7th Annual Research Conference

April 11th, 2017

Savannah State University

7ᵗʰ Annual Research Conference (ARC)

April 11ᵗʰ, 2017

Savannah State University

Student Union A, B, & C

Savannah, GA 31404

Sponsored by

- Office of the President
- Office of Sponsored Research Administration (OSRA)
- National Oceanic and Atmospheric Administration (NOAA) - Living Marine Resources Cooperative Science Center (LMRCSC)
- NSF Historically Black Colleges and Universities – Undergraduate Program (HBCU-UP)
- Quality Enhancement Plan (QEP) 'The Write Attitude'

Overview of the Conference and Committee Members

Savannah State University (SSU) hosts its Seventh Annual Research Conference in the Student Union Ballroom on Tuesday, April 11th, 2017, starting at 8:00 am. This event highlights research conducted by undergraduate and graduate students at SSU and at other major research institutions. Students will showcase their various research projects in areas such as Computer Science Technology, Homeland Security, Engineering, Physics & Marketing, Marketing and Management, Natural Sciences, Marine Sciences, Social and Behavioral Science, and Social Work.

The general format for this conference is poster presentations and serves as an important platform for students to present their findings to both the SSU and Savannah communities. This event is sponsored by SSU's Office of Sponsored Research, the NOAA Living Marine Resources Cooperative Sciences Center, and The Write Attitude program, a campus-wide initiative to enhance student learning by improving attitudes by writing.

Annual Research Conference Committee Members

The organizing committee consists of individuals who contribute to various aspects of conference organization.

Dr. Chellu S. Chetty
Associate VP, Office of Sponsored
Research and Administration

Dr. Dionne L. Hoskins
Associate Professor, Director of
NOAA Sponsored Programs
Department of Marine and
Environmental Sciences

Dr. Tara Cox
Associate Professor
Department of Marine and
Environmental Sciences

Ms. Nancy Riggs
Director, Office of Sponsored
Research and Administration

Dr. Lisa Yount
Associate Provost and QEP
Director

Dr. Shinaz G. Jindani
Professor
Department of Social Work

Mr. Harshavardhan Kenche
Research Associate

The Organizing Committee would like to extend our THANKS to the many persons who contributed in so many ways to make this conference a continued success

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SAVANNAH STATE UNIVERSITY

Greetings!

It is my honor to welcome you to Savannah State University's (SSU) 7th Annual Research Conference (ARC), showcasing graduate and undergraduate student research endeavors.

The research on display today represents significant achievements of our student scholars. Students, this is an important milestone in your personal growth and development. Research training is central to SSU's mission to prepare students for a global marketplace; this process builds teamwork, critical thinking and communications skills, all vital to future employers and graduate programs.

This reflects SSU's commitment to building its research and training capacity over the past decade through grant and state funding, including: new labs and facilities, funding students in mentored research and developing new research-based interdisciplinary curriculum and degree programs.

I wish to personally extend thanks to the representatives from our regional partners in higher education, government and business, who are joining us for this conference to meet our students and serve as judges. I thank the SSU faculty and staff mentors. The success of their students is a direct reflection of their commitment to teaching and mentoring.

The ARC was initiated in 2011 under the leadership of Dr. Chellu Chetty, Associate Vice President of Research and Sponsored Programs, with funding provided by the NSF HBCU-UP program. Special thanks to all of the members of the planning committee.

Congratulations to the student presenters. I wish you all a successful and productive conference.

Sincerely,

Cheryl D. Dozier, DSW
President
CDD/ldj

On behalf of the Office of Academic Affairs, I would like to welcome you to the 7th Annual Research Conference of Savannah State University. This is one of the most important events to honor academic achievement held on SSU's campus each year. SSU started this event in 2011 with funding provided by the National Science Foundation STEM training grant, HBCU-UP, under the leadership of Dr. Chellu Chetty, Associate Vice President, Research and Sponsored Programs. SSU has sustained and institutionalized this event, which honors and recognizes graduate and undergraduate students engaged in one of the highest forms of intellectual endeavor – research and presentation of research findings. SSU is committed to supporting students in the research process, which is central to our academic mission to develop productive members of a global society through high quality instruction, scholarship, research, service, and community involvement. The research process is at the pinnacle of learning, as outlined in Bloom's Taxonomy of Learning, as it represents not just understanding but applying, analyzing, evaluating, and creating knowledge. I therefore congratulate the students who are presenting today. Their presentations are evidence of their intellectual commitment and their personal growth in creative thinking, data-driven critical thinking, and communications skills, all skills that are valuable to the job market and to graduate programs. I extend my sincere thanks and commendations to the faculty, from all academic units of SSU, who have mentored the students in their research training and who are integrating research training in the curriculum. Without their encouragement and mentorship, this day would not be possible. I salute these committed faculty. Thanks also to our community partners who are joining us for this day, and especially to those who are serving as judges. We appreciate your support. Again, congratulations to our student investigators. We wish you continued success in the future, including with your research endeavors.
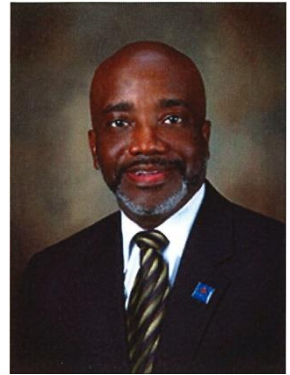
Sincerely

F. Carl Walton, Ph.D.
Interim Provost/Vice President for Academic Affairs

It is my pleasure to welcome each of you to Savannah State University's 7th Annual Research Conference (ARC). I have initiated the ARC in 2011 to encourage and support the research endeavors of our faculty, students, and academic staff. SSU continues to strengthen its research infrastructure through external funding support and is proud to carry on the tradition and institutionalize the ARC as an annual event to recognize the significant achievements and highlight the importance of research training for both graduate and undergraduate students. The research displayed here is evidence of the commitment and investments SSU has made over the past 15+ years through grant and state funding to building its research and training capacity, through: building new labs and facilities, acquiring new major lab equipment, funding students in mentored research, and developing new research-based interdisciplinary curriculum and degree programs (forensic science, transportation studies), all of which prepare our students for marketplace-relevant, competitive jobs and graduate programs through a market-solutions approach. Our students have been able to share and learn from the research experience with faculty mentors. SSU is committed to providing the resources to support and sustain the needs of faculty and students in new and developing research areas. This year approximately 130 students are presenting their research. Of these, over 60 were supported by SSU's externally funded scholarship programs.

I am deeply grateful to the following faculty and staff who are now serving in leadership roles on the ARC Committee: Dr. Dionne Hoskins, Dr. Tara Cox, Dr. Shinaz Jindani, Dr. Lisa Yount, Ms. Nancy Riggs and Mr. Harshavardhan Kenche. I also wish to personally extend my thanks to the representatives from our regional partners in higher education, government, and business, who are joining us for this conference to meet and network with our students and especially to serve as judges. We appreciate your time and support.

My sincere thanks to the judges, faculty mentors and staff for their commitment and participation in making this event a success.

Sincerely,

Associate Vice President for Research and Sponsored Programs

7th Annual Research Conference
April 11th, 2017

Agenda

Unless noted, all events will take place in Event Rooms A, B, and C of the Student Union.

	Registration
7:45 AM - 8:30 AM	**Judges Registration and Meeting**
8:00 AM - 8:30 AM	**Students Registration**
8:30 am - 10:30am	Poster Judging
10:30 am - 10:45am	Welcome (Open to the Public)
	Greetings: Dr. Chellu S. Chetty, Associate VP for Research and Sponsored Programs
10-45 am – 10:50 am	Remarks: Dr. Carl Walton,
	Vice President for Student Affairs and Interim Provost and Vice President for Academic Affairs
10:50 am – 11:15 am	Remarks: Dr. Cheryl D. Dozier, President, Savannah State University
11:30 -12:00 pm	Awards for Poster Presentation
	Awards: Dr. Lisa Yount, Associate Provost (Interim), Center for Faculty Excellence Director, & Quality Enhancement Plan Director
	Remarks: Dr. Chellu S. Chetty, Associate VP for Research and Sponsored Programs

College of Science and Tehnology

Biology

Bio-01
Blessing Enya, Dr. Takayuki Nitta
Research Mentor: Dr. Takayuki Nitta
Role of Rab5 and Geranylgeranylation in MLV replication

Murine leukemia virus (MLV) is a simple retrovirus with three genes gag, pol, and env. The virus undergoes maturation by cleaving Gag molecules by gag gene, which causes a major change in the structure of the virion. The virus infects its target cells by interacting with the host cell receptors with viral glycoprotein in the env gene, which creates the combination of the fusion of the viral membrane with plasma membrane that then gets deposited into the cytoplasm of the cells. This allows the viral RNA to perform reverse transcription, to form cDNA molecules to become a provirus by integration into host genome. Translated viral proteins are trafficked to the plasma membrane, to be assembled into progeny virus particles.

Small GTPases such as Rab4, Rab5, Rab7, CDC42, amongst others have been known to aid in cell movement, cell proliferation, and control trafficking of many proteins in cells. Activity of GTPase is regulated by GAP and GEF, and the structures and localization of some Rab proteins in either their active (GTP-bound) or inactive (GDP-bound) state have been reported. The Rab GTPases family regulate many steps of membrane traffic, including vesicle formation, vesicle movement along actin and tubulin networks, and membrane fusion. Although Rab proteins affect replication of some viruses such as HIV-1 and influenza virus, the role of Rab proteins in MLV virus release remains elusive. To examine viral release efficiency, viral structural proteins Gag in cells and in media (virus) were detected by western blots with anti-Gag (p30) antibodies. Overexpression of dominant negative (DN) forms of some small GTPase proteins in 293T cells demonstrated that some Rab proteins are involved in MuLV release

from the cells. Particularly expression of DN-Rab5 decreased virus release from 293T cells strongly. The similar results were obtained with a mouse cell line, 43D cells, that are stably infected with MuLV. Detection of Gag proteins in cells by indirect immunofluorescence technique demonstrated that a portion of Gag proteins co-localized with DN-Rab5. Then the 293T cells expressing Gag were classified into three phenotypes, "Diffuse", "Dispersed" and "Concentrated" based on Gag localization in cells. Unexpectedly, overexpression of DN-Rab5 did not affect Gag distribution in the 293T cells.

Localization and function of Rab proteins are influenced by geranylgeranylation that is the attachment of 20-carbon lipophilic geranylgeranyl isoprene units to cysteine residue(s) at the C-terminus. To test the effects of this post-translational modification in MLV replication, the MLV producing cells (43D cells and 293T cells that were transfected with a molecular clone of MLV) were treated with statins and GGTI-298. It is known that both statins and GGTI-298 can shut down the pathways required for geranylgeranylation. The amount of Gag in cells and p30/Capsid (cleaved Gag) released into media were not affected by treatment of the inhibitors. Our data suggested that Rab5 is involved in MLV release, but geranylgeranylation of Rab5 is not critical for viral release. Future effort to incorporate wild type (WT) and dominant negative (DN) forms of Rab 5 in cells to observe viral Gag proteins difference will be performed.

Bio-02
Deanna Lazare, Dr. Mahasin Osman
Research Mentor: Dr. Mahasin Osman
Towards Developing Targeted Therapy for Lethal Subtypes of Breast Cancer

Triple Negative Breast Cancer (TNBC) is an aggressive subtype with high rates of mortality. It is most prevalent in poorer and minority populations and lacks targeted treatments due to the little known mechanistic pathways associated with its formation. IQGAP1 is an oncoprotein involved in cell proliferation and is associated

with TNBC subtypes. We screened a collection of inhibitors, using full length and WW domains of IQGAP1 as well as black female (MDA-MB 468) and white female (MDA-MB-231) cell lines. Cell Proliferation assays showed a selective inhibition for cells expressing the WW mutant and the 468 and 231 cell lines. Among all screened small molecule inhibitors we screed Ceramide C01 was the most potent and specific inhibitor of IQGAP1. Immunofluorescence studies revealed that 468 has the same IQGAP1 mis-localization pattern as the WW mutant cell lines. RNAi studies showed that IQGAP1 is required for proliferation of 468 cells. Further studies are underway to elucidate the apoptotic pathway involving Ceramide C01 inhibition of IQGAP1 oncogenic activity in the 468 cell lines. Our data have implications on developing targeted therapy for TNBC in black women.

Bio-03
Denerick Simpson, Dr. Christopher Cutler, Dr. Roger Arce, Dr. Amanda Finger Stadler, Dr. Mitulkumar Patel
Research Mentor: Dr. Roger Arce
Oral Microbiome Analysis: Murine Model of Periodontal Disease
It is well established in the literature that Porphyromonas gingivalis (Pg) is the keystone pathogen in periodontal disease in humans. This comprehensive study was a secondary analysis of a major project aiming to evaluate the effects of Pg grown in a multi species biofilm on alveolar bone resorption in mice. The objective of the present study was to develop a protocol for isolation of bacterial DNA from the oral cavity of the mice, and to measure and identify some commensal bacteria microorganisms in mice mouth, comparing with the changes in the bacterial profile after antibiotics treatment (sulfamethoxazole and trimethoprim), and after infection with Pg. The study involved the process of isolating DNA from the mouth of mice in an animal model of oral infection mimicking periodontal disease in humans, by using the DNA investigator forensic kit (Qiagen). Four different apparatus for swabbing the gingiva of the mice

were tested: cotton swab, sponge swab, paper strips (Periopaper) and paper points. The concentration of DNA was measured using Nanodrop. After selection of the apparatus that provided the highest concentration of isolated DNA, baseline bacterial DNA was identified using real-time PCR. Cotton swab provided the highest concentration of DNA and it was selected as a standard mode to collect samples. A total of 4 mice were used for sampling. Concentration range of isolated DNA before antibiotics treatment, after antibiotics treatment and after infections was, respectively, 18.2ng/ul, 22.2ng/ul, 10ng/ul , 19.1ng/ul, and 9.2ng/ul, 18.9ng/ul. Baseline samples were then investigated for 4 different group of bacterial DNA amplified by PCR, and it observed the presence of Firmicutes, g-Proteobacteria and Bacillus, besides the Universal Bacteria counts. In conclusion, the preliminary results suggested that cotton swab was the best apparatus for sampling, and it was possible to identify commensal bacteria using this technique. Analyses of samples after antibiotics treatment and after Pg infection are necessary to confirm the effectiveness of the infection protocol.

Bio-04
Dynisty Everette, Dr. Mahasin Osman
Research Mentor: Dr. Mahasin Osman
Targeting Basal-Like Breast Carcinoma with Precision Medicine
The Basal-like breast cancer subtype known as Triple Negative Breast Cancer (TNBC) is most lethal for it lacks biomarkers and targeted therapy. Additionally, TNBC is a cancer of disparity that affects African American and Hispanic women at a young age. However no mutations have been found to explain this disparity. We have identified IQGAP1 as an oncoprotein whose dysregulation leads to cancer induction and progression to metastasis and associates with TNBC. Our research revealed that IQGAP1 could induce cancers via different mechanisms, including the inflammatory response pathway that underlies many cancers. These findings suggest that cancers marked by

IQGAP1 dysfunction can be targeted with specific inhibitors. Towards this end we performed a large pharmacogenetic screen of small molecule inhibitors to use as genetic tools for understanding the mechanism of IQGAP1 in the disparity and inception of TNBC and for isolating novel personalized therapies. Our screen identified blockers of human Cytochrome p450 1A2 as selective inhibitor in TNBC cell lines isolated from African American women and expressing mutants of IQGAP1. Cytochrome p450 1A2 has capacity to bioactivate pollutants like arylamines into potent mutagens and carcinogens, but its mechanism of action is unknown. Out of several Cytochrome p450 1A2 blockers we tested, 2'-Ethynylflavone (2EF) exhibited selective and potent inhibition of cell proliferation in cancer cells expressing IQGAP1. Experiments are underway to define the specific pathway of 2EF-inhibition of IQGAP1-mediated cancers for potential translational medicine.

Bio-05
Enow Ayuk, Dr. Takayuki Nitta
Research Mentor: Dr. Takayuki Nitta
HERV-K in Prostate Cancer Health Disparities
Widespread implementation of prostate specific antigen (PSA) test decreased a proportion of metastatic or locally advanced prostate cancers (PCa) at diagnosis. However, PCa continues to represent the second leading cause of cancer-related mortality. Especially, it's important for African Americans since they show the world's highest incidence and mortality rate of PCa among different racial/ethnic groups. One of the major clinical challenges is the limited specificity of the PSA test for PCa screening and prognosis, which has lead to vast increase in the diagnosis of patients with indolent carcinomas that may not require urgent treatment. Further, PSA levels do not show a direct correlation with increasing grade and stage of PCa. This gap needs to be addressed by better understanding of the PCa development, which should ultimately identify new biomarkers and identification methods that predict PCa prognosis. Human endogenous retroviruses (HERVs) were arisen by infection and following endogenization of exogenous retroviruses into germ cells. Recently it is demonstrated that expression of one HERV group, HERV-K was increased in patients with PCa regardless of PSA level and the presence of serum antibodies against HERV-K correlated with advanced cancer stages of patients with PCa. The objective is to determine the level of HERV expression in cell lines derived from Caucasian and African American men. To determine HERV expression we made cDNA from prostate cancer cell lines (African American and Caucasian). The specific amplification of PCR products were checked by PCR and agarose gels. The PCR tells different expression of HERVs between two cell lines derived from Caucasian and African American. Quantification of HERV-Ks by real-time PCR is ongoing. In summary, our experiment could clarify the differential expression of HERVs among cell lines.

Bio-06
JaCori Magee, Dr. Takayuki Nitta
Research Mentor: Dr. Takayuki Nitta
Expression of SERINC 3 and SERINC 3 with qPCR
Hostile retrovirus interaction consists of viruses coming into contact with a host to result in replication. These viruses continually try to make copies of itself however due to our cell mechanism of defense, we restrict replication of the viruses. One of the mechanisms to limit viral replication is described as restriction factors. One of the features of the human immunodeficiency viruses, HIV, which distinguishes it from other retroviruses, is the array of "accessory" proteins that it encodes. The HIV-1 accessory proteins modify the local environment within infected cells to ensure viral persistence, replication, dissemination, and transmission. Nef is one specific accessory protein that counteracts host restriction factors. Glycogag, a unique protein found in gamma retroviruses has the similar functions to Nef. XMRV refers to a recently discovered retrovirus called xenotropic murine leukemia virus-related virus. It was first identified in 2006 in samples from men with

prostate cancer. XMRV is closely related to a group of retroviruses called murine leukema viruses (MLVs), which are known to cause cancer in certain mice as well. We found that XMRV does not show glycogag activity and a chimerical XMRV containing MLV glyco-gag showed higher infectivity than the original XMRV in some cells. SERINCs is a new restriction factor that was discovered within the past year. This factor might restrict the replication of XMRV and we believe that it could possibly be counteracted by glycogag. We hypothesize the glycogag counteracts SERINC 3 and SERINC 5 which restricts XMRV replication. Our objective is the (1) quantification of SERINC3 and 5 in HeLa, DU145 and 293T cells, and (2) comparison of SERINCs to XMRV replication. The cDNA samples prepared from the cells were subjected to qPCR with GAPDH, SERINC3 and SRINC5 primer sets. We found no significant difference of SERINC expression among the cell lines. In summary, enhancement of viral replication by glyco-gag in the chimerical XMRV could be independent on the expression of SERINCs in these cell lines.

