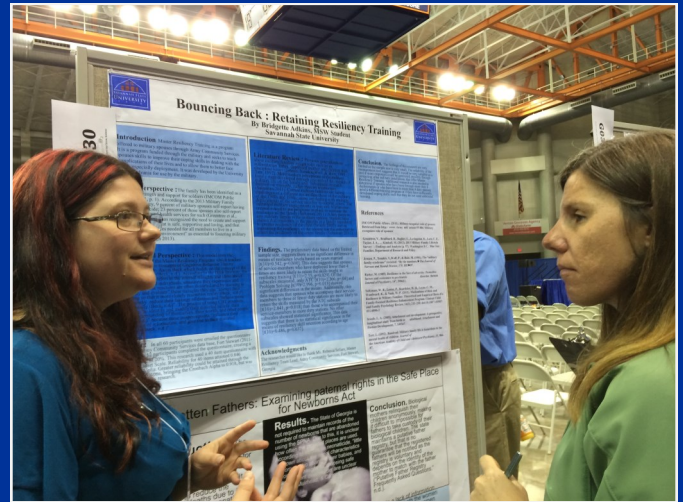




# 6th Annual Research Conference



*Smart.  
Bold.  
Proud.  
Seriously Impressive.*





Savannah State University

**6<sup>th</sup> Annual Research Conference (ARC)**

**April 5<sup>th</sup>, 2016**

Savannah State University

Student Union A, B, & C

Savannah, GA 31404

Sponsored by the

Office of the President

Office of Sponsored Research Administration (OSRA)

National Oceanic and Atmospheric Administration (NOAA)-

Living Marine Resources Cooperative Science Center

Quality Enhancement Plan (QEP) 'The Write Attitude'

NSF Historically Black Colleges and Universities – Undergraduate

Program (HBCU-UP)

Abstracts published in this program reflect the individual views of the authors and not necessarily that of the Office of Sponsored Research Administration or Savannah State University.

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The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the National Science Foundation.

# Overview of the Conference and Committee Members

Savannah State University (SSU) will host its Sixth Annual Research Conference in the Student Union Ballroom on Tuesday, April 5, 2016, 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

**Dr. Lisa Yount**  
Associate Professor and QEP  
Director

**Dr. Shinaz G. Jindani**  
Professor  
Department of Social Work

**Ms. Wubalem Jones**  
Program Assistant, OSRA

**Mr. Harshavardhan Kenche**  
Research Associate - RIMI

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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## Welcome from President Cheryl D. Dozier

It is my pleasure to welcome each of you to Savannah State University's (SSU) 6<sup>th</sup> Annual Research Conference. Quality research training, a vital part of the university's mission, builds the critical thinking and communication skills necessary for professional success in today's global marketplace. The theme of this year's conference, "The Power of Research," is indicative of the powerful impact that research has on preparing our students for graduate-level education and productive careers.



This year, our undergraduate and graduate students will present more than 170 research projects, from a diverse range of academic disciplines that range from biology and mathematics to marketing and political science. In addition to students being engaged in research as part of their coursework, more than 100 students were awarded funds through merit scholarships from NOAA, NIH, DOD and NSF to conduct research and receive valuable extracurricular research training. These merit scholars have trained not only at SSU, but also at prestigious labs such as NIH, Princeton, University of Massachusetts, Northeastern, University of Miami and Virginia Tech. In addition, many of these students have co-authored papers that have been published in scholarly journals. The accomplishments you see today are all built on the cornerstone of excellent teaching and mentorship exemplified by the dedicated faculty at Savannah State University.

We are proud of our students' scholarly work and their contributions to the scientific knowledge base. We are committed to building the research labs and training programs and supporting our faculty mentors who have the day-to-day responsibility for guiding our students in research. Evidence shows that research experiences are a primary factor in motivating students to enter graduate programs, and many of these student researchers are well on their way to post-baccalaureate programs.

I am deeply grateful to the National Science Foundation, which has provided funding for this conference through SSU's NSF HBCU-UP (MAGEC-STEM-Plus) Program. I also thank the Research Day Committee, led by Dr. Chellu Chetty and Dr. Dionne Hoskins, for their hard work in organizing this event. I commend and sincerely thank the faculty mentors from all of our academic programs who guide and mentor our students in the research process.

Congratulations to the student presenters, and best wishes to all for a successful and productive conference.



April 5<sup>th</sup>, 2016

Dear Research Day Participants,

Welcome to Savannah State University's 6<sup>th</sup> Annual Research Conference, which presents the research achievements of SSU's undergraduate and graduate students over the 2015-2016 Academic Year. This year's conference theme is "The Power of Research."

Today, you see before you the scholarly and intellectual work of over 170 student researchers from a wide range of academic disciplines offered here at SSU. This work is evidence of their progress toward mastery of the subject knowledge in the academic areas. It is also evidence of how these students have developed through the research process as critical thinkers and effective communicators who are demonstrating skills needed in our 21<sup>st</sup> Century marketplace and scientific communities. These student researchers are poised to address and contribute solutions to questions and challenges of real-world relevance and international salience.

I invite you to engage with our student scholars to explore and fully appreciate the research findings they have generated. As you do so, I am sure you will be impressed by the rich diversity of research and academic training available at SSU, which prepares our students for a wide range of professional, teaching, service, and research careers.

My sincerest thanks is extended to the faculty mentors and advisors, who have worked over the past year to support the scholars to bring their research to this point. I am also deeply grateful to our judges and community partners for joining us today. We also appreciate the National Oceanic and Atmospheric Administration (NOAA) and the NSF for providing funding support for this important event. I also commend the Office of Sponsored Research Administration for their leadership and tireless efforts in organizing and hosting this outstanding program. Finally, please join me in congratulating and celebrating our student scholars for their accomplishments this academic year, as we continue the SSU legacy of transformational excellence.

A handwritten signature in blue ink that reads "Kimberly S. Holmes". The signature is written in a cursive, flowing style.

Kimberly Sinclair Holmes, PhD  
Interim Provost & VPAA, Savannah State University



Dear Research Day Participants,

I am pleased to welcome each of you to Savannah State University's 6<sup>th</sup> Annual Research Day. My Office of Sponsored Research Administration has hosted this event every year since 2011, in order to recognize and honor the many undergraduate and graduate students at SSU who conduct research as part of their curricular and extracurricular training.

This year's conference has the theme "the Power of Research," in recognition of the important role that research plays on the SSU campus and in strengthening the career preparation of our students. Over the past 10 years, SSU has invested great time and energy in building its research labs and research training programs. We have seen a great return on this investment. Over the past 5 years, over 500 students have engaged in research training on the SSU campus, and over 140 have conducted research at off-site labs. These experiences have been critical in keeping students enthusiastic about their studies, keeping them retained in the major, and motivating them to pursue graduate studies. We are proud of their commitment and their scholarly work that you see displayed before you today.

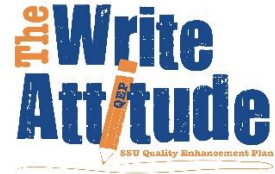
I extend my special thanks and commend the hard work and sincere efforts of the faculty who have mentored each of these students over the past year. Their commitment to the students is exemplary. I also wish to convey my deep gratitude to the faculty and community partners who have devoted their time and interest to judge this year's posters. On behalf of the NSF HBCU-UP program, which has provided funding for this Research Day, we express our congratulations to all the students who are presenting their research and competing for academic awards. We are extremely proud of you. We wish everyone a very successful and productive Research Day.

Sincerely,

A handwritten signature in black ink, appearing to read "Chellu S. Chetty". The signature is fluid and extends to the right with a long horizontal stroke.

Chellu S. Chetty, PhD  
Associate Vice President for Research and Sponsored Programs





# 6<sup>th</sup> Annual Research Conference

## April 5<sup>th</sup>, 2016

### Agenda

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

8:30am - 10:30am

**REGISTRATION & POSTER JUDGING**

10:30am - 10:45am

**WELCOME**

[Dr. Chellu S. Chetty](#), Associate VP for Research & Sponsored Programs

**REMARKS**

10:45am -11:05am [Dr. Cheryl D. Dozier](#), President, Savannah State University

11:05AM -11:25AM [Dr. Kimberly Holmes](#), Interim Provost & VPAA

11:30am - 12:00pm

**AWARDS FOR POSTER PRESENTATION**

Awards: [Dr. Lisa Yount](#), QEP Director

Remarks: [Dr. Chellu S. Chetty](#)

12:00pm

**Luncheon - Judges only**

## College of Science and Tehnology

### Biology

#### **BIO01 - Aaron Johnson**

Dr. Takayuki Nitta, Savannah State University

#### **Identification of minimum element of MLV glyco-gag**

One unique feature of MuLV and many members of the gamma-retroviruses is that they encode an additional form of Gag polyprotein, glyco-gag. Glyco-gag is a major determinant for initial virus loads, the number of viral copies in mice. It is also a major pathogenic determinant for neurotropic MuLV. The purpose of our research was to identify minimum functional components of glycol-gag. In contrast to Pr65, Glyco-gag contains 88 additional amino acids at amino terminal. We made a series of mutants with HA-tag and assessed protein expression from the constructs. The regions consisted of the following terminals: HA-gg88 (1-88), HA-gg88 (1-64), HA-gg88 (1-40), HA-gg88 (1-20), HA-gg88 21-88, HA-gg88 G2A, and HA-gg88 G6A. The HA tagged vectors were transfected into 293T cells. Following transfection, SDS-PAGE, western blot analysis, and immunofluorescence (IFA) were performed to check expression of the gene. SDS-PAGE denatures proteins and separates them in size through a gel medium. The proteins are transferred to a membrane where they are detected in 2 phases of antibodies. The primary antibody binds to HA expressed on the membrane and the secondary antibodies recognize the primary antibody. The IFA method is similar to the western blot analysis due the use of primary and secondary antibodies; however, they are different in that the cells are not lysed during the IFA method and are illuminated under the microscope. In conclusion, we found expression of proteins from the constructs HA-gg88, HA-gg21-88, HA-ggG2A, and HA-ggG6A during the western blot analysis. Conversely, IFA showed that protein expression from Hagg 1-64, HA-gg 21-88, HA-gg G2A.

