulatory orientations: promotion focus, related to fulfilling aspirations and maximizing gains, and prevention focus, related to fulfilling responsibilities and avoiding losses. Furthermore, Fuglestad and Gallion (2015) found that people higher in promotion focus more often endorsed values associated with openness to change, whereas people higher in prevention focus more often endorsed values associated with conservation. Building on these findings, the present study aims to examine the relation of value similarities with romantic partners to relationship quality through the lens of regulatory focus. Participants completed the IPIP Regulatory Focus Scale (Fuglestad et al., 2014), the Perceived Relationship Quality Components Inventory (Fletcher et al. 2000), and the Schwartz Value Survey (Schwartz, 2006) from their own perspective as well as the perspective of their romantic partner. It is anticipated that people will be more satisfied when they perceive agreement regarding important values and experience more dissatisfaction when there is disagreement. For promotion focused people, values related to openness to change are expected to be most related to relationship quality, whereas for prevention focused people, values related to conservation are expected to be most related to relationship quality.

(93) **Comparative Computational Analysis Of Phylloplanin Proteins Present in Different Plant Species.**

Joanna Burr and Padmanabhan Mahadevan
The University of Tampa

This investigation aims to determine the evolutionary lineage and variation present between phylloplanins present in different plant species. Phylloplanins are highly hydrophobic, basic proteins secreted on the leaf surface (phylloplane) to inhibit spore germination and leaf infection via pathogens. Proteins annotated as phylloplanins were used to search the Genbank protein database for other phylloplanins and phylogenetic trees were constructed from these results. Protein domains were identified in these phylloplanins proteins using the Pfam database. Of the twenty-nine proteins annotated as phylloplanins, ten matched with the Pollen_Ole_e_I family, and the other nineteen did not produce any matches. The Pollen_Ole_e_I family consists of a number of secreted plant pollen proteins, of approximately 145 residues, whose function has not yet been determined. This analysis enabled us to gain better insight into the evolution of phylloplanins and the similarities between these proteins found in different plant species.

(94) **Examining Convergent and Discriminant Validity of a Novel Set of Executive Functions.**

Rachel West, Danielle Hergert, Geoffrey Potts, and Cynthia Cimino
University of South Florida

"Executive functions" is an umbrella term that refers to general higher cognitive operations, such as planning, abstract reasoning, and emotional control (Miyake & Friedman, 2012). The most basic executive functions are inhibition, set-shifting, and updating (Miyake et al., 2000). Several issues exist with currently existing measures of executive functions, such as low test-retest reliability, inter-rater reliability, and language and cultural contexts (Miyake et al., 2000). Another major issue is the task impurity problem, where tests are measuring more than one executive function rather than isolating a single one or measuring other, non-executive abilities (Miyake et al., 2000). In the current study, a new set of executive functions was proposed that addressed some of these problems, using the three basic executive functions. The same stimulus set was used to isolate each function. Further, each task was administered on a computer to increase reliability and reduce language and culture issues. Thirty-seven participants were given both the novel set of executive functions, some current neuropsychological measures of executive functions, as well as neuropsychological measures that do not measure executive functions, such as spatial reasoning. Although strong differences in mean accuracy and reaction time were found among the novel tasks, there were few significant correlations between the neuropsychological measures and novel tasks. There may be many reasons for these results, some of which include a small sample size with limited variability and large differences in difficulty in the novel and neuropsychological tasks.

Session 4

(1) **Variability of Familial ALS pathogenesis: Does SOD1 protein conformation play a role?**

Adriana Sari, Jacob Ayers and David Borchelt
University of Florida

Recent results in our lab have suggested that conformational variation of mutant SOD1 may result in the variability of disease symptoms observed in patients afflicted with SOD1-linked familial ALS (fALS). By injecting normally healthy mice that express mutant SOD1 protein fused to yellow fluorescent protein (G85R-YFP) with varying forms of misfolded SOD1 preparations, we have been able to induce different morphologies of SOD1-YFP inclusions in the spinal cord of injected mice. Our hypothesis is that these different inclusion structures observed in mice are due to differences in the protein conformation of G85R-YFP. One technique commonly used to show this is to test whether the various G85R-YFP inclusions display differential susceptibility to protease degradation. Therefore, I first incubated the SOD1 containing protein samples with the protease, Proteinase K and ran them through a dot-blot apparatus to filter them through a cellulose acetate membrane, which traps the large SOD1 aggregates. I then incubated the membrane with an anti SOD1 primary antibody, followed by a secondary antibody, and finally analyzed the samples using a chemiluminescent imaging system. To quantify the aggregate load that bound to the membrane for each sample, I used densitometry, which provides insight into the protease sensitivity for the various protein preparations. Although

still a work in progress, our data initially reveals that the differences in aggregation are independent of protein conformation. Understanding whether differences in SOD1 conformation are at the root of varying differences in the progression of ALS is important for creating more targeted therapies.

(2) **Gender Differences in Alcohol Abuse, Dependence, & Poisoning Resulting in Emergency Visits, Hospitalizations, and Death in Volusia County.**

Dominique Drager, Rachel Lee and Dr. Laura Gunn
Stetson University

Excessive alcohol consumption results in numerous health and social issues and is the fourth leading cause of preventable death in the U.S. Nationwide, men have been shown to consume more alcohol than women. Combined with a higher proclivity towards risk taking, men have higher rates of alcohol related illness and injury. A state level analysis in 2013 showed the proportion engaged in excessive alcohol consumption in Florida was nearly double that for men (23.4%) compared to women (12.2%). Our study assesses county level population data in order to investigate differences in alcohol-related illness, injury, and death within Volusia county, particularly by gender. An analysis of county-level hospital inpatient data, ambulatory and emergency department data, and vital statistics (death records) from 2014 was conducted in collaboration with Florida Department of Health-Volusia County. Analyses were also performed at the quadrant-level, grouped by zip codes, to assess area differences. A sample of results shows that hospitalizations resulting from alcohol abuse, dependence, and poisoning are more than double for men (678.5) compared to women (292.0) per 100,000 population. Similarly, nearly double the rate of emergency room visits occurred for men (800.9) compared to women (422.9) per 100,000 population. This gender disparity concurs with state and national trends. There were also differences in incidence rates of hospitalizations and emergency visits resulting from alcohol across quadrants, with the northeast (containing Daytona Beach) yielding the highest rate. Results provide evidence for the need for increased gender-specific substance abuse programs in an effort to curb alarming trends.

(3) **Molecular Modeling of PrPc and PrPsc and Their Theoretical Functions.**

Elizabeth Nicole Panek and Audrey Shor
Saint Leo University

This computational project theorized about a specific protein's structure and function based upon the molecular interactions at the primary, secondary, tertiary and quaternary level. The project speculated on the PrPsc isoform using information gathered about the PrPc isoform. It was intended from this project to determine how copper binding to PrPc affects the FYN pathway, specifically if copper acts as a stabilizer for PrPc in the FYN pathway, and if the binding of copper to PRPc prevent the conformational change to PrPsc. Research was performed to find the amino acid sequences of PrPc and PrPsc. The main subunit of PRPc was the target focus for this experiment. The amino acid sequences were analyzed using the modeling software JMOL and YASARA. JMOL was used to interpret the structure of the models, specifically the main subunit of PRPc. The PrPc amino acid sequence was analyzed in YASARA for any interactions at the secondary, tertiary and quaternary level. The interactions were then inspected for possible situations where copper interactions would be favorable. This information was used to speculate

impacts of copper on the FYN pathway. This process was repeated using the amino acid sequence of PRPsc. At the time, the results show that the research has potential in explaining a pathway that still is not well understood. However, intensive follow-up research would need to continue in order to fully understand the functions of PRPc and PRPsc. However, the models created from this project will be a vital tool in assisting in this research.

(4) **Developing learning paradigms in *Aplysia californica* to help understand circadian rhythm.**

Valentina N. Saracino, Eric Noakes, Harini Krishnan, and Dr. Lisa Lyons
Florida State University

For animals to prepare for routine behaviors, the body regulates physiologically endogenous factors that oscillate every twenty-four hours. This phenomenon is known as circadian rhythm, and past research has found that circadian rhythm plays a role in learning and memory. In order to examine circadian rhythm, new learning paradigms have been established using animal models that have a relatively simple central nervous systems such as *Aplysia californica*. Past learning paradigms used were place preference in rodents using drugs as rewards. Present research has begun to examine Conditioned Place Preference (CPP) and Condition Place Aversion (CPA), but has not yet established these types of learning paradigms. The former refers to the conditioning of an organism to prefer a particular region or substrate using a reward stimuli and the latter refers to conditioning of an organism to avoid a region or substrate using an aversive stimuli. The purpose of the current experiment is to establish a novel learning paradigm using CPP and CPA. The substrate preference for *Aplysia californica* was determined and the organism was administered an aversive stimulus after being placed on the preferred substrate. The latency of choice and time on side were recorded, and animals indicated preference for plastic substrate. After establishing CPP and CPA learning paradigms, circadian rhythm modulation will be examined through Western Blotting methodology, analyzing the biological molecules present in memory from positive and negative learning. This research has implications for the real world because it aides in our understanding of circadian modulation of memory.

(5) **Lesions and language: the cerebellum's role in language recovery following perinatal stroke.**

Jairo Munoz, Carolina Vias, Sophia Tchir, Jefferson Salan, German Lopez, Ania Suros, Matteo Grudny and Anthony Steven Dick
Florida International University

The study focuses on how the cerebellum contributes to the recovery of language function after pre- or perinatal stroke. Lesions to the areas of the brain that correlate with classical speech have shown that language function is resistant to this damage if it occurs early in development. According to research, cortical changes in interhemispheric connectivity following early stroke relate to improved syntactic, expressive, and receptive language outcomes. However, very little is known in regards to the recovery of the broader language network, which includes subcortical structures and, particularly, the cerebellum. Because of its connections with the cortex, higher-order cognitive functions, such as language, are associated with the cerebellum. As perinatal stroke is associated with cerebellar atrophy, this suggests early degeneration of cortico-ponto-cerebellar connections. Increasing our understanding of cerebellar function could lead to a

clarification in how the developing brain recovers language function after an early stroke. In order to do so, 42 individuals who sustained perinatal stroke and 28 of their typical siblings were assessed using behavioral and neuro-imaging techniques. Region-specific atrophy of the cerebellum was investigated with structural magnetic resonance imaging (MRI). These measures were then correlated with syntactic, expressive, and receptive language outcome behavioral measures. The resulting data suggests that poorer receptive and expressive language outcomes are predicted by greater levels of cerebellar atrophy in the contralesional cerebellar hemisphere. The findings of these studies will further our understanding of cerebellar function, which in turn may help inform therapeutic strategies for language recovery following early stroke.

(6) **Equivalent circuit model and capacitance-voltage spectroscopy of matrix-assisted pulsed laser evaporated conjugated polymer thin-film solar cells.**

Océane Boulais[1], Adrienne Stiff-Roberts[2], and Wang-Yao Ge[2]
[1]Florida Atlantic University and [2]Duke University

Organic photovoltaic thin – film devices are much cheaper to manufacture and have the potential to deliver comparably high power conversion efficiency while remaining physically malleable as opposed to the inorganically-based alternative. However, the best techniques of depositing the polymer-structures unto the substrates that make up the organic thin-film solar cells remains a debatable topic in the development of efficient organic photovoltaic devices. Current methods of characterization of inorganic photovoltaic devices have been well established in literature, however the same cannot be said for organic photovoltaic devices. Although different in structure, similar modeling and characterization techniques of the organic photovoltaic devices are used to give insight into the acceptor-donor interface of the devices by comparison. By modeling and characterizing two separate sets of RIR-MAPLE grown organic thin-film solar cell "recipes" that utilize various polymer structures and primary solvents, the research objective was to analyze which set of thin-film solar cells delivered the highest power conversion efficiency and draw conclusions on the trends provided by a variety of measurements done on the thin-film devices such as capacitance-voltage spectroscopy, series resistance, shunt resistance and built-in voltage.

(7) **Immune Responses of Human Males and Females in Association with Autoimmune Disorders.**

Tung Q. Doan
University of Florida

The purpose of this research is to explore the differences of immunity within genders associated with autoimmune disorders. Approximately 75% of the people affected with autoimmune diseases are women. In this study, we would like to explore the reasons why women are more likely to be affected by autoimmune diseases while their immune responses are more resistant to illnesses than men. The distinctions between the biological sexes and the behavioral genders are investigated to demonstrate how the immune responses of females and males function and how their dysregulations progress to autoimmunity. A variety of sources from primary scientific research to behavioral literature is used to support this study. Being aware of how the immune system functions allows both men and women to know the best way to take care of themselves as

well as to help them understand the serious impact of autoimmune diseases on their family and community.

(8) **Using a Standard Field Programmable Gate Array as a Time to Digital Converter.**

Lyle Josey, Chase Kuehner and Dr. Chiu Choi
University of North Florida

This undergraduate research project investigated the use of Field Programmable Gate Array (FPGA) technology to realize a Time-to-Digital Converter (TDC) based on a Vernier delay-line. Such TDCs can be used for time measurement at sub-nanosecond resolution. The advantage of using FPGA technology for implementing TDCs is that these accurate TDCs can be tested and refined easily and with minimal costs. There are many applications that require precise time measurement, for example, electronic instrumentation such as logic analyzers and nuclear instruments and industrial control instruments such as ultrasonic liquid flowmeters. In this project, the students implemented the digital circuits for a Vernier delay-line based TDC into an Altera's Cyclone IV FPGA embedded in an Altera's DE2-115 FPGA development system. The students tested the TDC by generating two input signals as triggers for the TDC that outputs 1-out-of-N code for registering the time measurement results. The students also performed timing analysis of the results by software simulation using the TimeQuest Timing Analyzer module of the Altera's Quartus II software package. The students attempted to achieve TDC resolutions permitted by the technology of the modern Cyclone FPGA. The students successfully implemented the TDC into the FPGA and used it to measure time at sub-nanosecond resolution.

(9) **Using a Visual Programing Language to Interact with Visualizations of Electroencephalogram Signals.**

Chris S. Crawford, Marvin Andujar, France Jackson, Ivens Applyrs and Juan E. Gilbert
University of Florida

As jobs begin to seek hybrid skill sets from employees more frequently, interdisciplinary learning will become more important. This paper presents a tool, which provides a novel interdisciplinary learning approach that merges math, computer science, and physiology to create engaging experiences for learners. The presented tool obtains neurophysiological measurements of electroencephalogram (EEG) signals using a Brain-Computer Interface (BCI). This data can be used to understand cognitive and affective states such as fatigue, cognitive workload, engagement, and others. A recent emergence of consumer-grade non-invasive BCI devices has resulted in the availability of affordable models of this technology. The recent increase in availability and decrease in the cost of BCI devices present an opportunity to utilize this technology in an educational setting. Using an interface equipped with a visual programing language (VPL) enables users to interact with and visualize EEG data obtained from the BCI. Interacting with a drag-and-drop VPL allows users to dynamically utilize data streams captured from the BCI. These interactions can be used to perform tasks such as using the physiological signals as a form of control. Using the proposed approach users can dynamically modify the visualizations via the VPL. Ultimately this work aims to investigate how BCI can be used with a VPL and data visualization tools to provide hands on educational activities. By following a model similar to educational robotics and gaming this approach aims to create engaging, hands-on, and interactive learning experiences as well as facilitate interdisciplinary learning.

(10) **Effect of temperature on head regeneration of Hydra littoralis.**

Joseph Goode and Ramona D. Smith-Burrell
Eastern Florida State College

Hydra, a group of small freshwater organisms, are frequently used in biological research due to their impressive regenerative capabilities. To increase existing knowledge of their use as test subjects, I investigated the effects of varying temperatures on Hydra head regeneration. Hydra littoralis were dissected bilaterally through the reproductive zone, and the decapitated bodies were separated into cultures maintained at 21.0°C, 29.7°C, and 31.0°C. Samples were observed daily for head regeneration or death, with successfully regenerated samples being removed from their culture. There was no significant difference in head regeneration between the selected temperatures. In future studies, alterations to sample size, containment, and temperatures should improve study design.