Bio-07

Jasmine Phillips, Dr. Hua Zhao, Dr. Takayuki Nitta

Research Mentor: Dr. Takayuki Nitta

Betulinic Acid and Its Derivatives Inhibit Growth of Prostate Cancer Cells

Cancer is a genetic disease where some of the body's cells begin to divide without stopping and spread to surrounding tissues. Normally, human cells grow and divide into new cells as the body requires them. Cells die once they become old or damaged and new cells take their place. However, when cancer develops, old or damaged cells survive past the duration of their average life span, and new cells form when they are not needed. Prostate cancer (PCa) is one of the most common cancers amongst men and affects 80% of men under age 65 and 1% under age 50. Cancer health disparities include PCa, and African American men are 1.6 times more likely to be diagnosed with prostate cancer and 2.4 times more likely to die from the disease than Caucasian men.

Betulinic acid (BA) is a naturally occurring pentacyclic triterpenoid which was found in the bark of several species of plants, principally the white birch. Betulinic acid and its derivatives has shown inhibitory activities against several cancers and viruses. They also showed anti-malaria and anti-inflammatory properties. The aim of this study is to assess inhibitory effects of BA and its derivatives in replication of PCa cells. In this study, BA and four BA derivatives we developed previously (Visalli RJ et al., 2015, Suresh C et al., 2012) were used. Five different PCa cell lines (E006AA-Par, E006AA-hT, LNCaP, DU145 and PC-3 cells) were treated with 10 uM BA and its derivatives, and cytotoxicity was measured by AlamarBlue assay that reflects metabolic activity in cells. Inhibition of cell growth by 10 uM of BA and its derivatives ranged from 0-40%, and PC-3 cells showed the highest sensitivities against these compounds. Especially, benzalkonium salt of betulinic acid-glycine [benzalkonium][BA-Gly] (Compound #3) and [benzalkonium][betulinate] (Compound #4) showed 40% decrease in PC-3 cell growth. Since the Compound #3 and #4 contain benzalkonium, Growth of PC-3 cells treated with 10 uM of Compound #3 and 10 uM of benzalkonium chloride was compared. The Compound #3 and benzalkonium chloride inhibited growth of PC-3 cells in a dose-dependent manner, and their inhibitory effects were comparable. These results suggested that the major ingredient showing cytotoxicity in the Compound #3 and #4 could be benzalkonium. The following experiments with the Compounds #1, #2 and #5 demonstrated that these compounds can inhibit growth of PC-3 cells in a dose-dependent manner (25-40% at 30 uM and 60-75% at 50 uM), suggesting that these compounds could be applied for certain types of PCa. Apoptosis induced by the compounds will be investigated by assessing DNA condensation and fragmentation and cleavage of Caspase and PARP-1 proteins in the future work.

Bio-08

Latriona Nelson, Dr. Cecil Jones

Research Mentor: Dr. Cecil Jones

Monitoring PDT-Induced Apoptosis in Pancreatic Cancer Cells by Fluorometric Analysis of Caspase

A fluorometric assay was employed for monitoring intrinsic cell death in pancreatic cancer cell line PaCa-2 induced by photodynamic therapy (PDT). The method involves the use of zinc phthalocyanine tetrasulfonic acid (ZnPcS4) as the photosensitizer that is believed to localize preferentially in subcellular organs of cancerous cells. Live cells exposed to various concentrations of ZnPcS4 were irradiated with a 630 nm LED at 26.7 mW/cm2 for 2 minutes. One of the mechanisms following excitation of the drug is for it to transfer this energy to molecular oxygen which is a relatively unreactive triplet, 3O2. This transfer of energy results in a conversion from 3O2 to highly reactive singlet oxygen 1O2. The high reactivity of singlet oxygen in addition to the production of other reactive oxygen species (ROS) ultimately results in apoptosis. After incubation for about 2.5 hours, the cells were lysed and analyzed by fluorescence spectroscopy. The procedure relies on the activation of Caspase-3, which is believed to be involved in the proteolysis of poly (ADP ribose) polymerase (PARP). The fluorogenic peptide substrate N-acetyl-Asp-GLU-Val-Asp-7-amino-4-methylcoumarin (Ac-DEVD-AMC) was employed to monitor the activity of the enzyme.

Bio-09

Tanachia Williams, Dr. Mahasin Osman

Research Mentor: Dr. Mahasin Osman

Identification of Ceramide as a Potential inhibitor of IQGAP1-mediated Cancer

Designing diagnostic strategies and targeted cancer therapeutics remains one of the highest priorities in cancer research. In this project, we screened several Ceramides and blockers of Human Cytochromes P450s in vitro using breast cancer cell lines isolated from Caucasians or African American (AA) women. Human Cytochrome p450s play a significant role in metabolism, notably in hormones, estrogen and testosterone, synthesis and breakdown. Cytochrome p450s are involved in the bioactivation of pollutants into carcinogens, which is why they have become medically important in the quest to discovering selective cancer therapies, however, their role remains understudied. On the other hand, ceramides are sphingolipids that work upstream of mitochondria to induce apoptosis, but their pathway is unknown. Previous research in our lab identified the oncoprotein IQGAP1 as a modulator of cell proliferation and apoptosis. We used breast cancer cells expressing mutants of IQGAP1 to screen several Human Cytochrome blockers and ceramide analogues. We identified Cytochrome 78D0F and Ceramides 3 and 315 as potent inhibitors of IQGAP1 in cancer cell proliferation. We then focused on Ceramide 3 & 315 effects on MDA-MB-468 cell lines isolated from AA because 468 displayed features similar to one of IQGAP1's mutants. Our results show that ceramide is a potent inhibitor of IQGAP1-generated cancers. Furthermore, our results suggest that ceramide and IQGAP1 cooperate in the same pathway leading to apoptosis, explaining why addition of ceramide reverses IQGAP1-oncogenecity and potentiates apoptosis. These results have implications in developing the next generation of selective anticancer therapies.

Bio-10

Taylor Stephens, Elizabeth Capogna, Dr. Eric Ledet

Research Mentor: Dr. Eric Ledet

What are Appropriate Staph Aureus Secreted Factors to Use in a Stimuli Sensitive Hydrogel to Target Staph Infections?

Staphylococcus aureus, a pathogen that causes implant-associated infections, is the most common bacteria associated with total hip and knee replacements. Colonization of the implanted medical device by a

biofilm, a three-dimensional structure made of bacteria and host material, is considered the most critical phase in these infections. The biofilm protects S. aureus by preventing the infiltration of

antibiotic making it extremely hard to eradicate once present. This research focused on identifying appropriate S. aureus secretions that could be used as the stimulus in a stimuli-sensitive acrylamide hydrogel. The developed hydrogel will be paired with a small, robust, and wireless
sensor. Successful assembly will have the ability to detect the presence of S. aureus infection within six hours after contamination. Detecting staph infection early on can result in quicker treatment times, less invasive surgeries, and faster patient recovery.

Bio-11
Victoria Daudu, Dr. Takayuki Nitta
Research Mentor: Dr. Takayuki Nitta
Role of GRP78 in Prostate Cancer Cell Line
Prostate cancer is cancer of the prostate gland in the male reproductive system. This cancer is the most common cancer among men and affects 80% of men under age 65 and 1% under age 50. African American men are 1.6 times more likely to be diagnosed with prostate cancer and 2.4 times more likely to die from the disease than Caucasian men. Prostate specific antigen (PSA) is a protein which is produced by cells of the prostate gland. The blood level of PSA is often elevated in men with prostate cancer and African American men show higher levels of PSA than Caucasian or other populations. Glucose-regulated protein 78 (GRP78) is a member of the heat shock protein family of molecular chaperons, required for ER integrity and stress induced autophagy, which is ubiquitously expressed in mammalian cells; its role in signaling the unfolded protein response. GRP78 is involved in prostate cancers, breast cancers, leukemia and other diseases; it binds to PSA-alpha 2 macroglobulin (A2M) complex and could promote prostate cancers. The main goal in this study was to determine the role of GRP78 in the development of prostate cancer in African American men. To this end, expressions of GRP78 in prostate cancer cell lines derived from African American and Caucasian men were examined. The prostate cancer cells were treated

with Thapsigargin, and A2M* (activated A2M by methylamine), then GRP78 in the cell lysates were detected by western blots with anti-GRP78. The African American prostate cancer cell lines showed slightly higher GRP78 expression in basal level and Tg treatment enhanced GRP78 expression in all cells, which was comparable among cells. A2M* did not enhance the expression of GRP78 in the African American prostate cancer cell, E006AA Par, nor the Caucasian prostate cancer cells, DU145. Along with the experiments described above, the role of GRP78 in cell survival was examined with RNAi for GRP78. Treatment of siRNA impaired expression of GRP78 in the E006AA Par and DU145 cells, but it did not change cell growth. These data suggested that GRP78 might be involved in prostate cancer health disparity, but suppression of GRP78 might not be enough to stop growth of prostate cancer cells.

Bio-12
Zhane' Cox, Dr. Cecil Jones
Research Mentor: Dr. Cecil Jones
Determination of Manganese Superoxide Dismutase in Aquatic Life by Flame Atomic Absorption Spectroscopy
The detection limits for zinc, copper and manganese was measured by flame atomic absorption spectroscopy (FAAS) to determine whether a planned pre-concentration technique is required for such measurement in subcellular organelles. Manganese Superoxide Dismutase is an enzyme that serves as a key component of our oxidative defense system. A myriad of materials and conditions can cause oxidative stress in biological systems. The catalyze dismutation of superoxide by SOD is shown in the following equation: 2

Chemistry

Chem-01
Aeman Fatima, Latanya Downer
Research Mentor: Dr.Adegboye Adeyemo
Synthesis of Meso-Tetrakis-3- Chloro-2-Fluoro-5 (Trifluoromethyl Phenyl) Porphyrin

Porphyrins are a group of organic compounds composed of molecules containing a flat ring of four heterocyclic groups, sometimes with a central metal atom. Porphyrins and metalloporphyrins interact with chemical species and provide a versatile synthetic base for a variety of material applications. Porphyrins play a crucial role in a variety of life processes and have important clinical applications including metal binders, gene regulator, oxygen carrier, chlorophylls, vitamins, hormone synthesis, anti-cancer agent, and much more. The objective of this experiment was to synthesize meso-tetrakis 3-chloro-2-fluoro-5 (tri-flouromethyl phenyl) porphyrin from 3-chloro-2-flouro-5 (tri-flouromethyl) benzaldehyde and pyrrole using a 1:1 chemical reaction ratio. The techniques used in this experiment were UV-Vis spectroscopy, thin layer chromatography, IR spectroscopy, and NMR spectroscopy. The porphyrin was successfully synthesized.

Chem-02
Allea Campbell, Dr.Adegboye Adeyemo
Research Mentor: Dr.Adegboye Adeyemo
The Synthesis and Characterization of a new Photosensitizer and Its Metal Derivatives: Potential Anticancer Drugs
A new porphyrin, Meso-Tetrakis(1,4-benzodioxan-6-yl) porphyrin has been synthesized by reacting 1,4-Benzodioxan-6-Carboxaldehyde with pyrrole (1:1 molar ratio) in refluxing propionic acid for 30 minutes. The reaction mixture was cooled, then filtered and first washed with water and then methanol. The dried product was then dissolved in chloroform, and passed through an alumina column. After the complete evaporation of the eluent, the pure porphyrin was obtained. The new porphyrin and its seven metal derivatives were characterized by UV-Vis, IR, and NMR Spectrophotometric techniques. UV-Vis spectrum shows an intense (Soret) peak at 423nm and for Q-bands around 500-700nm typical for regular porphyrins. In the metal derivatives, an intense (Soret) band and one or two Q-bands were observed typical of metalloporphyrins. NMR Spectrum shows a

resonance at 2.8374 ppm due to the core hydrogens. This resonance is absent in the metal derivatives confirming metal incorporation. The spectral data of the free base porphyrin are now compared with those of the metalloporphyrins, with respect to similarities and differences.

Chem-03
Brittany Hill, Dr. Pascal Binda
Research Mentor: Dr. Pascal Binda
Hydrocarboxylation of Styrene with CO2 using Chiral Zinc and Palladium Complexes
Due to global warming there has been an extensive amount of carbon dioxide that is readily available and essentially renewable. In recent years, reactions using carbon dioxide have gained the interest of chemists. In this experiment, styrene underwent hydrocarboxylation by using a chiral catalyst to yield chiral carboxylic acids. If successful a more cost- effective means of making chiral carboxylic acids would be obtained. We hypothesized that through chiral synthesis chiral palladium and zinc complexes will form a chiral carboxylic acid with a new chirality center. By using styrene as a nucleophile and carbon dioxide as an electrophile it will produce the new stereogenic center. The new chiral compound could potentially be used for the manufacturing of suitable functionalized reagents and substrates. Most chiral compounds can be found in a vast majority of pharmaceutical drugs. Chiral LPdOAc (1.0 mol%) or chiral LZnOAc (1.0 mol%) and potassium carbonate (2.0 mol %) were weighed into a dry 250mL round bottom flask. The solids were dissolved in (10mL) THF and (5.0mL) of Styrene, by using a syringe. The carbon dioxide (dry ice) was added in excess to both compounds with stirring. After this diethyl zinc (15% w/ Toluene) was added with a syringe. The reaction was quenched with 1 M HCl (5.0mL). After separation, the aqueous layer was extracted with DCM (2 x 10 mL). The combined organic layers were dried over sodium sulfate and the solvent ethyl acetate was evaporated under vacuum to produce the crude product.

Chem-04
DeChristian Guthrie, Dr. Pascal Binda

Research Mentor: Dr. Pascal Binda

Investigation of new heteroleptic lanthanide catalysts for ring-opening homopolymerization of α-methylene-γ-butyrolactone to obtain biodegradable cross-linkable polyesters

Polyesters are commonly useful in industries such as packaging and bio-medical for drug delivery devices because of their extensive properties including biodegradability. Based on similar methods used by Hong and Chen of Colorado State University for the copolymerization of MBL and É›-CL using La[N(SiMe3)2]3 as catalyst, the lanthanide catalysts will successfully polymerize MBL to produce ring-opening polyester PMBL at low temperatures. Ring opening polymerization of cyclic esters have been successful using heteroleptic lanthanide complexes (LLnX). New lanthanide complexes [LDLaN{Si(CH3)2] (1), and LDLaOMe (2) were synthesized from an acid-base ligand exchange reaction with ligand H2LD and corresponding homoleptic lanthanide compound La[N{(Si(CH3)3}2)]3 at -50°C in toluene for 4 hours. Complexes (1) and (2) were tested as catalysts for the ring opening homopolymerization of MBL (α-methylene-γ-butyrolactone). Polymerizations were tested at temperatures in the range of -45 to 130°C and characterized by 1H NMR. Based on findings from 1H NMR, the polymerizations were achieved at different temperatures. The conversion of MBL was greater with 0.5 mol% catalyst at 45°C compared to polymers obtained with 0.2 mol% catalyst. Complex (2) was also more reactive than (1) and produced more polymer as a result. Future research involves DSC and GPC analyses of polymers, free-radical cross-linking using 2,2'-Azobisisobutyronitrile (AIBN) and low dose gamma radiation.

Chem-05

Lopriela Seabrook, Dr. Adeyemo
Research Mentor: Dr.Adegboye Adeyemo
Synthesis and characterization of meso-tetrakis (2-chloro-6-methylquinolin-3-yl) porphyrin and its metal derivatives: Potential anticancer drugs

Meso-tetrakis (2-chloro-6-methylquinolin-3-yl) porphyrin was synthesized by reacting 2-chloro-6-methyl-3-quinolinecarboxaldehyde with pyrrole (1:1 molar) ratio in refluxing propionic acid for 3 h. The cooled reaction mixture was filtered and the precipitate obtained washed with warm water, and then oven-dried at 109 C for 5 h. Purification was achieved by passing chloroform solution of the crude product through alumina column followed by TLC analysis. The new porphyrin and its metal derivatives were characterized UV-Vis, IR and NMR spectrophotometric techniques all of which support the proposed structures of the compounds.

Chem-06

Rasaan Ford, Dr. Robert Grubbs
Research Mentor: Dr. Robert Grubbs
Identifying conjugated molecules from mixtures using mass spectrometry with selective excitation.

Organic semiconductors have gained a growing interest, motivated by potentially low manufacturing cost, and applications, such as, flexible display materials, sensors, memory devices, solar cells, photodiodes and thermoelectric devices1,2. The problem of finding the most suitable or rather most efficient organic semiconducting molecules is a growing challenge, since the commonly iterative approach of discovering new semiconducting materials with the desired electronic properties can be inefficient and ineffective. A combinatorial approach, to generate a library of conjugated organic molecules, which can then be screened to obtain the specific molecule/s with the desired properties can be advantageous2,3.

Chem-07

Shalyric Moye, Li J, Su XQ, Yao GP, Wang JL, Zhao JS
Research Mentor: Dr.Adegboye Adeyemo
The Synthesis and Characterization of Three Isomeric Porphyrins for Photodynamic Therapy of Tumor(PDT)

Three Isomeric porphyrins, 2-(Trifluoromethoxyphenyl) porphyrin, 3-

(Trifluoromethoxyphenyl) porphyrin, and 4-(Trifluoromethoxyphenyl) porphyrin have been synthesized by reacting 2-, 3-, or 4-(Trifluoromethoxy) benzaldehyde with pyrrole (1:1 molar ratio) in refluxing propionic acid. The porphyrins and their metal derivatives were characterized by UV-Vis and 1H NMR Spectroscopic Techniques. The UV-Vis spectral data of these new porphyrins show Soret peaks around 400 nm, and four Q-bands around 500-700 nm characteristics of regular porphyrins. The UV-Vis spectral data of the free base porphyrins are different from those of the metal derivatives. The 1H NMR of spectral data shows the signal due to the core hydrogens as a singlet around 2.85-2.88 ppm. This signal is conspicuously absent in the metal derivatives confirming metal ions incorporation.

Chem-08

Simone Rolle, LaTanya Downer, E'Donna Johnson, Dr.Kai Shen,

Research Mentor: Dr. Kai Shen

Coupling between Metavinculin and Vinculin Prevents Bundling of Actin Filaments

Vinculin and its muscle specific splice variant, metavinculin, have been proven to play an important role in linking extracellular matrix to cell actin cytoskeleton. Mutations in metavinculin are shown to disrupt cell cytoskeleton in smooth and cardiac muscle cells and consequently cause cardiomyopathies. Although the functions of vinculin have been investigated thoroughly, the precise role of metavinculin in regulating rearrangement of actin cytoskeleton in muscle cells remains to be elucidated. In this study, we used various biophysical and biochemical methods, including CD spectroscopy, actin co-sedimentation assay, western blot, and crosslinking assay, to evaluate the impact of metavinculin on formation of filamentous actin bundles. Our results show that: 1) presence of metavinculin, especially its tail domain, significantly decreases formation of actin bundles; 2) disruption of metavinculin-vinculin interaction restores bundling of actin filaments; and 3) expression of metavinculin is regulated by mechanical forces that cells experience. Further experiments will be implemented to correlate metavinculin defects and actin cytoskeleton disruption in muscle cells.