#### **BIO02 - Blessing Enya**

Dr. Takayuki Nitta, Savannah State University

#### **Roles of Small GTPase in MLV Release**

Murine leukemia virus (MLV) is a simple retrovirus with three genes gag, pol, and env. The virus infects its cells by interacting host cell receptors with viral glycoprotein, 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 transcriptase in DNA molecules. After reverse transcription, it becomes a provirus by integration then viral RNA is transcribed and translated by host cell machinery. Viral proteins are then trafficked to the plasma membrane, so as to be assembled into progeny virus particles. The virus undergoes maturation by cleaving Gag molecules which cause a major change in the structure of the virion. Small GTPases regulate trafficking of many proteins in cells. It is known that they affect replication of some viruses, but role of small GTPases in MLV virus release remains unknown. We expressed wild type (WT), dominant negative (DN) or constitutively active (CA) forms of some small GTPase proteins in cells expressing viral Gag proteins and gathered viruses and cells to assess virus release efficiency. The viral samples were concentrated by ultracentrifugation and the viral and cell samples were subjected to SDS-PAGE, followed by western blots with anti-MLV p30 antibody. The signals on the PVDF membranes were quantified by the immunodensitometry software, AlphaInnotech. Most of proteins including DN-ARF6, DN-Cdc42 and DN-Rab11 showed minor effect in MLV release, while transfection of WT-Cdc42, DA-Cdc42, and DN-Rab5 impaired virus release (45-50% reduction). Our preliminary immunofluorescence data using anti-p30 demonstrated that DN-Rab5 made virus Gag proteins diffused in the cells, while the cells transfected with control vector showed concentrated / dispersed phenotypes. Plans on chasing further molecular mechanisms on how Rab5 control MLV release will be conducted.

### **BIO03 - Chantrell Frazier**

Dr. Jimmy El Hokayem, University of Miami

#### **E6-Associated Protein and its Transcriptional Co-activation of Estrogen Receptors in Neurons**

The E6-Associated Protein is a member of a group of Steroid hormone receptor (SHR) co-activators. This co-activator regulates SHR's, which are ligand-activated transcription factors. E6-AP is coded by the gene UBE3A (Williams 2009), it has two main functions: 1- the regulation of SHR-gene dependent transcription, and 2- E3 ubiquitin ligase activity (Ramaoorthy 2008). E6-AP contains five domains: HECT (homologous to E6-associated protein carboxy-terminal), E6 binding, p53 binding, three nuclear receptor interaction domains, and activation domain. Estrogen is essential for neuronal development and function. Earlier work from Dr. Nawaz Lab has shown E6-AP to coactivate Estrogen Receptor (ER) target gene expression in endocrine cancers like breast cancer. It is not known if this function exists or is important in neurons. Our hypothesis looks into if E6-AP coactivates ER target gene expression in N2A cells. With the use of Immunoprecipitation, we will test E6-AP and Estrogen Receptor alpha complex formation. Use Western Blot to verify protein levels of E6-AP and Estrogen receptor alpha in neurons. As well as conduct experiments with quantitative Polymerase Chain Reaction (qPCR) to determine the gene expression changes of ER target genes in neurons. Our conclusion and significance for studying the transcriptional coactivation function of E6AP could lead to novel targets for the treatment of hormone based pathobiologies.

### **BIO04 - Charkira Patrick**

Dr. Xiaorong Zhang, Savannah State University

#### **Generation of a Phylogenetic Tree Using CFTR Protein Sequences**

Bioinformatics is an interdisciplinary field that develops methods and software tools for storing genetic data. Bioinformatics is a combination of computer science, statistics, mathematics, and engineering all used to analyze and interpret

genetic data. The goal of bioinformatics is to eventually determine the function of all genes, and used this information to make advances in the world. In this study, we will identify orthologous protein sequences of the human (*Homo sapiens*) cystic fibrosis transmembrane conductance regulator (CFTR) from other species and to reconstruct a phylogenetic tree of these species by comparing their CFTR amino acid sequences. We will evaluate the tree by comparing them with published phylogenies in the literature.

### **BIO05 - Christian Lyle**

Dr. Hans Schanz, Georgia Southern University

#### **Functional ROMP Copolymers for the attenuation of hemoglobin**

Traumatic brain injuries (TBI) are a major issue in the area of healthcare and the advancement of potential treatments has become a target in health-related research. In conjunction with hemorrhagic shock the brain undergoes significant swelling and blood loss. Due to these factors the brain is then deprived of oxygen, which is the main cause of deterioration and degradation of brain cells - necrosis. Treatment for TBI has been seen in clinical and hospital settings, in which patients are given traditional intravenous (IV) fluids that counteract the blood volume loss, however, these fluids fail to replace the oxygen transporting capacity that is lost. For this reason, hemoglobin based oxygen carriers (HBOC's) have been used as substitutes that readily provide oxygen. Unfortunately, cell-free hemoglobin exhibits several severe shortcomings; one of them is major oxidative stress and present toxicity as a result of the significant formation Radical Oxygen Species (ROS). These are formed as a consequence of premature oxygen release without the regulatory mechanisms involving nitrogen oxides present in the red blood cell. A potential solution to this problem is Polynitroxylated Pegylated Hemoglobin (PNPH) which combines the hemoglobin with polyethylene glycol (PEG) and 2,2,6,6-tetramethylpiperidin-1-yloxidanyl (TEMPO) functionalities which have been demonstrated to significantly lower the formation

of ROS while maintaining the capability of supplying oxygen to the injured brain cells. Although this new generation of HBOC's shows promise in vivo, their synthesis is cost and labor intensive. Hence, we try to develop functionalized copolymers containing TEMPO and PEG via ring opening metathesis polymerization (ROMP). Specifically, we are trying to generate different TEMPO-containing (oxa)norbonene derivatives in a one-step synthesis which can be straightforwardly polymerized via ROMP. We will present preliminary data on monomer and polymer.

### **BIO06 - Cristel Kpegba**

Dr. Mahasin Osman, Savannah State University  
**New Biomarkers in the Disparity of Invasive Breast Carcinoma**

Breast cancer is a group of heterogeneous diseases with great molecular and clinical variations. This heterogeneity poses significant challenges in the management and the study of the cell biology of the disease. Breast cancer is classified into four major subtypes namely: luminal A, luminal B, basal-like and the HER2-related. The basal-like subtype, defined as Triple Negative Breast Cancer (TNBC), is the most lethal subtype that lacks biomarkers for early detection and effective treatment. TNBC is a cancer of disparity that affects young African American and Hispanic women. Downregulation of the tumor suppressor BRCA1 associates with early onset of TNBC in this population and was sought as cause. However, to date no mutations have been identified, suggesting involvement of epigenetic mechanisms in BRCA1 dysfunction. On the other hand, the oncoprotein IQGAP1, which modulates microtubule (MT) dynamics and cytokinesis, associates with TNBC but its exact role remains unknown. We recently discovered that IQGAP1 regulates centrosome size and number and its dysfunction associates with supernumerary centrosome. The centrosome is the MT-organizing center that divides once per cell cycle, but in cancer cells centrosome division is unregulated leading to supernumerary centrosome phenotype. Because the

supernumerary centrosome also correlates with BRCA1 downregulation, we hypothesized that IQGAP1 is a negative regulator of BRCA1 in TNBC. Indeed, we found that IQGAP1 and BRCA1 Interact and co-localize in mammary cells and we set out to characterize this interaction and investigate how IQGAP1 might regulate BRCA1 during the cell cycle in normal cells and how oncogenic IQGAP1 might silence BRCA1 leading to TNBC and supernumerary centrosome phenotype. We found that hyperphosphorylation of IQGAP1 promotes cancer that can be inhibited by pharmacologic drugs; therefore, our study should position IQGAP1 as a novel predictive biomarker in TNBC amenable to therapeutic intervention.

### **BIO07 - Dynisty Everette**

Dr. Mahasin Osman, Savannah State University  
**Targeting Basal-Like Breast Carcinoma with Precision Medicine**

Breast cancer is classified into four major subtypes including luminal A, luminal B, basal-like and the HER2-related. The basal-like subtype also known as Triple Negative Breast Cancer (TNBC) is most lethal because it lacks biomarkers and thus targeted therapy. Additionally, TNBC is a cancer of disparity that affects young African American and Hispanic women, however no mutations have been identified to explain this disparity. It is well appreciated that environmental and life style factors contribute to cancer disparity. The goal of our research is to employ genetic and pharmacologic approaches to identify more personalized and effective therapeutic strategies for TNBC. We have identified IQGAP1 as an oncoprotein whose dysregulation associates with increased cell proliferation and enhanced activity of oncogenic proteins, including the mTORC1-Akt pathway and several G-proteins. IQGAP1 dysregulation associates with TNBC, but its mechanism remains unclear. Employing pharmacogenetics as tool, we discovered that IQGAP1 is more sensitive to rapamycin, the mTOR specific and to AKT-specific inhibitors, than mTOR and Akt. Sequences in IQGAP1 C-

terminal domain, which mediates cell proliferation, place it in the PI3K and mTOR family of proteins, and it may act upstream of mTOR-PI3K pathways. These findings suggest that cancers marked by IQGAP1 dysfunction can be targeted with a specific class of available inhibitors. Given that our research has identified IQGAP1 as a metabolic- and growth factor-sensor involved in the link between diabetes and cancer, we are now using these small molecule inhibitors as tools both for understanding how IQGAP1 pathway associates with cancer disparity and for isolating the next generation of TNBC personalized drugs.