(11) **Breast Cancer Survivors' Adherence to Physical Activity Recommendations.**

Cecelia V. Ferguson, Sarah L. Eisel and Stacey B. Scott
University of South Florida

In the U.S., increases in early detection and survival have resulted in more than 14 million cancer survivors. Research on physical activity among survivors is important for preventing recurrence and maintaining health. There are few studies that evaluate whether cancer survivors meet the American Cancer Society (ACS) activity guidelines, which include limiting sedentary behavior and engaging in at least 150 minutes of physical activity each week. In this on-going study, we determined the frequency of physical activity and sedentary behavior among 8 breast cancer survivors (mean age = 52.75, range = 41-65) and whether their health behaviors met ACS guidelines. The assessments included: (1) global surveys of physical activities in a typical week and (2) 14 daily diary surveys of duration of sedentary behavior and physical activities. We determined adherence based on ACS guidelines. Based on global surveys, only 1 survivor (13.5%) met the ACS guidelines for physical activity, whereas 4 survivors (50%) met guidelines based on daily surveys. In the global surveys, survivors reported an average of 213 minutes of sedentary behavior per week; in the diaries, they reported an average of 2,783 minutes of sedentary behavior per week. In conclusion, it appears that survivors underestimate both their physical activity and their sedentary behavior when asked in global surveys. Daily sampling may provide a more accurate assessment of typical behavior from which to determine how many survivors meet ACS guidelines and to help direct interventions to improve health.

(12) **Sacrificing one to save the many: compassionate or cold-blooded?**

Jacob Goldstein-Greenwood
Florida State University

Sacrificial moral dilemmas, in which causing harm maximizes overall outcomes, are a ubiquitous part of moral psychology research. Recent work has argued that folk harm-acceptance responses to these dilemmas are more a result of callous uncaring and disregard for causing harm than they are a product of genuine moral concern for maximizing overall well-being (Kahane et al., 2015). This claim was evidenced by correlative data linking harm-acceptance judgments with

psychopathy, egoism, and other such undesirable personality traits. However, this work faultily assumes that utilitarian (harm-acceptance) and deontological (harm-avoidance) inclinations are inversely related, and that a willingness to cause harm to achieve a better overall outcome directly reflects a lack of affective concern for causing said harm. As per Greene's (2001) dual-process model of moral judgments, both inclinations may in fact be active and collaboratively contribute to final judgments. Consequently, harm-acceptance judgments may result either from a dispassionate failure to engage with affective aversions to harm (as suggested by Kahane and colleagues) or from a genuine commitment to the maxims of philosophical utilitarianism. The current research applies Jacoby's (1991) process dissociation technique to sacrificial moral dilemma responses to calculate the independent strengths of utilitarian and deontological inclinations. Accordingly, the specific underpinnings of harm-acceptance responses may be more carefully examined. Current and prior results, as well as theoretical models, suggest that when traits like psychopathy and egoism correlate with harm-acceptance judgments, it is a reflection not of a heightened utilitarian inclination, but rather a lessened deontological one.

(13) **Coupling electrophysiology with anatomy: visualization of stimulated and recorded spinal neurons with silver juxtacellular labeling.**

A. Sexton, A. Caballero, K. Schwanebeck, K. Samuel, V. Zhu, A. De Guzman, L. E. Denholtz, S. Posgai, S. Patel, K. A. Streeter, H. Denson, and D. Baekey
University of Florida

Cervical spinal cord injury (cSCI) can result in impairment of normal respiratory motor function, primarily due to damage of neural pathways leading from the brainstem to the spinal respiratory motoneurons. Patients with cSCI often require mechanical ventilation, drastically diminishing their quality of life. While several alternative therapeutic approaches for recovery are currently being developed, the fundamental lack of knowledge surrounding spinal cord circuitry involved in respiration hinder discovery of new support and therapeutic approaches. To fill this gap, our laboratory uses multielectrode recording and an in situ rodent model to identify network connectivity in the respiratory spinal cord. A primary challenge in this research is identifying electrophysiological recording sites to anatomically define neuron populations being monitored. To address this challenge, we are using a juxtacellular labeling technique which involves electroplating silver on the tips of tungsten microelectrodes, recording neural activities, and depositing this silver at the recording locations. Subsequent histology procedures allow visualization of recording sites providing anatomic correlation with electrophysiological recordings. In addition, we are also investigating the capabilities of thoracic intraspinal microstimulation (ISMS) as an alternative to mechanical ventilation. Similar to the recording studies, anatomic identification of microelectrode stimulus locations poses a significant challenge. To address this, we are identifying the location of our stimulating electrodes through silver labeling and histologic examination of thoracic spinal tissue. Initial studies confirm the effectiveness of the technique and provide a powerful tool for advancing thoracic ISMS research for respiratory support and therapy.

(14) **Investigating Working Memory and Health Outcomes in Preschool Children.**

Patricia Murphy-Powell, Jody S. Nicholson and Tracy P. Alloway
University of North Florida

Working memory is a cognitive skill related to processing and recall that provides children a mental workspace for daily activities and learning (Baddeley, 1996; Cowan, 2006; Engle, Tuholski, & Conway, 1999). Working memory can be measured in terms of verbal (or phonological awareness) and visuospatial memory (Alloway, Gathercole, & Pickering, 2006). Previous research has suggested that in typically developing children a positive relation exists between physical activity level and cognitive functioning (Alloway, 2011; Ellis & Houthuijzen, 2014). However, no current research investigates working memory and health outcomes related to nutrition in preschool children. A cross-sectional investigation assessed visuospatial working memory in preschool children (n = 172) attending local Head Starts; blood nutrients and body measurements, such as height, weight, and blood pressure were collected. We anticipate a negative relationship between working memory and BMI while anticipating a positive relationship with working memory and blood nutrients in a healthy range. Understanding how physical health and well-being impacts children's cognitive functioning is crucial for developing prevention programs, and could also enhance intervention effectiveness.

(15) **Mere Thought and the Theory of Planned Behavior: When Thinking Means Doing.**

Robert Gargrave, Christopher Leone and Katie McCann
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Mere thought often polarizes people's attitudes (Tesser, Martin, & Mendolia, 1995). Attitudes are not, however, always a good predictors of behavior (Ajzen & Fishbein, 2005). In the Theory of Planned Behavior, behavioral intentions (which are highly correlated with behavior) are predictable from attitudes about a behavior, norms about that behavior, and perceived controllability of a behavior (Ajzen & Fishbein, 2005). We examined the effects of mere thought on these variables. While thinking, participants listed their beliefs about regularly getting 8 hours of sleep. The total number of beliefs listed was used as an index of time spent thinking (Clarkson, Valente, Tormala, & Leone, 2013). Participants subsequently completed measures of their attitude about this behavior, their perceptions of norms (other people's behavior) about this behavior, and their perceived control over this behavior. Last, participants indicated their intentions to regularly getting 8 hours of sleep in the future. For each of the aforementioned variables, a regression analysis was performed with the number of beliefs generated and pre-thought attitudes as predicator variables. With the exception of perceived controllability, thought and initial attitudes (both individually and interactively) predicted participants' (a) post-thought attitudes about regularly getting 8 hours of sleep in the future, (b) perceived norms about this behavior, and (c) intention to engage in this behavior in the future. Our findings extend previous mere thought research by demonstrating that thinking affects more than just attitudes. Our work also bridges heretofore separate lines of inquiry, namely mere thought and the Theory of Planned Behavior.

(16) **In Silico phrenic nerve modeling as a tool to improve quantification of respiratory signal integration**.

A. De Guzman, A. Caballero, K. Samuel, K. A. Schwanebeck, A. Sexton, V. Zhu, H. B. Denson and D. M. Baekey
University of Florida

A significant challenge in cervical spinal cord injury (SCI) is interruption of brainstem generated signals reaching the thoracic respiratory muscles. Many research laboratories use these muscle recordings or their innervating nerves in experimental animals to assess both SCI impairment and efficacy of rehabilitative therapy. The work of Eldridge and El-Bohy was a revolutionary step in quantifying neurophysiological signal integration; however, their method reports only peaks of 'integrated' activity to quantitatively assess neural output. While widely used, this method ignores signal dynamics and patterning. Our goal is to improve methods of signal quantification by accurately representing respiratory effort through examination of singular neurons and temporal patterning of ensemble signals. We hypothesize that individual neuron firing patterns, constructed with representative statistical distributions, can be merged to create an in silico phrenic nerve model. Using Spike2 and MATLAB in all approaches, the initial methodology involved modeling the nerve signal using graphical extrapolation. Building on this, we modeled firing neurons using in vivo data to determine appropriate action potential timing and latency between waveforms. Our current project involves the implementation of Beta and truncated Normal distributions to obtain staggered overlap of modeled action potentials, thereby simulating actual phrenic neurograms. The constructed signals allow us to differentiate between rate changes or neuron recruitment when assessing summated signal strength. This model provides stronger alternatives to the "rectified signal", improving quantification of respiratory effort by reducing "integrated" activity peak usage, allowing better quantifying neural output, and improving methodologies for assessment of impairment and therapeutic interventions.

(17) **Engineering Clonal Human Cell Lines Stably Expressing a Single p73 Isoform.**

Irena Gushterova[1], Ricardo A. Cordova[1], Jong Y. Park[2], and L. Michael Carastro[1]
[1]The University of Tampa and [2]Moffitt Cancer Center

The p73 gene is a member of the p53 tumor suppressor family. This gene has two promoters, P1 and P2, which are the transcription initiation sites for the mRNAs encoding TAp73 and ΔNp73 isoforms, respectively. Recently, we reported that a human colon cancer cell line, Caco-2, has no detectable expression of either of the two p73 protein isoforms through immunoblotting. In order to facilitate future molecular studies of specific p73 isoform functions as well as to create control samples expressing only one detectable p73 isoform for immunoblotting and other molecular techniques, pCI-neo mammalian expression vectors encoding one of the four p73 isoform cDNAs (TAp73α, TAp73β, ΔNp73α, ΔNp73β) were stably transfected into Caco-2 cells by electroporation. Clonal populations of transfected cells were selected using antibiotic resistance, isolated and expanded. Clonal cell line populations were used to isolate total RNA using RNeasy Plus Mini Kits (QIAGEN). Total RNA samples were used to synthesize cDNA and perform TaqMan Real Time-PCR Comparative CT analyses in order to determine the p73 isoforms mRNA expression levels relative to untransfected Caco-2 cells. Our initial TaqMan Real Time-PCR data indicate a 6-fold expression of TAp73 mRNA in clone TAp73α #12 (RQ = 6.1536;

RQmin = 2.6054, RQmax = 14.0758), a 25-fold expression of TAp73 mRNA in clone TAp73β #2 (RQ: 24.9555; RQmin = 23.3701, RQmax = 26.6485), 1-fold expression of ΔNp73 mRNA in clone ΔNp73α #9 (RQ: 1.3434; RQmin = 0.8763, RQmax = 2.0594) and 1800-fold expression of ΔNp73 mRNA in clone ΔNβ #2 (RQ: 1850,175; RQmin = 1587.564, RQmax = 2156.226) as compared to untransfected Caco-2. Based on our TaqMan Real Time-PCR data, we concluded that these four isolated clonal Caco-2 cell populations overexpress the transfected p73 mRNA isoform.

(18) **Water and the Maya.**

Josie Bready
The University of Tampa

Cities of the Classical Era of Mayan history can be classified into three categories: minor, secondary, and regional centers. The regional centers were the most powerful cities in the Maya world during this era. Counterintuitively, these were the cities that were located in the least logical areas, in places where water had to be managed in order to survive. The fact that these cities were located in areas where water had to be managed is a contributing factor to them becoming the most powerful cities. In order to survive, these cities had to build water management systems early in their histories. The control necessary for organizing the building of these systems and the religious connections rulers had with water began a process that lead to these cities being able to become the most powerful and assert their dominance over other smaller cities in their regions.

(19) **Polyphenon E Treatment Affects p73 mRNA Levels.**

Ricardo A. Cordova[1], L. Michael Carastro[1], Christopher D. Cole[1], and Jong Y. Park[2]
[1]The University of Tampa and [2]Moffitt Cancer Center

Prostate cancer (PCa) is the most common malignancy among men in the USA. Polyphenon E (PolyE) is a standardized blend of polyphenols found in green tea extract, which has been shown to have chemoprevention value in PCa models, but the molecular mechanism(s) have not been elucidated. The p73 gene is a member of the p53 tumor suppressor family. A p73 dinucleotide polymorphism (DNP) (rs1801173) is a G4C14-to-A4T14 linked pair of transitions located in exon 2 and lies between the P1 and P2 gene promoters. The P1 and P2 p73 gene promoters are the transcription initiation sites for mRNAs encoding TAp73 and deltaNp73 (DNp73) isoforms, respectively. These p73 mRNA isoforms, TAp73 and αNp73, encode protein isoforms which differ in their N-termini. TAp73 isoforms include the full-length N-terminal sequence and are transcriptionally active. αNp73 isoforms lack the N-terminal trans-activation domain and are dominate negative. Recently, we reported the p73 DNP allele was associated with (1) decreased risk [OR = 0.55, 95%CI = 0.31-0.99] for aggressive PCa and (2) increased TAp73/DNp73 protein isoform ratios in ten human cancer cell lines. We hypothesize that exposure to PolyE induces changes in TAp73/DNp73 mRNA isoform ratios. Our goal for this study is to assess the effect of PolyE on total p73 mRNA levels and TAp73/DNp73 mRNA isoform ratios using two human PCa cell lines with different p73 DNP genotypes: DU145 (wild-type) and PC-3 (heterozygous). Cultured cells were treated with PolyE (100 or 200 mg/L). Cellular RNA was

isolated, converted to cDNA and used in TaqMan RT-PCR assays to detect total p73, TAp73 or DNp73 isoform mRNAs. Our data from PolyE treatments of both DU145 and PC-3 cells are consistent with increased p73 mRNA levels (2.05 and 1.60 fold, respectively) and higher TAp73/DNp73 mRNA ratios (1.13 and 1.29 fold, respectively) at the low Poly E level (100 mg/L). At the high PolyE level (200 mg/L), the TAp73/DNp73 mRNA ratios significantly decreased for both DU145 and PC-3 (0.54 and 0.49 respectively). However, the overall p73 mRNA levels was not changed in DU145 (0.91 fold), but increased in PC-3 (1.60 fold) as compared with level in negative control at the high Poly E concentration. Therefore, in this exploratory study, PolyE treatment of the two PCa cell lines tested using a more moderate concentration of 100 mg/L results in higher overall p73 levels and increased TAp73/DNp73 mRNA ratios. This data could provide a potential molecular rationale for the observation that Poly E treatments provide chemopreventative impact against PCa.

(20) **The effects of acute aerobic exercise on neurophysiological, biochemical, and self-report measures of emotion processing.**

Sebastien Salzmann, Christopher Sarmiento, Dr. Jose Antonio and Dr. Jaime Tartar
Nova Southeastern University

Aerobic exercise is associated with increased emotional well-being and has also been shown to protect against depression and other mood disorders. However, the physiological mechanisms through which exercise changes mood are currently unknown. In order to address this uncertainty, the current study compares physiological and self-report correlates of emotion processing in young, healthy participants after an acute aerobic exercise session compared to a control condition. The exercise and control session occur one week apart and the session order is randomized. During the aerobic exercise session, participants undergo a jog on a treadmill for 30 minutes at 70-80% aerobic target heart rate (with a 5 minute warm up). At each session, we collect saliva samples at baseline and after exercise in order to measure biomarkers associated with emotion processing and increased arousal (salivary alpha amylase and cortisol). In addition, participants fill out questionnaires related to mood (POMS and State Trait Anxiety) after exercise and the control condition. In order to examine brain changes associated with emotion processing, participants underwent EEG testing for the event-related potential (ERP) late positive potential after exercise and the control condition. The LPP is an established sensitive measure of attention to emotionally-charged visual stimuli. Our preliminary data show that, relative to baseline testing, the LPP amplitude to emotionally-negative pictures is reduced after exercise, suggesting decreased amygdala responsivity after exercise. In agreement, self-report measures also showed improved mood after exercise, relative to the control session. Combined, these findings demonstrate a possible neurobiological explanation for mood improvements following exercise.