Engineering

Engg-01

Brandon Davis, Dr. Mehran Mazari, Dr. Roxanna Javid

Research Mentors: Dr. Mehran Mazari, Dr. Roxanna Javid

Impact of moisture variations on the stiffness of unbound pavement layers

The Southeastern Coastal states Georgia and South Carolina are severely affected by natural weather extremes. Due to the nature of the Coastal environment, these incidents result in water related hazards, damaging roads and other transportation infrastructure. While in some cases the roads appeared to be visually stable after water levels had lowered, the intrusion of large amounts of moisture into the layers underneath the surface initiate most of the pavement distresses. The goal of this research was to partially evaluate the impact of moisture content variation on the stiffness of compacted unbound geomaterial pavement layers under laboratory conditions. Several small scale specimens were constructed to perform the laboratory investigations. The laboratory specimens could be replicating the typical field conditions of a coastal environment considering the boundary conditions. Stiffness is measured using a Light Weight Deflectometer (LWD) and a Dynamic Cone penetrometer testing (DCP) device. LWD testing estimates the modulus of soil layer while the DCP evaluates the shear strength of the compacted soil layer. The fundamental index properties of the geomaterials, as well as the Optimum Moisture Content (OMC) and Maximum Dry Density (MDD), were also evaluated during these laboratory investigations. As per the LWD testing results, with increase in moisture content, the modulus was decreased by almost a factor of two in some laboratory samples. Furthermore, the drying of soil samples resulted in increased modulus of the compacted

layer as evaluated by LWD and DCP test results. This study could be extended to a wider range of geomaterials used in the construction of transportation infrastructure in coastal regions to evaluate the strength of compacted geomaterial pavement layers under variable moisture conditions.

Engg-02
Corey McCollum, Dr. Mir Hayder
Research Mentor: Dr. Mir Hayder
Buckling Analysis on a Square Safety Ladder
In this study, a buckling analysis of a square safety ladder has been conducted by SolidWorks simulation software. In a previous study, a similar buckling analysis was conducted for circular safety ladder. To analyze the effect of cross section, the load, fixtures, and materials were kept the same in both studies, but the cross section types were different, the previous one was circular and the current one is square. The cross sectional area was also the same in both studies. The ladder was created with four steps. The frames on the two sides of the ladder were connected with the steps by pins. After creating the step, frame, and pin as SolidWorks part files, they were assembled to create the 3D square safety ladder model. The material assigned for the two side frames and sixteen pins was Aluminum Alloy and that for the four steps was Balsa Wood. For a 200-lbs load on the top step of the ladder, a Buckling Factor of Safety (BFS) of 23 was obtained, which indicates that the square safety ladder is likely to withstand a load that is up to 23 times as large as what is already applied. A comparison of the BFS for the circular and square columns shows that the buckling of the square column is supposed to take place at much lower load than that for the circular safety ladder.

Engg-03
Jamelle Jaudon, Jakari Dean
Research Mentor: Dr. Bryan Knakiewicz
Friction Characteristics of Savannah, GA Road
Roads are a major part of human life, as they serve an important part in our transportation systems. In the United States, they connect cities, towns, and states, facilitate the transfer of goods, and play a major role in military defense and natural disaster evacuation routes. As roadway pavements age and endure weather and traffic loads, pavement distresses such as cracking, rutting, potholes, and polishing begin to occur. Over time, distresses can accumulate and allow moisture to penetrate below the surface, increasing the distress severity. These distresses can affect properties essential to safe vehicular travel; one of which properties is known as pavement friction. It is not known to the public the pavement friction characteristics of roadways in the Savannah/Chatham County, GA area. Therefore, this study is to better understand the current pavement friction characteristics of various roadways in the Savannah/Chatham County, GA area using the ASTM E303 â€" 93 Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester field testing procedure to determine the skid resistance (friction number) of the test locations and to analyze the data to determine possible correlations between factors such as pavement type (asphalt or concrete), age, location, traffic volume (intensity), and localized areas of rehabilitation.

Engg-04
Maalik Leggette, Jacob Mancha, Dr. Laura Boucheron
Research Mentor: Dr Laura Boucheron
Disagreement Based learning for stock market forecast
I created a data set gathered from multiple sources. There will be a descriptive explanation for the data that was gathered, and how we would manipulate that data such that we could apply this data to machine learning algorithm with multiple learners. We will attempt to create an algorithm that can successfully predict a profitable stock .Based on a different number of features. The two classifiers that I will be using will be pitted against each other, for the sake of diversity. I will be using the semi -supervised technique as well Ensemble learning technique called disagreement based learning along with the Support Vector Machine.

Engg-05

Tamarcus Norman, Dr. Spyros Andreou

Research Mentor: Dr. Spyros Andreou

The analysis and applications of difference equations

The analysis and applications of difference equations were found in daily common uses; these include Individual Retirement Accounts (IRA), Population Models, Design of Filters and Business Inventory. Two real problems were chosen from everyday life: one to determine lottery winnings either get a lump sum or yearly payments and the second is playing a slot machine at a casino determining how many rounds on average somebody can play before losing everything or doubling the winnings. The first problem is a first order difference equation and the latter is a second order difference equation. Both problems are solved thoroughly and conclusions are drawn. For problem one, it is determined that the one-time sum is most desirable if the financial advisor granted an interest rate less than 7.75 percent. For problem two, it is determined that the average number of rounds a player can play is 48.3 rounds.

Engg-06

Terrence Staten, Dr. Mehran Mazari, Dr. Roxana Javid

Research Mentor: Dr. Mehran Mazari

Moisture susceptibility of hot mix asphalt pavements in coastal region

Moisture Susceptibility is one of the issues behind hot asphalt mixtures. Due to these issues the attention has been focused on the sensitivity of the aggregate and asphalt system in the presence of moisture. The hot asphalt mixtures become susceptible to water when the internal aggregates are in the presence of water, thus weakening the aggregate bonds causing it become more susceptible. A great way to avoid moisture susceptibility or at least prolong the process is the idea of waterproofing pavements. Which can be seen in use today with asphalt overlays, chip seals, crack sealing and the use of modified asphalt binders. In order to do so pavement interlayer systems should be implemented. These pavement interlayer systems significantly increase the waterproofing benefits of conventional seals, as well as reinforcing traditional reflective cracking treatments. The key features of interlayer systems are that they reduces reflective cracking, reduces subgrade moisture infiltration, increases subgrade stability, and increases asphalt strength. These systems have many key benefits for interlayer systems that extends pavement life, reduces life cycle costs, extends pavement maintenance budgets, and preserves pavement load bearing capacity. These interlayers help the overlays by reducing the number and dimensions of reflective cracks in an overlay by creating a stress-absorbing layer at the tip of an existing crack or by adding reinforcement and tensile strength at low strains to an asphalt overlay.

Environmental Science

Env.Sci-01

Chauntilena Butler, Dr. Paramasivam Sivapatham

Research Mentor: Dr. Paramasivam Sivapatham

Evaluation of Heavy Metals from Cocoa growing soils of Trinidad & Tobago

Extractability of cadmium and other heavy metals was studied on selected Cocoa growing soils representing 12 major soil classes of Trinidad and Tobago. For this study, a total number of 30 soil samples were collected from the island-wide representative cocoa-growing farms and another 15 representative soil samples from a 6.21 ha farm of "Home for World Gene Bank for Cocoa" of University of West Indies [UWI]. These samples were used to study the extractability of Cd, Cr, Ni and Pb using 7 common chemical extractants described in literature. Results of this study revealed that Mehlich III and DTPA extracted more heavy metals compared to that of remaining other extractants. Water extracted generally less heavy metals compared to all other extractants. Extractable Ni and Pb contents are comparatively higher than that of extractable Cd & Cr contents monitored in this study. Results also indicated

that some of the soils had a very high level of water-extractable heavy metal contents, and, as such, they can act as a source and could potentially contribute to harmful in groundwater if that water is used as drinking water source. It can as well also result in elevated soil solution level and ultimately impact human health. Further studies are planned to identify various chemical associations of these heavy metals in soils through â€˜sequential' extraction processes to understand the dynamics of these heavy metals and their impact on plant availability by performing additional statistical studies such as Regression Correlation.

Forensic Science

For.Sci-01
Dominique Richardson, Diamond Gilliard, Simone Rolle, Devonta Streetman, Jerion Watkins,, Dr. Eric Clark, Dr. Karla-Sue Marriott
Research Mentor: Dr. Karla-Sue Marriott
Forensic Facial Reconstruction: Human African Male Skull
Anthropology is the study of humans as it deals with the origins, physical and cultural developments, biological characteristics, and the beliefs of mankind. Over the years, the field of Anthropology has become increasingly popular, which led to different sub-fields being established in order to give the field more specificity. For example, physical or biological anthropology focuses on the human body as it relates to explaining the circumstances of an accident or solving a crime; often homicide. A sub-field of this, as well as the field of interest that this project is concerned with, is forensic anthropology, which applies the science of physical or biological anthropology to the legal process. In this field, forensic reconstruction is the main focus. This method is used when a crime involves unidentified remains and its purpose is to generate a likeliness that can be recognized. Facial reconstruction provides investigators a chance of identifying an individual when traditional methods fail, as well as aiding in obtaining a possible lead to the identification of the victim, which could lead to suspect identification. The purpose of this project was to reconstruct a face according to the characteristics that our personal skull possessed; which was based on conducted research that helped to determine the age, gender and ethnicity of the skull. This was done utilizing the American facial reconstruction method.

For.Sci-02
EDonna Johnson, Arielle Dallas, Nikia Michelle, Eric Clark, Dr. Karla-Sue Marriott
Research Mentor: Dr. Karla-Sue Marriott
Forensic Facial Reconstruction: Human African Female Skull
Forensic facial reconstruction performed by a forensic artist is used to reproduce the substance of a person (whose identity is regularly not known) from their skeletal remains through an amalgamation of aesthetics, criminological science, human sciences, osteology, and life systems. Facial reconstruction has demonstrated effective habitual use that examination and methodological improvements continue to progress. In this project we have worked towards the development of the facial features of a human subject of African descent utilizing the Manchester method (The European and Russian method that allows the muscle to be attached to the skull). During the process we took measurements of the skull and identified distinct features enabling us to determine the approximate age, gender, and ethnicity of the human. Depth markers were then placed on the skull to assist in the layering of oil-based clay for the facial recreation.

For.Sci-03
Tyra Deloatch, Twanshella Marshall, Keani Miller, Zaria Guinn, Dr. Eric Clark, Dr. Karla-Sue Marriott
Research Mentor: Dr. Karla-Sue Marriott
Forensic Facial Reconstruction: Human Asian Male Skull
Forensic facial reconstruction is a method used in the forensic field when a crime involves unidentified remains. Facial reconstruction is usually performed by someone who is an expert in facial anatomy. However, before

reconstructing the facial features, a few things need to be determined, such as, the gender, age, and ethnic background of the unidentified human. Based on the results, this will determine the depth of the tissues markers to be placed on the skull. The placement of the tissue markers is the first step in the facial reconstruction. Tissue markers are cut to very specific lengths in millimeters and glued onto specific locations on the skull. After the markers have been checked, the we began to add oil-based clay to the skull. Some artists use the clay to create muscle structures, while others use a simpler layering method for their reconstruction. We used a combination of both for our reconstruction.

Geographical Information Systems

GIS-01
Amani Lewis, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Savannah State University Hurricane Category Guide
The purpose of this activity is to give the residents and faculty of Savannah State University insight of the severity of hurricane storm categories, and show how they affect the campus. I will be using the SAGIS Database to get my map of the Savannah State University. Then, I will SLOSH database to overlay my data to create the maps of the different surges and storm categories. In my research, I expect to find how each hurricane category will affect each area of the campus. I also expect to find that even the lower category oceanic will affect the campus because it is connected to the saltwater marsh.

GIS-02
Ashley DeJesus, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Beach Profiling: Savannah, Georgia's Coastline Endangerment
Erosion and storm surge on Savannah, Georgia's coast exhibits some changes over an extended period of time. Tybee Island is in great endangerment due to tropical storms and hurricanes. Erosion caused by weathering has played a role in decreased sediment supply to those who live on the coast and has also affected animal life that visit sparingly on the shoreline for food and living necessities such as laying eggs and/or building a home. Many people who live in the Tybee Island area are in danger due to the increase of erosion over time.g. Beach profiling was conducted from 2008 to around 2015. A surveying technique measuring changes of the beach will show how the coast of Tybee Island changes. Data were mapped on ArcGIS 10.2 to show the effect of erosion on Savannah, Georgia's coastline.

GIS-03
Bryanna Sanders, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Sandy beaches provide an important habitat for a multitude of organisms in addition to acting as a natural barrier between the land and sea during intense storms. It is important to collect data on shoreline changes so that beach erosion can be monitored and the natural shoreline can be maintained or renourished if needed. This study will outline the changes in shoreline on Tybee Island, Georgia over the span of five years, and will compare the shoreline before and after beach renourishment. Data were collected between September of 2009 and April of 2014 at Tybee Island, and were mapped in ArcGIS. I expect to find a gradual erosion of Tybee's natural shoreline and then a significant increase in beach surface area due to the beach renourishment on Tybee beach that took place in October 2014.

GIS-04
Candice Vinson, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Spatial and Temporal Trends in Plankton Distribution in the Savannah River
Phytoplankton play a vital role in the ecosystem as primary producers. They can benefit a community, but also bring harm to humans and marine life. Therefore, it is critical to monitor plankton spatial changes. The purpose of this project is to utilize water chemistry (temperature, and salinity) and plankton population density information, gathered by the SSU EDGE Program in 2009, to compare spatial and temporal

trends in the Savannah River. Data will be mapped using ArcGIS 10.4 with the projection of Georgia Stateplane East (NAD1983), using markers to directly represent plankton density along the river. These data will be layered and colored to represent temporal differences. Further research will be done to ascertain existing information on the potential influence of water chemistry on plankton population. Expected conclusions are that the water chemistry (salinity and temperature) will have a direct impact on the plankton population sampled in each area.

GIS-05
Dante Freeman, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Conservation Lands in Georgia
With increasing environmental issues, it is important to have lands dedicated to conservation. Conserving land helps to preserve the ecosystem and reduce the effects of issues such as pollution and global warming. Some undeveloped land in Georgia is set aside as conservation lands, but different areas are owned by different organizations such as the Georgia Department of Natural Resources (GADNR) or the National Park Service. The purpose of this research is to create a map of all conserved lands in Georgia. One goal during this project is to merge multiple shapefiles from different organizations into one large file. This file will combine data from multiple sources because some files share some data. Another potential goal is to compare how much of different types of lands are conserved to determine if more land should be conserved. All data were obtained from the GA GIS Clearinghouse. Expected results include total area of conserved land in Georgia and amounts of different types of land conserved. Overall, it will be helpful to these organizations to have all of the conserved land in Georgia consolidated into one file.

GIS-06
D'Monique' Green, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
The Hidden Jewels of Savannah

Savannah is an important tourist detestation, 13.7 million tourists visit Savannah's Historic District each year. At the Official Savannah Information Center tourists can pick up an official Savannah Map of the Historic District, Starland District, Greater Savannah area, and Tybee Island area. On the map, you can find numerous historic sites among the various river side restaurants, bars, and tourist shops from the Savannah River to Forsyth Park. Unfortunately, there are some historic sites that are not identified. Among the myriad of sites that populate the Savannah historic district area, I have collected ten sites that are not present on the current official Savannah map. The purpose of this project is to provide an updated version of the official Savannah map, with these site present.

GIS-07
Gina Humphreys, Dr. Christopher Hintz
Research Mentor: Dr. Christopher Hintz
Determining excessive shoreward light to assist in sea turtle conservation on Tybee Island, Georgia
Endangered female Loggerhead sea turtles (*Caretta caretta*) emerge from the ocean at night to nest multiple times between the April and September. Hatchling sea turtles use visual cues like the slope of the beach and natural light reflecting off the white turbulent surf to orient themselves back into the ocean. This event can occur during any of moon phases; however, during the new moon, ambient light is lowest and hatchling orientation can be significantly impacted by shoreward anthropogenic light. Tybee Island, Georgia is a popular summertime tourist destination. As the beachfront develops, more lights are installed for night time municipal, commercial and residential safety and security. The increase of anthropogenic light, if it strays onto the beach, can steer the turtles away from the ocean and towards these light sources. The purpose of this research is to document the shoreward light altering the natural beach along Tybee. Excess shoreward light (ESL) data collected between 2011-2012 are presented and spatially interpolated using ArcGIS to potentially

identify areas of high anthropogenic impact. This analysis can inform conservation mangers about areas that should be of focus to improve sea turtle nesting success.

GIS-08
Jacqualle Johnson, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Are You Safe When the Threat Comes?
The purpose of this GIS project is to analyze the different levels of threat from storm surge for each municipality in Chatham County and the potential damage a hurricane or tropical storm could cause. The potential risk of natural disasters has become alarming to various federal and state agencies such as: the Federal Emergency Management Agency (FEMA) and Chatham Emergency Management Agency (CEMA). FEMA's mission is to provide support to citizens and first responders in order to prepare, protect against, respond to, and recover from all hazards. In addition, CEMA is similar to FEMA; however, CEMA is on the county level. Storm-surge inundation maps were created, using Arc GIS, in order to predict potential levels of threat in Savannah municipalities. SLOSH data collected from SAGIS allows these agencies to predict potential flooding in the municipalities of Chatham County to determine the level of threat for each municipality. Therefore, citizens can be informed of evacuation measures based on the level of threat for their municipality.

GIS-09
Jennifer Like, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Potential Contributors to the Strandings of Bottlenose Dolphins
Bottlenose dolphins, *Tursiops truncatus*, are abundant throughout the warm coastal waters of South Carolina, Georgia, and Florida. Throughout the past years these dolphins have been found stranded along the coastal environments. The geographical locations of strandings observed from 2009 to 2012 along the coasts of South Carolina, Georgia, and Florida were pin-pointed in ArcGIS. The strandings were categorized by the condition the bottlenose dolphins were recovered in: alive, fresh dead, moderate decomposition, advanced decomposition, mummified-skeletal, dead-condition unknown. The length, which provides us with an approximate age of the dolphins, is also given. The condition, age, size, and sex of the dolphins were organized into the geographical mapping system to find any potential factors that may coincide with the strandings and/or conditions of the bottlenose dolphins. A plausible conclusion has yet to be drawn pertaining to the cause of the marine mammal stranding abundance, and further research is the only key to determining the source of the problematic strandings that are lessening the population of bottlenose dolphins.

GIS-10
Nathaniel Campbell, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Sea Level Rise due to Climate Change on Long Island, NY
Changes from climate have already been observed across New York State. Sea level along New York's ocean coast has risen by more than one foot since 1900, or about 1.2 in/decade. The objective of this project is to show the predicted effects of sea level rise to the south shore of Long Island due to climate change. Using data gathered from a science-based projection from the Department of Environmental Conservation for NY I will overlay projected sea level rise on three (3) municipalities on southern Long Island through year 2100 in ArcGIS 10.4. Without being proactive, projected climatic changes will have harmful effects on New York's transportation, water and energy infrastructure. It will also impact areas that New York's economy depends, including agriculture, ecosystems, tourism, and water resources. These projected effects combine to threaten the livability and economic life of many of New York's communities, as well as the health and safety of the residents of these communities. These maps will show areas that will have some of the highest priorities of need when planning for the future, and where possible

preparations should begin for dealing with the impending sea level rise.