### **BIO08 - Jasmine Phillips**

Dr. Takayuki Nitta, Savannah State University

#### **Effects of Betulinic Acids and Its Derivatives in M-MLV Replication**

Retroviruses comprise a large and diverse family of enveloped RNA viruses defined by common taxonomic denominators that include structure, composition, and replicative properties. The hallmark of the family is its replicative strategy which includes essential steps such as reverse transcription of the virion RNA into linear double-stranded DNA and the subsequent integration of this DNA into the genome of the host cell. Some retroviruses are human and animal pathogens that cause a wide variety of diseases including many cancers (e.g. ATL) and various immunological (e.g. AIDS) and neurological conditions (e.g. HAM/TSP). Despite much effort having been put on investigating molecular mechanisms of retroviral replication and establishing therapies, effective and economical strategies for retrovirus-associated diseases have not been established.

Betulinic acid 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 have shown inhibitory activities against several cancers and viruses. They also showed anti-malaria and anti-inflammatory properties. However, the effects of betulinic acid in replication and carcinogenesis caused by animal

viruses remain unknown. We here hypothesized that betulinic acid and its derivatives will inhibit retroviral replication and cause death of the infected cells. To test our hypothesis, we used a mouse retrovirus Moloney murine leukemia virus (M-MLV) model, betulinic acid, and its ionic derivatives that showed anti-cancer and anti-viral properties previously (Visalli RJ et al., 2015, Suresh C et al., 2012). The mouse fibroblast cells expressing viral Gag proteins, N43, were treated with different amounts of betulinic acids and its derivatives. The viral proteins Gag in the cells and media were detected by western blots using anti-p30 (Gag) antibody. Our preliminary data suggested that some of our chemicals could inhibit viral release and cell growth in this system. Further experiment to clarify the effects of betulinic acids and its derivatives in M-MLV replication will be conducted.

### **BIO09 - Lopriela Seabrook**

Dr. Mahasin Osman, Savannah State University

#### **Characterizations of New Players in Type Two Diabetes**

Type 2 diabetes is a global epidemic accompanied by debilitating complications. According to the Center for Disease Control (CDC), over 29 million American suffer from the disease and this number is projected to increase substantially with the current rise in population obesity. Therefore identification of markers for early detection or new therapeutic targets is of high priority. IQGAP1 is an evolutionarily conserved signaling protein that couples cell size and cell division to control cell proliferation. Specifically IQGAP1 modulates insulin secretion and is downregulated in humans with T2D. Our research has identified a small molecule (KSCM9) that selectively inhibited growth in cells lacking IQGAP1, suggesting that cells require IQGAP1 to overcome the inhibitory effect of the drug. KSCM9 binds, with high affinity, the norepinephrin transporter, which has been implicated in T2D, likely via inhibiting insulin secretion. Our work is now focused on characterizing the functional interplay between

IQGAP1 and the NET in pancreatic  $\hat{I}^2$ -cells and analyzing the effect of KSCM9.

**BIO10 - Sakura McLaughlin, Terrence Cumby, Karla Sue-Marriott**

Dr. Kai Shen, Savannah State University

**Structural Changes of Sigma-1 Receptor upon Binding to Its Agonist**

Neurodegeneration is the progressive loss of neuronal reliability in structure and function. Neurodegenerative diseases, such as Alzheimer's and Parkinson's disease, have been linked to an intracellular protein, sigma-1 receptor, which is highly expressed in the central nervous system. The functions of sigma-1 receptor depend on its binding towards its agonists or antagonists. In this research, we aimed to link the structure alteration of sigma-1 receptor with its binding toward an agonist. We first examined the conditions to express and purify sigma-1 receptor to obtain high yields. Next, we studied the effects of a sigma-1 receptor agonist, KSCM-1, on its confirmation. Our results demonstrate that, upon binding to KSCM-1, sigma-1 receptor conformation changes. We also found that at various KSCM-1 concentrations, sigma-1 receptor conformation changes to different extents. The agonist concentration range that causes maximum conformational change is determined. Further experiments have been planned to locate agonist binding sites on sigma-1 receptor.

**BIO11 - Shardae Addison**

Dr. Tejpal Gill, National Institutes of Health

**Effect of HLA-B27 on Gut Microbiome and Transcriptome**

HLA-B27 is a Major Histocompatibility Complex Class I allele that is closely associated with the development of ankylosing spondylitis (AS). The pathogenic role of HLA-B27 is unknown, but it is a major risk factor in many spondyloarthropathies including AS, psoriatic arthritis (PsA), juvenile spondyloarthritis, and acute anterior uveitis. Around 50-70% cases of AS are associated with inflammatory bowel disease (IBD), including Crohn's disease and ulcerative colitis, yet there has not been a link

between HLA-B27 and its effect on gut microbiome. It has been hypothesized that HLA-B27 alters gut microbiome in transgenic rats that may develop SpA-like diseases. The goal of this study is to determine how HLA-B27 alters gut microbiome in transgenic rats that develop SpA-like disease and to correlate these microbial signatures with changes in the host immune response to disease severity. We focused on HLA-B27 and human b2 microglobulin transgenic (TG) rats on three different backgrounds: Lewis, Fischer, and Dark Agouti (DA) using the strain specific controls. Another HLA-B class allele (B7), which was not associated with disease, was employed as a control in the Lewis background. While TG Lewis and Fischer rats develop SpA-like diseases, TG DA rats are apparently protected from arthritis as well as bowel inflammation. We studied the expression of the cytokines known to be upregulated during inflammatory conditions such as IL-17, IL-23, TNF $\alpha$ , and Ifng using real time PCR analysis. For these experiments, PpiA was used as the housekeeping. RNA was isolated from the cecum and colon tissue of these rats at 2, 3 and 6 months of age. We observed increased expression of the inflammatory cytokines genes for Il17a, Il23a, Tnfa, and Ifng. There was an increased expression of Il17a for TG Lewis in our 6 month old rats. For Il23a, there was an over expression in the Lew B7 at 6 months, which serves as our control in the Lewis background. For both TNF $\alpha$  cytokine and Ifng, both cytokines showed an overexpression in TG Fischer at 3 months. We observed increased signal for the production of inflammatory cytokines in Lewis and Fischer TG rats as compared to the WT rats, whereas the DA TG rats did not exhibit any changes for these inflammatory markers. These results support previous findings in macrophages that the IL-23/IL-17 in DA rats emphasize the importance of the background in development of spondyloarthropathy like disease in rats.

**BIO12 - Tiffany Villanueva**

Dr. Girish Deshpande, Princeton University

**Mdr49 Potentiates Hh Signaling in Drosophila Melanogaster**

Directed cell migration serves a critical and conserved role during gonad morphogenesis. In the fruit fly *Drosophila melanogaster* the progenitors of the germ-line stem cells, the primordial germ cells (PGCs) are formed on the outside surface of the *Drosophila* embryo at the blastoderm stage, while the somatic gonadal precursor cells (SGPs) arise in the mesoderm mid-way through embryogenesis. To form the primitive embryonic gonad, the PGCs must travel from outside of the embryo, across the mid-gut and through the mesoderm towards the SGPs. The migratory path of PGCs is dictated by a series of attractive and repulsive cues. Studies over the past decade in our lab have shown that one of the key chemoattractants is the Hedgehog (Hh) ligand. Although, Hh is expressed in other cell types in the mesoderm and in the ectoderm, the long-distance transmission of this ligand is specifically potentiated in the SGPs by the *hmgr* isoprenoid biosynthetic pathway. The activity of the isoprenoid biosynthetic pathway, and thus the distant transmission of the Hh ligand, is gated by restricting expression of *hmgr* to the SGPs during mid-embryogenesis. Here we focus on two central aspects of this process: A) Specific release and potentiation of the attractant and, B) Selective reception of the guidance cue by the PGCs. It was proposed that an ABC transporter, *mdr49* acts in a mesoderm specific manner to release the germ cell attractant. Our data indicate that *mdr49* functions in hh signaling and that this function is likely connected to a role in the transport of cholesterol. Given the importance of Cholesterol in the long distance transmission of the Hh ligand, this observation has opened up an exciting avenue concerning the possible role of components of the sterol transport machinery in PGC migration.

**BIO13 - Victoria Daudu**

Dr. Nitta Takayki, Savannah State University

**Expression of GRP78 in Prostate Cancer Cell lines**

Prostate cancer is cancer of the prostate gland in the male reproductive system. It 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 if GRP78-PSA interaction enhances 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 (Tg), A2M and A2M\* (activated A2M by methylamine), then GRP78 in the cell lysates were detected by western blotting with antiGRP78. The African American prostate cancer cells showed slightly higher GRP78 expression in basal level and Tg treatment enhanced GRP78 expression in all cells, which was comparable among cells. Since our preliminary data showed that A2M\* did not enhance the expression of GRP78 in the African American prostate cancer cell, E006 AA Par, nor the Caucasian prostate cancer cells, DU145, we are repeating the experiment with new A2M. Along with the experiments described above, role of GRP78 in cell survival are examined with

RNAi. To this end, E006 AA Par and DU145 cells were treated with siRNA for GRP78 and its mismatched siRNA. Unexpectedly GRP78 expression was impaired in the cells treated with both siRNAs. Plans on clarifying the effects of siRNA and transfection reagents will be conducted with scratched siRNA.