(21) **Analysis of the regulatory sequences of a cauliflower gene by protoplast transformation and GUS histochemical and fluorescence assays.**

Ryan Koscielniak, Jason Hoop, Melissa Sanchez, and Dr. Marilyn Cruz-Alvarez
Florida Gulf Coast University

Brassica oleracea is a species with different varieties such as broccoli (var. italica) and cauliflower (var. botrytis). These varieties produce edible heads that differ in the developmental stage of the meristems. The genetic differences between varieties are unknown. CCE1 (CAULIFLOWER CURD EXPRESSION 1) is a gene that is found in all varieties of Brassica oleracea, however, it appears to be expressed only in cauliflower. In order to study the regulatory sequences of this gene and the difference in expression between varieties, we need to be able to assay the activity of the regulatory sequences in cauliflower and broccoli. To do this, we have developed a protoplast transformation method using polyethylene glycol. Using as a positive control, a construct made of the Cauliflower mosaic virus 35S gene promoter, attached to the coding region of the B-glucuronidase (GUS) reporter gene, we were able to determine successful transformation of broccoli seedlings. We are currently using constructs made by fusing the 5' flanking sequences of the CCE1 gene to the GUS coding region for transformation. Promoter activity of the CCE1 gene fragments will be determined by histochemical and fluorescence assays of GUS activity in transformed protoplasts.

(22) **Mobile Apps Making Strides in Language Education.**

Grace Montgomery
Florida State University

This research project will evaluate how mobile apps are making strides in language education and which of the various language apps available today are the most effective. The popularity of mobile language applications has increased over recent years, which much debate over the effectiveness of mobile and online language-learning. Of the multitude of language-learning apps available for download, the main objective of this research project will be comparing five of the free language apps that are most popularly downloaded. The apps that will be evaluated in this research project are: Duolingo, Memrise, Busuu, Babbel, and Mindsnacks. The methods of determining the effectiveness of each application includes creating a criteria and scale of language acquisition strategies. The strategies used in each specific language-learning app will be critically evaluated. Data showing users' language acquisition results for the various applications will be analyzed, as well as data on the number of downloads and average user's ratings of each application. This research project has not yet been completed, therefore there are no definite results. It is expected that there will be some applications, perhaps one in particular, that yields better language-learning results than others. This research will be useful to consumers and the new generation of mobile/online language learners to determine which mobile strategies lead to effective language acquisition. This project will also shed light on the growing popularity of language education due to the ease of mobile learning.

(23) **Evaluating the Leach rate of Chromated Copper Arsenate from CCA Treated Lumber in Water.**

Dr. Lynta Thomas and Franklin Thornburgh
Eastern Florida State College

CCA is water-soluble and leaches into the environment over time. The purpose is to find the amounts of copper and arsenic ions in the water to characterize the leach rate of CCA from lumber. The samples were collected on a weekly basis for up to 13 weeks. The samples were of ~40 kg/m3 CCA content. The CCA treated lumber was chopped into circular sections and then quartered to fit into plastic bags; the samples were then weighed. These samples were then submerged in 350 mL of either distilled water or locally sourced freshwater to provide a control and realistic study. After the experiment concluded, the water was then collected from the bags, and analyzed using flame atomic adsorption spectroscopic technique to determine quantitatively the amount of copper and arsenic ions present in the water samples. A sample of the collected freshwater was also tested to establish any baseline levels of pertinent ions. A leach rate could then be determined using these analyses and careful consideration of the weight of each sample.

(24) **Reactions of Iron Molecules with Ozone: Determining Reaction Mechanisms.**

Trí Lê, Gregory Miller and Joshua J. Melko
University of North Florida

Iron plays a role in a variety of chemical processes, from atmospheric destruction of ozone to production of molecules used in gasoline. Understanding the step by step processes of these chemical reactions is important on both a fundamental level and in order to make these processes beneficial to society. Here, we present the mechanism of how small iron molecules react with ozone. Current approaches in computational chemistry were evaluated by comparing calculated parameters of these molecules with experimental measurements. A dispersion corrected method coupled with the TZVP basis set was found to be the most accurate in approximating these molecular parameters. Calculated thermochemistry was used to verify the products observed in the experiments. A complete reaction mechanism for the reaction of an iron ion with ozone was determined. The iron ion was found to approach the ozone molecule to form a diamond shaped intermediate state, followed by abstraction of the oxygen atom by iron. The new iron-oxide molecule then rotates away, leaving the oxygen molecule, thus yielding the products.

(25) **Heigh-Ho to Let It Go: The Evolution of Gender Performance in Disney Princess Films.**

Ricci Allen, Breanna Dennes, Hayley Kessler and Dr. Samantha Gomes-Compton
University of South Florida

The purpose of this research was to compare gender roles of princesses and their male counterparts from the original Walt Disney Pictures animated films to films of the 2010s. It was hypothesized that through the years, princesses and male counterparts would show more balance in their portrayed masculine and feminine roles but that the male counterparts would continue to be more masculine than feminine. There would also be a change in the conflict resolution, shifting from violence to acceptance. The methodology included a content analysis, coding for stereotypical representations of masculinity and femininity. The research supported some of the

hypotheses. The princesses were overwhelmingly feminine, with their masculine characteristics growing over time. The male counterparts' respective gender performance was consistent over time. The hypothesis for conflict resolution was not supported as each movie ended with romantic relationships and violent acts towards the antagonist. More recent films also tended to display familial affection or acceptance.

(26) **Genetic structure of a hybrid zone between the killifish Fundulus heteroclitus and F. grandis in Northeast Florida.**

Natalia Gutierrez and Matthew R. Gilg
University of North Florida

Hybrid zones are areas where two closely related species overlap in range and interbreed to some extent. The genetic structure of hybrid zone populations can inform us about the strength of reproductive barriers between the two species and study of these areas allow the investigation of many evolutionary processes. Previous research suggested the likelihood of a hybrid zone between sister killifish species, Fundulus heteroclitus and F. grandis, located within the Intracoastal Waterway near Flagler Beach, Florida. The goal of the present study was to quantify the existence of hybrids and determine the strength of reproductive barriers between the two species. Fish of a variety of sizes were collected from the Flagler Beach area and each individual was genotyped at four nearly diagnostic loci, three nuclear and one mitochondrial. Examples of all possible hybrid genotypes were found although the hybrid indices tended to be bimodal, especially in the larger fish, suggesting that fairly strong reproductive barriers exist between the two species. A relative lack of hybrid genotypes in the larger fish suggests that hybrids may have lower survival than non-hybrids.

(27) **Thoracic Intraspinal Microstimulation (ISMS) Evokes Frequency Dependent Activation of Respiratory Efferents.**

K. A. Samuel, K. A. Schwanebeck, A. Caballero, A. De Guzman, A. Sexton, V. Zhu, H. B. Denson and D. M. Baekey
University of Florida

Cervical spinal cord injury can impair breathing by preventing brainstem generated respiratory activity from reaching motor pools in the spinal cord which drive respiratory pump muscles. We have previously demonstrated that high frequency intraspinal thoracic spinal cord stimulation can produce respiratory activity independent of centrally generated signals. While this high frequency stimulation (300Hz) results in "asynchronous" activation of spinal respiratory outputs, studies from our laboratory have demonstrated that direct activation of respiratory motor nuclei produce entrained activation. As we investigate the spinal circuitry involved in activating respiratory efforts with thoracic stimulation, the response to lower frequencies has not been examined. We hypothesize that targeted intraspinal microsimulation (ISMS) within the thoracic spinal cord at lower frequencies (50-200Hz) will result in entrained activation of both the phrenic and thoracic respiratory outputs. To investigate this, we employed the in situ rat preparation to characterize stimulus response patterns using bipolar stimulating electrodes in the ventrolateral thoracic spinal cord (T2-6). Our initial results demonstrated entrained activation at lower

frequencies while higher frequencies showed asynchronous activity on respiratory efferents. We conclude that high frequency thoracic ISMS efficiently and reliably activates both the phrenic and thoracic efferents, but activation patterns are dependent on stimulus train frequency. We propose that the asynchronous pattern previously observed with high frequency ISMS outpaces the intrinsic firing ability of the motoneurons, giving the impression of physiological activation patterns. Ongoing studies continue to focus on mechanisms of activation of respiratory neural circuits activated by thoracic ISMS.

(28) **You've Got Mail: First Steps in Brief Online Email Training Design and Evaluation.**

Jake R. Mathwich, Keaton A. Fletcher and Wendy L. Bedwell, Ph.D.
University of South Florida

In the current marketplace, email has become a primary method of communication for organizations, clients, and customers. This communication medium is so important to organizational effectiveness that companies often invest in face-to-face training on email etiquette (Burgess, 2005). However, these training sessions have high financial costs (Benjamin et al., 2008). Therefore, the goal of this study is to determine the effectiveness of a less expensive and time-consuming training session on writing professional email. To create an efficient training program, we used three of the four key principles of training; inform, demonstrate, and practice (Aguinis & Kraiger, 2009; Kraiger, 2003; Prince & Salas, 1993), all provided online. One-hundred-thirty-four undergraduate psychology students participated and were tasked with writing emails in a certain format based on their training. Results indicate that a five-minute training video, followed by electronic forms with cues for writing an email resulted in high levels of comfort with writing professional emails. Further, this level of comfort was predicted by the degree to which individuals had a high level of utility reactions ($\Delta R2 = .06$) to the training as well as a high commitment to the goals of the training ($\Delta R2 = .10$), above and beyond the significant effect of self-efficacy and conscientiousness ($\Delta R2 = .20$), and pre-training motivation ($\Delta R2 = .18$). Overall, this study lays the foundation for both research and practice regarding brief training interventions on professional email by highlighting the importance of individual differences and training utility measurements, even in short training periods.

(29) **Relationship between Leadership Effectiveness, Personality, and Video Game Experience in a Military Simulation.**

Jacob Werchan, Christopher Fahey, Katlin Anglin, Jason Kring, and Joseph Keebler
Embry-Riddle Aeronautical University

Leadership in a military context has received a significant amount of research with findings related to leadership style (e.g., transformational vs. transactional) and the effects of training. However, less is known about what types of men and women are best suited for leader roles and how the US military should identify individuals for induction into officer programs. The present study examined how individual characteristics associated with personality and video game experience correlated with ratings of leadership effectiveness. Thirty Army ROTC cadets, in their first or second year (to limit the level of existing leadership training), completed a demographics survey and the NEO-Five Factor Inventory personality test. Next, each cadet led a 4-person team (comprised of experiment confederates) through a simulated military engagement

using ARMA 3; an off-the-shelf military combat simulation. Cadets fluidly transitioned through different types of engagements with the goal of completing mission objectives. Each cadet was then rated by the four confederates and two outside raters on leader effectiveness using the Multifactor Leadership Questionnaire. Results indicated cadets scoring higher on Neuroticism or Conscientiousness had lower leadership effectiveness ratings. In addition, cadets reporting more videogame experience received higher leadership effectiveness ratings. Whereas the correlation between Neuroticism and effectiveness concurs with prior research, the relationship between Conscientiousness and effectiveness and the relationship between videogame experience is a new finding. Additional research on the relationship between videogame experience and leadership effectiveness is warranted.

(30) **A Case Study on Networking upgrade with Inter-organizational Collaboration.**

Chris Mosteiro and Ted Tramonte
Florida Gulf Coast University

Inter-organizational collaboration and teamwork is fundamental within any company and is vital for success. Nowadays, IT Systems are used to assist with the collaboration for work. IT Systems can cross borders and connect locations to allow people to work together who never could have before. This study focuses on a Case study in an IT company to raise all the possible issues and solutions of a networking upgrade project. We analyze the case and describe issues that were faced during the network migration. Some of these issues are lack of documentation of the systems, poor communication between the IT managers and client employees, and more. These two factors are critical for system upgrades. Practitioners should pay attention to these two factors when they conduct a new system upgrade and researcher can conduct further studies to find out how to enable better communication and build a better documentation database for current systems.

(31) **Functional Analysis of FePer1 5' Regulatory Sequences in Transgenic Arabidopsis Plants; Developing a Novel Biosensor for Monitoring Plant Stress Levels.**

Samuel Minkowicz, Karolina Czarnecki, Adrian Pena and Takashi Ueda
Florida Gulf Coast University

Peroxiredoxins are a superfamily of thiol-specific antioxidant enzymes that are evolutionarily conserved. Peroxiredoxins neutralize harmful free oxygen radicals and multiple peroxide substrates by the use of catalytic cysteine residues to protect against environmental and other external stresses. The peroxiredoxin FePer1 encodes a seed-specific antioxidant protein in buckwheat; its 5' regulatory region is responsible for turning on the gene under stress conditions. A 525-bp 5' regulatory region of FePer1 has been fused to the beta-glucuronidase (GUS) reporter gene from Escherichia coli. Since this enzyme turns the substrate X-Gluc into a blue precipitate, it is desirable for monitoring promoter activation. The synthetic FePer1::GUS gene has been introduced into the model organism Arabidopsis thaliana through Agrobacterium-mediated transformation. Transcriptional regulation of the FePer1 gene will be examined by monitoring GUS gene expression in the transgenic plants using histochemical GUS assays. This will be monitored at different stages of plant development and stress conditions including desiccation, irregular temperatures, and UV irradiation. Furthermore, we will study the specific

transcription factors' binding to conserved cis-active elements within this promoter and discern each element's role in the plant's stress tolerance. Thus, from this functional analysis of FePer1 we can use it to drive expression of other reporter genes and ultimately develop a biosensor to monitor stress levels in plants.

(32) **Investigating Ground Penetrating Radar (GPR) Potential for Detection of Gopher Tortoise Subsurface Nests within South Florida Soils.**

Sarah Mitchell, Jessica Huffman, Dr. Evelyn Frazier and Dr. Xavier Comas
Florida Atlantic University

Gopherus polyphemus is a burrowing keystone reptile of the Southeastern United States. The gopher tortoise is classified as threatened throughout its range due to diminishing populations caused by various anthropogenic factors. Current population declines are creating a need to improve the ability to accurately locate nests to assess clutch survival. Recent studies have shown potential in a non-invasive method ground penetrating radar, GPR). Our preliminary work is focused within the FAU Preserve (FAUP) on the Boca Raton campus, a fragmented scrub habitat with roughly 80-100 tortoises. Previous FAUP studies suggest disproportional age distributions and inability to detect nests using wire-probing techniques. In 2014, an egg was found suggesting nesting potential; however more efficient techniques are needed to fully characterize the preserve. Utilizing GPR, we imaged an active tortoise burrow to detect the presence of a mock nest utilizing chicken eggs buried on the apron. As anticipated, eggs acted as point reflectors in our GPR profiles, allowing us to characterize their extent and depth. This research has implications for improved nest detection and could lead to a better understanding of tortoise reproduction.

(33) **In-sourcing Information Technology Versus Outsourcing Information Technology, A Case Study.**

Kervens Cherenfant, Samuel Diramio and Dominic Capizzi
Florida Gulf Coast University

Our paper studies both in-sourcing and outsourcing information technology supports for organization enterprise systems. We analyzed the pros and cons, as well as forecasted future trends of each. We adopted a case study method in this research. We interviewed both business and IT managers in Sam's club and found several issues of its in-sourcing system support strategy/method. First, Sam's club experiences problems with both distance information technology support and third party support; Second, in-sourcing system support was good to complete some basic IT support, but failed to solve large hardware/server issues. In conclusion, we summarized and suggested some guidelines for both researcher and practitioners regarding to the in-sourcing and outsourcing information technology support strategies in organizations.