GIS-11
Sharifa Chandler, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Time series of the spread of invasive Zebra Mussels (Dreissena polymorpha) in the Great Lakes Region
Since 1988 the Great Lakes Region has been impacted by the explosive spread of zebra mussels (*Dreissena polymorpha*). The rapid spread has caused negative effects economically, costing the United States billions of dollars in damages every year. These outbreaks have raised concerns, and actions has been put in place to prevent further infections. This study explores the progression of invasive zebra mussels in the Great Lakes region and identifies 'hot spots' for invasives. Historical data were obtained from Great Lakes Information Network and then mapped in Arc GIS 10.4. The ability to map their progression throughout the Great lakes regions from a time series from 1988 - 2007 will identify their 'hotspots' and prevent further damages to surrounding ecosystems.

GIS-12
Tristan Martin, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Oyster Reef Distribution
Oyster reef distribution is important because oysters today are slowly decreasing in numbers. Oysters are filter feeders so the more we have in the water the cleaner it will be. I will study the spatial correlation between oyster's reefs to find out if they affect oyster reproduction. With this information managers will be able to map and predict spots where artificial oyster reefs should be placed.

GIS-13
Zackery Umberg, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Fungi Abundance and Distribution on SSU Campuss
Savannah State University's campus is filled with trees of all shapes, sizes, and ages. When the epidermis of an older tree becomes damaged, it can become more susceptible to forming a relationship with fungi. Any relationship a tree has with fungi can be classified as parasitic, saprophytic, or mycorrhizal. Parasites consume living trees, and in doing so speed up the decaying process. Saprophytes feed off dead or decaying matter (usually organic), while mycorrhizal fungi form symbiotic relationships with the roots of the trees. With basic understanding of the relationship that trees have with fungi, my aim is to locate and identify different fungi on the SSU campus. I will use a Garmin GPS to record my locations of fungi and trees. By mapping these locations on ArcGIS 10.4, I will investigate the relationship of trees and fungi, including relative proximity and related species. Ultimately, understanding the abundance of fungi and its association with trees will aid in the recognition of trees with the potential to die and fall if left standing as a food source for fungi.

Marine Science - Bachelors

MS-B-01
Alex Wright, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Lionfish; Past, Present, Future
Are Lionfish a threat on The Atlantic Coast of the United States? At what rate will the Lionfish spread north? How much farther up the Atlantic Coast can the Lionfish thrive? The (Pterois) Lionfish is a genus of venomous marine fish, commonly known as the lionfish, native to the Indo-Pacific Ocean. The success of an aquatic invader, such as the lionfish, depends on many factors such as the water temperature and available food sources. The purpose of this project is to show specific areas throughout the Atlantic Coast of the United States where lionfish have been collected, spotted or recorded (distribution). The database is compiled of several datasets from the United States Geological Survey partnering agencies and cooperators as well as the general public. The dataset provided was collected from 1992 through 2015. I mapped in ArcGIS using

UTM17N to plot the data points. By providing a data map that explores areas where lionfish are more widely populated over a specific timeframe, it is my anticipation that the data will provide researchers with information to track where the Lionfish are headed and prevent further invasions. Although it may be impossible to delete the lionfish, tracking the number of species in a specific area will provide the necessary data needed to help control the population.

MS-B-02

Cassandra Harris, Robin Perrtree, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Residency of Begging Common Bottlenose Dolphins (Tursiops Truncatus) in the Estuarine Waters of Savannah, GA
Common bottlenose dolphins, *Tursiops truncatus*, in the estuarine waters near Savannah, GA have the highest rate of human-interaction behaviors (HIB) of any bottlenose dolphins worldwide. The objective of this study was to identify the residency of beggars. We hypothesized that the majority of begging individuals would be residents because prominent begging behavior appears to be isolated to the Savannah area. Boat-based surveys were conducted between 2009 and 2014, during which dorsal fins of dolphins were photographed, and behavior was recorded. We categorized 250 individuals seen in 6 or more sightings as beggar (n=86) or non-beggar (n=164). There were 5 definitions of residency used previously in the southeast USA. Definitions were based on 1 or more of the following factors: number of seasons, number of sightings, and time span. Individual dolphins were analyzed using all 5 definitions for 2 different sets of seasons. Once the residency status of all 250 individuals were assigned, we tested for a difference in residency distribution between beggars and non-beggars within each definition. For the first set of seasons, there were 3 residency definitions that had a higher percentage of beggars that were residents compared to non-beggars (p=0.007, p<0.001, and p=0.002). For the second set of seasons, there were only 2 definitions that had a higher

percentage of non-beggars that were residents (p<0.001 and p=0.003). Resident beggars ranged from 22-56 individuals because of the differences in definitions. Definitions that were based on seasons had a lower amount of beggars that were residents than definitions that focused on time span over which an individual was observed. Understanding the residency status of beggars can aid in management; by knowing how prevalent beggars are in the area, efforts to educate can be confined to a smaller geographic area.

MS-B-03

Darius Sanford, Dr. Dionne Hoskins-Brown
Research Mentor: Dr. Dionne Hoskins
Evaluation of Oyster Reef Elevation as a Conservative Measure in Reef Monitoring
Long-term evaluation of oyster reef restoration requires the collection of comparable universal metrics of reef health that can be compared across the region (Baggett et al. 2014). Reef elevation was measured at 19 Georgia oyster reefs for 3 years. Multiple methods can be used (ex. Laser level, post and line) but require at least two field volunteers and is the most time-consuming of all monitoring measurements. Analysis of duplicate elevation data collected at one site had high variability using a manual (67Â± 26.99 cm) or laser level method (68.2Â±28.91cm). This study was undertaken to assess the variability in mean elevation in the long-term data set for each site from 2011-2015 using section, reef type, and elevation evaluation methods as factors. The objective was to determine the lack or presence of statistical variability of mean elevation found throughout 2011-15 in 19 restored and natural reef sites in respect to the wide variability observed in the 2016 field study and to determine if elevation should be retained as a conservative measure.

MS-B-04

Kalynn Fitzgerald, Rachael Randall, Dr. Amanda Kaltenberg, Dr. Tara Cox,
Research Mentor: Dr. Amanda Kaltenberg
Regional and tidal phase effects on estuarine prey distributions near Savannah, Georgia

Estuaries are areas of high variability from factors such as tidal flushing, trophic interactions, and nutrient and energy fluctuations. Tidal flushing impacts the distribution of estuarine biology in which planktonic organisms are flushed with the ebbing and flooding tides, affecting their overall patchiness and their availability to predators. A dual sampling method was used to characterize the abundance and distribution of biology within two different confluences in the Savannah River Estuary system. Tidal phase did not significantly impact the overall abundance of biology (Skidaway, p=0.481; St. Augustine, p=0.564). Study location had a significant effect on the total abundance of organisms and composition of nekton at trawl and whole water column depth (trawl depth, p=0.002; water column, p=0.008). From this study, a dual sampling method yielded a good representative sample of organism abundance within a region and demonstrates site-specific patterns regardless of high tidal flushing.

MS-B-05

Patrick Clower, Dr. Dionne Hoskins
Research Mentor: Dr. Dionne Hoskins
Use of Oyster Reef Profiles as a Qualitative Tool in Long-term Monitoring
Natural and restored oyster reefs are prevalent along the coast of Georgia. Oyster reefs provide many ecosystem services by filtering water, providing habitat, and supporting a strong fishery. Reef height is one of several measures that are considered universal metrics that can be used to assess the health of a reef. Reef height is a measure of the mean height of the reef above the surrounding substrate (in relation to the substrate immediately adjacent to the reef, not the shoreline). Nineteen oyster reef sites (natural and restored) were monitored from 2011-2015 and the reef height was used to create two dimensional reef profiles. Height is measured with a stationary laser level and a one meter long ruler that measures each quadrat along each site. These profiles model the change in reef height from the marsh line to the low tide mark across sites. The measurement of reef height provides information regarding changes in the reef over time, such as the persistence of a reef after construction as well as the habitat provided for resident and transient organisms. Reef height can be used as a qualitative tool to gauge how reefs change over time and could be used to determine if restoration efforts among restored reefs are successful.

MS-B-06

Sarah Wilson, Dr. Tara Cox
Research Mentor: Dr. Tara Cox
Lionfish invasion in the Gulf of Mexico
The Indo-Pacific Lionfish is an invasive species in the Western Atlantic Ocean and Gulf of Mexico. Lionfish were first recorded in the Western Atlantic in the early 2000s and have been increasing at an alarming rate causing harm to the marine ecosystem they are thriving in. Lionfish are considered an invasive species because of the devastating affect they have had on native species along the Gulf of Mexico. Dr. Pam Schofield of the USGS has provided data of the spread of this invasive species. The data collected was mapped in the ArcGIS 10.4 program to highlight specific points with higher populations which are more of concern. To effectively reduce the population some fishermen have started catching and selling lionfish to some restaurants. The main focus of this information is to attempt to counteract the lionfishes growing population before it destroys the balance of the Gulf of Mexico food chain.

Marine Science - Masters

MS-M-01

Emily Weigel, Dr. Tara Cox, Dr. Amanda Kaltenberg
Research Mentor: Dr. Tara Cox, Dr. Kaltenberg
Soundscape of an Estuarine Environment in Coastal Georgia
Underwater power levels are indicative of activity in saltwater environments. Our research is focused on comparing average maximum sound pressure sampled in dB across vastly differing environments of coastal Georgia. While

analyzing the differences of sound pressure in the locations, we will be able to better explain the interactions between human activities and underwater environments, especially in the busy port city of Savannah, Georgia. We use an HTI-96-Min hydrophone, which records soniferous fishes and anthropogenic sounds, such as boats, in several Savannah-area marsh habitats. The recordings are assessed in Raven Pro 1.5 Interactive Sound Analysis Software. Our data mapping is completed in ArcMap 10.4. The underwater sounds in the Savannah River, where large cargo ships travel, will display a high peak sound energy average within our frequency range of interest, whereas the marsh will have a lower peak sound energy average, due to depth and aquatic life levels. Our results will allow for well-informed policy-making, addressing engine loudness and proximity limits near sensitive environments.

MS-M-02
Emily Griffin, Zoe Wong, Robin M Perrtree, Tara M Cox,
Research Mentor: Dr. Tara Cox
Evaluation of the Southern Boundary of the Northern Georgia Southern South Caolina Estuarine System stock of Common Bottlenose Dolphins (Tursiops Truncatus) in the waters around Savannah, GA
The definition of accurate boundaries between stocks of marine mammals, such as common bottlenose dolphins (*Tursiops truncatus*), is necessary for the determination of proper management and conservation practices. A recent photo-identification study conducted in the southernmost region of the Northern Georgia Southern South Carolina Estuarine System (NGSSCES) stock found that the current southern boundary of this estuarine stock may need to be revised. In that study, which spanned south from the Savannah River to the northern Ossabaw Sound, the Wilmington River appeared to mark a transition between two groups of animals. Genetic samples from the northern and southern regions of that area may help verify a change to the current stock boundary. The purpose of this research was to map potential dolphins to target for biopsy sampling. Metrics were developed by analyzing and mapping the sighting histories of dolphins seen in each region from 2009-2016 with the goal of isolating those dolphins most active in the small creeks of each target region. Dolphins with sightings of 8 or more were considered for metric analyses. Forty-four target animals in the northern region and 45 animals in the southern region were identified as targets for biopsies. The selection of these animals was based on the following criteria: a) 50% of sightings in the target region; b) 15% of sightings in the non-target region; and c) 50% of sightings in small creeks to ensure not capturing coastal animals. In most studies, a single sampling location is the only geographic information matched to a genetic sample; in contrast, this study uses long-term sighting histories to better inform genetic analyses. This study identifies a novel method for refining stock structure using robust spatial data for each genetic sample.

MS-M-03
Hannah Schroeder, Dr. Christopher Hintz
Research Mentor: Dr. Tara Cox
Caribbean Acropora Reefs at Risk: Recommendations for Marine Protected Area's and Their Conservation and Management
Since the 1970s, Caribbean reefs have suffered massive declines in coral cover due to a wide range of environmental and human impacts including overfishing, tourism, hurricanes, coastal pollution and exploding coastal populations. The consequences of these impacts can be seen in the widespread increase of macroalgae, outbreaks of coral bleaching and disease and collapse of coral populations, particularly Acropora species, which once dominated Caribbean waters for decades. In response to these declines in coral cover, scientists quickly began research into the causes for the decline to allow countries to enact conservation plans to save their coral reefs. Many countries, such as Cuba began to enact conservation plans as soon as the 1980s, with strict fishing and tourism regulations within

marine protected areas (MPA), allowing for an increase in coral cover in almost all of Cuba's reefs. However, other countries such as Jamaica were slow to enact conservation plans with strict regulations on fishing and tourism, causing many of their reefs to have an 80%-90% decline in coral cover in just 20 years. As of 2008, Jamaica had just 6 MPAs, which are relatively unreported, compared to Cuba's 108 MPAs. The World Resources Institute coral reef report in 1998, showed that overfishing, tourism and coastal pollution were among the leading reasons for coral bleaching and disease. This report was then updated to show areas that are at highest risk of bleaching and disease due to the previous factors. Using data from Status and Trends of Caribbean Coral Reefs, we are able to compare against the World Resources Institute to see which reefs are currently at risk and where new MPA's should be placed in order to ensure survival of reefs that are currently at high risk of bleaching, disease and colony collapse Through the use of ArcGIS, we will compare varying countries in the Caribbean to see which reefs are at highest risk due to anthropogenic impacts and where new MPA's should be placed to ensure that current high risk reefs are protected against climate change, overfishing and tourism.

MS-M-04
Jessye Kirkham, Sarah Webb
Research Mentor: Dr. Tara Cox
Seasonal Migration Patterns of two Cownose Rays Rhinoptera bonasus Within the South Atlantic Bight from August 2014-March 2016
Acoustic telemetry was used to track the seasonal migration patterns of two Cownose Rays Rhinoptera bonasus along the South Atlantic Bight (SAB) particularly focusing on patterns along the South Carolina, Georgia, and Florida coasts. Date, location, number of day present, and percentage of days present at a location were recorded between August 2014-July 2016; however, detections for Cownose Ray 1 ceased in March 2016. Movements were mapped in ArcMap 10.4. Rays 1 and 2 were detected in Savannah, GA during summer 2014 and ray 2

was detected in Brunswick, GA in fall 2014. The rays eventually were detected in Cape Canaveral, FL during late fall and ray 2 was also detected in winter 2014. Ray 1 was detected as far north as Port Royal, SC during fall 2015 and ray 2 was detected in Savannah, GA in early spring 2015. While both rays were detected during summer 2015 in Savannah, GA only ray 2 was detected in Savannah, GA and Brunswick, GA during fall 2015. Both rays were detected in Cape Canaveral, FL during fall 2015 and remained there until early winter 2016, but ray 1 was also detected in early winter 2016. Ray 2 was detected in spring and summer 2016 until all detections ceased. These results indicated a possible preference for cooler waters during the summer and warmer waters during the winter within the SAB.

MS-M-05
Shaiane Pinto, Clay George, Trip Kolkmeyer, Tara Cox,
Research Mentor: Dr. Tara Cox
The occurrence of the Florida Manatee Trichechus Manatus latirostris in warm-water effluents along the Savannah River, Georgia
The distribution of Florida manatees (*Trichechus manatus latirostris*) ranges from Texas to Florida and northward to North Carolina. They have a temperature threshold that restricts their distribution range in winter mostly to Florida, and they tend to aggregate in warm-water refuges when ambient water temperatures fall below 20°C. Manatees use warm-water effluents as alternative wintering sites; however, these sources of warm water can possibly cause deaths related to cold stress since they can prevent these animals from returning to warmer water regions during winter months. Little is known about how manatees use Georgia warm-water outfalls; thus, the purpose of this study was to evaluate the occurrence of the Florida manatee in industrial warm-water outfalls along the Savannah River during the fall and winter months from 2008 to 2013 and 2016. The Georgia Department of Natural Resources conducted opportunistic and systematic observations at the outfalls of Imperial Sugar Mill, Plant Kraft, and Weyerhaeuser Paper

Mill in the Savannah River. There was a minimum of 21 days with sightings of manatees (2008=8, 2009=1, 2010=3, 2011=6, and 2012=3) in those locations during fall months (September-December), and a minimum of 4 days with sightings (all in 2010/2011) during winter months (December-March). The numbers have increased recently (n=22 days with sightings in fall 2016 and n=2 days in winter 2016/2017), which demonstrates the need for alternative mechanisms to prevent possible cold stress-related deaths of manatees. Industrial discharges potentially reduce the number of deaths or delay the mortality of manatees caused by cold stress and serve as sources of drinking water for manatees; however, the limited area around the outfalls could force manatees to venture to colder waters to forage, potentially leading to cold stress. These sites could also increase the vulnerability of these marine mammals in case of eventual shutdowns or permanent loss.

MS-M-06
Rebecca Noel Thublin, Dr. Tara Cox, Dr. Sue C Ebanks
Research Mentor: Dr. Tara Cox
Fine scale spatial separation between 2 sea star species in Wassaw Sound, GA
Sea stars can be a keystone species in some areas of the world, depending on their species and location. Therefore, it is essential to determine the distribution of different species of sea stars. On 15 OCT 2015, I conducted four trawls in Wassaw Sound. On the same day, GA DNR conducted a trawl very close to Wassaw, about 1 km away from the other trawls. GA DNR caught 137 grey sea stars *Luidia clathrata* in their trawl. Sixty-three Forbes sea stars Asterias forbesi were caught in the other 4 student trawls trawls, cumulatively. There was no overlap between the two species based on the trawls. This could indicate fine-scale spatial segregation between the 2 species.

Mathematics

Math-01
Amar Wilkins, Dr. Abhinandan Chowdhury

Research Mentor: Dr. Abhinandan Chowdhury
Numerical Approximation of Odinary Differential Equations Using Chebyshev Polynomials
Finding the particular solution of a non-homogeneous second-order ordinary differential equations (ODE) is often a formidable task in itself whenever the right-hand side is not 'nice', especially when the right-hand side is a product of multiple transcendental functions. In this project, we are seeking a numerical approximation to the particular solution for Â non-homogeneous 2nd order ODE by using a spectral method based on Chebyshev polynomials. Numerically approximated solutions are compared with known analytical solutions for error estimation.

Math-02
Dhruvika Patel, Dr. Hounkyun Oh
Research Mentor: Dr. Hyounkyun Oh
Study on Weighted\Nonweighted Regression Curves for the Population with Diabetes Mellitus
This study mainly addresses the development of a new numerical approach to depict the number of patients. Based on the discrete dataset of the numbers of national and international population with diabetes Mellitus from 1980 through 2015, we predict the number of future patients (in 2040) by using linear and nonlinear exponential regression curves obtained through the Least Square methods. Moreover, in order to emphasize the strong influence of more recent year data, we suggest the weighted Least Square Method whose weight is developed based on the standard logistic function. Finally we analyze the each results and seek for the further work.