### **Chemistry**

#### **CHEM01 - Allante Smith**

Dr. Adegboye Adeyemo, Savannah State University

#### **Synthesis and Characterization of Meso-Tetrakis(2-Chloro-3-Quinoly)Porphyrin and Its Water-Soluble Derivative Meso-Tetrakis(2-Chloro-4-Sulfonato-3-Quinoly)Porphyrin**

Meso-Tetrakis(2-Chloro-3-Quinoly)Porphyrin was prepared by reacting 2-Chloro-3-Quinolinecarboxaldehyde and pyrrole (1:1) in refluxing propionic acid for 45 mins. The water-soluble derivative was prepared by dissolving 0.50 g of the parent porphyrin in 10 mL of concentrated sulfuric acid followed by neutralization with 6.0 M NaOH. The solution was completely evaporated. The crude product was purified by soxhlet extraction using methanol. Complete evaporation of the extract afforded pure product quantitatively (98%). We now report UV-Vis spectral characteristics of the parent porphyrin and its water-soluble derivative.

#### **CHEM02 - Chelsea McCullough**

Dr. Adegboye Adeyemo, Savannah State University

#### **Metal Complexes of Fluorinated Porphyrins : Potential Anticancer Drugs**

We have successfully prepared a number of fluorinated porphyrins in high yields (25-45 %) and metal ions incorporation has been achieved at room temperature in various organic solvents. We now report the spectroscopic characteristics of these metalloporphyrins.

#### **CHEM03 - Da'Nay Lacey**

Dr. Pascal Binda, Savannah State University

#### **Aluminum Complexes of Chiral Aldimnphenolate Ligands: Synthesis**

#### **Characterization and Reactivity Toward Ring Opening Polymerization of B-Carprolactone**

With the increase in synthetic petroleum-based polymers such as polyethylene, polyvinylchloride and polystyrene since the post World War II era, two substantial drawbacks have occurred. As conventional plastics are made from non-renewable petroleum resources, and as such, the United States alone has exhausted 200,000 barrels of oil. Likewise, with such a high demand, it is estimated that by 2056 petroleum will be depleted. As such, conventional polymeric materials have been replaced with environmental friendly polyesters such as corn and sugar beets. Of the sort, polyactide, polyglycolide, poly (lactide-co-glycolide) and polycarolactone are the most common produced from lactide, glycolide, lactide-co-glycoside and caprolactone and as such, bio friendly polymers are degraded into benign carbon dioxide and water by microorganisms. In addition, these polymers are effective in a physiological medium as they produce lactic acid as a bi-product.

Therefore, ring-opening polymerization of various stereoisomers of lactide produces polymers in which contain not only different molecular weights but also different sequences of stereoisomers along the polymer backbone. Polyesters are generally prepared by the ring-opening polymerization of cyclic esters which is initiated by homogenous, or single-site metal-based catalyst. Due to the well controlled development of catalytic systems in the general form of LMX, where L is represented by the ligand, M is represented by the given metal and X represents the alkoxide or amide which represents an initiating group for ring-opening polymerization.

#### **CHEM04 - Diamond Rogers**

Dr. Cecil Jones, Savannah State University

#### **Evidence of PDT-induced Apoptosis of Pancreatic Cell Lines**

The intrinsic or mitochondria apoptotic pathway to cell death is regulated by members of the Bcl-2 family of proteins. Regulation involves controlling the permeability of the outer



mitochondrial membrane. Activation of pro-apoptotic proteins Bax and Bak results in the formation of mitochondrial pores which allows cytochrome c to escape into the cytosol. The release of cytochrome c triggers the activation of caspases. These proteases commits the cell to an apoptotic death. This work employed photodynamic therapy (PDT) to induce intrinsic cell death. The technique involves the use of a photosensitizing agent that is believed to localize preferentially in subcellular organs of cancerous cells for reasons that are not clearly understood. The drug is then activated by light of appropriate energy. 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,  $^3O_2$ . This transfer of energy results in a conversion from  $^3O_2$  to highly reactive singlet oxygen,  $^1O_2$ . The high reactivity of singlet oxygen in addition to the production of other reactive oxygen species (ROS) ultimately causes an apoptotic cell death (1). Varied concentrations of the photosensitizer, zinc phthalocyanine tetrasulfonic acid (ZnPcS4) were introduced to human pancreatic cancer cells (PaCa-2). After incubating the cells for 2.5-to-3.0 hours, they 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) used employed to monitor the activity of the enzyme.

### **CHEM05 - Dolphurs Hayes**

Dr. Cecil Jones, Savannah State University

#### **Affinity of Cytochrome c and Cadiolipin during PDT-Induced Apoptosis**

Photodynamic therapy (PDT) is a noninvasive technique which employs dye-like substances, called photosensitizers, light, and molecular oxygen to kill solid tumors. One mechanism of PDT involves the absorption of light by the photosensitizer, which transfers some of this energy to molecular oxygen. Molecular oxygen is

then converted into highly reactive singlet oxygen which reacts with key cell components and results in cell death. The therapeutic effect and dominant mechanism of cell death from PDT depends heavily on the localization of the photosensitizing drug. Photosensitizers that localize in mitochondria tend to be effective agents for killing cells. This work supports the on-going effort to understand the therapeutic effects of PDT on subcellular organelles, namely the mitochondria. Evidence suggests that intrinsic cell death (apoptosis) involves the lowering of the mitochondria inner membrane potential,  $\Delta\psi$ , which results from the opening of large conductance channels. This allows for the escape of cytochrome c from the inner membrane into the cytosol, which in turn initiate a 'caspase cascade' of reactions that commits the cell to an apoptotic death. Studies show that cytochrome c (cyt c) is anchored to the inner mitochondrial membrane by cardiolipin. Hence, this interaction must be weaken and broken before the enzyme can migrate into the cytosol. This work is preliminary to investigating the critical roles of cyt c and cardiolipin (CL) during stress-induced cell death. A key objective of this work is to verify that the mechanism of cell-death is not by the direct tumor cytotoxicity of the photosensitizer. If the mechanism of cell death is through binding (direct tumor cytotoxicity), then PDT (based on the high reactivity of singlet oxygen) may not be the principle cause of mitochondria apoptosis. In addition, a luminescing dye, 10-nonyl-acridine orange (NAO) is frequently used in microscopic investigations of CL interactions. A second aim of this work is to employ fluorescence spectroscopy to measure the binding affinity of NAO to cyt c and CL to ensure that NAO dye is not interfering with the protein-ligand interaction.

### **CHEM06 - Kareem Blue**

Dr. Adegboye Adeyemo, Savannah State University

#### **Synthesis and Characterization of Meso-Tetrakis(2-Fluoro-4-Methoxyphenyl) Porphyrin**

Meso-Tetrakis(2-Fluoro-4-Methoxyphenyl) Porphyrin was prepared by reacting 2-Fluoro-4-Methoxybenzaldehyde and pyrrole in refluxing propionic acid for 45 mins. This reaction resulted in a high yield of 45%. UV-Vis spectrum shows absorbance maxima at 418.5 nm (Soret band) and 513.4, 547.5, 589.3, 650 nm, respectively for Q-bands. Other techniques used in characterizing this new porphyrin include proton NMR, carbon-13 NMR and F-19 NMR. Proton NMR shows NH signal at -2.7763 and OCH<sub>3</sub> signal at 4.0876 ppm, respectively.

**CHEM07 - Maleek Montgomery**

Dr. Adegboye Adeyemo, Savannah State University

**Synthesis and Characterization of Porphyrins for Thermodynamic Therapy of Tumor (PDT)**

Five new isomeric porphyrins, 5,10,15,20-Tetrakis(2-Fluoro-3-(Trifluoromethylphenyl)Porphyrin, 5,10,15,20-Tetrakis(2-Fluoro-4-(Trifluoromethylphenyl)Porphyrin, 5,10,15,20-Tetrakis(2-Fluoro-5-(Trifluoromethylphenyl)Porphyrin, 5,10,15,20-Tetrakis(2-Fluoro-6-(Trifluoromethylphenyl)Porphyrin, and 5,10,15,20-Tetrakis(4-Fluoro-3-(Trifluoromethylphenyl)Porphyrin, have been synthesized by microwave-assisted method. Characterization of these porphyrins was done using UV-Vis, <sup>1</sup>H, <sup>13</sup>C and <sup>19</sup>F NMR spectroscopic techniques. The UV-Vis spectra of these porphyrins contain the characteristic high intensity band (Soret band) around 420 nm, and the four Q bands between 500 and 700 nm range. Proton NMR shows very interesting patterns with respect to CH<sub>3</sub> and -NH signals. This may be due to the varying position of the substituents on the ring. Slight variations are also observed for the (-F) and CH<sub>3</sub> signals

**CHEM08 - Princess Burton**

Dr. Olarongbe Olubajo, Savannah State University

**One-pot Synthesis of 2-Substituted Benzoxazinone**

Benzoxazinone derivatives have interesting biological properties. They are used in many industrial, research and clinical applications. One of the methods used in preparing benzoxazinone and its derivatives is the coupling of anthracitic acid (2-aminobenzoic acid) with anhydride, acyl chloride or other reagents, such as oxazolone derivatives. In continuation of our interest in the use of boric acid as catalyst, we are reporting the synthesis of 2-substituted benzoxazinones by the direct coupling of hydroxy carboxylic acid and anthracitic acid, using catalytic amount of boric acid. Ten percent mole of boric acid was used under 3 hours of microwave heating. The products are identified using IR, <sup>1</sup>H and <sup>13</sup>C NMR.