(34) **The Effects of Overly Motivated Individuals on Group Morale.**

Brian Haughton and Hema Mason, Ph.D.
Albany State University

Motivation is one of the basic and primary factors of being successful [4]. Motivation leads individuals to action, while also providing direction and intention [2]. The sources of motivation can either be intrinsic or extrinsic. Being able to motivate team members is important [4] and positivity can increase the overall enjoyment of tasks assigned [1]; however the motivational levels of individuals must fit the workplace environment [1]. Research has been conducted examining the correlation between motivation and productivity [3]. However, there are few studies that focus on the effects of overly motivated individuals on morale and group processes within the workplace. The purpose of this cross sectional research study, which will use the survey method to collect data, is to measure motivational levels and group cohesion among the group of interest. It is predicted that an overly motivated individual will have an adverse impact on group processes and motivation will decrease within that team. Results are expected to show that overly motivated individuals can adversely impact group cohesion and unit morale. Furthermore, it is expected that high levels of motivation can potentially decrease productivity and efficiency within a team. This line of research is important because people can be proactive and engaged or passive and alienated, because of the social conditions in which they develop and function [4]. This may ultimately have a negative impact on an organization's net earnings, underscoring the need for research in this area.

(35) **Music Ensembles and the Autistic Social Experience in College.**

Jeffrey Edelstein and Dr. Michael Bakan
Florida State University

Although research regarding Autism Spectrum Disorder (ASD) and other neuro-diverse (commonly known as "mentally disabled") individuals has grown over the past few decades, little research exists regarding the postsecondary educational experience. What research has been conducted seems to point to greater concern with the social aspects of the transition, rather than the academic aspects, as may be the case with high-functioning ASD students. To this end, this study attempts to identify one such method of social transition–musical social groups–for its merits as a medium of assimilation into college society for ASD individuals. Through a survey distributed via online forums to individuals who identify as being on the Autism Spectrum (including Asperger's Syndrome), this study attempts to establish a holistic look at these students and their experiences. Academic, institutional, social, and musical aspects of the participants' postsecondary ensemble involvement were taken into account, giving an overview of 100 individuals' experiences in these kinds of group. Results suggested a willingness and interest to participate in university ensembles, as most students were not music majors and were not required to partake in such a group. Additionally, the music ensemble setting appeared to serve as a way to make new friends by more than 70% of students, despite the fact that they had difficulty disclosing these conditions. From this data, we may begin to develop strategies for meeting the future needs of this growing student population.

(36) **Serving the homeless in Jacksonville: Organizational strengths and needs.**

Ashley M. Kushner and David R. Forde
University of North Florida

The purpose of this research was to study organizations serving homeless persons in Jacksonville, Florida to determine what works when serving the homeless. Key people in organizations were interviewed asking about organizational programs to prevent and reduce homelessness, crime victimization, health and mental health, and other areas. A semi-structured interview method was used to gather information about programs. This results enable an understanding of the strengths of different programs and provides direction on ways to prevent the victimization of homeless in Jacksonville.

(37) **Design of coaxial nozzle and fabricate a porous calcium-alginate hydrogel scaffolds by customized 3D bioprinter.**

Chance Mata, Maohua Lin, and Yunqing Kang
Florida Atlantic University

Three dimensional printing (3DP) technologies have been used to print a wide range of products, such as transistor circuits or biological material, even bone tissue. In regenerative medicine, 3DP provides a promising method to develop patient-specific tissue-engineered scaffolds. However, it is hard to determine the right coaxial nozzle to produce less stress and print a better structure during the crosslink by current bioprinter. In this study, we propose an incompressible, non-Newtonian fluid model to simulate the flow of non-cross-linked mixture precursor solution using a power-law, shear rate dependent relationship. Different scaffold made by crosslinking of 3% sodium alginate and 2% calcium chloride with three coaxial nozzles by different rate of inner diameter/ outer diameter (0.3 mm: 0.6 mm; 0.3mm: 0.8 mm; 0.3mm: 1mm) will be compared to find the best printed structure with minimum shear stress initiated. The results show that the shear stress on cell by CFD simulation is much less by increasing the rate of the inner diameter/ outer diameter. The design is conducted by our cheaper customized 3D bioprinter and it shows that a good scaffold can be printed by different structures in a limitation of 5 mm diameter width with three coaxial nozzles by different rate of inner diameter/ outer diameter (0.3 mm: 0.6 mm; 0.3mm: 0.8 mm; 0.3mm: 1mm). The structure with rate of inner diameter/ outer diameter (0.3mm: 0.8 mm0.3mm: 1mm) is much dense and homogeneous compared with that by rate of inner diameter/ outer diameter (0.3mm: 0.6 mm and 0.3mm: 1mm).

(38) **The Islamic State: Origins and Expansion.**

Ryan Hart and Dr. Patricia Campion
Saint Leo University

This poster will present a causal loop diagram on the origins and expansion of the Islamic State. The growth of this terrorist group is one of the most complex global issues we face today. Estimates suggest it may hold as many as 35,000 square miles of territory in addition to the inhabitants therein. Within the Levant, IS has claimed the lives of innumerous victims. Abroad, the organization has murdered over 1,000 civilians since January 2015. The Paris attacks in November of 2015 and San Bernardino shooting the following month woke the Western world up to how dangerous IS has become and how vital it is that the organization be stopped. Multiple

state and non-state actors with differing and often conflicting objectives both oppose and empower IS. Causal loop diagrams are used to represent the causes, effects, and interrelationships of different components of complex issues. This model is perfect for showing how these various factions and motivations dynamically influence and interact with each other. This analysis will identify the most significant political and social factors that have contributed to the rise of the Islamic State, including initial U.S. intervention in Iraq, the conflict in Syria, and ongoing international intervention in both Iraq and Syria. My primary resource for information will be reputable media organizations as this issue is constantly evolving. Through this research, I will highlight some of the challenges involved in confronting this group and identify strategies to combat its growth.

(39) **REBOOT laboratory.**

Sarah Morell, Rob Duarte, Carolyn Henne, George Boggs, Denise Bookwalter, Jeff Beekman, and Robby Nowell
Florida State University

REBOOT lab was created in an effort to utilize our cultures mass production of waste in a practical sense. REBOOT projects cast a critical eye on technoculture and the logical consequences of the ways in which we produce, consume, and then discard technology. This throw away culture that has persisted for so long augments the idea that human beings disregard their impact on the environment in an effort to make their lives easier. The notion that technology doesn't have to be so dispensable counters humanities hubris all while it aiding the environment. REBOOT lab uses hands on practices that either empower individuals through the repair of discarded technology or convert waste into useful materials. This is done by utilizing various tools to find novel and creative ways to repair objects that would otherwise be thrown away, an overall politically empowering act. Another way our labs goal will be achieved is through converting would-be waste into useful materials, which will be done by melting plastics and using the variety of machinery and tools at our disposal. REBOOT lab overall hopes to provoke discussions that will lead to action and will in turn implement practices that can result in alternative and sustainable futures.

(40) **Adenosine Deaminase Associates with Self-Reported State Anxiety and Evening Melatonin Levels.**

Franklin S. Hiffernan and Jaime L. Tartar
Nova Southeastern University

Increased adenosine levels throughout the day promote sleepiness; this chemical is broken down by the enzyme adenosine deaminase (ADA). A single nucleotide polymorphism (SNP) in the ADA gene (rs73598374) has been shown to affect sleep regulation. This ADA SNP substitutes a G allele with an A allele, thus reducing ADA enzymatic activity and resulting in higher adenosine levels. Consistent with the idea that adenosine promotes sleepiness, carriers of the A allele show elevated sleep pressure and increased EEG measures of deep (delta) sleep. Aside from these findings, the extent to which lower ADA enzymatic activity is associated with the homeostatic sleep factor, melatonin, is uncertain. This association is a distinct possibility, however, because adenosine has been shown to increase melatonin production in rat pineal glands. In order to test this possibility, we examined the extent to which the ADA polymorphism

is associated with evening melatonin levels, along with several measures of self-reported sleep and mood behaviors. Our findings support the idea that adenosine can enhance melatonin levels. Relative to the GG group (Mean= 19.80, SD =8.61), the AG group (Mean= 27.27, SD = 16.63) had significantly increased melatonin levels, $F(1, 83) = 7.27$ $p=0.008$. However, differences in self-reported sleep behavior between the GG group and the AG group were not significant. Interestingly, however, AG carriers reported significantly higher state anxiety ($p=0.046$) with a trend for increased trait anxiety and moodiness. These findings advanced our understanding of the biochemistry of sleep and uncovered a relationship between ADA gene expression and anxiety.

(41) **The effectiveness and value of virtual leader behaviors.**

Robert Gray, Sarah E. Frick, and Wendy L. Bedwell
University of South Florida

The central aim of this research is to determine which leadership behaviors are viewed as effective and valuable by virtual team members. This research seeks to understand how various factors, such as personality traits, positive and negative affect, supervisor liking, and amount of experience with virtual teams, relates to perceptions of effectiveness and value related to certain virtual leadership behaviors. Participants were 62 adults recruited through snowball sampling. After consenting to participate, they completed a 148-item survey regarding the variables aforementioned. The results show that virtual team members may have different perceptions on which leader behaviors are effective as compared to which are valuable. Practical implications and future research directions are discussed.

(42) **A Key to Septobasidium of the Southeastern United States.**

Gabriel Somarriba and Dr. Andrea Lucky
University of Florida

The purpose of this paper is to provide a key for the identification of fungi in the genus Septobasidium, specifically those species found in the Southeastern United States, and to provide the reader with a brief and lucid introduction to this understudied and fascinating group. The content in this paper is primarily based off the observations and keys in John N. Couch's The Genus Septobasidium, the finest and most complete work on the group to date.

(43) **Is it Good to be Bad? Taboo Words Reduce Tip-of-the-Tongue States for Young Adults.**

Jori Mansfield[1], Danielle K. Davis[1], Lise Abrams[1], and Lori James[2]
[1]University of Florida and [2]University of Colorado- Colorado Springs

Tip-of-the-tongue (TOT) states represent a temporary inability to retrieve a known word. Despite anecdotal claims that arousing states such as stress or anxiety increase susceptibility to TOTs, the empirical evidence linking emotional arousal and TOTs has been mixed. In the present experiment, college-age students first produced either emotionally-arousing taboo words or neutral words. Following the word, participants read a general knowledge question whose answer was a specific target word, and they indicated whether they knew, did not know, or were having a TOT for the answer. The results demonstrated that arousing language actually

decreased TOTs, contrary to anecdotal reports. These results are discussed in terms of mechanisms that may be responsible for a relationship between processing of emotionally-arousing taboo information and word retrieval; specifically, that some forms of emotional arousal may be beneficial for cognitive tasks like word retrieval.

(44) **Uniformity of Skin Temperature Distributions in Ultra-Thin Thermal Ground Planes Compared to Copper Heat Spreaders.**

Itza Beltran, Shanshan Xu, Ryan J. Lewis, YC Lee, and Ronggui Yang
University of Central Florida

Advances in technology have created a demand for better thermal management solutions. Higher performance in increasing smaller spaces is a major constrain in the design of new systems. One way to address this issue is by using a heat pipe ultra-thin thermal ground plate (TGP). TGP's are devices that have higher thermal conductivities than conventional solid heat spreaders and can be easily integrated into small electronic devices. This study examines the uniformity of the TGP's skin temperature distributions compared to a copper heat spreader with the same dimensions. Our objective is to be able to fabricate and design TGPs which have higher thermal conductivity than copper and can achieve more uniform skin temperature distributions of the devices.

(45) **Determining Polyhydroxylated Fullerene Interactions with Amyloid-Beta 42 Oligomerization and Understanding their Role in Aß-Induced Oxidative Stress in Neural Stem Cells.**

Dr. Kiminobu Sugaya and Alexander Torres
University of Central Florida

A current aim in Alzheimer's disease research is to inhibit the effects of oxidative stress induced by marker protein amyloid-ß (Aß) via antioxidants. Preliminary studies showed a correlation between the free radical levels in NT2N cells exposed to Aß42 and the amount of a soluble fullerene (PSGF, C60 – C400 –OH~24) in the cells. PSGF was linked to a reduction in free radical production induced by Aß42 exposure. While there is a link between PSGF and free radicals, the mechanism in which PSGF works is still unknown. Current studies suggest that a few fullerene derivatives interact with certain segments of amyloid-beta peptides ranging from Aß20-40 and prevent the dimerization and oligomerization of Aß monomers. One purpose of this study is to determine whether PSGF interacts with Aß42, and if it affects the oligomerization of Aß42. PSGF with Aß42 will be run through a native gel to determine whether PSGF inhibits dimerization or oligomerization of Aß42. Another purpose of this study is to understand the mechanism in which free radicals are produced when exposed to Aß42 and how PSGF prevents amyloid-toxicity in human neural stem cells (hNSCs). PSGF being a suitable multifunctional antioxidant of study for Alzheimer's requires study of the changes in characteristic hNSC genes, SOX-2 and Nestin via relative qPCR. From this study, it can be concluded as to whether PSGF prevents oxidative stress damage in hNSCs not only by acting as an antioxidant, but by also interacting with Aß42 oligomerization.

(46) **Does Speaking Two Languages Improve Non-Linguistic Executive Functions?**

Maria Panameno, Luz Delgadillo, Morgan Musgrove, and Mercedes Fernandez, Ph.D.
Nova Southeastern University

Executive function (EF) regulates cognitive processes such as working memory, set shifting, and inhibition. EF also controls language output when a bilingual speaks, leading to the hypothesis that, in general, EF are better developed in bilinguals than in monolinguals. In this study we investigated EF in two language groups; we compared bilingual and monolingual participants on tests of EF to reveal the non-linguistic advantages of speaking two languages. Spanish/English bilingual and English monolingual college students were matched on nonverbal intelligence tests, English language proficiency, SES, and parental education. Preliminary findings show that bilinguals outperform monolinguals ($p < .03$) on the Wisconsin Card Sorting Test, a measure of set shifting abilities, but not on the non-verbal Stroop test ($p > .10$), a test of response inhibition. These preliminary findings suggest that bilingualism may enhance some, but not all, components of EF. Considering EF is mediated by the frontal lobes, success in this study may allow for enhancement of brain performance in non-linguistic activities.

(47) **Threats to Aviation: A Causal Analysis of Homeland Security.**

Dennis Rumpel and Priscilla McDonald
Embry-Riddle Aeronautical University

This causal report has a focus on homeland security, particularly when it comes to the field of aviation. The analysis is conducted by compiling aviation incidents ¬ such as security breaches and terrorist attacks ¬ from 1960 to 2010, wherein certain trends can be identified. By organizing incidents by decade, this leaves five periods with which to form a comprehensive review of how threats evolved over time. In addition, the response by security authorities ¬ such as changes to regulations and methods of inspection ¬ is examined in order to determine if it was timely and appropriate. With the frequency of attacks on aviation in recent history, it has been found that the Federal Aviation Administration is a reactive agency when it concerns the security of aviation assets.