Math-03
Domenick Thomas, Dr. Shinemin Lin
Research Mentor: Dr. Shinemin Lin
Everyone can do Differential Equations
The original research is to make connection between classroom mathematics and real life issues through dynamic models using Excel. After we completed several sample models such as Prey and Predator model, SIR model, we found

we did really solve initial value differential equation problems even we solve initial values system of linear differential equations numerically. Therefore we extend our research to solve initial value differential equations using the same approach as we create dynamic models. We tested first order and second order differential equations and all got satisfactory numerical solutions.

Math-04
Isaac Wright, Alexander Giessing, Dr. Xuming He
Research Mentor: Dr. Xuming He
Estimating the Correlation Coefficient for Censored Data via Maximum Likelihood
When data collection instruments have a detection limit, values above or below this limit are unobservable resulting in the value being recorded at the limit. These values are called â€˜censored'. Unless the censoring is accounted for, inference on the censored values is biased due to the loss of information. In this study, we are interested in estimating the correlation between variables from the bivariate normal distribution with right censoring. To estimate the correlation we use the maximum likelihood approach. We derive the likelihood and implement the maximum likelihood estimation in R using the general-purpose optimizer â€˜optim'. To assess the accuracy of our procedure we do simulation studies with varying sample sizes, different censoring levels, and changes to the underlying correlation. Through these simulations we illustrate the effectiveness of our method and show that it outperforms the naÃ¯ve estimation procedure. We also apply our method to the well-known Galton data set. This data set contains the heights of both parents and children. We estimate the correlation between heights of parents and sons after censoring the data.

Physics

Phy-01
Charkira Patrick, Dr. Cleon Barnett
Research Mentor: Dr. Cleon Barnett

Comparison of three harmonics of the ND:YAG for improved detection of gold and silver nanoparticles in HEp-2 cells
Laser Induced Breakdown Spectroscopy (LIBS) is used to identify different elements and in some cases the concentration of these elements in samples. In this experiment the atomic emission emerging from gold and silver nanoparticles in Human Epithelial type 2 cells (HEp-2) were observed. Three harmonics of the Nd:YAG, namely 266 nm , 532 nm and 1064 nm were used to systematically evaluate five different concentrations of gold and silver nanoparticles. The following concentrations of silver nanoparticles 6 Âµl/ml, 3 Âµl/ml, 1.5 Âµl/ml, .75 Âµl/ml, .375 Âµl/ml, and gold nanoparticles 50 Âµl/ml, 25 Âµl/ml, 12.5 Âµl/ml, 6.25 Âµl/ml, were deposited into separate HEp-2 cells. The cells with nanoparticles were deposited onto silicon wafers. LIBS spectra were acquired using three shot accumulations for each replicate. Silver was monitored at 328.06 nm and 338.46 nm and gold was monitored at 267.59 nm. The r2 value from the calibration curve when using 266 nm as the irradiation source was consistently higher than those from 532 nm and 1064 nm. At 266 nm the intensity of emission lines 267.59 nm, 328.06 nm, and 338.46 nm was about two times higher compared to the intensities produced at 532 nm and 1064 nm. The limit of detection (LOD) for silver nanoparticles was calculated to be .20 Âµl/ml, .74 Âµl/ml and .67 Âµl/ml for 266 nm , 532 nm and 1064 nm respectively. Repeatability as measured by the %RSD at varies configurations was also determined. The emission produced using 266 nm yielded results that were more repeatable as compared to the other harmonics.

College of Business Administration

Management and Marketing

MgMkt-01
Neychea Colvin
Research Mentor: Dr. Anshu Arora
The Effects of Anthropomorphic Advertising

This research focuses on Anthropomorphism as it relates to consumer advertising. When using anthropomorphic advertising, it important for companies to know and understand how it will effect consumers and consumer purchasing habits. This research discusses how anthropomorphic advertisements appeal to consumers' emotions. This research will also discuss both the positive and negative effects of anthropomorphic advertising and how consumers perceive and receive anthropomorphic messages. Consumers may or may not trust anthropomorphic advertisements. These effects vary by age, culture, and product. This study addresses the following questions:

- What is anthropomorphism?
- How does anthropomorphic advertising appeal to consumers' emotions?
- Will anthropomorphic advertising have a positive or negative effect on consumers? Why?
- Do consumers trust anthropomorphic advertisements? Why or Why not?
- How does age, culture, and product differentiation effect anthropomorphic advertising appeals?
- How do companies use anthropomorphic appeals for Branding?

This research answers the questions above and spread knowledge and understanding about the effects of anthropomorphic advertising on consumers.

MgMkt-02

Shayanna Bonner
Research Mentor: Dr. Anshu Arora

The Digital Age: Advertising on Social Media and Its Effectiveness

The increasing usage of social media in today's society has led many advertising strategists to rethink how they present a company's products or services. In this research paper, the author introduces and proposes the benefits of advertising on social media and its influences on the viewer's psychology and purchasing decisions. The research discusses effective ways to advertise on social media and how to profit through advertising on social media. This study addresses the following research questions:
1) What role does social media play in advertising?
2) How can social media advertising create a decent return on investment (ROI)?
3) What characteristics make advertisements effective on social media?
This research paper strives to present an effective social media advertising strategy and improve the way advertising is done.

MgMkt-03

Daniel Gardner
Research Mentor: Dr. Anshu Arora

Advertising Under the Umbrella of Perception: Stereotypical Advertising

This research study is designed to describe the foundation, the reasoning, and the psychology behind the usage of stereotyping within the advertising industry. Throughout this research paper, the various forms of stereotyping is dissected and analyzed with respect to seeking understanding of why this method is being used to target certain groups of people of different demographics. Individuals from different countries may have a significant number of similar products however, according to their cultural differences, the methods of advertising may differ depending on race/ethnicity, social status, gender, and even age. This research will also explore the different trends used to target a specific group of people in a particular market. This research paper answers the following questions:
- What psychological appeals do advertising agencies use to pull a certain group of individuals into a market and turns them into buyers?
- What does mean to promote what is not visible rather than what is visible?
- Why is the same product advertised differently to individuals within the same vicinity of each other?
- How does perception become that main driving force of an advertising campaign when a certain product is being advertised to a multicultural community?

- What specific gender, age, racial, and social status techniques do advertising agencies use in their advertising methods?

MgMkt-04
Lisa Baez
Research Mentor: Dr. Amit Arora
The Connection between Knowledge Management (KM) and Organizational Success
Knowledge management practices can impact the success of customer relations management within an organization if it used correctly. Implementing this strategic tool effectively can provide an organizational competitive advantage. Employing KM practices may not be the only factor that will contribute to the positive outcomes of the organization's financial performance, but it can help an organization implement the appropriate type of practices that can help the business become successful. Provided with the appropriate information managers can learn to design KM strategic practices that can help them achieve higher innovation, effectiveness, efficiency and profitability for their companies. The main focus of this research study is to reveal the connections between the use of knowledge management practices and the positive outcomes of the organization. The questions that will be addressed within this research study are:
- What is Knowledge Management (KM)?
- Why does using KM practices matter for the company's bottom line?
- How can using KM enhance corporate culture?
- What are the implications and benefits that KM may have?

MgMkt-05
Janeth Gabaldon
Research Mentor: Dr. Suman Niranjan
Gender Discrimination in the Workforce
PURPOSE: - This paper investigates the association between gender discrimination in four workplace areas; recruitment policies, job performing, managerial roles and wage with employee performance and firm performance in the workplace.

Design Methods: - An statistical approach was employed to conduct the analysis research: Structural Equation Modeling and One-way ANOVA analysis.
Results/Expected: Results indicate that employee performance is significantly correlated with Gender Discrimination in Recruitment Polices, job performance, and managerial roles. Also, firm performance is significantly correlated with Gender discrimination in recruitment policies and job performance.
Discussion/Conclusion: - Our findings were consistent with the existing literacy related to gender discrimination in employee performance and firm performance. The present study requires additional analysis including a larger sample data, diverse cultural background and gender in population.

MgMkt-06
Sheena L. Roberts, Yashikiya Harley, Yusef Polite, Whitney Keitt, Corliss Best
Research Mentor: Dr. Inessa Korovykovskaya
Antecedents of High Performance Work Practices in the Presence of Absenteeism
High performance work practice is an emerging organizational structure that is design to enhance employee performance through human resource management. However, there has been limited research that has addressed what factors influence high performance work practice effectiveness. This study investigates human resource perception, employee skill and organizational structure, affective commitment, and inspirational motivation impact on high performance human resource practice effectiveness in the presence of absenteeism. Human resource is the most critical department of an organization's structure. Structural equation modeling is used to evaluate the hypotheses. It was found the employee skills and organizational structure and affective commitment are significantly influences high performance human resource practice effectiveness. The current study

requires additional validation through larger sample data from the working class in the US.

MgMkt-07
Sade Shofidiya
Research Mentor: Dr. Inessa Korovykovskaya
Does John Holland Self-Directed Search apply to African-American Executives?

According to John Holland's Theory of Vocational Choice and Work Environments, individuals gravitate towards particular career fields and work environments that fit their personality types. When an individual's personality characteristics fit well with his/her work environment, then the relationship between his/her personality and work is said to be "congruent". Holland's theory and his Self Directed Search instrument have been tested and examined extensively, and both have been found by statistical analyses to be reliable and valid. However, the instrument and the theory behind it were developed prior to the diversification of the workforce. Say, for instance, that a group of African American business executives were to take Holland's Self Directed Search – would the results indicate that they possess the personality characteristics that Holland theorizes are congruent for business executives? Would Caucasian business executives score any differently than the African American business executives?

The answers to these questions could help to shed light on whether or not Holland's Self Directed Search and his theory of work environments and personality types are valid and reliable in measuring African American's personality types, and if the Self Directed Search instrument could use any adjustments in order to more accurately assess African American work personalities.

It is hypothesized that a group of 300 African American business executives will score a significantly less amount of congruence between personality type and work environment (as indicated by results of the Self Directed Search) than a group of 300 Caucasian business executives (as indicated by the results of the Self Directed Search). To test this hypothesis, 300 African-American and 300 Caucasian business executives will each take Holland's SDS, and then the results will be analyzed to determine the extent to which each groups' results indicate congruence between their personalities and their work environments as business executives. Independent t-tests will be used to compare which group of executives showed the highest levels of congruence based upon the average amount that each participant scored for E- or the "Enterprising personality type", which John Holland proposes should be the dominant personality type for business executives.

Research Design: Quasi-Experimental

Independent Variable: Race (African American Vs Caucasian)

Dependant Variable: Congruence (fit between personality type and work, as indicated by scores for E-Enterprising personality type on Holland's Self Directed Search instrument).

Certificate program in Transporation Engineering

TCP-01

Niegel Middleton, Niranjan S. Kulkarni, Niegel Middleton
Research Mentor: Dr. Suman Niranjan
Multi-echelon Network Optimization of Pharmaceutical Cold Chains
Maintaining product temperature at every point in the supply chain is vital to ensure quality and stability of certain pharmaceutical raw material and products. Continuous temperature monitoring and recording is essential from quality, reporting and auditing standpoint. Information lost or transmission of inaccurate information can translate to significant monitory losses to parties involved in the supply chain, and in some cases may result in penalties to the manufacturer. Cost, for such temperature controlled and monitored supply chains (also known as cold chains), can be defined as a function of inventory and costs associated with information loss/inaccuracy. Consequently,

managing cold chain costs is more challenging than managing traditional supply chain costs. Overall cost associated with different cold chain multi-echelon networks will be studied under stochastic demand and probabilistic information loss/accuracy conditions. Dynamic equations for each network are formulated and simulation based optimization is proposed to conduct the analysis.

TCP-02

Corliss Best, Niegel Middleton,
Research Mentor: Dr. Suman Niranjan
Flow Optimization at a Distribution Center: A Case-Study

Currently, a distribution center in Savannah, GA is expanding its distribution center (DC) by adding a 220,000 square foot building, which will be slated to have double-deep storage space. This study will optimize the flow so the storage and retrieval time across the current and new automated retrieval systems (ARS) are minimum, and the best utilization and productivity are maintained. Thus, the overall cost of pallets internal transportation " big, euro, and half" that arrive is minimum. To determine optimal places for double deep storage, best unloading and loading positions for the ARS, and ideal gate assignments for the trucks, discrete-event simulation software (SIMIO and Opt Quest) is used to mimic the optimization processes at the distribution center. I hypothesize that inbound gates five and six and outbound gates three and four will be optimal for trucks. Discussions of implication, limitations, and suggestions for future research will be presented.

TCP-03

Christoph Sieberer-Kefer, Suman Niranjan, Sal Agnihothori
Research Mentor: Dr. Suman Niranjan
Optimal Queue Length-based Server Sharing Decisions in Field Services

We consider a field service system with equipment located in a geographic area. The area is divided into two territories, each with a single server who provides on-site service. The arrival of requests for service calls, the travel time to customer location, and on site repair time are all random variables. Since minimizing response time (defined as the time between equipment failure and the arrival of the repair person to the site) is one of the primary objectives in field services, it is a common practice to re-deploy servers between territories to reduce large response times. In this paper, we consider a queue length-based, threshold type, redeployment policy. We use simulation to find an optimal server sharing policy so as to minimize the average response time. In particular, we explore the impact of demand arrival rates and travel time between territories on server sharing decisions.

College of Liberal Arts & Social Sciences

Behavior Analysis

BA-01

Brianna Hutchinson, Alexis Fleming, Khadijah Mitchell, Khadijah Mitchell
Research Mentors: Dr. Sherry L. Serdikoff, Dr. Kimberly Frame
Examine of contingencies to promote temporally distrubited studying in college students

The current study was a systematic replication of (Perrin et. al., 2011) which evaluated students' latency to engage in studying behaviors for in-class quizzes using a multiple baseline design across groups in two different undergraduate courses in a behavior analysis program located in an HBCU in the southeast United States. Studying behavior was defined as accessing practice quizzes for each chapter in the course, the practice quizzes were administered under two different schedules of access. During the first schedule students were able to access one new quiz a day for five consecutive days, and could complete the practice quizzes an unlimited number of times. The second schedule of access began in the same way as the first schedule, in that the first practice quiz was delivered with no response requirement to access the quiz. The remaining quizzes became available, once per day, for the remaining four consecutive days, however, each subsequent practice quiz involved

a response requirement to access the quiz. After the first practice quiz was opened every subsequent practice quiz was opened after 24-hours had passed and contingent upon the student completing the previous practice quiz. Once the students met the requirement to open the practice quiz they could take it an unlimited number of times. Data were collected on latency to begin practice quizzes, frequency of practice quizzes completed and grade on corresponding in-class quiz.

BA-02
Destinee Todd, Sherry L. Serdikoff
Research Mentor: Dr. Sherry Serdikoff
Academic Effort Discounting in College Students
Effort discounting refers to our tendency to devalue outcomes that require more response effort to obtain. Just as delay discounting can be viewed as a measure of impulsivity, effort discounting can be viewed as a measure of indolence. This study measured indolence in a college setting using an academic effort discounting task with college students. Specifically, we examined the discounting of a hypothetical amount of academic credit (15 extra credit points) that required differing amounts of effort to achieve (2, 3, 5, 8, 11, or 15 extra credit assignments). We estimate the degree to which the effortful outcomes were discounted with two non-linear decay models: an exponential model and a hyperbolic model. Our data show the extent to which academic effort discounting is similar to temporal and probability discounting as measured by these two models. We will discuss the potential usefulness of academic discounting tasks for exploring variables that might be related to academic success, including behavioral variables such as drug use, which has been shown to be related to temporal and probability discounting.

BA-03
Olivia Nuru, Edward J. Booker
Research Mentor: Dr. Sherry Serdikoff
Using the Academic Skills Inventory to Assess Behavior Analysis Majors

Academic assessment in higher education involves collecting valid evidence that students have adequately achieved a program's student learning outcomes upon successful completion of the program requirements. Heavy weight is placed on the collection of direct assessments of student performance in the form of measures such as standardized exams or portfolio evaluation. However, indirect assessments can provide valuable information regarding students' perceptions of their learning and confidence about their skillsets. In behavior analysis, such evaluations are considered to provide what is called social validity; the social importance and acceptability of treatment goals, procedures, and outcomes. This presentation will provide a summary of assessment data collected from Behavior Analysis majors at Savannah State University using a variation of the Academic Skills Inventory' Revised. This instrument, is a questionnaire where students' can report on their own academic skills as well as their confidence in performing those skills. We will summarize the data from 45 students in three 3000-level behavior analysis classes during the Spring 2016 semester. The areas of evaluation include (1) written and oral communication; (2) information gathering; (3) groups, organization, and community; (4) interpersonal skills, counseling, interviewing, and mentoring; (5) behavior management, supervision, and teaching; (6) individual differences, special populations, and cultural diversity; (7) critical thinking and problem solving; (8) research methodology and statistics; (9) ethics and values; and (10) technology and computers.

Master of Science in Urban Studies & Planning

MSUP-01
Md. Soriful Islam, Dr. Deden Rukmana
Research Mentor: Dr. Deden Rukmana
Analysis of Regional Disparity of Chatham Country on the Basis of Socio-economic Factors
Socioeconomic factors are lifestyle components and measurements of both financial viability and social standing. They directly influence social

privilege and levels of financial independence (Nasrullah, M. A. (2011). In Chatham country, income is distributed in an uneven manner among its population. So, it directly and indirectly influences on other factors like education, poverty and many others. For identifying income inequalities, Gini Index has been used here. GIS software is also used for this analysis. Today, with the improvement of Geographic Information System (GIS) it is easier to show the distribution of many factors in different maps and easier to analysis those maps according to the categories. So, for that reason, i use GIS software for identifying the regional disparity among the Chatham country areas.

MSUP-02

Vishanya Forbes, Dr. Deden Rukmana
Research Mentor: Dr. Deden Rukmana
Transportation and Social Equity as a Way to Alleviate Poverty The Case of Low-Income Neighborhoods in Savannah GA
The lack of reliable and affordable transportation in low-income neighborhoods enhances severe health issues and makes it difficult for these residents to access the basic opportunities offered by society. The politics associated with transportation planning in urban neighborhoods hinders transportation equity and facilitates poverty. As stated by (Garrett, 1999), although the primary market for transit systems is made up of low-income individuals, transit policy has tended to focus on recapturing lost markets to private vehicles, through expanded suburban bus, express bus, and fuel rail systems, and less on improving well-patronized transit service in low-income, central city areas which serves a high proportion of transit dependents. If poor people acquire access to reliable and affordable public transportation that is in close proximity to their homes, social equity wouldn't be characterized as an incommensurable case and the need to maintain social equity of the haves may no longer need to come at the expense of the have-nots. The focal point of this research is to analyze how the social equity of resident living in the low-income neighborhoods of Savannah, GA is affected by

urban transportation planning. It is to gain answers to questions such as; how communities/neighborhoods shape health practices and determine the overall social equity of the community/neighborhoods; and how social equity of the poor is determined by their access to good public transportation. With new employment being created further and further away from urban areas, low-income workers often experience issues getting to jobs, training and other services because of deficient transportation. (Criden, 2008; Sanchez, 2003) This research will use the survey to residents of seven low-income neighborhoods in Savannah GA. The survey was conducted in August â€" December 2013 with 369 residents in terms of walking assessment, eating habits, health history, and built environment. We observed a higher percentage of the residents in these poor neighborhoods falling within the categories of overweight to obese, a higher percentage of residents who traveled to work or school via the bus than owned motor vehicles, a higher percentage who spent two hours or more traveling to and from work on a daily basis. In the continuation of this research we ultimately aim to show how low-income residents are being vilified for measures beyond their control, why they are forced to develop an unhealthy eating practice being boxed into food deserts. This research will use the application of Geographic Information Systems (GIS) and collect public transportation data including bus routes and the location of bus stops. This research attempts to uncover how combing social equity and transportation plans for poor neighborhoods and communities within Savannah, GA will increase the quality of life of the residents living there by solving numerous issues the residents of these poor neighborhoods are faced with on a daily basis, how with transportation equity we can close the social equity gap in Savannah, GA, and aid in reducing the poverty rate.