**CHEM09 - Zakiya Barnes**

Dr. Pascal Binda, Savannah State University

**New lanthanide complexes for the polymerization of  $\hat{I}\pm$ -methylene- $\hat{I}^3$ -butyrolactone to obtain biodegradable cross-linkable unsaturated polyesters**

Polyesters are commonly applied in bio-medical engineering for drug delivery devices and tissue engineering products because of their biodegradable and biocompatible properties. Cyclic esters containing cross-linkable olefinic pendant arms will be employed for the first time as monomers for cross-linked biodegradable polyesters using new heteroleptic lanthanide complexes (LLnX). The new heteroleptic lanthanide complex L1LaN{Si(CH<sub>3</sub>)<sub>3</sub>}<sub>2</sub> (1), L2LaN{Si(CH<sub>3</sub>)<sub>3</sub>}<sub>2</sub> (2) and L3LaN{Si(CH<sub>3</sub>)<sub>3</sub>}<sub>2</sub> (3) were synthesized from acid-base ligand exchange between chiral ligands H<sub>2</sub>L<sub>1,2,3</sub> and corresponding homoleptic lanthanide compound La[N{Si(CH<sub>3</sub>)<sub>3</sub>}<sub>2</sub>]<sub>3</sub> respectively) at -50°C in THF for 2 hours. The new LLnX complexes will then be used as catalyst for the ring opening polymerization of MBL ( $\hat{I}\pm$ -methylene- $\hat{I}^3$ -butyrolactone).

### **Computer Science**

#### **CS01 - Jamelle Jaudon**

Dr. Eric Wong, University of Texas at Dallas

#### **The Impact of Software Safety on the Software Development Process at the Architectural Level**

There is a need to design software architecture for safety-critical systems to be fault-tolerant in a cost effective manner. For this, there exists software standards with guidelines for the development of safe software. Avionic systems are amongst the many products that are in need of safer software, for failures can result in loss of life and millions of dollars in damages. The focus of this paper is to present case studies of the impact software safety had on the architecture level of the software development process for commercial avionics systems, namely the Boeing B777 and the Airbus A380. These commercial manufacturers evolved from federated architectures to an Integrated Modular Avionics (IMA) architectures. We studied the impact on the aircrafts by finding the changes as a result of migrating to the IMA.

### **Engineering**

#### **ENGG01 - Brandon Davis**

Dr. Mehran Mazari, Savannah State University

#### **Approaches for Visualization of Long-Term Pavement Performance Data**

As technology continues to advance, so do the tools that help engineers make do their job better, faster and more efficiently. Data visualization is one of the latest updates in technology for the engineering field, and is proving to be a worthy tool. The visualization approaches facilitate the Infrastructure management and more specifically transportation infrastructures and pavement systems. The Long-Term Pavement Performance (LTPP) program aims at providing the status of pavement performance throughout their lifecycle. The newest update of the LTPP-Infopave is the most current LTPP Information system. In this study, the interactive approaches were discovered to visualize LTPP data. Data types vary from climate, layer thickness, inventory, material

properties and traffic data that were retrieved from the LTPP database. These datasets were represented by different illustrations using tools and techniques to make each graph unique to each data set. Utilizing such tools enhances the capabilities for the interactive user inquiries. The visualization approaches highlighted in this study, facilitate the data discovery, retrieval and analysis process.

#### **ENGG02 - Cordel Gordon**

Dr. Mir Hayder, Savannah State University

#### **Buckling analysis of a safety ladder**

In this project, a buckling analysis of a safety ladder has been conducted by SolidWorks simulation software. In a previous study, a static analysis was conducted for a similar safety ladder. This project is the continuation of that project with an extension of buckling analysis. 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 according to some suitable dimensions, they were assembled to create the 3D 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-lb on the top step of the ladder, a buckling factor of safety of 26.384 was obtained, which indicates that the ladder is likely to withstand a load that is up to 26.384 times larger than what is applied, i.e. it will start buckling with a load of 5267.8 lbs (critical load). A comparison with the previous static analysis, which yielded a stress factor of safety of 1.08, indicates that for this specific loading and materials the ladder would yield before it would buckle.

#### **ENGG03 - Corey McCollum**

Dr. Mir Hayder, Savannah State University

#### **Thermal Analysis in an Office Room**

In this project, air flow from a fan was simulated to visualize the movement of hot circulating air in an office room while all heating sources are on during the winter. SolidWorks flow simulation was used in this project, and the room selected for this study was SSU's Hubert D-414. The

furniture and the office equipment were created as SolidWorks Part files according to dimensions and then assembled with room's floor, roof, and side walls. Everything inside the room along with the fan and the exit door was placed exactly in the same location to produce an exact replica of Room 414 in SSU's Hubert D. To create the airflow, one of the pre-defined fans from the software was used (Axial YS Tech USA YW12038012BS). The flow visualization videos show a very clear view how the air flow from the fan distributes the heat inside the room. The fan created two streams of air flow. The one on the top does not significantly affect the temperature of the room. It just creates an air circulation close to the roof. The heat from the heating sources is actually picked up with the lower air currents and distributed around the room. It also shows that the air is gets warm while it moves toward the exit.

### **ENGG04 - Rubin L. Brown II**

Dr. Mehran Mazari, Savannah State University  
**Performance of Road Infrastructures under Flooding Conditions**

The coastal areas infrastructure are at periodic exposure to extreme weather events such as storms, high tides, sea level rise, flooding and severe precipitation. These extreme changes could drastically affect the transportation infrastructures, more specifically roads and pavement structures, which would yield to more frequent construction, maintenance and rehabilitation costs. During inundation events, the pavement layers are exposed to extreme moisture levels which reduce the structural strength of the pavement system under traffic loads. Therefore, deciding the best time to re-open the road to traffic is critical to avoid structural damages which will lead to reduced life time of the pavement system. This study aimed at investigating the resilience of road infrastructures due to sea level rise, storms and flooding. The impact of extreme weather events on road infrastructures was evaluated to determine the structural performance of flooded pavements. The results of this study could be calibrated for

different regions considering their specific climate conditions.

### **ENGG05 - Sarah Dillard**

Dr. Mehran Mazari, Savannah State University  
**Adapting Pavement Systems to Extreme Weather Events**

Natural disasters such as hurricanes, tornadoes and extremities of temperature of a specific region are elements monitored during inclement weather peaks. Extreme weather conditions often cause economic loss, damage and destruction. Transportation Asset Management System (TAMs) is a solution to evaluating the assets for reinforcement, economic gain, and reconstruction. The strategy of TAM allows the reduction of risk and preparation efforts in cases of extreme weather that vary regionally. In this study, the impact of severe weather events on pavement structures was investigated to arrange for the proper adaption plans. Different pavement distresses due to extreme climate change conditions were identified based on the pavement type. The short- and long-term exposure of pavement structures to flooding conditions and storm surges were also studied. Adaptive strategies were proposed to improve the resilience of road network and pavement systems subjected to extreme weather events. The recommended guidelines could be calibrated for different geographical conditions to enhance the elasticity of adaptive strategies.

### **ENGG06 - Terrence Staten**

Dr. Mehran Mazari, Savannah State University  
**Short Term Moisture Susceptibility of Hot Mix Asphalt Mixtures**

Moisture Susceptibility is one of the structural damage sources of Hot Mix Asphalt (HMA) mixtures. A noticeable attention has been focused on the sensitivity of the aggregate and asphalt system in the presence of moisture during the past decade. The HMA mixtures become susceptible to water when the internal aggregates are in the presence of water, thus weakening the aggregates bonds. A solution to avoid moisture susceptibility or at least prolonging the process is the idea of waterproofing pavements. Some of these

remedies include asphalt overlays, chip seals, crack sealing and the use of modified asphalt binders. The key features of these interlayer systems are that they reduce reflective cracking, reduce subgrade moisture infiltration, increase subgrade stability, and increase asphalt strength. In this paper, the short term impact of moisture on HMA mixtures was investigated. Several pavement performance indicators were evaluated to determine the moisture susceptibility. The impact of moisture on each performance measure for different pavement mix design was also evaluated. The results of such investigations would be helpful to reduce the moisture induced damages of flexible pavement structures.

### **Environmental Sciences**

#### **ES01 - Anitra Bosley**

Dr. Param Sivapatham, Savannah State University

#### **Comparative Study of Health-hazardous Waterborne Microbes in Water Samples Collected from Savannah Water bodies**

Waterborne bacteria such as *Escherichia coli* (*E. coli*) and *Enterococci* can be responsible for digestive system illness if they get into biological systems. Humans can be exposed to these bacterial strains through food, water and or bathing at common places such as beaches, rivers, swimming pools, etc. Hence, this study was conducted over the period of 9 weeks during summer 2015 to enumerate the presence and distribution of *E. coli* and *Enterococci* in water samples collected on weekly basis from 4 selected locations near Tybee Beach and 5 other River locations within Savannah region. Colony forming units of *E. coli* and *Enterococci* were enumerated employing EPA Methods 1603 and 1600 respectively. Monitored water quality parameters (such as pH, salinity, alkalinity, hardness, dissolved carbon and dissolved nitrogen) and other local environmental conditions during sampling times were used to relate the presence and distribution of these waterborne microbes are presented in the current presentation. This study is expected to continue for longer period to assess the seasonal trend of

distribution of *E. coli* and *Enterococci* and their genomic characterization. Results of this anticipated long term comprehensive study will not only be useful in predicting potentials of swimming-associated health hazards but also in highlighting the need for protecting public health through keeping a check on pollution and the presence of health hazardous bacterial strains of the recreational water bodies Savannah region.