(48) **β Arrestin-1 Regulates Glucocorticoid Receptor Expression in Cancer Cells.**

Xzaviar Solone[1], Hamsa Thayele Purayil, Yehia Daaka
[1]Bethune-Cookman University and University of Florida

Introduction: Approximately one in seven men will be diagnosed with prostate cancer during their lifetime. Androgen Deprivation Therapy is a possible type of precision medicine treatment that targets and lowers the androgen levels in men. The body supplements this lost with steroids. The glucocorticoid receptor (GR) is responsible for regulating gene transcription. βArrestin-1 (β Arr-1), is an ubiquitously expressed protein that regulates G protein-coupled receptor activation associated with tumor development and progression. This research studies the mechanism when β Arr-1 is knocked down within prostate cancer (PCa) cell lines. Methods: The cell lines PC3, DU-145, A549 were targeted with silencing mRNA for β Arr-1. The Western Blot technique was used to test whether the GR has a correlation when β Arr-is knocked down, on the protein level, in the cells listed above. The qPCR method was used to observe the effects that β Arr-1has on the glucocorticoid receptor on the gene level Results: PC3 cells were tested against DU-145 cells

to show which cell line has more levels of GR; DU-145 cells expressed more GR. β Arr-1 were knocked down in those cells, and shows that there was a down regulation of GR on both the protein and gene level. A549 cells were used to test if this process works for other cancer cells and there was also a slight down regulation of GR. Conclusion: Testing shows a significance decrease of the GR when β Arr-1 is knocked down in DU-145 cells and a slight decrease in A549 cells.

(49) **Taxonomy of plants through DNA Barcoding with the use of RuBisCo.**

Nebat Ibrahim
Valencia College

As we continue to advance in the way we approach science, new methods are developed to keep up with the demand for new findings and the preservation of the knowledge we have already gained. Taxonomy of living organisms is under construction with the new use of DNA barcoding. This new initiative will allow scientists from all over the world to build a database with an inventory of plants, animals and all other types of species through the sampling of DNA. We were able to begin sequencing samples from our own collection of plants at the East Campus Valencia College Greenhouse. RuBisCo large subunit (rbcL) was used as the gene of interest because it is a common sequence found in a large majority of plants yet it allows us to differentiate plants. The Calea ternifolia sample was amplified by PCR using forward and reverse primers, and the quality of the DNA sample was verified by gel electrophoresis before submission for sequencing. Gel electrophoresis was used to make certain that we had a good DNA sample to send out to be sequenced in the forward and the reverse. The results were then evaluated through the use of DNA Subway to identify or find a close match for the plant. Results came close to one particular species, Ageratum conyzoid. This name was inconsistent with the name given at the greenhouse, Calea ternifolia. Such a difference could be due to an error in labeling.

(50) **The Development of Intonation in Second Language Spanish.**

Mercedes Puig, Carolina Gonzalez, Anel Brandl, Brandl, and Amy Bustin
Florida State University

This project addresses the development of intonation in learners of a second language. Intonation (the melodic pattern of a sentence) is fundamental to understand a foreign accent. The main goal of this project, conducted in collaboration with Dr. Anel Brandl (Dept. of Modern Languages and Linguistics) is to contribute to our understanding of how intonation develops in second language learners. Specifically, this project examines how adult Spanish learners perceive and produce the intonation of statements and questions at different Spanish proficiency levels (beginning, intermediate, intermediate-advanced, and advanced). The proposed study provides a cross-comparison of intonation across four Spanish proficiency levels, and also lays the groundwork for following the development of acquisition through several semesters of language study. The experimental design combines both intonation perception tasks and intonation production tasks. To investigate the development of intonation from a perceptual point of view, participants in this study will perform an intonation identification task via the computer program SuperLab 4.0. To investigate the development of intonation from the point of view of production, participants in this study will perform two tasks in Spanish: a sentence reading task,

and an elicitation task. For the sentence reading task, participants will be asked to read a list of 40 Spanish questions and statements. For the elicitation task, participants will view a PowerPoint presentation with 40 slides depicting different situations. We are currently gathering data to be analyzed throughout this semester hence there are not observable results yet.

(51) **Academic success among former delinquent youth: Motivating factors.**

Kimmie Henderson and Jennifer Wolff
University of North Florida

The purpose of this study was to understand what makes an individual, who used to be delinquent, go on to become academically successful. There is a large amount of research confirming a link between low academic achievement and delinquency. However, no previous research has examined why some individuals are more likely than others to forego their delinquent inclinations and pursue higher education. The sample size included over 200 participants, recruited through University of North Florida. Data was collected that includes established measures as well as open ended questions that allowed participants to define and explain delinquent behavior and give details about their experiences growing up. It was hypothesized that individuals with a history of delinquency are more likely to become academically successful if they have higher levels of one or more of the following variables: self-efficacy, resilience, intrinsic academic motivation, mentorship, and personality traits of conscientiousness and neuroticism. Planned analyses, including logistic and linear regression, will determine which variables distinguish delinquent and non-delinquent individuals. By examining the lives of formerly delinquent youth, who have become academically successful, we will benefit the economy, communities, families and the individual. The more that is understood about the decision making process of academically successful delinquents, the better equipped we will be to implement interventions that can help target these specific variables in those individuals still involved in delinquent behaviors. This will help those who have yet to veer away from delinquent behaviors choose to be productive members of society.

(52) **Two Terms of the Cuban Counterpoint: Transculturation in the Poetry of Nicolás Guillén.**

Alanna Fulk and Dr. Celestino Villanueva
University of Central Florida

The history of Latin America and the Caribbean was irreversibly altered by the arrival of the conquistadors, destruction of native civilizations and implementation of colonialism for hundreds of years. However, Spain also introduced the high culture of the baroque to Latin America and the Caribbean, which mixed with the cultures of native and African peoples, creating new, distinct forms of literary expression. Subsequent post-colonial cultural movements attempted to explore and reaffirm the variety of cultures that shaped both regions, including the Afro-Cubanism movement in Cuba, which occurred from 1910-1940. Afrocubanism was a movement intended to incorporate African folklore and music into traditional modes of art. While many authors and artists were instrumental to Afro-Cubanism, Nicolás Guillén is considered to be the most influential author of the movement, due to his new and inventive style of poetry that incorporated both Spanish and African influences. This study will demonstrate how Guillén's use of traditional poetic forms, the son and portrayal of everyday Afro-Cuban life reveal his

vision for a post-colonial, transcultured Cuban society, rather than a Cuba subject to colonialism and acculturation.

(53) **On the Expected Increase in Mobile Transactions Authenticated Through Biometrics.**

Loren Barcenas and Koray Karabina
Florida Atlantic University

Biometrics, the identification of specific individuals by unique physical characteristics – such as fingerprints, irises, vein configuration, or facial features – promises greater convenience and security than current traditional identification methods. This is due to the fact that physical features cannot be easily lost, stolen, shared, or forgotten like passwords, PIN numbers, or membership cards. Our study explores the social acceptance and practical implementation of biometrics, especially its projected growth in the field of mobile transactions. The purpose of our study is to support the claim that the usage of biometric systems, especially in authentication of mobile transactions, will significantly increase over the years despite security and privacy breaches. Because biometrics is a relatively new technology with little previous data, we circumvent this issue by correlating its usage to that of smart phones in order to analyze statistics and past trends to create regression analyses. According to our findings, in the coming years the number of biometric users will increase from $7.72 billion in 2014 to $10.26 billion in 2019, thus it would be prudent to invest in biometrics by not only implementing more systems, but also making better, more reliable systems relying on new standards that are sure to follow.

(54) **My Dispersed Ones: The Search for an Ethiopian Place in Twentieth Century America.**

Ebony Taylor
University of Florida

This project involves understanding African American identity at the turn of the twentieth century. The goal is to show that the model presented of black identity by W.E.B. Du Bois in The Souls of Black Folk, as an ongoing conflict between being black and American, is a useful but imperfect framework for understanding what blackness meant in this period. This has been done by examining the case of one black minister, John William Norris. Utilizing the writings of Dr. Norris, including a monograph he wrote in 1916, this project analyzes a man who formed an identity around being American and Christian. He also embraced a mythical African past that was neither fully historical nor fully biblical. This project also consults a number of secondary sources. Upon examination of Norris's case, it becomes clear that Norris practiced a blending of identities rather than attempting to navigate the conflicting identities presented by Du Bois. This amalgamation allowed him to operate in a society that had not been built for him. Through understanding the story of Norris, one is reminded that in the early twentieth century, as with today, there is no singular black way of being. Rather, African Americans, while collectively answering the question of where they belonged had individualized and unique responses to Du Bois's question of "how does it feel to be a problem?"

(55) **Cortical Auditory Evoked Responses of Older Adults with and without Probable Mild Cognitive Impairment.**

Anthony Asta, Jennifer J. Lister, Aryn L. Harrison Bush, Ross Andel, Courtney Matthews, and Jerri D. Edwards
University of South Florida

Early detection of cognitive impairment, often a precursor to dementia, is important for effective disease management. Hearing loss is a risk factor for both cognitive impairment and dementia. Cortical auditory evoked potentials (CAEPs) have shown promise as neurophysiological indicators of early-stage cognitive impairment. One set of CAEPs, the P1-N1-P2 complex, reflects synchronous neural firing in the thalamocortical segment of the central auditory system in response to onset of acoustic change. Although existing literature is limited, P1-N1-P2 responses have been shown to differ in amplitude and latency relative to cognitive status. The primary purpose of the present study was to further examine differences in the P1-N1-P2 complex in individuals with and without probable mild cognitive impairment (MCI) and to identify the most promising neurophysiological indicators of MCI. Methods/Analysis/Results: P1-N1-P2 complex latencies and amplitudes were measured at electrode FCZ using a traditional stimulus (1000 Hz pure-tone) and a more ecologically valid speech stimulus (syllable "ba") in two groups of older adults (65-90 years): 17 cognitively normal older adults (CNOA) and 13 adults with probable MCI. Peak amplitudes and latencies were submitted to a repeated-measures multivariate analysis of variance, with group (CNOA, MCI) as a between-subjects factor and stimulus condition (pure-tone, speech) as a within-subjects factor. Significantly smaller P2 amplitudes were found for MCI compared to CNOA across stimulus conditions, $F(1,28)=8.79$, $p=.006$, partial eta squared $=.239$. Conclusions/Significance: CAEPs have potential to serve as efficient, non-invasive indicators of early-stage cognitive impairment. Specifically, P2 amplitude may indicate the presence of MCI.

(56) **Generation Rated X: Personality Traits, Sexual Attitudes, and the Effects of Sexually Explicit Media on Attraction Among Men.**

H. Christopher Eckstein
University of Central Florida

The current study examines the effects of pornography on males when rating unknown women on attractiveness in a one-group pretest-posttest design. The influences of personality traits and sexual attitudes are also investigated for meaningful associations with the degree of desensitization after SEM exposure. The current study will show that when exposed to SEM, undergraduate males will evaluate female faces as less attractive than in pretest trials, demonstrating a desensitization to attraction. There will also be an association between different personality traits and sexual attitudes as assessed by the Big Five Inventory (BFI), the Pornography Craving Questionnaire (PCQ), the Sexy Seven Inventory (SSI) and the revised Socio-sexual Orientation Inventory (SOI-r). Participants will be a convenience sample of 150 male undergraduate students, ages 18-25. Participants will take the PCQ then assess 15 images of female faces for attractiveness. Participants will then answer the BFI and the SSI, and watch five-minutes of SEM. During the posttest, participants will re-rate the images shown in the pretest, and lastly answer the SOI-r and demographic questions. This study will provide additional support for the desensitizing effects of SEM on attraction as well as discern any

correlations between various personality traits and different measures of socio-sexual attitudes. This research has value in that sexual misconduct continues to occur in college life and it is a reflection of socio-sexual attitudes. Furthermore, different facets of personality and socio-sexual attitudes will be examined for interactions with desensitization effects of SEM which has not been previously attempted.

(57) **Expression profile of Monocarboxylate Transporters and Basigin gene products in the mouse cornea.**

Randall Maniccia, Joseph Fong, and Judith D. Ochrietor
University of North Florida

Monocarboxylate transporters (MCTs) transport lactate, pyruvate, and ketone bodies. Expression of MCTs has been linked to the expression of Basigin gene products, to form a lactate metabolon that has been determined to be essential for proper photoreceptor function in the neural retina, and hence vision. Since the cornea is the outer, protective portion of the eye, this research group was curious if a similar lactate metabolon is present in that tissue. Therefore, the purpose of the present study was to determine whether Basigin gene products and MCTs found within the neural retina are also expressed in the corneal epithelium of mice. Corneas were isolated from mice using an accepted protocol and pooled so that detergent-solubilized proteins and RNA could be isolated from epithelial cells. ELISA analyses and quantitative reverse transcriptase polymerase chain reaction (q-RT-PCR), were performed to test for the presence of Basigin gene products, MCT1, MCT2, and MCT4. It was determined that the short form of Basigin, MCT2, and MCT4 were found within the corneal epithelium; however, MCT1 and the long form of Basigin were not detected. These data suggest that a lactate metabolon may be present in mouse cornea. In addition, the data are consistent with data obtained by other laboratories using human and rabbit corneas, with the exception of MCT1, which was found in those other species. Future studies will determine the role played by the lactate metabolon during wound healing of the mouse cornea.

(58) **How the Hong Kong educational system has impacted students' self concept.**

Yin Shan Chung and Dr. Dina Wilke
Florida State University

Public primary and secondary schools in Hong Kong have been divided into three levels,according to students' academic performance: the elite level (Band 1), the average level (Band 2), and the below average level (Band 3). Each school is identified as a Band. By reading existing literature, I have realized that there is not many studies have been conducted regarding the Bands system. I am interested in investigating how students from the separate bands of secondary school differ. The main purpose of the study is to examine students' experience of schools in Hong Kong. A survey is designed to ask approximately 120 students from different bands secondary schools to fill out. Questions include variables such as students' satisfaction with the Bands system, level of motivation of being in school overall perception of being in school, satisfaction with class activities and assignment, pattern of time spent in academic and leisure students' self-efficacy and career orientation. It is hypothesized that students from Band 1 secondary schools have a higher satisfaction with the Bands system, greater motivation, longer

time spent in academic and leisure activities, higher self-efficacy, and clearer orientation than the students from Band 2 and Band 3 secondary schools.

(59) **Faking Gravity.**

Dylan Whitman
South Florida State College

Space travel is probably one of the most iconic things in all of science fiction, and this project has geared itself towards finding out how we might travel to distant worlds like in Star Trek and Star Wars, with a key focus on gravity. Using information gained from accredited scholarly sources, I will display a handful of the most recognized methods of achieving artificial gravity, a key component in long term space travel. Pros of the methods mentioned will be explored along with their drawbacks. From all prior drawn evaluations of the data, I will then elaborate on some proposed solutions to the issues of achieving artificial gravity and draw conclusions as to the likely method of achieving artificial gravity that will be used in the future.

(60) **Environmental repercussions of American diets.**

Shannon Conley and Samantha Miker
Florida State University

In a world where people are beginning to look at their personal impact on the environment, one factor seems to become trendier by the day; eating environmentally. This research project aims to examine the actual environmental impacts of diets commonly found in America in order to determine the least impactful way of eating. In order to see this, we will use previous studies and statistics on food production to determine the land, water, and energy used to sustain each diet. We will compare data from the different diets and determine to what extent people are impacting the environment through their consumption habits. We hope to both find a diet that helps people eat environmentally as well as give people more information on the impact that their food has. This research emphasizes the importance of personal responsibility of environmental impact by applying it to something humans hold near and dear; our food.

(61) **Social Media Activism and the SOA Watch Movement.**

Summer Harlow, Ambar Martin and Carly Gillingham
Florida State University

Social media has had a profound effect on every aspect of our society. From how we shop to who we elect for office. The realm of political and social activism has been equally affected by the proliferation of social media and while there is research on how social media has been used to facilitate spontaneous action there is not a lot of information on how protesters use social media to coordinate action and which social mediums are prefered. This study seeks to breach that gap. Furthermore, by studying a movement that is older than Zuckerberg himself, this project also seeks to learn how traditional movements have utilized this newfound tool. This study looked at the social media posts made by School of the Americas Watch activists during the November vigil at Fort Benning, Georgia for the years of 2014 and 2015. The research covered all major social media platforms (Facebook, Twitter, Reddit, etc.) and coded questions on how and why different individuals and groups were using particular social media platforms.

While the study has not reached any definite conclusions, the implications seem to be that this group of protesters have been reasonably successful at including social media into their traditional offline protests. It also appears as if this group of activists select social media platforms depending on which one(s) best fit their needs.