Social Work

SW-01

Ashley Howard

Research Mentor: Dr. Shinaz Jindani

How Residing in an Invalidating Environment Influences an Adolescent's Emotional Regulation
The single subject client for this study is a 13-year-old adolescent male residing in an impoverished neighborhood with difficulties in emotional regulation and anger outbursts. The mother reported that the client was engaging in risky behaviors such as running away, substance use and vandalizing school property. Using the Social Learning theory and a Strengths Perspective Approach Trauma Focused Cognitive Behavior Therapy was implemented. The intervention focused on Anger Management and emotional regulation. 18 items were adopted from Difficulties of Emotional Regulation Self-Reported Scale (Gratz & Roemer, 2004). This scale was administered to the client as well as the mother for three times. Mother's responses provide a validity check on client's self-report. The data collection is in the process. However, visual analysis of Celeration Graph suggests slow movement of scores in desired direction. Through this project, I learned to measure client's progress and understand the process by which intervention produces positive outcomes for the client. I have used this process to build my own sense of self efficacy and become a culturally competent social worker.

SW-02

Ashley Smith

Research Mentor: Dr. Shinaz Jindani

Impact of Psycho-Education and Talk Therapy on Alcoholism
The qualitative research that was conducted measured the impact of the Intensive Outpatient Program (IOP) implemented at Heads Up Guidance Services (HUGS) and its relation to an individual's stress and self-esteem. The population in this study was an adult male participating in the IOP program. A 10-time questionnaire was administered to the individual before IOP met for two weeks, a total of 8 sessions. Answers were ranked via a 1-4 Likert Scale to determine if hypothesis was correct. No trend was detected for Baseline Autocorrelation (p=0.843) and Intervention Autocorrelation (p=0.904). The desired zone was established using the median of 32. Proportion Frequency did not note any significant differences between phases (p=0.483) while D- Index noted 28% reduction in the non-desired direction. Statistical analysis did not note a large enough change between the Baseline and Intervention phases to prove my hypothesis correct. I would recommend that the research continue for more significant results to emerge. The research revealed the importance of IOP in maintaining sobriety for individuals struggling with addiction. Participants of the IOP program are educated on coping skills and addictive behavior and are given the opportunity to create a positive support group. In turn, through education and support, participants gain self-esteem and are able to reduce the stress they experience on a daily basis.

SW-03

Nina Lane

Research Mentor: Dr. Shinaz Jindani

Impact of Breakfast and Psychotherapy on Dysthymia and Hope
The National Comorbidity Survey; Adolescent Supplement (NCS-A) has examined both dysthymic disorder and major depressive disorder together. These depressive disorders have affected approximately 11.2 percent of 13 to 18 year olds in the United States at some point during their lives. According to the National Institute of Mental Health, (n.d.), girls are more likely than boys to experience depressive disorders. According to Mayo Clinic, (2015), these individuals experience loss of interest in daily activities, feeling of hopelessness and low self-esteem. Single Subject client was a 12 years old female who expressed feelings of hopelessness and low energy. Using Cognitive Behavior Theory, psycho-therapy was implemented to measure its impact on hope and low energy levels. The client and her mother both responded to 10 item instrument that had five

items from Trait Hope Scale and five items were self-created to measure the energy. Overall 8 data points were collected. Both scales were tested for autocorrelation. Hope scale T-test noted no significant difference between phases (p=0.32). However, Delta noted the Effect Size of 29% increase. For Energy Scale T-test noted no significant difference between phases (p=.86). However, Delta noted the Effect Size of 3.98% increase. This data was used to understand my very own practice effectiveness. A sense of self efficacy as a competent social worker is discussed.

SW-04

Pamela Blackwell, Theresa Horton
Research Mentor: Dr. Shinaz Jindani
Association between Parental Attachment Styles and Self Esteem
How we navigate in our adulthood, is largely dependent on our self-esteem which we gain as we move along our life cycle. A major part of self-esteem is due to our attachment with our love object during our childhood such as parents, grandparents, parental guardians, teachers, and counselors (Zastrow & Kirst-Ashman, 2013). The four attachment styles include secure, avoidant, ambivalent, and disorganized/ disoriented. It is commonly agreed that self-esteem is a core component of the personality as well as the basis of all behavior whether it be normal or pathological. Researchers have also stated that low self-esteem can be directly linked to an array of mental health issues such as mood disorders, depression, feelings of hopelessness, vulnerability, addiction and possibly suicide. Our particular interest in this research project is the relationship between parental attachment and self-esteem. In order to measure Attachment Styles (Independent Variable) and Self Esteem an instrument was designed Using Ainsworth and Bowlby's (Tinsley, 2016) attachment style and Harter's self-esteem scale. About 100 college students will be approached with informed consent with a request to respond to the questionnaire. Chi-Square will be used to test the

hypothesis. Findings will discuss social work implications.

SW-05

Tamekia Richardson
Research Mentor: Dr. Shinaz Jindani
Cognitive-Behavioral Treatment for Generalized Anxiety Disorder during Adolescence
A 16 year old male was diagnosed with Anxiety Disorder. The Cognitive Behavior Theory along with Exposure Therapy was implemented in one-on-one therapy sessions. This was supplemented with Supportive Group Therapy. A 10-items scale was adopted from the Generalized Anxiety Scale and measured for 6 weeks. This generated six data points. First three data points were compared with the second three data points. Proportion Frequency noted significant differences between phases. D-Index noted 50% decrease in anxiety. The results support the efficiency of intensive psychotherapy as a general therapeutic strategy for generalized anxiety disorder. Through this project, I learnt to use an instrument to measure client's progress. The data generated through such measure was used to gain insight into client's situation and maximize the treatment. This in turn informed me about my practice skills as effective-not effective. All in all, this has made me a competent social worker.

SW-06

Angel Tatum
Research Mentor: Dr. Shinaz Jindani
Fluctuations in Aggression of an Adolescent: Single Subject Study
The single subject client for this study is a 15 year old male diagnosed with ADHD, physical aggression, major depressive disorder and poor school performance. The client was unable to reside in a traditional foster care setting due to the severity of his behaviors. The intervention included Medication, Individual Therapy, Group Therapy, Community Support and Residential Services. This was measured through a 15 item scale that measured aggression, peer relations, teen conflict, stress and anxiety. In all 9 data points were gathered. The data was divided into two phases. The data was tested for

autocorrelation. T-tested means noted minor differences between phases (p=0.79) with Delta noted 5% decrease in aggression. This could be due to short time frame. The interdisciplinary team must consider and re-evaluate the intervention package to boost client's coping capacities. Through this project I learnt to select a measure that fits the practice situation, in addition to collecting and analyzing the data. I also learnt to use the data to maximize treatment for the client.

SW-07

Arnold Sanders

Research Mentor: Dr. Shinaz Jindani

Self-Esteem as an indicator of Academic Performance

It is not unusual to observe the academic impact of ADHD (Attention-Deficit Hyperactivity Disorder), and Self-Esteem on academic performance. The Gateway Fresh Start Program is designed to provide a customized academic setting for children who are from a lower socioeconomic status, and have been diagnosed with a mental health challenge. The client used in the study was an 11-year-old male, from a non-traditional low income household. The client was diagnosed with ADHD and has a history of poor academic performance. Using Positive Psychology as a theoretical base, the Tripartite Encouragement Model was implemented to impact academics and self-esteem. Nine items from Rosenberg's Self Esteem Scale was administered daily, and an attempt was made to observe differences in academics from a duration of two weeks. Six data points were gathered. The Data was tested for autocorrelation, and T-Test was applied. No statistical differences were found between two phases. It is therefore recommended, that children be exposed to education at an early age to ensure academic proficiency. Social workers should work with children and parents to facilitate academics, which in turn will impact self-esteem as well. Through this project, I have learned to measure my own practice which then can inform me about my personal practice philosophies, and

competencies. Informed Practice consist of a variety of checks and balances that help social workers monitor intervention. This has contributed to my very own sense of practice effectiveness.

SW-08

Corinna Miller, Kaytreona Wright

Research Mentor: Dr. Shinaz Jindani

Self-Esteem and its Relationship with Aggressive Behavior in Teens and Adolescents

An individual's perception of themselves and their environment has an undeniable effect on how they interact with the world around them. System Theory explains how the relationship between environmental factors affects the whole person and will be utilized in this study along with Person-in-Environment. During adolescent, a child's perception can be skewed. They may view themselves to be less than what they are. This study explores perceived self-esteem and its influence on interpersonal relationships with a particular focus on aggression. In order to understand self-esteem, a questionnaire was designed that included 10 items measured on a Likert Scale 1-4. On the Likert Scale, 1 = Strongly Disagree and 4 = Strongly Agree. This questionnaire will be paired with a survey of 11 items that measure the frequency of aggressive behavior. The questionnaires were administered to teens and adolescents at Youth Intercept due to Youth Intercept's advantage of dealing with a great population of youth. The data collection is in process. The data will be analyzed using IBM Statistics SPSS. This research seeks to establish a connection between the two variables of self-esteem and aggression in the hope of understanding the relationship between them. Once this is better understood, programs can be put in place to either improve or create interventions that will increase self-esteem and potentially reduce aggressive behavior.

SW-09

Cristian Rodriguez

Research Mentor: Dr. Shinaz Jindani

Impact of Cognitive Processing Therapy on Depression of the Veteran

There is no disagreement about the relationship between military deployment and Post Traumatic Stress Disorder. The single subject for this research was a 26 year old veteran who was diagnosed with PTSD and Borderline Personality Disorder. After the assessment, the client agreed to work on depressive symptoms. Using Social Cognitive Theory, Cognitive Processing Therapy (CPT) was delivered via Talk Therapy. Beck Depression Inventory was administered every week and ten data points were gathered. First three data points were baseline phase and next seven points were intervention phase. Proportion Frequency noted significant differences between phases, in opposite direction. D-Index noted increase in Depression by 17%. Single Subject was in therapy for over a year which may have caused â€œTherapy Burnoutâ€•. Further CPT alone cannot produce results therefore alternative therapy will be added in phase three. Reflecting upon this data, I have gained insight. I hope to enhance the intervention through adding alternative therapy. Through this project I have learnt to select a measure that will inform me about the effectiveness of the intervention. Now I am able to reflect upon the data and gain insight into my social work practice, what is working and what is not working. This insight is contributing to my own sense of self efficacy.

SW-10
Crystal Harris, Dr. Shinaz G. Jindani
Research Mentor: Dr. Shinaz Jindani
MTO Motivational Training: an Exploratory Model Assessing Autonomy and Locus Of Control In Maintaining An Active Lifestyle
Maximum Target Outrageous (MTO) motivational training is an exploratory model assessing how to engage clients that are in the precontemplation stage of change. I was particularly interested in the contributing factors that facilitate change in-between the stages. My approach integrated the self-determination theory and transtheoretical model to conceptualize the biopsychosocial process of intentional behavioral change. In this single subject research, I examined the dichotomous role of an individual's locus of control and motivation independent variable (IDV) and impact on exercise self-regulation dependent variable (DV). The instrument design consisted of a 10-item questionnaire with a Likert scale of 1-5 measuring autonomy and locus of control. The participant completed two phases of the study. The first phase identified as X1 included cardio only (12 data points) and second phase identified as X2 include strength training only (6 data points). I monitored changes in baseline perception during the implementation of the treatment X1 and X2 using motivational interviewing and self-reports. The data was analyzed using SINGWIN for baseline and intervention autocorrelation. Analysis indicated an independent data set with a dependent trend for intervention X1. A positive trend in the desired zone for autonomy and internal locus of control was observed in intervention X1. Additional research is required to continue investigating the impact of treatment X2. The impact of this research facilitated the establishment of motivational coaching practices that promote autonomy and internal locus of control for maintaining an active lifestyle.

SW-11
Duane Burton
Research Mentor: Dr. Shinaz Jindani
Impact of Interpersonal and Cognitive Processing Therapies on PTSD
When we experience trauma our brain chemistry changes in significant ways such that it can impair coping on a daily basis. Such is the experience of our soldiers who experience Post Traumatic Stress Disorder (PTSD) after exposure to the war. The criteria for the diagnosis of PTSD are 20 symptoms found in the DSM-V that includes anxiety, obsessive-compulsive and dissociative disorders. The single subject client was a 37 years old military soldier, who was deployed 4 times to Kuwait and Afghanistan. Treatment comprised 16 sessions of Cognitive Processing Therapy, Interpersonal Therapy and EMDR therapy combined. This was measured through 20 items scale known as PCL-5 used by

military social workers. Sixteen data points were gathered. Proportion Frequency noted modest differences between phases. D- Index noted 9.09% decrease towards desired direction. Statistical analysis noted modest change between Baseline and Intervention phases. My humble reflections are; having the opportunity to assist and serve our men and women in uniform from theory to practice has been rewarding. Listening to these soldiers share their stories is not for the faint of heart. I have come away from this experience with a greater appreciation in understanding that for some of us, freedom is not free. It does come with a price that is not measurable by any research. Even though measure does contribute to reflection and strengthen the benefit to the client. This projects has made me more confident in serving those who serve us.

SW-12
Emilie Sellers, Felesia Bartley
Research Mentor: Dr. Shinaz Jindani
Evaluating the Effects of Exercise Frequency on Stress Levels
Stress is an inevitable part of our daily life. Stress is not always damaging. At times it can challenge us and boost our confidence. Seven out of ten Americans report that they deal with stress on a daily basis. The American lifestyle is stressful and we believe that those who exercise have a higher probability of managing and relieving stress than those that do not exercise. Exercise helps to manage weight gain, stress, and it also helps to produce endorphins in the brain. The study anticipates a total of 50 participants. These participants will be approached in informal setting and offered the informed consent. They will be requested to complete a 38-item questionnaire that assesses their exercise frequency and their stress level. Using Likert Scale of (1) Never, (2) Sometimes, (3) Usually, or (4) Always, the respondents will be classified by Levels of Stress and Frequency of Exercise. Chi-Square will be applied to test the hypothesis. Currently, data collection is in the process and will be analyzed through IBM statistics through SPSS.

SW-13
Erika Rauls, Bridgett McAfee
Research Mentor: Dr. Shinaz Jindani
Comparing Stress Levels of Supervisors and Staff Members At A Public Welfare Agency
Stress may arise from one or combination of many factors at play in our work environment. The stress may arise from conflict between advocating for clients and the agency needs (Lloyd, King, & Chenoweth, 2011). With the profession already being stressful, a social worker needs a friendly work environment to keep the momentum going. Supervision and team support are considered protective factors that help decrease the level of stress and burnout that a social worker has to deal with (Lloyd, King, & Chenoweth, 2011). Studies show that supervisors experience a higher level of stress as they constantly lose workers and step in and take over the work of staff members. The goal of this research project is to examine the level of stress between supervisors and staff members. Historically the Department of Family and Children services have experienced high turnover rate, heavy case load and many staff members to supervise. The questionnaire includes 25 items on Stress along with demographic questions. It is hypothesized that Supervisors will report higher levels of stress as compared with staff members. After obtaining informed consent, the DFCS staff members were approached in informal setting. Thirty completed data sets are obtained. The data is currently under analysis. Social Work implications will focus on inclusivity, respect for diversity, enabling work environment and team approach to successful delivery of social services.

SW-14
Esaysha Golden
Research Mentor: Dr. Shinaz Jindani
Infusing Academic with Positive Reinforcement For Academically Challenge Students
Research has validated the assumption that high self-esteem is associated with educational achievement (Humphrey, Charlton, and Newton

2004), that a positive self-concept is desirable for children's personal development (Branden 1994). Evidence for the reciprocal nature of self-esteem and adolescent academic achievement has been found by some researchers. The single subject client for this study is a 12 year old male with academic difficulties. He was enrolled in "Gateway to Success" program as he was two grades behind. The intervention focused on math and reading skills along with strengthening of self-esteem. Using Likert Scale 1-5, 9 item instrument was designed to measure self-esteem. This was administered to the client daily at school for two weeks. Positive reinforcement was introduce in the second week (phase II).The data was tested for autocorrelation; baseline autocorrelation (p=0.72) and intervention autocorrelation (p=0.13). Proportion frequency noted significant differences between phases (p=0.00). D Index noted 48% increase in desired direction. Through this project I learnt to measure impact of intervention, used this data to reflect and modify intervention to the advantage of the client. This has strengthen my inner sense as a social work practitioner.

SW-15
Fatima Nesmith, Melvin Edwards
Research Mentor: Dr. Shinaz Jindani
Employment and Emotional Well-Being
According to Gannett (2013), a survey of more than 100,000 Americans, conducted by the Gallup-Healthways Well-Being Index, indicated that 16.6% of unemployed Americans are depressed compared to 5.6% of those who work full time. Historical studies attributed to devastating consequences of unemployment such as suicide, death from physical deprivation, emotional and health disorders, as well as the destruction of interpersonal relationships (Briar, 1980). Other factors contributing well-being include self-esteem, educational background, competencies and skill sets, and financial stability. This study explores the relationship between employment status and emotional well-being. The measurement tool used for this research includes six items from the Trait Hope

Scale (Snyder, Harris, Anderson, Holleran, Irving, Sigmon, et al., 1991) and three items from the Meaning in Life Questionnaire-Short Form (Steger & Samman, 2012), measuring emotional well-being. Five employment-related questions are also asked. This questionnaire was administered at a non-profit, community-based, agency that provides career development to adults ages 18 and older. Other respondents were approached in an informal setting. Data collection is in progress, and nonparametric statistics will be used to test the hypothesis. Using a holistic approach, social workers need to address not only the issue of employment, but joblessness as a whole; as it is closely tied to emotional well-being.

SW-16
Harley Roush, Cynthia Parson
Research Mentor: Dr. Shinaz Jindani
Stress Emerging Obligations Between Undergraduate and Graduate Students
Expectation Theory alone states that individual's expectations are directly related to one's own self esteem which can then domino into stress, conflicts and coping. Expectations in academics, employment, athletics, or any other activity, risk both external and internal costs including threat to academic or career prospects, disapproval, rejection, humiliation, guilt, and a blow to the self-esteem (Schafer, 1996) are among many factors influencing self-esteem of a college going students. We hypothesize that graduate students will have more obligations than an undergraduate student, which will then result in a higher stress levels for graduate students compared to undergraduate students. The instrument uses 11 items from Clinical Stress Questionnaire (Abel & Hudson, 1992), and 18 revised Obligation Questions (Fuligni, Lam, & Tseng, 1999). We will approach students in informal settings with informed consent and a stress and self-esteem questionnaire. Chi-Square test of Association will be used to test the hypothesis.