#### **ES02 - Deanna Lazare**

#### **Dr. Chandra Franklin, Savannah State University Rate of Vegetation Regrowth in Marsh Dieback Sites**

Marsh dieback is the unexplained mass destruction of vegetation (mostly *Spartina alterniflora*) in salt marshes of east and gulf coasts of the U.S. Although large-scale (> 5 acres) diebacks are rare, small-scale diebacks (< 5 acres) are common. While the cause of dieback is unknown, invariably vegetation regrowth takes place after all dieback episodes. In this study, the rate of vegetation regrowth was investigated. A small-scale dieback site located on Wilmington Island, Georgia (GPS coordinates: N 32°41.53', W 80°57'12.19") was chosen for study. Several polyvinyl chloride (PVC) pipes were strategically placed at the border line between live *S. alterniflora* and the dead zones. The distance between two given poles at time zero was measured. At monthly intervals, the distance between any new growth (or any new dead zone) in-between the poles were measured to determine the rate of growth (or death) of *S. alterniflora* plants. In addition, data on biotic (e.g. numbers of ribbed mussels, periwinkle snails, plants other than *S. alterniflora*, etc.) and abiotic (e.g. pH, salinity, temperature etc.) parameters were also collected. Results from this 6-month long study indicate that the linear regrowth of vegetation (*S. alterniflora*) takes place at the rate of 0.16 m to 0.92 meters per month. Loss of vegetation resulting in the formation of new dead zones was not observed at this site. In this report, the rate of vegetation regrowth at different locations of this study site

and the potential impact of biotic and abiotic parameters on vegetation regrowth are discussed.

### **ES03 - Gabrielle Dupiche**

Dr. Paramasivam Sivapatham, Savannah State University

#### **Molecular Biology Tools to Identify Pathogenic Waterborne Bacteria**

Studies of USEPA demonstrated a direct relationship between the density of *Escherichia coli* and Enterococci in surface waters and an increase in swimmer-associated gastroenteritis. Therefore, it is important to monitor these water bodies for the presence of these indicator bacteria along with their genomic characterization. Hence, this study was undertaken using the beach and river water samples collected to develop a sensitive method to detect the presence of *E. coli* and Enterococci using molecular biology tools like polymerase chain reaction (PCR). Genomic DNA was isolated from the overnight cultures of water samples collected over a period of 8 weeks (summer 2015) from nine sampling locations in Savannah area. Differences were observed in the abundance of CFUs of bacteria and also in terms of the total genomic DNA extracted from samples. Results of this study will not only be useful in predicting potentials of swimming-associated health hazards but also in highlighting the need for protecting public health through keeping a check on pollution of the water bodies.

### **ES04 - Phillip W. Prince**

Dr. David C. Haak, Virginia Polytechnic Institute and State University

#### **Characterizing Transposable Elements among Wild Tomato Plants (*Solanum spp.* Sect. *lycopersicon*) by Next Generation Sequencing (NGS)**

For agricultural production to keep pace with a growing population in a changing climate, we need to understand the physiological and genetic mechanisms underlying plant responses to the environment. Barbara McClintock's discovery of Transposable Elements (TEs) indicated that genomes are quite dynamic and inextricably linked to physiological tolerance. TEs are genomic elements that can move throughout the

genome sequence changing the expression pattern of genes. Under stress (e.g., drought) these elements can induce mutations by altering gene structure (insertion near active genes), modifying gene activation (altering the expression of regulatory RNA), or retrotransposition (replication of the repetitive element), which causes genome expansion. This process is assessed through the study of whole genome sequencing and transcriptomics—the complete set of gene transcripts that are coded by the genome. This study characterizes TEs among wild tomato species using Next Generation Sequencing (NGS) approaches to generate genomic and transcriptomic data. I used experimental transcriptomics to describe the comparative suite of TEs across the entire clade of wild tomatoes, *Solanum spp.* section *Lycopersicon*. Then, I screened whole genome sequence data from public repositories 30 accessions from *S. pimpinellifolium*, a species widely used for improving the cultivated tomato (*S. lycopersicum*). Our results demonstrated a variety of prevalence's within certain phylogenetic relatives. Understanding the role of TEs in plant stress responses has important implications for the agricultural industry. By focusing on wild crop relatives, this research will uncover novel sources of stress resistance traits, which can be directly transferred to high yielding cultivars.

### **Forensic Science**

#### **FS01 - Cheyenne Willard**

Dr. Karla-Sue C. Marriott, Savannah State University

#### **Investigation of Ligation Marks: Can the dominant hand be determined?**

There are many crimes committed in the United States each year and a significant number of them involve strangulation. Strangulation can be defined as the condition in which circulation of blood to a part of the body is cut off by constriction. The occurrence of strangulation is divided into four (4) general categories: hanging, ligation, manual, and postural. In our experiment, we focused on ligation strangulations with the use

of an object independent of mass that is associated with the body weight. Typical ligature strangulation involves the use of objects such as cords or ropes. We decided to physically recreate the outcome from ligature strangulations. Our recreations involved observing ligature marks made from objects that resemble cords or ropes used specifically for strangulation on the neck region. By examining these marks, we hypothesized that we should be able to determine the perpetrator's dominant hand. We employed a water-based clay to cast our molds and to obtain the marks made from our trials. These trials were conducted using two feet (2ft) of braided nylon rope with a width of 0.25 inches. We performed a total of six trials in duplicates, three with a left-hand dominant perpetrator and three with a right hand dominant perpetrator. In conclusion, we observed that each trial with the left hand dominant perpetrator yielded the same marks consistently, however, there was some variation observed in the trials performed with the right hand dominant perpetrator, in which one of the trials indicated features consistent with that of a left-hand dominant perpetrator. This investigation is ongoing.

### **FS02 - Nakira Kinsey**

Dr. Karla-Sue C. Marriott, Savannah State University

#### **Trajectory Analysis with a High-Velocity Instrument**

Over the years, Ballistics has come to the forefront in being a solidifying factor to determining if a suspect of a crime actually committed the offense. Ballistics is the study of motion, dynamics, angular momentum and the effects of projectiles. The area of ballistics engulfs two important theories, trajectory, which describes the curved path of the projectile from the muzzle of the generator to the target surface. In addition, the theory of velocity is examined and how it affects the trajectory depending on how fast or slow the projectile is moving. Intertwining the theories of trajectory and velocity and applying them to ballistics, we discovered the scientific article, "Creating a

Bloodstain Pattern Generator" . In this article, the researchers were able to recreate a blood spatter experiment and interpret their findings by placing their generator (paintball machine) at a specific distance and angle from the target surface, while collecting and interpreting data. Instead of analyzing the bloodstain pattern created by the generator, our goal is to use a high-velocity instrument (paintball machine), similar to the caliber of their generator, to understand whether the impact of a person's dominant hand and/or the distance from a target has any relation to the trajectory patterns of them shooting. We hypothesized that sufficient data can prove differences between different distances and dominant hands by measuring the trajectory of a shot.

### **Geographical Information Systems**

#### **GIS01 - Abigaile Naslund**

Dr. Tara Cox, Savannah State University

#### **Documenting the Distribution of the Sea Lamprey in Michigan Waterways**

The sea lamprey, otherwise known as *Petromyzon marinus*, is considered an invasive species, particularly in the waterways of Michigan. The purpose of this project is to separate and map out the spread of recorded sea lamprey populations that was taken over the course of several decades. The main question this project aims to answer is: over the course of the decades that data have been collected, how have the populations of *Petromyzon marinus* disbursed, and do they tend to favor some locations instead of others? I have mapped the data of recorded populations that I received from The Great Lakes Information Network over decades in ARCGIS. In doing so, this will produce a map that highlights the spread in distribution of the sea lamprey. The sea lamprey has been a documented invasive species of the Michigan area for decades, this project is important because it will show the areas being affected by them and areas that have been affected by them for several years.

**GIS02 - Alannah Jackson**

Dr. Tara Cox, Savannah State University

**Determination of Local Ecotour Types in the Savannah Area**

Ecotourism is the safe and responsible travel to natural areas to observe wildlife in their natural habitat without disturbing the natural processes of species or the environment. The purpose of this study is to determine the spatial distribution of Eco-Tours in the Savannah area and types of eco-tours in the Savannah area that are frequented by tourists and locals for recreational use. Using ArcGIS and shape files containing data collected in a series of focus groups conducted by the Georgia Nature Conservancy a map of the Savannah area will be produced showing recreational eco-tour sites in the area. In the case of the Savannah area since there is so much vegetation and wildlife present we assume that there will be a plethora of recreational eco-tour sites in the area. The number of recreational eco-tourism areas in the Savannah area is important research to The Nature Conservancy. Knowing how these areas for eco-tourism overlap with other areas used for recreational use such as fishing and crabbing can help to identify potential issues for the organisms living in the area or the people enjoying their recreational activities.

**GIS03 - Alexandria Ambrose**

Dr. Tara Cox, Savannah State University

**Spatial Patterns of Stranded *Tursiops Truncatus***

*Tursiops truncatus* (bottlenose dolphin) strandings occur frequently throughout the year, for several different causes. This project focuses on the Atlantic coast of South Carolina, Georgia, and Florida, and the frequency of bottlenose dolphins strandings. In the program ArcGIS I will show bottlenose dolphin strandings in South Carolina, Georgia, and Florida, to show the distribution of strandings that occurs during the different seasons in the year. The natural changing of the seasons seems to affect dolphin strandings differently in the years of 2009 to 2012. I anticipate that overall the data will show bottlenose dolphin strandings occur more

frequently in certain seasons than others throughout the year.