(62) **Astronaut Farmers: Growing Food in Space.**

Christian Reitnauer and Keysha Pecor
South Florida State College

Very soon, human space exploration will begin to transition from short scientific expeditions to long voyages, and eventually, the colonization of other bodies such as Mars. As such, it will become necessary to adapt to surviving away from Earth for long periods, perhaps most significantly by growing food, as supplying these long missions with food shipped from Earth simply isn't feasible. There are many experiments and projects underway to develop and refine the techniques needed for astronauts and future colonists to grow the food needed to sustain themselves in space, as well as existing technologies that are being adapted for use in space. This project will provide a brief overview of some of the techniques that could be used for growing food in space or on other planets.

(63) **Lung Cancer Mortality in Volusia County: How Does Volusia Measure Up to the Healthy People 2020 Objective?**

Audrey Cherin, Fidel Vasquez, and Laura Gunn
Stetson University

Lung cancer (LC) is the leading cause of cancer-related deaths in the U.S. for both men and women. Among the national Healthy People 2020 objectives is to decrease LC deaths by 10% to 45.5 deaths per 100,000 persons. The purpose of this study is to identify LC trends in Volusia County, assessed by quadrants, and analyzed for disparities in mortality rates. Interest focuses on how rates in Volusia stand against national and state rates, as well as the Healthy People 2020 target. The study is conducted in collaboration with Florida Department of Health-Volusia County. Statistical analyses were performed using SPSS on county-level population data, including vital statistics (death records), hospital inpatient data, and ambulatory and emergency department data from 2014. Among deaths in Volusia County in 2014, 15.2% were linked to cancer, while 6.1% were from LC. Thus, LC constituted about 40% of all cancer deaths that year; males accounted for 56.0% of LC mortalities. Among LC deaths, 47.9% held a high school diploma or GED. The overall age-adjusted LC mortality rate was 43.7 deaths per 100,000 persons (95%CI 39.38, 48.04). Age-adjusted LC mortality rates were significantly higher for whites (46.2; 95%CI 41.37, 51.04) compared with Hispanics (19.3; 95%CI 9.61, 34.46), while that of blacks was in the middle (32.9, 95%CI 19.18, 52.73). Although the northeast quadrant of Volusia saw the highest rate, it was not significantly different from other quadrants. Volusia County rates across ethnicities currently do not statistically depart from the LC mortality Healthy People 2020 objective.

(64) **The Science Behind Science Fiction: Star Trek: The Original Series and The Martian.**

Alexis Drzewucki, Heather Oyola, and Katherine Oyola
South Florida State College

For our project, we are analyzing the science behind science fiction. We have selected the movie, The Martian, and the science fiction TV series, Star Trek: The Original Series, as our general research basis. After watching the aforementioned resources, we will cross-reference with articles from currently available online databases. We will focus on pinpointing the aspects of science fiction that is either currently possible or plausible with future scientific advancements. From there, we will compile our scientific findings on whether science within science fiction is actually possible into a neatly organized paper.

(65) **Role of carboxyl end helical domain in unusual high stability of Anabaena Sensory Rhodopsin Transducer oligomeric assembly.**

Stephon Hercules, Sharita Ellison, C. Ainsley Davis, and Vishwa Trivedi
Bethune Cookman University

The Anabaena sensory rhodopsin transducer [ASRT] is a 125 amino acid protein that has been indicated to function as a signaling molecule downstream of the cyanobacterial sensory rhodopsin photoreceptor. The crystal structure along with solution state NMR has reveled that this beta stranded protein exists in tetrameric state. Interestingly a recent study has demonstrated the eukaryotic-like interaction of ASRT with DNA. Besides interaction with photoreceptor, ASR and DNA binding ability, the ASRT display a common structural fold that may be transform it as an unique carbohydrate binding module. Besides novel ligand binding, the signaling state/mechanism of ASRT is obscure. Our preliminary data supports the hypothesis that carboxyl terminus of ASRT is involved in highly stable oligomeric assembly and may be linked to signaling state of this novel transducer molecule. We observed that position of hexa-histidine tag, used for ease of single step purification at carboxyl terminus destabilize the tetrameric state. In this project, we attempted to explore the unique stability of this transducer protein by selectively removing carboxyl end domain [aa sequence 100-125 deletion]. The unfolding profile suggests that this region of 100-125 is critical in unusual higher stability. The electrophoretic mobility results are well aligned with size exclusion chromatography. The truncated form of ASRT does not exhibit any significant influence due to presence of the hexa-histidine tag on oligomeric state. Currently we are working to pinpoint the unfolding of ASRT using chemical denaturant using circular dichroism and fluorescence spectroscopy.

(66) **Early-Childhood Exploration & Cognitive Development.**

Nicholas Emord and Ayshka Rodriguez
University of North Florida

Children with disabilities have very few options for independent mobility, which is an integral part of early human development. Without the ability to self-explore their environment, cognitive developmental patterns are stunted. UNF's Developmental Research Team aims to enable children with various inhibiting conditions to regain mobility during a critical stage in their cognitive development. The devices used for child mobility are commercially available battery-

powered ride-on toy cars. The toy cars are then highly modified to accommodate each child's specific disabilities. The modifications to the toy car are designed to improve accessibility, while also challenging the physical therapy needs of the child. In order to establish a positive correlation between exploration and cognition during early development, the team designed and modified a vehicle with the ability to record patient data during use . Data collection will be achieved through embedded sensors in the toy car. Force sensors were installed at the foot plates of the vehicle in order to record weight distribution as the child made turns, accelerated and decelerated. A potentiometer was connected through a gear mesh to the steering column in order to record range of steering. It is the expectation of the UNF Developmental Research Team that upon analyzing the data collected, a positive correlation between early childhood exploration and higher cognitive and physical functionalities will be confirmed.

(67) **On the Origin of the Moon.**

Abubakr Hassan
University of North Florida

The dominant theory of the moon's origin is the Giant Impact Hypothesis, which states that the moon formed when a Mars-sized object - named Theia - impacted the proto-Earth early in the solar system's formation, with the resulting material contributing to the formation of the Moon. Using models of planetary development and the solar system's formation, we attempt to answer where the impactor - Theia - might have originated from. We conclude that the Asteroid belt is a possible location for Theia's formation, and we find that the parameters associated with this point of origin may help advance other models of the Moon's formation.

(68) **The Effects of Invasive Grass and Drought on Arthropod Communities.**

Michelle Dunbar and Dr. Andrea Lucky
University of Florida

The impacts of invasive species and climate change on ecosystems are of increasing importance worldwide. Although the effects of these factors on biotic communities have been tested in isolation, few studies have examined the interaction of these factors in experimental settings. This study assessed the impact of Cogongrass and drought on local arthropod communities in outdoor experimental plots over four field seasons. Cogongrass is a globally invasive grass that is economically important in over 70 countries. Arthropods were identified to order and family level and were assigned to functional groups. Analysis of the effects of invasion and drought on these groups shows that the effect of Cogongrass compounded with drought conditions negatively affected all functional groups of insects. The most significant reductions in numbers of insects were among sap-sucking insects (Hemiptera). These findings suggest that invasive plant species not only affect plant community composition, but secondarily affect arthropod community diversity as well. The negative effects of Cogongrass invasion on these species may result from the loss of host plant species as well as reduced structural diversity, as both of these factors affect temperature and moisture levels of arthropod microhabitats.

(69) **The impact of endocrine disrupting compounds found in waste water effluent on the embryonic development of Oryzias latipes (Medaka fish).**

Zachary Loeb
University of Central Florida

Endocrine Disrupting Compounds (EDCs) mimic hormones causing a profound global impact on the embryonic development and reproductive processes of aquatic life. These effects are observed locally in Florida's Fenholloway River as a result of EDCs in paper mill effluent. The goal of this project is to study the effect on the embryonic development of medaka fish exposed to highly persistent EDCs and paper mill waste water effluent from the Fenholloway River. EDCs researched include highly persistent Nonlyphenol, ubiquitous Bisphenol A, Atrazine, and Benzyl Butyl Phthalate (BBP) which is a common phthalate. Lastly the phytosterol Stigmastanol, and phytoestrogen Genistein were tested. Enzyme linked immunosorbent assays and gas chromatography concentration testing were performed. For each EDC type, 6 medaka embryos were measured every 24 hours to determine the growth rate. Exposure to the EDCs resulted in a reduced embryonic growth rate that ranged from a 28% reduction to 40% reduction compared to the control (distilled water) medaka eggs after 72 hours. Heart and blood vessel issues were observed. While this project focused on the aquatic environment the spread of endocrine disrupting compounds affects reproductive processes in other forms of wildlife including amphibians and mammals The exposure to EDCs has been found to be ubiquitous for humanity as well and is impacts society because of the adverse health effects observed from exposure such as links to heart disease, diabetes and liver abnormalities in humans.

(70) **Development of an Allelopathic Biofilm as an Alternative to Commercial Boat Bottom Paint.**

Amanda Smith, Kathy Siegler, and Ray Menard
St. Petersburg College

Formation of a biofilm is often considered problematic in the scientific community. These "slime" communities of microscopic organisms will react differently to antibiotics and stimulates, compared to their singular species counterparts; however, there may be uses for man-made biofilms. A man-made biofilm, containing microbes known for producing allelopathic chemicals, could have possible uses as an alternative to harmful, biocide containing, boat bottom paint. In order to develop such a biofilm, it was important to understand the microbes that would form a biofilm in freshwater and marine environments. Samples were taken from four bodies of water ranging in salinity, and each sample was used to conduct baseline tests. The four water samples, as well as three known bacterium samples, were incubated in broth to observe the growth of microbes tolerant to higher salt concentrations. All samples resulted in growth, including the freshwater pond. A biofilm assay was conducted using the four water samples to observe the ability for naturally occurring microbes in the environment to create a biofilm. Streak plates of marine agar were used in order to identify microbes from each sample, in order to identify any naturally occurring microbes that are known to produce a biofilm or contain allelopathic compounds. These preliminary tests will be of vital importance in continued research towards developing the desired allelopathic biofilm.

(71) **Can we plant newly restored sites to resist invasion from Phragmites australis?**

Allison Bechtloff, Carrie Reinhardt Adams, Candice Prince, and Leah Cobb Lee
University of Florida

Coastal salt marshes, with their unique plant communities, facilitate critical ecosystem services such as phytoremediation and protection during stormwater surges. Many of these services have been threatened by urbanization and climate change in recent years. Phragmites australis is a common species in wetlands across North America that is divided into haplotypes, with both native and invasive haplotypes present in the United States. Haplotype M from Eurasia is a major invader of coastal salt marshes, where it excludes native plants and alters the hydrological dynamics of the system so that it is uninhabitable for other species. Haplotype M has yet to invade Florida, but has been found nearby in coastal Georgia and Mississippi. The threat of invasion into Florida marshes from these locations may be exacerbated by climate change and sea level rise (SLR) scenarios unique to Florida coasts. A greenhouse competition experiment tested the resistance of new plantings of a native marsh species, Juncus roemerianus (two planting densities), to combinations of Phragmites invasion and (SLR) (two water levels). Phragmites exhibited the highest shoot density when planted alone, and exhibited suppression when planted with J. roemerianus. Phragmites was most suppressed at the deeper water level. Juncus roemerianus grew similarly across all treatments but outcompeted Phragmites in the deeper water level. These results suggest that revegetating newly restored wetlands with high densities of J. roemerianus may confer resistance to Phragmites invasions. Further research is merited to determine the relationship of native and invasive plants under conditions of SLR.

(72) **Unusual High Strain Hardening of Carbon Nanotube Networks: Mechanisms and Experimental Results.**

Devin Justice, Rebekah Sweat, Ayou Hao, and Richard Liang
Florida State University

Mechanical stretching of carbon nanotube (CNT) networks, or buckypaper, results in a unique phenomenon of strain hardening that corresponds to dramatic increases of alignment degree and crystalline packing. The strain hardening index and the mechanics behind it were compared to those of other engineering materials. Buckypaper has an extremely high strain hardening index as high as 0.8 because in addition to strain hardening the Buckypaper increases strength significantly due to the substantial improvement of alignment in previously random CNT networks. Such increase in strength due to alignment is not present in metals and is present only in much less significance among polymers. Buckypaper's high susceptibility to strain hardening has proven to be a useful property to enhance mechanical properties of CNT materials for potential industry applications.

(73) **Observing Myrmecophilus relationships between Odontomachus brunneus and Lamellaxis micrus.**

Joshua Hildebrandt and Dr. Andrea Lucky
University of Florida

Symbiotic interactions between ants and snails are extremely rare, and have not previously been reported in North America. This study documents, for the first time, the association of an exotic

snail species, Lamellaxis micrus, with the native trapjaw ant, Odontomachus brunneus, in Florida. This behavioral study assessed interactions between these two species, and compared them to interactions with control species: closely related ants and snails with no evidence of symbiotic associations. Trials involved introducing snails into captive lab colony enclosures and recording behavior in 1-minute increments for 15 minutes. Snails were observed afterwards for 24 hours to assess any damage or death. Results show that trapjaw ants demonstrate reduced aggression towards, and greater acceptance of L. micrus than other snail species. Other ants show little discrimination between snail species. This study increases our understanding of this uncommon association, and will contribute to an improved understanding of other myrmecophillous relationships.

(74) **Comparison Between FTIR and Boehm Titration for Activated Carbon Functional Group Quantification.**

Chad Spreadbury, Regina Rodriguez, and David W. Mazyck, Ph.D.
University of Florida

Activated carbon is an effective adsorbent for removing contaminants like mercury from air and water phases. The adsorbent capacity of activated carbon results from its porous structure which creates high surface area and has numerous oxygen functional groups on its internal and external surface. Specific oxygen functional groups allow for mercury removal, and the analysis of the chemical composition and quantity of these groups can play a key role in the effectiveness of mercury oxidation and subsequent removal via adsorption. The most common analytical methods for oxygen functional group detection are Fourier transform infrared (FTIR) spectroscopy and Boehm titrations. FTIR spectroscopy excels at analyzing surface functional groups as this method has been shown to be especially capable of measuring carbonyl functional groups on surfaces. FTIR transmission presents qualitative analysis while FTIR reflectance provides quantitative information for surface functional groups on activated carbon. Boehm titrations utilize bases with different strengths to react with and neutralize acidic functional groups on the surface of activated carbon. Boehm titrations also measure substantial acidic functional group neutralization in the mesopores and micropores of activated carbon. The potential outcomes for replacing an internal functional group titration method such as Boehm with an external functional group test like FTIR when determining total functional group on the activated carbon's surface will be examined in this work. For instance, a correlation may be found between functional group data for treated activated carbons that have high functional group concentrations and the respective FTIR wavelengths for each sample.

(75) **Solar Powered Electrocoagulation system with granular sand filtration for Phosphorus Removal from Surface Water.**

Daniel Franco, Jabari Lee, and J.-Y. Kim Ph.D.
Florida Gulf Coast University

Phosphorus (P) impairment of surface waters remains a major concern worldwide. Excessive nutrients are loaded into water bodies, resulting in eutrophication causing many water quality problems. The aim of this study is to develop an in-situ P removal system using solar powered electrocoagulation (EC) process and sand granular filtration to sustainably address water quality problems. This study examines the effects of treatment parameters (pH, conductivity, current

density, initial concentration of P, and type of electrode) on the performance of the EC process and evaluated the required electrical energy consumption rate to achieve 90% conversion. Since P removal mechanism in EC is largely dependent upon electro-chemical precipitation, slow sand filtration will be designed and implemented as a post treatment process after EC for the complete removal of P-metal precipitants from water source. An initial P of 2 mg/L was completely removed in less than 50 minutes by EC with aluminum electrode, while iron electrodes consistently showed lower removal efficiency. The removal efficiency was demonstrated to be directly proportional to the conductivity and power supplied. The effect of alkalinity on the performance of the EC process for P removal was also examined. Given the high P removal efficiency within a relatively short period of contact time, EC process can be used as a part of in-situ stormwater BMP or a tertiary treatment for WWTP where enhanced P removal is needed. A cost analysis has been performed to demonstrate the economic feasibly of the process.