SW-17
Itunu Ilesanmi
Research Mentor: Dr. Shinaz Jindani

An Examination of the Efficacy of Self Care following Vicarious Trauma among Social Workers

Guided by Constructivist Self Development Framework, this research attempts to explore the nature of Vicarious Trauma experienced by social workers as they help clients who have experienced trauma in their lives. Helping professional are more likely to experience vicarious trauma (VT), as they constantly engage with client's traumatic material which may robotize their empathetic response. Therefore, self-care will help these professionals with a conscious method of monitoring their thinking, disconnecting with work when they are outside the work environment and dilute over-extended self-assimilation with client's traumatic material. In this research client traumatic material serves as an independent variable and Vicarious Trauma Experience as a dependent variable. In order to design VT instrument, Brain E. Bride (1999) Secondary Trauma Stress Scale was considered. Seventeen (17) items were selected from this scale and seven items were self-created. The data is being collected through the use of Google Forms Online. In order to increase the response rate of target population, groups such as Clinical Association of Savannah and Social Work Alumni Face book page have advertised this opportunity. The data will be analyzed using IBM Statistics SPSS. Findings will consider policy, theoretical and practice perspectives. The research recommends the practice of recreational activities, personal test or assessment, counseling (when needed) and self-relaxation (vacation) in order to manage work stress.

SW-18
Jacquelyn Ferguson
Research Mentor: Victoria Bryant
An Intervention for an Adolescent with Low Self-Esteem

Low self-esteem is a debilitating condition that can keep individuals from realizing their full potential. UC Davis Medical Center (2016), reports that self-esteem is how we value ourselves; it is how we perceive our value to the world and how valuable we think we are to others. Self-esteem affects our trust in others, our relationships, and our work, nearly every part of our lives. Furthermore, Leary (1999), states that the Sociometer Theory proposes that the self-esteem system evolved as a monitor of social acceptance and that the motive for a higher level self-esteem is to avoid social devaluation and rejection. The single subject client that I am working with is a 15 year old female resident at an institution. This client displays several low self-esteem symptoms such as verbal degradation of self by continually stating things like â€œI'm no good,â€ and â€œI can't do anything rightâ€•. I have combined self-worth and social skills perspectives for my intervention instead of just trait symptomology. A 10 item Rosenberg Self-Esteem Scale (1965) was used to measure global self-worth that includes positive and negative feelings about the self. In all, 12 data points were gathered. The first 5 data points served as a baseline (phase I). Proportion Frequency noted significant differences between phases, p=0.000. D- Index noted 50% increase in the desired direction. Statistical analysis noted large enough changes between Baseline and Intervention phases. I learnt to integrate measures with the client's intervention which informed my practice. This contributed to my very own sense of practice effectiveness.

SW-19
Jennifer Anderson
Research Mentor: Dr. Shinaz Jindani
Overcoming College Stressors as a Student With a Disability

For college freshmen entering college for the first time, the transition from high school to higher education can present numerous challenges and stressors. For students who have a disability, either physical, cognitive, or developmental, the challenges can pose an added stressor for the student. The presenting client, an 18 year old female with a diagnosis of Autism Spectrum Disorder/Asperger's, Attention Deficit Hyperactivity Disorder, and Generalized Anxiety. Additionally, she was experiencing

ABSTRACTS

heightened anxiety from her large course load of 17 credit hours. In order to reduce anxiety, a Solution Focused Approach was used to formulate an intervention plan was implemented to include time management skills, talk therapy, mandala coloring books, an emotional support animal, and tape recorded lectures. A 9 item anxiety scale was administered every week. In all, 10 data points were gathered. The first two points served as baseline points (phase I). The T-test did not note significant differences in the means between phases (p=0.48). However, Delta Index noted 26% decrease in anxiety scores. Through this project, I learned to integrate the measure with client's goals, which can inform about the progress or regress client is making through the treatment, resulting in evaluation of the intervention package. Additionally, data can be used to gain insight to further the client's interest. The entire process informed me about my own competencies that boosted my confidence as a social worker.

SW-20
John Estep
Research Mentor: Dr. Shinaz Jindani
Effects of the Combination of Talk Therapy and Brief Exposure Therapy with Ice Cream on a Combat Veteran: A Case Study
Anxiety and Post Traumatic Stress plague many of our veterans who are now returning from foreign conflicts. With such high prevalence rates, PTSD and Anxiety are highly researched fields and have many evidence based therapies. However, none of these therapies have proven to have blanket effectiveness. For this single subject study Brief Exposure Therapy combined with both positive and negative rewards was implemented. Negative rewards included the absence of events while in public that had previously acted as a trigger a prolonged anxiety episode. The positive rewards used for this Phase II included, someone to guide the experience, as well as the client was given ice cream of his choosing while in an environment previously known to be a trigger. Cognitive Processing Therapy was also used to help restructure

negative thoughts as they occurred. A 10-item instrument was designed to measure anxiety and depression that used a 5-point Likert Scale. The data was tested for autocorrelations. Proportion Frequency of phase I (p=0.653) and phase II (p=0.191) the mean between phases moved in the desired direction with significance (p.005). D-index noted a 49.8% increase in effect size of phase II over phase I in the desired direction. This study found a successful trend in the reduction of anxiety and depression levels after the Phase II was implemented. Through this project I learned to measure client's progress. This data help me reflect upon my own eclectic practice that has fostered a sense of self-efficacy.

SW-21
Joy Smalls
Research Mentor: Dr. Shinaz Jindani
Learning and Behavioral Styles of Children with Asperger's
A child with Asperger's Syndrome may display inappropriate behaviors that do not fit into the context, may miss social cues and have communication difficulties. The single subject male in this study was diagnosed with Asperger's Syndrome and was receiving services. Cognitive Behavior Theory was used to design the intervention and delivered using talk therapy. A 17 items scale was used to measure his behavior for 11 weeks. The data was analyzed using SINGWIN. The data was tested for autocorrelation; Phase I (p=0.38), Phase II (p=0.85). T-Test noted no significant differences between the phases (p=0.49). Delta noted 15% increase in desired direction. These findings could be due to a small data set that cannot inform about the effectiveness of the intervention. Through this assignment I learnt to measure my own practice and gain a sense of practice effectiveness. Now I know how to account for the client's progress.

SW-22
Kari West, Shinaz Jindani
Research Mentor: Dr. Shinaz Jindani
Effects of Increasing Frequency of Treatment on Stress and Coping Following Family Separation

A number of studies have been conducted to understand the interaction between coping, and stress and anxiety. It is common for individuals to turn to the comforts of alcohol in times of high stress and anxiety, which often lead to secondary stressors such as a DUI, family distress, or health issues. However, when coping mechanisms such as drinking alcohol are no longer being employed and the level or manageability of stress outweighs an individual's ability to alternatively cope, the question of client safety arises. In this type of crisis situation, the client's treatment goals are placed secondary to the client's safety. In response, the use of client accountability in the form of increased participation and modalities of treatment are often utilized as its own intervention. For this single-subject design, a combination of cognitive behavior therapy (CBT), motivational interviewing (MI), medications, and psychotherapy group were used to combat the subject's ability to cope with internal turmoil and maintain sobriety during a major life change. Bi-weekly measurements of stress (BASIS-24), anxiety (GAD-7), and risk of suicide (C-SSRS) were conducted as indicators of coping. The results of this study show that there was no trend detected for stress, anxiety, or suicide risk; and that both stress and anxiety actually increased throughout the course of treatment, whereas suicide risk declined. These results indicate that for this particular subject, the interventions being utilized are ineffective and there are clearly more factors at play than the diagnosis of major depression and alcohol use. Alternative interventions that reflect cultural diversity should be considered.

SW-23
Lauren Morris
Research Mentor: Dr. Shinaz Jindani
Impact of Meta Therapy on Mood of Biopolar Disorder, Mixed Client
Mood swings are natural. All humans experience highs and lows in mood. For people with Bipolar Disorder, normal high and low moods are grossly exaggerated. This results in damaging behaviors that yield serious and negative consequences.

The single subject participant for this research was an adolescent male who was identified with more than one DSM-V diagnoses. For this project, the focus of the single subject design was on mood swings associated with Bipolar. A 11-item adapted â€˜Internal State Scale' was used to measure the dominant mood swing in the participant's Bipolar diagnosis to provide specifically tailored treatment intervention to the client. Using the cognitive model; cognitive behavioral therapy was delivered through individual therapy along with Eye Movement Desensitization Reprocessing therapy, medication management, group therapy and recreation therapy that was in the context in a therapeutic residential setting. Six data points were gathered and they were divided into two phases. Proportion frequency did not indicate any significant changes. D-Index noted an effect size of a 23% change in desired direction. This simply may be due to small sample size. Interventions will continue as the agency expert team evaluates its effectiveness. Through this project, I learned to measure client progress and obtain an accurate picture of the impact of the intervention package. I developed insight into practice effectiveness by researching and choosing a client centered measure. As a reflective practitioner using a general systems theory foundation, I am considering the total factors that contribute to a client needing intervention.

SW-24
Lori Williams
Research Mentor: Dr. Shinaz Jindani
Coping with HIV
The number of HIV cases in the United States continue to grow on a daily basis. According to the CDC, African-Americans rank the highest among other ethnic groups who are currently living with HIV. The disease remains persistent. While great efforts have been made to treat the disease and scientist are still working to find a cure, there is still much work to do. In 2014, African-American males, and females had the highest number of cases reported in Georgia.

While the number of HIV diagnoses among African-American woman has declined nationwide, it is still high compared to other women in other races/ethnicities. The single subject for this study was a 54 year old mother with two children. She and her spouse both had tested positive for HIV. Presenting problems were coping with disease and financial stress from not having a health insurance. Intervention included Psychotherapy delivered through Talk Therapy and Medication Management. A 22 item instrument was designed to measure Life Contentment and Coping with Financial Stress. Proportion Frequency noted no significant differences between phases. This could be due to small sample size. Through this project I developed confidence to deal with complex family concerns and learnt to measure my own practice with vulnerable population. This has added to my very own sense of self efficacy.

SW-25
Maci Johnson, Jeya Seymour
Research Mentor: Dr. Shinaz Jindani
Stress and Performance Demand Among College Athletes
Expectation theory states that we use certain cognitive processes to reach a decision. These decisions are directly related to the desirable outcome. The desirability can be value or culture based. In the case of Football players, it is important to explore what they consider a desirable outcome. They may consider competitive play, winning a game, and maintaining a physic a desirable outcome. They may not consider recognizing stress or seeking help to manage stress as desirable. Therefore, this study examines the relationship between various sources of Stress and Performance Demands in college football players. An instrument was adopted from Lu Jing-Horng Frank, Hsu Ya-Wen, Chan Yuan-Shuo, Cheen, Jang-Rong, and Kao Kuei-Tsu (2012). Twenty-one items measure sources of stress such as sports injury, relationship with the coaches, family relationships, romantic relationships, and demands of academic performance. Three items

measure Performance Demand. The entire scale uses 1-6 Likert Scale. We hypothesize a positive relationship between Stress and Performance Demand. The data collection is in process. It will be analyzed using IBM Statistics SPSS. Findings will discuss the ways athletes can remedy and manage stress to improve Performance Demand.

SW-26
Mattie Williams, Hevylla Terlau
Research Mentor: Dr. Shinaz Jindani
An Examination of The Connection Between Attachment Styles and Intimate Partner Violence
Vast literature suggests the connection between childhood and adult attachment styles as a key player for Intimate Partner Violence (IPV). Research shows that one in every four women will experience IPV. Understanding concepts of IPV and Adult attachment styles will help develop more effective and reliable interventions and treatment for IPV. This research attempts to compare victims and non-victims of IPV's attachment styles. Literature suggests that insecure attachment style may underlie subsequent intimate patterns of violence. This examination serves as a steppingstone towards in depth knowledge of attachment styles and its possible influences on individual's susceptibility to experience or perpetrate intimate partner violence. This research gathered data from (n=150) female, ages ranging from 19 to 75 years old, victims and non-victims of IPV. The research considered the history of IPV and demographic data as dependent variables. Nancy Collins' Adult Attachment Scale (AAC) was used to identify respondents' individual attachment styles. The data was collected via Online Platform Google Forms and in person at a local domestic violence shelter. After testing for reliability, hypothesis were tested with the help of IBM SPSS Statistics program. Preliminary results suggest that much of IPV victims, predominantly experienced psychological/emotional violence. It is therefore recommended additional research, inclusive of all genders, and the development of preventive training programs that would teach individuals how to understand their attachment styles, coping

mechanisms, and identifying their own psychopathological role in intimate partner violence.

SW-27
Mekayla Holland
Research Mentor: Dr. Shinaz Jindani
Does the Interventions Provided by Social Workers for New Mothers Who Have Infants in the Neonatal Intensive Care Unit Help to Reduce Stress?

It is no surprise that mothers experience emotional hardship and stress when their newborn infant must be transferred to the Neonatal Intensive Care Unit unexpectedly after birth. The Single Subject client was a third-time, adult single mother. Under the theoretical framework of Cognitive Behavioral Theory (CBT), Talk Therapy was implemented by the social work intern. The total intervention package included emotional support, lactation consultation, and supplemental security income. A 10 item stress questionnaire was administered over the course of three weeks, for a total of 10 sessions. The data was tested for autocorrelation; baseline autocorrelation (p=.205) and intervention correlation (p=.620). T-test was found to not be significant (p=.782), implying that the social work intervention of SSI, in addition emotional support and lactation, did not help the clients to lower the stress levels. This could be due to the short time frame of the clients stay at Memorial Health hospital. Additionally, journaling and other alternative therapy could possibly help lower stress levels. Through this project I learned how to conduct a research study and interpret the data using a single subject design. I also learned to create a 10 item questionnaire related to the stress levels of new mothers who have infants transferred to the NICU after birth.

SW-28
Michael Shorter
Research Mentor: Dr. Shinaz Jindani
Effectiveness of Animal Assisted Therapy in Prison Environments

Prison systems have become inundated with inmates who have been through the prison system more than once. With a nation average recidivism rate of over 60% a new effort must arise to try and reform the current system. One such area that has begun to gain more traction inside of the correctional system is the use of Prison-Animal Programs (PAPs). These programs have shown to be effective in reducing the rate of recidivism to under 20% in most of the prisons that have instituted them. In Savannah the Chatham County Sheriff's Department have also begun their own program named Operation New Hope. Operation New Hope aims to teach inmates employable skills that could assist them when they are released. New to the program is a concurrent group therapy model in which helps inmates see the events that lead to their incarceration as well has helping them improve their self-worth as well as dispelling negative thoughts. Over the course of a four week training cycle 16 inmates, eight female and eight male, were monitored for improvement utilizing a modified DSM-5 Self Report Survey as well as Rosenberg Self-Esteem Scale. They were given the survey once at the beginning of the training cycle and one final time at the end of their four week training cycle. Pre and Post test scores are compared. Group aggregated is used to inform about the effectiveness of group therapy in conjunction with Prison-Animal Programs.

SW-29
Nathaniel Maddox
Research Mentor: Dr. Shinaz Jindani
Navigating Life Challenges in Recovery: A Study of Self-Esteem and Recovery Commitment in Substance Use Treatment

Navigating life's challenges is difficult for all individuals. This is no less the case for those who battle the disease of addiction and commit to recovery. In recovery, individuals learn new coping skills and form new social bonds to face challenges without relapsing. Using Attachment Theory and Neuroplasticity as theoretical frameworks, an intervention was designed to help a 38 year-old, male, single-subject client. The

intervention was implemented in three phases: (1) phase I included an in-patient treatment package with detox medication; (2) phase II included partial hospitalization treatment package; and (3) phase III included an intensive outpatient treatment package. Evidence-based Interventions focused on rehabilitation through resocialization, not adaptive independence. A 16 item Likert-type scale was used to measure (1) self-esteem and (2) commitment to recovery. A total of 9 data points was collected across three phases of treatment. Proportion frequency noted significant changes between Phase I and Phase II (p=0.00) in both self-esteem and commitment to recovery. Some improvement was also noted between Phases II and III in commitment to recovery; however, it was not significant (p=0.12) due to interactions with life circumstances. Nevertheless, effect size of D Index noted changes greater than 47% in the desired direction. The client faced unforeseen life challenges during treatment, which had a significant impact on his self-esteem. However, the client continued to report developing levels of self-esteem and personal commitment to recovery throughout his treatment.

SW-30
Nekesha Johnson
Research Mentor: Dr. Shinaz Jindani
Increasing Life Contentment and Lowering Depression: Impact of Counseling and Journaling
The stresses, strain, worry and pain of daily living conspire to steal the joy and contentment that we intuitively crave. The single subject for this research is a middle-age male who is a father of three, in-between jobs, and going through a divorce. Coping with such complex issues all at the same time, can easily dwindle life contentment and bring about symptoms of depression. In order to help this client, Individual Counselling and Journaling was implemented. Life Contentment was measured through 25 item questionnaire using 1-7 Likert Scale. In all 10 data points were gathered. First five data were baseline phase and next five data were intervention phase. Proportion Frequency noted

significant differences between phases (p=0.00). D- Index noted 48% increase Life Contentment. Client reported lower symptoms of Depression and higher levels of energy. Through this research I witnessed how Cognitive Behavior Therapy can restructure client's perspective can change from negative to positive. Journaling can be empowering as it helps lay all thoughts and feelings together on a paper which bring about insight. Use of multiple intervention helps mitigate not only symptoms of Depression but also increase Life Contentment. Measuring client's progress has informed me about my very own sense of competence.

SW-31
Nikesha Wofford
Research Mentor: Dr. Shinaz Jindani
Impact of CBT & Goal Oriented Talk Therapy on Teenage Depression
Life for a teenage consists of struggles for independence while still relying on others. Teenager are pulled in many directions when trying to navigate through pressure from friend, demands of parents, coaches, and teachers and for some even employers. Speeding biological changes along with social demands brings about stress that a teenager is less ready for. Continuous stress can lead to Teenage depression and create loss of interest in various activities. (Spirit of Truth, 2016). The single subject for this research was a 14 year female, diagnosed with depression. Under the umbrella of Cognitive Behavior Theory, Goal Oriented Talk Therapy was implemented to help generate interest and mitigate symptoms of depression. A 22 item Beck Depression scale was used to measure changes throughout the implementation of therapy. In all 8 data points were gathered. First two data served as a baseline data points (phase I). The data was tested for autocorrelation. Proportion Frequency did not note any significant changes between phases. D-index effect size noted only 19% change in desired direction. This may be due to short duration of treatment as well as the measure. It is therefore recommended that alternative therapy such as exercise, coloring books or

meditation be added. Through this project I learnt to fit the measure to the social work practice situation and generate empirical data. This data is then used to reflect and gain insight and understand client's goal attainment which in turn contributes to my very own sense of self efficacy.

SW-32

Quandalyn Waldon, Jazmin Taylor, Dr.Shinaz Jindani,

Research Mentor: Dr. Shinaz Jindani

Has alcohol become more of a de-stressor among college students?