**GIS04 - Amir Munajj**

Dr. Tara Cox, Savannah State University

**Potholes and Ditches in SSU**

Potholes are a natural phenomena that occur because ground water weakens the concrete from below. Savannah State University has a plethora of potholes that have increasingly worsened. A majority of car related incidents are a result of this phenomena. As an effort to improve this problem a solution needs to be made. I will highlight the changes that can be made so that students, faculty, and visitors, will have a smooth ride. Using a GPS, I will travel around the inside of Savannah States roadways and identify any ditches, potholes, patches, and other types of debris. I will then map the data in ArcGIS and use a color scale to identify which areas have a high radius of debris and pothole as well as how severe each hole is. This data will be a warning map for drivers on Savannah State University roads.

**GIS05 - Angelina Vega**

Dr. Amanda Kaltenberg, Savannah State University

**Density Distribution of Mysids off the Coast of Oregon**

Mysids are a type of zooplankton that are important prey to many fish species and grey whales that are residents of the Oregon coast. Research on mysids was done to help better understand the foraging dynamics of grey whales. Data were collected on the R/V Kalipi using acoustic equipment (Simrad EK60 system) and plankton net sampling (333-micron vertical plankton net) to measure mysid distribution throughout the water column. Data were collected from 1941 transects accomplished during 3 weekly sampling efforts over a 6-week period between 21 July 2010 and ending 18 August 2010. Data were provided and collected by Dr. Amanda Kaltenberg at Oregon State University. The data collected from the transects were plotted using ArcGIS to spatially represent mysid densities. The goal of mapping these data is to understand the spatial distribution of mysids



in this dynamic and important foraging area, and its influence on grey whale foraging behavior.

**GIS06 - Ashley DeJesus**

Dr. Tara Cox, Savannah State University

**Nature Conservancy Birding Hot Spots**

The Nature Conservancy evaluates recreational hot spot activities being done by the public and records data from those activities. In the Nature Conservancy, there are many places to evaluate and observe data from. This comes into play when the project is under a process. Yet, the main objective for this task is to provide a detailed set of information around the east coast of Georgia, more specifically, Savannah, Tybee area. Recreational information will be focused on birding activity along the coast line area. However, I do hypothesize that there will be information but not enough birding hot spots to look for while recording information.

**GIS07 - Brandon George**

Dr. Tara Cox, Savannah State University

**Vulnerability from Storm Surge from Hurricanes to Savannah State University Campus and Downtown Savannah**

The purpose of this project is to provide precise information about sea levels and the risk that certain areas in savannah/Chatham County may indeed become submerged under water in the case of storm surge from a hurricane. I will be using SLOSH data from SAGIS and will map it in ArcGIS to show the water levels of the downtown savannah area and the water levels at Savannah State University/surrounding residential neighborhoods if a hurricane reaching categories 1-5 was to hit. The map could indeed be an important and vital tool used to help prepare and inform the general public and local/state authorities of what they could expect. Knowing and preparing is important when dealing with hazards.

**GIS08 - Bryana Jennigs**

Dr. Tara Cox, Savannah State University

**Lionfish, *Pterois volitans*, progression in the United States from 1985 to 2014**

The purpose of the study was to determine the progression of Lionfish, *Pterois volitans*, distribution in the United States. Divers collected lionfish, and observations were made on location, depth and habitat. The location of each sighting was mapped in ArcGIS to show the progression of the distribution over the years along the eastern coast. Lionfish have progressed along the coast from Florida to New York and the Gulf of Mexico. The greatest observation of lionfish was in 2010 with 1138 lionfish, and the lowest observations were both in 1985 and 1992 with 1 lionfish. Lionfish have successfully flourished in the non-native waters and expanded along the southern and eastern borders of the United States. Based on the data we can predict that the lionfish will continue to expand and flourish. This highly invasive species has no natural predators along the coast. Precautionary actions can now be made to form a plan to potentially remove the species, or lower the population.

**GIS09 - Bryanna Sanders**

Dr. Tara Cox, Savannah State University

**Invasive Species of the Great Lakes: Zebra Mussels (*Dreissena polymorpha*)**

The purpose of this research is to highlight the severity of Zebra Mussels (*Dreissena polymorpha*) in certain locations. The method for gathering this information comes from the Great Lakes Information Network and Michigan Geographic Data Library respectively. Upon completion of this research I expect to find and display which areas in the Great Lakes region are in particular danger of succumbing to an influx of this invasive species. In conclusion this research will be very useful in mapping out the spread of Zebra Mussels in the Great Lakes in addition to indicating which areas are also in danger of invasion from the Zebra Mussels.

**GIS10 - Chelsea Caldwell**

Dr. Tara Cox, Savannah State University

**Wind Effects of Surface Water movement**

Students in the graduate Advanced Oceanographic Instruments and undergraduate Oceanographic Instruments courses at Savannah State University constructed two surface current

drifters deployed on October 29, 2015. These drifters sent back their positions over the past several months to study the flood water mixing in the ocean. Arc GIS will be used to test the relationship between the wind and the currents. From the drifter tracks, it appears the movement of the drifters were at first driven by tidal currents at a short temporal scale and then by some longshore drift on a longer temporal scale. Then, they were driven by the Gulf Stream. This study is important to many of the local labs and industries around the Savannah area, to visualize how the winds affect the current, then we would be able to trace where run-off water goes and the effects that it is having on entire ecosystems like Gray's Reef.

### **GIS11 - DeVon Cobb**

Dr. Tara Cox, Savannah State University

#### **Road Distress**

When riding in any vehicle around Savannah State University's campus, you notice potholes/cracks in the roads known as "road distress". This observation is about measuring, defining, counting and looking on ways to improving the distresses that are found in the roads. We are going to sum up every road pathway around campus, excluding the apartments. It is important to document and map the distresses because this data can go to GDOT (Georgia Department of Transportation), where they can go off what type of better material will be used to improve and reconstruct the roads around campus based off the data we have collected.

### **GIS12 - Einola Carter**

Dr. Tara Cox, Savannah State University

#### **Invasive species in Michigan**

The Great Lakes have been experiencing an ongoing issue since the 1800s. Aquatic invasive species also known as AIS have overtaken the Great Lakes area making the ecosystem unbalanced. These species include the round goby, purple loosestrife, ruffe, sea lamprey, zebra mussel, and quagga mussel. The objective of this project is map out the population distribution of the AIS. Once the data are mapped using ArcGIS,

trends and relationships in the distribution will be analyzed. The AIS in Lake Michigan are caused by human activity in the Great Lakes. The AIS have overpopulated the Great Lakes region. Their population grows much more rapidly than the species that are already native to the area. If the AIS continue to overpopulate the area, eventually the native species will die out. Not only does the issue of the AIS affect the native species in Lake Michigan but it also affects humans. With the native species dying out, fishermen will be affected and this will harm the economy. Also the AIS may cause damage to the Great Lakes territory and cause change to environment. In addition, with the viral hemorrhagic septicemia virus in Lake Michigan, this can cause a great epidemic to the citizens of Michigan and even the United States.

### **GIS13 - Frederic Apiou**

Dr. Tara Cox, Savannah State University

#### **Storm Surge Risk to Savannah, Georgia**

Savannah is located on the Georgia-South Carolina border where the Savannah River and the Atlantic Ocean are the natural boundaries of both the city and the state. The city is set on the coastal plain and is surrounded by flat and low marshland to the north and east. The inter coastal waterway runs down the Savannah coast, as do numerous rivers and inlets. If a major hurricane hits Savannah, Georgia it will probably cause serious flooding. Research will be conducted in the Department of Marine and Environmental Sciences of Savannah State University to predict the storm surge risk to Savannah, Georgia in the event of a category 1, 2, 3, 4 or 5 hurricane. Data sets downloaded from SAGIS open Data website and the ESRI ArcMap software will be used to create informative maps. On a USA base map, a layer of the Savannah Buildings will be added followed by layers of Georgia Coastal Hurricane category 1, 2, 3, 4, or 5. The resulting maps will show if each hurricane category will flood the buildings and land of Savannah. It will also indicate the areas of Savannah that will be the most affected in the event of a flood. This information could be used by the City of

Savannah Georgia Civil Engineering Department to improve their storm water management program to reduce storm water runoff and pollution in the event of a hurricane.

### **GIS14 - Gary Bramlett**

Dr. Tara Cox, Savannah State University

#### **Areas Of Overlapping Interaction Between Local fishermen And Underwater Areas Of Interest**

Using data from the greater Coastal Georgia Human Use Mapping project, provided by the Nature Conservancy and the Georgia DNR, I will be attempting to show areas of interaction between local recreational fisherman and popular underwater attractions. My purpose for examining these areas is to pinpoint areas of heavy usage and areas that may be more attractive due to underwater formations such as reefs. We used ARCGIS to gather data from local recreational fishermen and to map areas of use and areas of interest in the coastal Georgia area. Results show that there are areas of overlapping interest between local fishermen and the areas where underwater attractions are present. These areas are important to the local ecosystems but also a source of recreational activity for the local population. We must attempt to conserve these ecosystems and find a balance for fishing activities in the area.

### **GIS15 - Jane Sosa**

Dr. Tara Cox, Savannah State University

#### **Hazards on feeding wild dolphins**

There are several animals that are federally protected species such as manatees and dolphins. Whether they are being fed by humans or killed, all of these activities are illegal. Most people are not aware and educated on the dangers of feeding a wild animal. Savannah, Georgia has the highest rates of feeding bottlenose dolphins (*Tursiops truncatus*) in the world. Mariners and fishermen do not know that feeding wild dolphins throws off their normal behavior and activities. The purpose of this research is to compose a list of locations that has signs informing citizens not to feed wild dolphins and also to find potential locations for new signs. I will map the locations in ArcGIS and

identify target area for additional signs such as fishing piers and boat ramps.