(76) **The Role Perspective-Taking Plays in Reducing Overweight Biases.**

Sandra Khalaf and Curtis Phills
University of North Florida

This study examined the role perspective-taking had on reducing overweight biases. The purpose of this study was to observe if perspective-taking could decrease evaluative, stereotypical, and behavioral biases towards overweight people. This will further add on to a previous study that examined the role perspective taking had on “automatic” evaluations of African Americans (Todd, Bodenhausen, Richeson, and Galinsky, 2011). The results from this study showed that negative evaluations of African Americans significantly dropped in individuals assigned to the perspective taking group. This study utilized facial expressions of overweight people, which to our knowledge, has never been done before. Participants in the perspective-taking group were shown an image of an overweight woman and asked to describe what they would be thinking, feeling, and experiencing if they were her. Participants in the non perspective-taking group were shown the same image of an overweight women, but instead, they were asked to remain objective and write about the facial expression she was exhibiting If the results illustrate that seeing overweight people as part of an “in-group” rather than an “outgroup” significantly reduce biases, then this will contribute more knowledge to the effects of perspective taking. These results could potentially help decrease the negative stigma and implicit/explicit biases that people associate with overweight individuals.

(77) **Culture and Commerce in the Music Industry: An Economic Analysis.**

Nikolina Kosanovic
University of South Florida

This study aims to research the evolution of the music industry through an economic lens by identifying changes in media and assessing potential correlations between content and consumption. Additionally, this study will explore how cultural influences have affected the business practices of stakeholders in the music industry. By researching the history of the industry, gathering and analyzing relevant data, and reviewing cultural influences, it will be possible to determine which factors are most impactful in the marketplace. Finally, this research will allow for a conclusion to be drawn regarding how culture and the music industry influence one another.

(78) **Politics & Aesthetic Discourse: Landscape Reform in Urban Eighteenth-Century Lima.**

Taylor L. Crosby
Florida State University

The construction of the Alameda of Callao, a road joining the "sister cities" of Lima and Callao, began soon after the earthquake and tsunami of 1746. Its conception and execution reveals Late Spanish Colonial-era values regarding urban planning and landscape, which mirrored the social organization of the Peruvian capital. The Alameda provided the public with access to open spaces and rural areas, maintaining access through the use of gateways, demonstrated by the Portado del Callo (1863) and the Portada de Maravillas (1868). The Lima cabildo, or town council, and the Tribunal del Consulado, an agency consisting of elite Creoles, or American-born Limeños promoted and funded the public works. The Alameda and its associated spaces and monuments suggest an imperial statement by Spanish royal officials aimed at legitimating Spain's imperial supremacy in one of the empire's most important cities in the Americas. However, the simultaneous promotion of such projects by both the Creole elites and the viceregal authorities exposes a more complicated late Colonial situation in which both European and local political and aesthetic values comingled.

(79) **The effect of residue K288 on the thermodynamic profile of the leucine transporter (LeuT).**

Justin Pomeroy and Kelli Kazmier
Rollins College

The bacterial Leucine transporter (LeuT) is a transport protein that facilitates the movement of amino acids in and out of cells with the help of sodium ions. Although LeuT is native to bacteria, its structure and function mirrors that of human neurotransmitter transporters. Historically, solving the structure of human membrane proteins has been extraordinarily challenging. However, LeuT is able to be purified and crystallized more easily than its human counterparts. Thus, LeuT serves as an excellent model for studying the structure, function, and dynamics of human neurotransmitter transporters. In the present study, Electron paramagnetic resonance (EPR) spectroscopy was conducted on LeuT to uncover how the molecular dynamics and conformational sampling of the LeuT differs in the presence of a mutation, K288A that has been associated with altered kinetics. Two mutants of LeuT (79C/288C and 79C/288C/288A) were expressed, purified, and labeled with EPR spin labels. EPR experiments displayed an altered thermodynamic profile supporting the kinetic data.

(80) **S.I.A.M Eco-Dolphin.**

Francisco Pastrana, Evan M. Dort, Eric Osorio, Zhouyang Fu, and Mengshu Qing
Embry-Riddle Aeronautical University

Society for Industrial and Applied Mathematics has been developing of a fleet of underwater research vessels shaped as dolphins for the study of ocean floors and lagoons. The name of this underwater research platform is Eco-Dolphin. They are shaped as Dolphins to avoid causing a disturbance to the wild life. The latest Eco-Dolphin in construction, the Red Eco-Dolphin, will

be using a ballast attitude control unit to be able to shift its center of gravity. This innovation will allow it to utilize the forward thrust provided by the engines to climb, descend, and maintain depth. This unit has been constructed using the latest 3D printing procedures and CATIA graphical design. The Red Eco-dolphin will communicate with the Blue and Yellow Dolphins mounting a formation at all times. SIAM will monitor the data provided through a ground station.

(81) **Contribution of different alleles of CAULIFLOWER, APETALA1, and FLOWERING LOCUS C 2 genes to flowering phenotype in Brassica oleracea.**

Brandon Califar, Sandra Londoño, Inna Timshina, Daniel Dorado, Franco Migliolo, and Marilyn Cruz-Alvarez
Florida Gulf Coast University

Brassica oleracea is a species with a large number of varieties that show differences in flowering time between them. Cauliflower (B. oleracea var. botrytis) is arrested in the flowering process, while Rbo (Rapid cycling B. oleracea) is a variety selected for its short generation time. Previous results led to the hypothesis that loss-of-function mutations in CAULIFLOWER (CAL) and APETALA 1 (AP1), two floral meristem identity genes, caused the floral developmental arrest in cauliflower. F1 and F2 hybrids of cauliflower and Rbo were produced, genotyped, and phenotyped in order to allow better understanding of the differences between the varieties. The F1 hybrids showed an intermediate phenotype. The F2 showed a wide distribution of phenotypes, suggesting the contribution of several segregating genes to the phenotypic differences. Our results show that there is no correlation between presence/absence of functional CAL, AP1a and AP1c genes and the developmental differences between these two varieties. Previous studies have also suggested that Rbo has a deletion of the FLOWERING LOCUS C 2 (FLC2) gene. These conclusions were based on lack of PCR amplification of FLC2 sequences. In order to design a genotyping method that relies on differences in lengths of amplified fragments between alleles, rather than on the absence of amplification, we are using primers flanking the FLC2 gene. If sequencing of fragments amplified from both cauliflower and Rbo confirms that they correspond to this genomic region, we will use these primers to genotype the F2 hybrids and analyze any correlation between FLC2 alleles and flowering time.

(82) **Isolation and Evaluation of Antibiotic-Producing Marine Bacteria from Florida's Gulf Coast.**

Marielena Torres, Danielle Pearman, and Eric Warrick
State College of Florida-Manatee/Sarasota

The emergence of antibiotic resistance worldwide has been threatening the efficacy of antibiotics, and with current antibiotics losing efficacy faster than new antibiotics are being developed, we face a grim future where antibiotics may become a thing of the past. The Small World Initiative (SWI), founded by Yale University in 2012, aims to combat both the deficit in STEM graduates and the growing antibiotic resistance crisis. With over two-thirds of current antibiotics originating from soil bacteria and fungi, the focus of the SWI is the isolation and characterization of soil-borne bacteria and fungi exhibiting antibiotic activity. The enormous potential for antibiotic discovery in marine environments has spurred the program at the State College of Florida Manatee-Sarasota to search for such organisms in the sands/sediments from

the local marine environments. Sand/sediment samples were collected from a mangrove swamp in Lido Key, FL and from the base of a sea wall at the Siesta Key Bridge in Sarasota, FL. The mangrove samples were spread plated onto Marine Agar, and the sea wall samples were spread plated onto PDA + 0.5M NaCl agar. Unique colony morphologies were patch plated onto new plates and tested against 2 Gram-positive (Bacillus subtilis and Staphylococcus epidermidis) and 3 Gram-negative (Chromohalobacter salexigens, Vibrio fischeri, and Vibrio anguillarum) bacteria for antibacterial activity. Patch plates were prepared using sterile toothpicks to transfer colonies onto fresh plates in a grid pattern. Antibacterial activity was identified as the presence of a zone of inhibition surrounding the patch plated isolates. Ethyl acetate compound extraction and 16s rRNA PCR were performed on isolates that exhibited antibacterial activity. The compound extractions were dried down and then resuspended in ethyl acetate to test for antibacterial activity against the same organism(s) that the isolates had shown activity against. The successful PCR reactions were sent to Yale University for sequencing, the results of which were input into NCBI BLAST for identification. Of the 62 isolates from the initial patch plates, 13 showed activity against one or more of the organisms tested. Broad spectrum activity was observed for 5 isolates, another 4 isolates showed activity against only Gram-negative bacteria, and 4 isolates showed activity against only Gram-positive bacteria. Of these 13 isolates, all 5 of the isolates with broad spectrum activity, 1 of the isolates with activity against only Gram-negative bacteria, and 2 of the isolates with activity against only Gram-positive bacteria were carried forward. After the ethyl acetate compound extraction, only 4 of the compounds retained their antibacterial properties: 2 with broad spectrum activity, 1 with activity against only Gram-negative bacteria, and 1 with activity against Gram-positive bacteria. The PCR of the 16s rRNA was only successful for 3 of the isolates. The PCR product from these three isolates were sent to Yale University for sequencing and were suggested by the NCBI BLAST database as being either Bacillus hwajinpoensis, Bacillus baekryungensis, or a Zooshikella species.

(83) **Design and Synthesis of Precursors for Deposition of Metal Nanostructures.**

James McDaniel[1], Kelsea Johnson[1], Yung-Chien Wu[1], Joseph Brannaka[1], Julie Spencer[2], Rachel Thorman[3], D. Howard Fairbrother[2], Amy Walker, and Lisa McElwee-White[1]
[1]University of Florida, [2]Johns Hopkins University, [3]University of Texas at Dallas

As the microelectronics industry approaches the size limit for the current manufacturing methods for integrated circuits and devices, new methods are needed to push past this barrier. Electron beam induced deposition (EBID), used for mask repair and circuit edit in the manufacturing of integrated circuits, is one such method. A significant problem in EBID of metal structures is contamination derived from organic ligands in the organometallic precursors. Alternatively, photoactivated chemical vapor deposition (PACVD) is a relatively new method for the deposition of metal films. However, there is still much work to be done in the design of PACVD precursors. We are synthesizing new transition metal complexes that are designed to reduce the contamination levels in EBID deposits or to work efficiently with PACVD. Associated surface science studies are being used to assess the precursor candidates for this technique.

(84) **Sugar substitutes have a bacteriostatic growth attenuation effect on the prevalent and commensal gastrointestinal species, Bacteroides fragilis.**

Lester S. Manly, Ramasai T. Kalyanam, David T. Ha, Morsal Osmani, Vincent S. Volante, and Charles B. Coughlin
University of North Florida

Non-caloric sweeteners (NCSs) are commonly utilized to help reduce sugar intake and recognized as safe for consumption by the USFDA. However, studies have demonstrated that the NCS sucralose (Splenda) has concentration dependent bacteriostatic effects on environmental and human gastrointestinal bacterial species, thus instigating additional studies on how other commonly available NCSs could affect the human gastrointestinal microbiome. This study explored the effects of popular NCSs: sucralose, acesulfame potassium, and aspartame, on the commensal and clinically significant gastrointestinal species Bacteroides fragilis. B. fragilis was challenged with incremental concentrations of the NCSs within gently agitated reinforced clostridial media Hungate cultures at 37ºC; simulating human gastrointestinal conditions. Turbidity absorbance was utilized as an indirect measurement of dose-dependent effects on growth of each NCS on B. fragilis culture over time. These growth trends and patterns were statistically analyzed to elucidate any impacts these NCSs had on B. fragilis. All NCSs were found to have no significant differences at concentrations representing recommended daily allowance (RDA). Median lethal dose (LD50; oral mouse) concentrations were found to be significantly different from control cultures. Significant differences from control cultures were observed for aspartame, sucralose, and saccharin at concentrations past 4.35mM, 6.29mM, and 20.47mM, respectively. Acesulfame potassium had no concentrations that were significantly different from controls. Future analysis of NCSs exposure effects on B. fragilis' metabolic processes will be the next study focus. This study should help foster interest in NCSs impact on the human gastrointestinal microbiome and promote discussion and caution regarding NCS dietary intake.

(85) **The development of a Cancer Biology training curriculum for Community Health Workers based on a Systematic Review.**

Kimbel Bradley
Bethune-Cookman University

Cancer Health Disparities are defined as inequalities that exist when members of certain populations differ in the incidence, Prevalence, Mortality, and burden of diseases and other adverse health conditions. An important approach for closing health disparities is increasing scientific and health cancer literacy in the community. Cancer is the uncontrolled growth of abnormal cells in the body, that can form from the mass growth of tissue known as tumors. The community health workers (CHWs) are on the frontline, employed to decrease the burden of cancer health disparities. CHWs assist in bridging the gap between the health industry and the underserved communities. However, the current status of a standardized cancer-biology training module for CHWs is unknown. The research examines the development of a Cancer Biology training curriculum for community health workers based on a systematic review, using the methods of identification, selection, design-implementation, data synthesis and appraisal.

(86) **Neuroprotection in Ischemic Stroke by Angiotensin II Type 2 Receptors: Uncovering the Role of Budding Neurons.**

Allison T Harmel, Douglas M Bennion, Jacob D Isenberg, Jonathan Alexander, Marcello Febo, Eduardo Candelario, and Colin Sumners
University of Florida

Introduction: Recent reports indicate that activation of the counter-regulatory axis of the renin angiotensin system (RAS) by agonists of angiotensin II type 2 receptors (AT2Rs) result in stroke cerebroprotection. The effects of cerebral ischemia on the distribution and cell subtype localization of AT2Rs have not been explored. Here, we assessed the distribution and cell subtype expression of AT2Rs after stroke. Methods: Transgenic AT2R-GFP reporter mice (n=17) were euthanized 7 or 14 days after transient middle cerebral artery occlusion (n=12) or sham (n=6) surgery for immunofluorescent imaging of GFP (co-expressed with AT2Rs) and assessment of co-localization with astrocytes, microglia, and neurons in cerebral sections. Additionally, rats (n=5) were injected daily after stroke with intraperitoneal injections of cell proliferation-marker Bromodeoxyuridine (BrdU) until euthanasia at 7 days. Results: At 7 and 14 days after stroke, the qualitative distribution of AT2Rs throughout the brain was not altered compared to the sham. AT2R expression remained limited to neurons, with no co-localization on astrocytes or microglia. As expected, stroke induced a profound micro and astro-gliosis in the ipsilateral hemisphere. BrdU+ cells within the insular cortex in the ischemic region indicated increased proliferation in this area, which was also shown to have dense AT2R expression. Conclusion: These results contribute to a picture in which AT2Rs on neurons, potentially within areas of neurogenesis, might be activated by treatments with consequent neuroprotective effects. These points may aid the investigation of treatments targeting the protective RAS, with the aim of providing much needed help for patients with ischemic strokes.

(87) **Probing Mechanisms of Carbon Monoxide and Carbon Dioxide Cations Reacting with Atomic Nitrogen and Oxygen.**

Jake Tenewitz, Tri Le, and Joshua J Melko
University of North Florida

Carbon monoxide and carbon dioxide are prevalent in earth’s atmosphere. Understanding the speeds and mechanisms of reactions of these molecules is fundamental to predicting the chemistry of our atmosphere. Here, we study the mechanisms of cation carbon monoxide and carbon dioxide molecules reacting with atoms that are present in our upper atmosphere, namely nitrogen and oxygen. Employing Gaussian09W computational software, a dispersion corrected method coupled with the 6-311G+ basis set is used to study the mechanisms of these reactions. Calculated thermochemistry is used to verify the product pathways observed in experiments. Reaction mechanisms for experimentally determined pathways are presented.