It is not unusual for college students to experience stress in their daily life. Students use various methods to cope with their stress. Some may be useful approaches, or some can be unhealthy approaches ranging from alcohol and/or non-prescribed drugs use to eating only unhealthy foods. Harvard University's School of Public health studied binge drinking among college students. It estimates (2013) that 1,700 college students die per year from unintentional alcohol related injuries. This study defines Binge drinking as having 5 or more drinks during a single sitting for males and 4 or more drinks for women. Therefore this study explores the association between alcohol use and stress among college students. Using sample of convenience college students will be approached in informal setting with a request to complete a twenty-six-item questionnaire that measures the use of alcohol as a coping mechanism. Chi-Square Test of Association will be used to understand the association between alcohol and stress. Finding will discuss social work implication and intervention package that will help students recognize stress and use de-stressors in their daily lives.

SW-33

Qu'Shon Nelson

Research Mentor: Dr. Shinaz Jindani

The Impact of Participating in Parent Education/Parent Aide on Child Safety Competency

This single subject client was 21 year old male charged for cruelty towards children. After being released on a bond, the Division of Family and Children Services (DFCS) offered services that included Parent Education classes and one-o-one Parent Aid services. Overall goal was to empower this parent to take charge of children's safety and understand the boundaries between discipline and abuse. This intervention was measured through 10 item scale. In all 10 data points were gathered and split into two phases (5 points each). After testing the data for autocorrelation, proportion frequency was applied. D index noted 45% change in undesired direction. Celeration graph noted a flat trend line during first phase and decrease in second phase. This finding is alarming as the client had noted change in undesired direction. Therefore a thorough mental health assessment using DSM V should be conducted. When clients have severe mental impairment, children should not be released under their care nor should they be release in a community without supervision. Through this project I learnt that DFCS system should conduct a thorough diagnosis and be diligent about protecting the children. Had I not measured, this client could have slipped through cracks and endangered other children. Measure created empirical data that I could reflect and make appropriate recommendations. This process made me not only more competent, but also more confident.

SW-34

Raven Simone-Morris

Research Mentor: Dr. Shinaz Jindani

Using Cognitive Behavioral Theory to Impact Alcohol Involvement

This research study was conducted at a community based agency that provided insight on how the disease of addiction effects clients and how intervention helps with recovery. The study was conducted over the course of several weeks, where a Single Subject client was provided with surveys about her drinking habits during treatment which consisted of group and individual therapy. The proportional frequency noted no significant differences between phases (p=.569). The d-index showed a 34.6% decrease.

Through this project I learned how to select a measuring tool, develop a measuring tool, apply the measuring tool to a practice situation, and integrate implementation of an intervention method with my research design. The process of conducting this study contributed to my self-efficacy as a Social Worker.

SW-35
Roxanne Rivas
Research Mentor: Dr. Shinaz Jindani
Increases in Self-Esteem Connectedness with Exercising
The Single Subject Client for this study was 20-year-old-female who reported poor body image due to excess weight. The intervention was delivered in three phases. The baseline was obtained for the first five weeks (phase A), a meal plan was initiated on week six through eleven (phase B) and a workout plan was added to the meal plan from week twelve through week twenty (phase C). To measure the impact of intervention package, a 10 item Rosenberg's Self Esteem Scale was designed and administered bi-weekly for 10 weeks. In all 20 data points were gathered. The data was tested for autocorrelation. T-Test was applied. From Phase A-B, T-Test noted significant differences in the means between two phases (p=0.00). Thus meal plan seemed to be giving positive results to the client. This was evident through effect size noted by Delta, 48% increase. Further from Phase B-C, T-Test noted significant differences between the means (p=0.00). Delta noted 50% increase in self-esteem score. Even though the meal plan and exercise seemed to producing results, the latent factors were not addressed. Such as emotional reasons for over eating and gaining weight. In order to obtain sustainable results, emotional reasons should be addressed using the holistic approach.

SW-36
Safiyyah Alexander, Dr. Shinaz Jindani
Research Mentor: Dr. Shinaz Jindani
Impact of Group and Individual Therapy on Anger Management

The intention of this project is measure the effectiveness of Cognitive Behavior Therapy on anger. Single subject for this study was a 19 year old African-American male from a two parent family, who was charged brandishing a firearm. The Subject voluntarily enrolled himself in an Anger Management Group that used Cognitive Behavior Therapy. The subject also received individual 45 minutes counseling sessions twice per week also based on the Cognitive Behavior Therapy model. According to the research, Glover-Orr (1999) demonstrated that cognitive-behavior therapy-based anger groups could reduce the frequency and severity of behavioral problems among children with disruptive behavior disorders (Blake & Hamrin, 2007). Additionally, in clinical psychology, the most popular model for use with violent mentally disordered offenders has been anger management. This cognitive behavioral approach explains how stimuli may cause anger via a series of information processing biases. Core components of anger management. A 10 item Anger Management Scale was designed that used 1-4 Likert Scale. Thirteen data points were gathered. Using SINGWIN data was tested for autocorrelation. Celeration graph and D-Index noted 49% movement in desired direction. Practical and Theoretical significances were attained. This research further added to my own very sense of self efficacy as a social worker.

SW-37
Shaneka Riley
Research Mentor: Dr. Shinaz Jindani
The Impact of Talk Therapy on Life Contentment of an Elderly Adult
The Single Subject was an older male who had lost his spouse of 50 years of marriage. As a result he displayed non-context relevant anger and had reported concerns about being isolated. Talk Therapy was delivered through one-o-one dialogue for 8 weeks. It focused on accepting the reality of loss, acknowledging the pain of grief, adjusting to the environment without his spouse and emotionally relocating his spouse and moving on. This intervention was measured

through a Life Contentment Scale that had 10 items measured 1-7. In all 16 data points were gathered, where first 4 data points served as a baseline points (phase I). Using SINGWIN the data was analyzed. Proportion Frequency noted significant differences between baseline and intervention phase in opposite direction. D-Index noted 20% decrease. Thus there was no evidence of effectiveness. According to Erickson (1982 p.67) we acquire attitude throughout our life which bring us at Generativity side or on Stagnation side when we get older. Older adults who are on Generativity side are able to transcend personal interest can care about next generation. On the other hand older adults who are on Stagnation side are self-absorbed and can rarely perceive reality beyond themselves. Eight short weeks could help reframe client's attitudes that he had acquired through his life. Through this project I learnt to measure client's progress, which was then used to consider if the intervention should continue, stopped or modified. This process sharpened my social work competencies and gave me a sense of self efficacy.

SW-38
Shedrion Elom, Devon Anderson
Research Mentor: Dr. Shinaz Jindani
Spirituality and It's Impact Upon Generativity and Stagnation
As America is growing gray, many of us would want to age gracefully. According to Eric Erikson, when we are between 45-65 years of age, we go through a continuum of Generativity through Stagnation. Those of us who tilt towards the Generativity side are more likely to be caring for others, have a sense of accomplishment through our life cycle and are simply less grumpy. Those of us who tilt towards the Stagnation side may have a sense of dissatisfaction with life cycle, low sense of achievement and somewhat disengaged with the community. Given this, one wonders, what role does spirituality play that can help us to tilt towards the Generativity side. This research explores the role of spirituality throughout our life cycle. It compares young,

college-going youths with nursing home residents. The instrument includes 20 items on spirituality and 10 items on Generativity and Stagnation . This research is using the sample of availability or convenience method to collect data. Currently, the data is being gathered. The IBM Statistics SPSS will be used to analyze the data. Nonparametric statistics will be used to test the relationship between spirituality and Generativity-Stagnation tilt. In closing, social work implications will be discussed.

SW-39
Shemaine Johnson
Research Mentor: Dr. Shinaz Jindani
Empowerment and Cognitive Behavior Theory and Treatment for Bi-polar Disorders
Some individuals express anger at inopportune moments or out of context that is disproportionate to the stimuli or not linked at all to the surrounding events. This may be due to brain chemistry, and may be associated with a bi-polar disorder. The single subject client was a 34 years old female diagnosed with Bi-polar disorder with anger management issues. Using Empowerment theory, Cognitive Behavior Therapy was implemented through the use of one-o-one counseling, peer support and home visits. A twenty item instrument was designed to measure anger, family-peer relations, clinical stress and depression that used Likert Scale, where 1= strongly disagree and 4= strongly agree. The data was divided into two phases. First phase included medication while the second phase included medication plus counseling and home visits. In all ten data points were gathered. The data was tested for autocorrelations. Depression and Family Relations noted changes in undesired direction. Depression noted increase by 27% and Family Relations by 31%. Clinical Stress noted a small change in desired direction by 5% and Anger Management noted 11% decrease. Due to multiple mental health challenges, environmental factors, such as Hurricane Mathew evacuation and short duration of measurement, the treatment did not show positive impact. It is therefore important that social work services extend

beyond the managed care framework. This project help me link theory, practice methods and research. It helped me build my own sense of self efficacy inside out.

SW-40
Staci Brownlee
Research Mentor: Dr. Shinaz Jindani
Utilizing Buddhist Tradition: Impact of Mindfulness on Coping with Anxiety and Financial Stress
Using theoretical concepts of Ecological Perspective, one cannot ignore inter-relationship between person and environment that directly result in coping mechanisms. The Single Subject Homeless Client for this study was a thirty-eight year old single female, with four children. Besides homelessness, client presented employment concerns, anxiety and stress issues. Under McKinney-Vento Act (YEAR) the assistance in finding housing and sustaining current employment was offered. Using Strength Perspective counselling the client learnt budget and financial management skills. Counselling also included Mindfulness that would mitigate anxiety and stress. A 16 item instrument measured anxiety, stress and financial stability as Mindfulness was implemented. In all 10 data points were gathered, of which four were baseline points (phase I). Proportion Frequency did not note any improvement (p=0.927) for Financial Stability. However Anxiety and Stress note minor changes in a positive direction. Delta noted 6.74% change in desired direction. These result could be due to the short duration of intervention and systemic barrier faced by the client life-long. As helping process continues, these measure may note a change in positive direction. Through this project I learnt to combine policy perspective and theoretical framework to practice situations. I learnt to design my instruments so that I can obtain an evaluative data that will inform me not only about client outcomes but help me understand my own sense of practice effectiveness. Through this process my very favorite theory of Strength Perspective was

affirmed. Cognitive and Affective Reflections are now part of my daily professional life.

SW-41
Stacy Mcnair
Research Mentor: Dr. Shinaz Jindani
Reframing Mind: Use of Mindfulness and Talk Therapy on Stress
Probation and parole officers, like their counterparts in law enforcement and corrections, can experience a great deal of job-related stress. The major sources of stress for probations officers are high caseloads, excess paperwork, and deadline pressures. The single subject client was a 27 year male probation officer who reported stress due to high caseload and daily demands of the job itself. Talk Therapy and Mindfulness was implemented. A 14 item instrument was used to measure stress on a weekly basis. Fourteen data points were gathered. First two points served as a baseline (phase I). Proportion frequency noted significant changes between phases (p=0.00). D-Index noted 25% change in desired direction. The intervention did help the client to regulate stress. Through this process I learnt how research and practice help understand the change process. As an eclectic social worker it helped me design my tool to fit the practice situation. This measurement produced the data that informed me about my own wisdom of practice effectiveness.

SW-42
Stephanie Butler
Research Mentor: Dr. Shinaz Jindani
Does Animal Assisted Therapy Increase Awareness of Emotional Triggers and Self Esteem?
This experimental field study evaluates the effects of animal assisted therapy on the awareness of emotional triggers and self esteem of a 28-year-old female diagnosed with Major Depressive Disorder with Personality Disorder traits. The measures used for the independent variable is the DSM-V as well as the biopsychosocial that was taken upon admission to the psychiatric unit. The study assesses the impact of a human-animal interaction (HAI) in a

crisis stabilization unit utilizing a single subject design. At the end of each of the sessions the client was given a 10 question, 4-point likert scale that assessed her self-esteem and her emotional trigger awareness. There was a total of 10 sessions; three sessions are assessed as the baseline intervention of just medication, and the following seven sessions are assessed while utilizing the intervention of animal assisted therapy and medication.

The theoretical perspectives this research followed are the attachment theory and the biophila hypothesis theory (BHT). Attachment theory is a psychological model that attempts to describe the dynamics of long-term and short-term interpersonal relationships between humans, or in this case, an animal. The BHT suggests that there is an instinctive bond between human beings and other living systems. With these two theoretical perspectives it is hypothesized that the bond created with the animals will help increase self-esteem and emotional trigger awareness. With the help of talk therapy, the animal-assisted therapy (AAT) will result in positive psychological outcome for the client in the areas of self-esteem and emotional trigger awareness.

After the data was collected, the baseline and the intervention was graphed to see what progress or gains this individual has made in the areas of self-esteem and emotional trigger awareness. The participant filled the 4-point likert scale out every session after the intervention of AAT had been used. Results of the data analysis have been analyzed and interpreted in November of 2016 and were found to have a positive correlation between an increase of emotional trigger awareness and self-esteem while utilizing animal assisted therapy.

SW-43
Syerra Donaldson, Chatham Davis
Research Mentor: Dr. Shinaz Jindani
Effects of Caffeine on Short -Term memory
Long and short-term memory are quite different. Long-term memory is where memory data can be stored for a long time. Short-term memory refers to the part of the mind that holds only a lim-ited

amount of information that may only be accessed for a limited amount of time (Cowan, 2015). However, this study will focus specifically on short-term memory. It will look at whether the usage of caffeine may improve the retrieval of recently learned or observed information. Al-so, it will see if caffeine hinders a person memories, or whether there appear to be no effects of caffeine on short-term memory. This research explores caffeine usage on the short-term memory. College students will be approached with informed consent and with a request to complete a short-term memory activity consisting of two sets of five flashcards with varying words. The re-spondents will be requested to identify the differences shortly after viewing the first set. All the participants in the study will be given a questioner about how many caffeinated drinks did they take prior to this study and how many they intake on a daily basis.. It is hypothesized that those who have had caffeine will remember things correctly than those did not/do not take caffeine on a regular basis. Implications of the results for memory improvement in the medical field will be discussed.

SW-44
Tamara Jones
Research Mentor: Dr. Shinaz Jindani
Aging Out of Foster Care: Career Aspiration and Future Orientation Abstract
The Department of Family and Children Services provides service to teenagers who are aging out of foster care. The single subject client was a 17 year old female who was confused about her career path. Developmental Counseling and Therapy (DCT) and Strength Perspective were utilized to influence client's outcomes. Developmental Counseling and Therapy is rooted in the belief of individual uniqueness, human growth and development, family and environmental systems. Strengths Perspective is rooted in the belief that every clients has strengths. Harnessing these strengths will facilitate coping. In this study DCT was delivered through Talk Therapy with a focus on Career Aspiration and Future Orientation. This was

measured through 20 items scale. First four points served as a baseline points (phase I). Next three data were gathered when talk therapy was focused on Career Aspirations (phase II). This was followed by another three data points (phase III) when there was an added focus on Future Orientation. Proportion frequency noted significant change (p=0.0) between phase I and II for Career Aspiration. Delta noted 49% increase in desired direction. However it noted 0% change from Phase II to Phase II. T-test noted significant mean difference (p=0.04) between Phase I and Phase II for Future Orientation as also noted by Delta Index of 40% increase in desired direction. From Phase II to Phase III, T-test noted no significant difference between phases. Delta noted 21% increase in desired direction. Through this project I learnt to measure practice situation and gain insight into client's progress.

SW-45
Tameka Brown
Research Mentor: Dr. Shinaz Jindani
Organizational Skills And ADHD
Children with attention-deficit/hyperactivity disorder (ADHD) often experience problems with temporal and materials organization. These difficulties remain prominent throughout development. (Langberg,2008) For children, organizational problems are most apparent in the school setting and result in impairments such as lost and forgotten homework assignments and inadequate planning for tests. These behaviors ultimately lead to academic failure. Adolescents with ADHD often are labeled as irresponsible, careless, or lazy. Chronic disorganization can be debilitating to people with ADHD. Impairments in these areas are often related to executive function deficits that make it harder to plan ahead, remember, prioritize, get started, self-monitor, and complete tasks. The purpose of this study is to determine if implementing organizational interventions decrease ADHD symptoms. The Single subject client for this study was an 11 year old female. The client exhibited defiant classroom behaviors and was referred for counsel by her school. The subject was coached on

multiple daily organizational practices utilizing positive self-talk. Data was collected twice a week for 7 weeks, using a 10 item questionnaire that measured organizational skills and conflict resolution skills. In all 14 data points were gathered. Celeration graph noted trend in desired direction. Through this project I've learned to design an effective tool to measure the client's progression. This has contributed to my confidence and to my practice as a social worker.

SW-46
Tashina Hopson
Research Mentor: Dr. Shinaz Jindani
Interdisciplinary Approaches to Impact Anxiety and Family Relations
There is some evidence that states that medication alone cannot impact client's mental health. Medication along with psychosocial therapy creates a significant impact. One research noted impact of psychotherapy on client's HPA-axis which improves the diurnal rhythm (of depressed individuals) which in returns increases one's acceptability to antidepressants. (Bouyan, Z., Xuefan, D., Weihong, L., Z., Qinyu, L., Zhenghui, Y., &â€¦ Yindi, C. (2016)). The purpose of this single subject research was to test the effect of acute Cognitive Behavior Therapy (CBT), Psychosocial Therapy (PST), and Medication management on a thirteen-year adolescent male diagnosed with schizophrenia whom displayed suicidal ideation and homicidal ideation towards his stepmother. Group work was used to deliver CBT and PST. This was also supplemented by recreational and individual therapies. A 10 items instrument was used to measure family relations and 5 items to measure anxiety. Each of these data sets were divided into two phases depending on when the treatment was initiated. Anxiety effect noted 26% decrease yet it was not significant as noted by T-test (p-0.27). Family Relations noted 50% decrease in desired direction and was noted as statistically significant by T-Test (p 0.00). Through this project I learnt that interdisciplinary approaches are useful when combined appropriately to benefit the client. I also witnessed the entire cycle of working with

individuals from engagement to evaluation. Now I can integrate measures to specific practice situations and reflect to gain inner sense of my competence. I have truly grown as a culturally competent social worker.

School of Teacher Education
Education

Ed-01
Erica Woods, Dr. Andrea Moore
Research Mentor: Dr. Andrea Moore
The Effect of an Authentic Teaching Experience on the Self-Efficacy of Pre-service Teachers
Self-efficacy is the personal belief that one can produce a specific outcome and is essential to the success of pre-service teachers. This study was conducted to determine how an authentic teaching experience would affect the self-efficacy of pre-service teachers. Over the course of 10-week study, two pre-service teachers led a group of six middle school students through the scientific process for a science fair project. The self-efficacy of each pre-service teacher was determined by a pre- and post-survey using the STEBI-B. Additionally, the attitudes of students were measured using a survey instrument and a test to determine whether students understood concepts of the scientific process to measure enactive mastery and verbal persuasion. The major conclusion was that this experience did not alter the pre-service teachers' self-efficacy.

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Office of Sponsored Research Administration
Savannah State University
3219 College Street, PO Box 40289, Savannah, GA 31404
Tel: 912-358-4280
Fax: 912-358-4795
Email: ssuarc@savannahstate.edu
Conference website:
http://www.savannahstate.edu/misc/research-conference/
OSRA website: http://linux.savannahstate.edu/osra/