(88) **So What Do I Pay You For Anyway? The Relationship Among Teaching Evaluations, Rate My Professor Evaluations, Gender, and Salary.**

Kyle Goldman and Randall Croom
University of Florida

Using public salary data, student evaluations of faculty, and ratings from RateMyProfessor.com, we examine the relationships among salary, faculty gender, and teaching evaluations. We also compare University-based teaching evaluations to evaluations provided at RateMyProfessor.com, and examine contextual effects of professors' colleges (business, nursing, engineering, journalism, and education) on gender pay equity.

(89) **A Nutrient Enrichment Experiment at Silver River: Using the benthos box to determine effects of added nutrients on stream metabolism.**

Sarah Power, Courtney Reijo and Matthew Cohen
University of Florida

Understanding nutrient enrichment effects and describing the nutrient kinetics of a system are important objectives when setting ecological nutrient thresholds or predicting possible shifts in aquatic communities. To better understand the impact of enrichment on stream metabolism (i.e. gross primary production and ecosystem respiration) and the response of assimilation (i.e. nutrient uptake) to varying nutrient supply, we designed a factorial nutrient addition experiment at Silver River. The benthos box, a Plexiglas chamber, inserts into stream sediments and allows characterization of the isolated benthos (a 0.6m x 0.6m area), as nutrient supply is blocked and thus depleted over time. The chamber was coupled with a clustered nutrient bioassay to include one control chamber paired with three treatment chambers, which were deployed adjacent to each other for one week at a unique location along the river. Each treatment chamber was enriched with one of seven nutrient combinations of nitrate, phosphate, and iron. Within each box, a HOBO dissolved oxygen (DO) probe and a light logger captured DO and light intensity dynamics at 15-minute intervals. From these data, stream metabolism and light use efficiency measurements are estimated, and ancillary factors (e.g. canopy and algal cover, porewater chemistry, etc.) are tested as other potential explanatory factors of metabolic variation. From this study, we will determine 1) the effect of nutrient enrichment on stream metabolism and 2) how primary production and nutrient assimilation change under nutrient supply that varies from above saturation to below ambient.

(90) **Does Expressive Writing Improve Exam Scores?**

Charles Fitzsimmons and Dr. Katherine Hooper
University of North Florida

Test anxiety is thought to hinder exam performance by allowing task-irrelevant information, such as worries about performance, to impede the recall of task-relevant information, such as material on the exam. Ramirez and Beilock (2011) reported that students who wrote about their test anxiety for ten minutes before an exam performed better than students who wrote about a neutral topic. They suggest that this expressive writing assignment allows students to unload their anxiety so they can concentrate on the exam. We attempted to replicate this finding. We recruited 71 participants from a summer introductory psychology course at the University of

North Florida. Participants' anxiety levels were measured with the Cognitive Test Anxiety Scale (Cassady & Johnson, 2001) one week prior to the second course exam. Then, immediately before the exam, participants were given a ten-minute writing assignment. Those assigned to the expressive writing group wrote about their worries about the upcoming exam, while those in the control group wrote about what they did during the three days prior to the exam. The same procedure was followed immediately before the third course exam, with each student assigned to the opposite writing condition. Thus, all participants experienced both the expressive writing and control conditions. We found no significant differences in exam scores between the two writing conditions, therefore failing to replicate Ramirez and Beilock's finding that expressive writing immediately before an exam improves exam performance.

(91) **Ecosystems in Peril: Juvenile Recruitment in Cypress Domes at the University of Central Florida.**

Jennifer Elliott, Mary Bibler, Amy Compare, Jacqueline Meyer, Chelsea Petrik, and Chelsey Sprouse
University of Central Florida

Cypress is a long-lived, stationary flora that experiences a time-lagged response to urbanization, altered hydrology, and suppressed fire regime. After decades of urbanization, cypress juvenile recruitment, which requires specific hydrology and other environmental conditions, drastically decreases. The University of Central Florida (UCF) has undergone drastic development since it was established in 1963, and urbanization has increased around the natural lands on campus. This study sought to measure juvenile recruitment in the six cypress domes on campus. Data was collected in 0.5% (by area) of each dome at random points along north-south and east-west transects; juvenile cypress count, adult cypress count, percent ground cover, predominant species, water height, water pH, and soil compaction was recorded. The data was analyzed using F and T-tests to identify statistically significant differences between the domes. Model selection in RStudio produced Akaike Information Criterion (AIC) values which were used to determine which variables best explain differences in juvenile recruitment. Domes were grouped into urban and rural categories, and rural domes had significantly greater juvenile recruitment than did urban domes ($p=.04$). The model that best explains this difference was the additive effects of soil compaction and pH (AIC= 376.461). Potential management strategies include seedling plantation in the northeastern quadrants of rural domes to facilitate and complement existing recruitment and restoration of natural hydrology in urban domes.

(92) **A mesogenic oligomer with alternating electron acceptor and donor units for organic electronic applications.**

Samantha T. Mensah, Lydia Sosa-Vargas, David Kreher, Fabrice Mathevet, and André-Jean Attias
University of Central Florida

Key requirements in the progress of materials for organic electronics include better charge transport properties, more stable and well-aligned organization of the supramolecular structure, as well as compatibility with solution processing techniques of synthesis of the device. Synthesis of a conjugated oligomer with alternating donor (D) and acceptor (A) units is described. The calamitic struture in conjunction with its thiophene, benzene, and benzothiadiazole units make

this molecule a good candidate to form highly-ordered supramolecular structures, and the aliphatic peripheral end-caps in-crease solubility to facilitate solution processing.

(93) **Environmental effect on Egfr gene expression and subsequent caste determination in the eusocial insect Camponotus floridanus.**

Katherine A. Hargreaves and Michelle M. Osovitz
St. Petersburg College-Clearwater

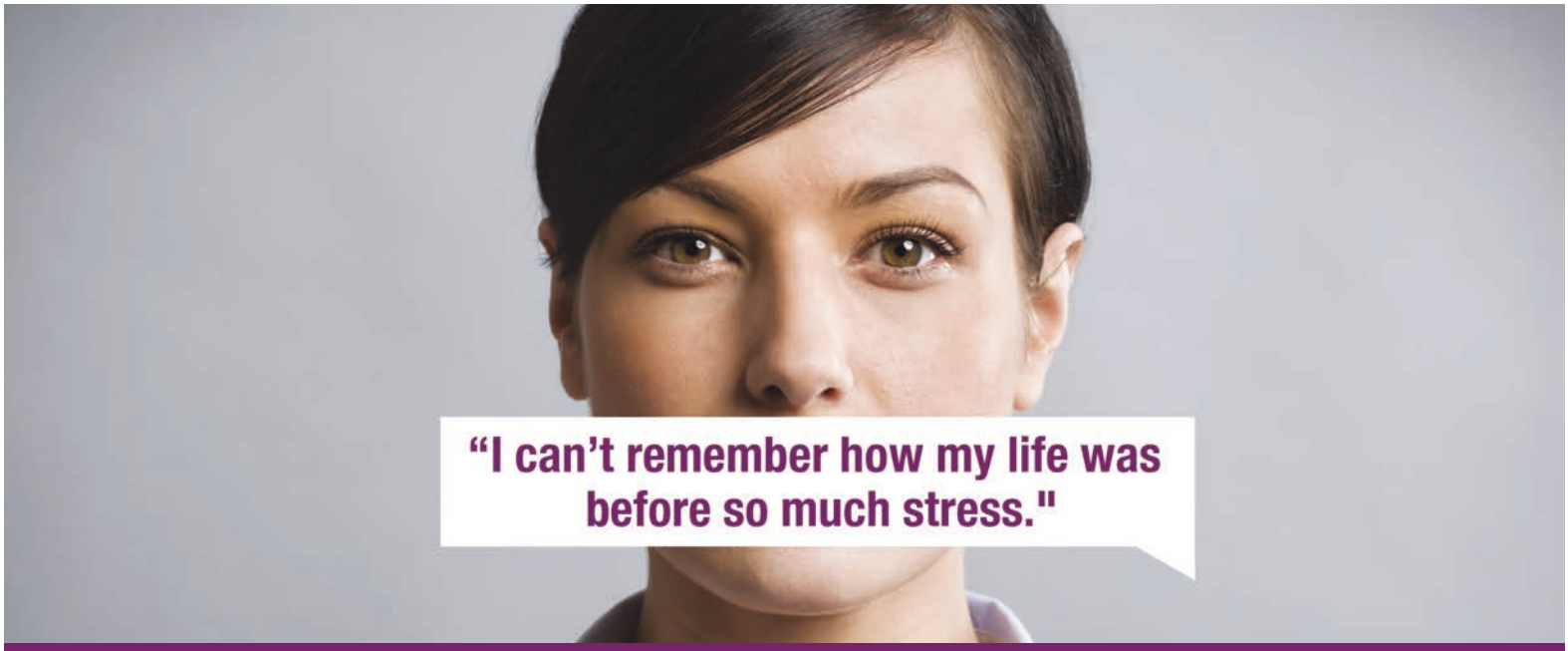
The Florida carpenter ant, Camponotus floridanus, is a eusocial ant species that divides the colonies work among three castes; major workers, minor workers, and atlae queens. Differences in caste morphology and behavior are remarkable because of the intra colony ant's genetic similarity (~75%). Recent studies reveal C. floridanus genomes are epigenetically modified during the fourth instar stage of development in order to assume their adult morphology and subsequent behavior (Alvarado et. al., 2015). This occurs through changes in methylation of the Epidermal growth factor receptor gene (Egfr). Egfr regulates DNA synthesis, growth, differentiation, and size variation as a result of these changes. Hyper-methylation of the ant's genome correlates to hypo-methylation of the Egfr gene, increasing gene expression and lengthening larval developmental time, resulting in a larger adult ant (major worker) (Alvarado et. al., 2015). The documented genomic methylation during development is hypothesized to occur in response to environmental factors such as diet. Temperature and humidity may also play a role in the ants' epigenetics however, these parameters have not been studies on wild C. floridanus and the Egfr gene to date. The goal of this study is to test the effect of internal colony temperature and humidity on epigenetics and therefore caste determination. We hypothesize that these environmental factors will influence the gene expression of Egfr in C. floridanus. Preliminary data will be presented for three colonies from which environmental data was collected, fourth instar larvae were measured, and extracted RNA was subjected to qPCR analysis of Egfr gene expression.

(94) **Non-target effects of mosquito control pesticides on the coral Acropora cervicornis at elevated temperatures.**

Arien Widrick[1], Rich Pierce[2], and Cliff Ross[1]
[1]University of North Florida and [2]Mote Marine Laboratory

Coral reefs are declining rapidly around the world as a result of facing both anthropogenic and natural stressors. Research on the non-target effects of mosquito control pesticides is lacking despite the constant use in coastal regions. The runoff of pesticides into marine systems may be a concern for coral species, particularly when combined with global stressors such as elevated sea surface temperatures. In order to assess how mosquito control pesticides impact corals, fragments of the threatened coral Acropora cervicornis were exposed to selected concentrations of two primary pesticide ingredients, naled and permethrin at an elevated temperature (31.6 + 0.13ºC) for 24 hours. Maximum quantum yield of photosystem II was assessed immediately after exposure using Pulse Amplitude Modulated (PAM) fluorometry. Other endpoints included biomarkers of oxidative sub-lethal stress (catalase activity and lipid hydroperoxide levels). No significant decrease in photosynthetic efficiency was observed regardless of treatment. In most cases, pesticides did not cause sub-lethal stress responses. Overall, Acropora cervicornis appears

to resist negative effects from naled and permethrin over a 24 hour exposure period under elevated temperature conditions.



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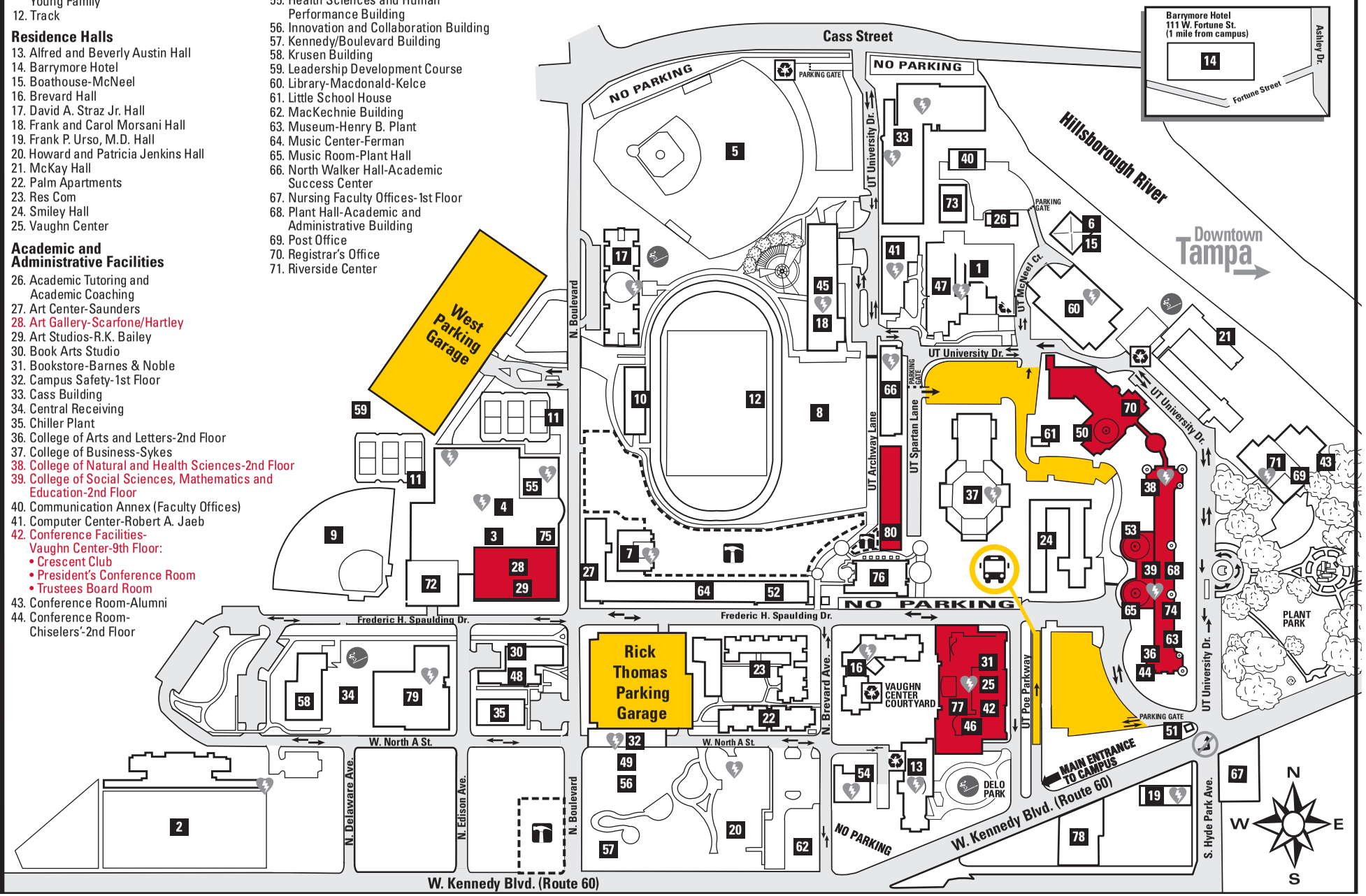

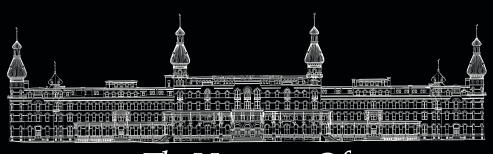

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