### **GIS16 - Jasmine Torey**

Dr. Tara Cox, Savannah State University

#### **The Nature Conservancy: Human Recreational Use Hotspots**

The Nature Conservancy is an organization that works to protect thousands of acres of land, safeguard the rivers, and care for the coast. The Nature Conservancy wants to find local areas of coastal Georgia that are used for different recreational purposes by residents of the area. The recreational uses includes but are not limited to: diving, fishing, and boating. To collect the data, the residents that use the coastal waterways are asked to provide us with the areas that they enjoy using. Once we have collected the data from the residents we will then map the data into ArcGIS with shapefiles by recreational activity. The shapefiles will be layered on top of one another so the areas of different recreational usages will overlap. These overlapping areas are considered to be 'hotspots' and these are the areas of focus. The hotspots will create an easy visual of which areas of Georgia's coastal waterways are most commonly used and provide the necessary data for future data and projects.

### **GIS17 - Javon Hampton**

Dr. Tara Cox, Savannah State University

#### **Dolphin Stranding and Human Impacts**

Dolphin strandings have been spotted numerous of times on the southeast coast of the U.S. My objective is to find the spatial patterns of the stranding by mapping locations provided by NOAA in ArcGIS. I will bin the data by x and look at each spatial stranding by the year it occurs. If I record where these strandings happen I will find that most of these strandings of bottlenose dolphins occur in a specific area. These strandings happen in numerous counties over the years from 2009 to 2012. My predicted results would show that most of the strandings occurred in the state of Florida. Indeed, if my data is correct bottlenose dolphin spatial pattern strands would more likely occur in Brevard County because out of all three states Florida has

the most strandings, and the strandings most likely appear in this county.

### **GIS18 - Jessica Ahlers**

Dr. Tara Cox, Savannah State University

#### **Diving Along Georgia's Coast**

Mapping out recreational activities along the coast of Georgia is a vital way to utilize the coast's bountiful resources as well as making sure the same areas are not being overused. The Nature Conservancy has collected the data from locals around the area plotting where they engage in fishing, diving, paddling, and other recreational activities. Georgia Department of Natural Resources and the Nature Conservancy have partnered to collect spatial information on the different activities listed for their Coastal Georgia human use mapping project. I will plot the hotspots for the recreational activities together on one map to see if any of the activities are overlapping with the areas for diving. The anticipated results would show a good amount of places to use for diving that will not overlap with fishing, boating, and paddling. This project would demonstrate a different way to view Georgia's coastline for diving. For example, since Georgia's waters are not crystal clear like the Florida Keys the data could advertise good areas of diving and thus create more of a demand for Georgia's waters. The final reason to analyze these data would be to make sure the diving areas are not overlapping with other recreational activities.

### **GIS19 - Jordan Tur**

Dr. Tara Cox, Savannah State University

#### **Just a bite: shark attacks compared to where recreational sports and feeding grounds overlay.**

This study explores the hotspots of coral reefs, shark attacks and the recreational sports that take place. On average there are 75 shark attacks a year globally. Florida, Australia, and South Africa have the majority of attacks that happen every year. These locations also happen to be popular recreational sports areas including surfing, scuba diving or just swimming. My hypothesis is that these recreational sports that

happen over top of these reefs lead to more shark attacks because these are also the feeding grounds for sharks. I will take the location of coral reefs from reefbase.org and the Florida Museum of Natural History and overlay the location and the amount of shark attacks. The anticipated results are that where the coral is dense that more shark attacks will occur in these areas. With this overlay the locations of both can be observed and hotspots can be located.

### **GIS20 - Kailin Richardson**

Dr. Tara Cox, Savannah State University

#### **Where In the World Are Shipwrecks Most Abundant and Why?**

Throughout history there have been many shipwrecks, such as Titanic, Santa Maria, and many war ships. There are many parts of the ocean that show patterns of ship routes that lead them to sink based on the physical features that certain portions of the ocean have. The purpose of this project is to use ArcGIS to construct maps that display different shipwreck locations around the world and how their surrounding areas (geographical properties) contribute to the reason for their tragedy. Also, by using ArcGIS I would like to clearly show patterns in the ocean that attract more wrecks than others, and also be able to explain why. In addition, this explanation in map form can show the community of ships and ship crews the dangers of traveling in certain bodies of water around the world and the patterns of shipwrecks in a particular area. This project could also grab the attention of other researchers, and possibly bring about investigations that could make these dangerous seas less hazardous, and better able to be traveled.

### **GIS21 - Kevin Blair**

Dr. Tara Cox, Savannah State University

#### **Recreational Hotspots along the Georgia Coast**

In the Nature Conservancy's Coastal Georgia Human Use Mapping Project, data for recreational use will be collected to map out the hotspots on the Georgia Coast. The objective of this project will be to collect data from stakeholders who use areas along the Georgia

Coast recreationally. We will utilize a mapping projector system to draw stakeholders areas on maps to feed into a geographic database in ArcGIS. The recreational uses will be based largely on fishing in the estuaries around Savannah, Georgia and will help the Georgia Nature Conservancy know where certain natural areas could be venerable to potential harmful human impact. Based on prior knowledge and coastal recreation experience, I hypothesize that the majority of the hotspots on the map will be around areas where wildlife congregates the most.

### **GIS22 - Kourtney Sizemore**

Dr. Tara Cox, Savannah State University

#### **Finding solutions to prevent Bottlenose (*Tursiops truncatus*) from strandings**

In hopes to better understand marine mammal strandings we will be looking at a specific type of mammal, the bottlenose dolphin *Tursiops truncatus*. Stranding is a form of a dead or alive marine mammal being washed upon the beach. The objective is to find successful ways to help rescue and rehabilitate the bottlenose dolphin. By finding specific areas where the most activity is and be able to set up possible patrols along the shoreline. I will map using data for Florida, Georgia, and North Carolina collected from NOAA over a four-year period (2009-2012) on location of bottlenose dolphin strandings. Using ArcGIS map we will be able to visually pin-point each recorded finding by location and date, whether it was dead or alive, and by size measurement and sex. To get a view of human population around the coast we will be using census data from 2010. The outcome predicted is that we will find at least 2-3 major areas from each state where the most strandings have been recorded. This will give us better ways to prevent bottlenose dolphins *Tursiops truncatus* from dying by stranding along the east coast. From here we can make communities along the coast aware of strandings and be able to educate if found to help the dolphins survive long enough for expert help to arrive. This will also help the U.S. National Marine Fisheries Service in hopes

to find why certain marine mammals are stranded.

### **GIS23 - Lauren Swanson**

Dr. Tara Cox, Savannah State University

#### **Is There a Seasonal Difference in Bottlenose Dolphin (*Tursiops truncatus*) Strandings Along the Atlantic Coast of GA, FL, SC?**

Along the Atlantic coast of Georgia, Florida, and South Carolina, bottlenose dolphins (*Tursiops truncatus*) have stranded themselves. Researchers have been documenting these strandings to maintain NOAA's regional database. I am looking at the spatial patterns in strandings by season to determine a correlation in summer months vs winter months. This analysis could help researchers identify areas where more research should be done to investigate the deaths around that time of year.

### **GIS24 - Makayla Tam**

Dr. Tara Cox, Savannah State University

#### **Spatial Patterns of Bottlenose Dolphin (*Tursiops truncatus*) Strandings of the South Carolina, Georgia, and Florida Coasts**

Bottlenose Dolphins (*Tursiops truncatus*) travel the seas and swim throughout the oceans for their entire lives of up to 50 years. Unfortunately, these 10-14ft up to 1,100lb mammals get stranded on beaches. Although these creatures get stuck on land, they don't necessarily die when they do. The U.S. National Marine Fisheries Service has a national database to track marine mammals that strand on beaches throughout the U.S. The purpose of this project is to analyze data regarding bottlenose dolphin strandings. Following analysis of the data, as in viewing data under various circumstances, divided upon season and sex, I will infer whether there are spatial or temporal trends in these strandings. Geographic Information System and specifically ArcMap 10 were used to map the locations of the stranded dolphins and view the data in different circumstances for the strands. I expect to find that season will be the greatest contributing factor of the strandings. The U.S. National Marine Fisheries Service looking out for these mammals can know ahead of time and increase focus on

certain areas at specific times and know when strandings are more likely to happen.

### **GIS25 - Malik Franklin**

Dr. Tara Cox, Savannah State University

#### **Savannah State Buildings at Risk of Storm Surge Inundation**

I have done research to find which buildings among Savannah State University's campus will be inundated if there were to be a severe storm. It is important that we do this research because a storm surge is a very powerful wave that can cause a lot of damage and endanger people. It is a large wave caused by a hurricane that can rise up to about 20 feet. We need to find the safest place to be on campus so just in case Savannah is hit by a hurricane and a storm surge does occur. I used SLOSH data for the year 2012 from SAGIS open data and overlaid the dataset over the SSU campus. I used storm surge inundation maps for category 1-5 storms to do this. I expect to find that more of the buildings will become inundated as the category level increases.

### **GIS26 - Markesha McKay**

Dr. Tara Cox, Savannah State University

#### **Public Accessibility to Chatham County Shorelines**

Georgia's shorelines have been known for having public beach access points scattered between residential properties. In some areas it is hard to tell where the privately owned, or government owned lots end, and the publicly accessible areas begin. In some instances there is a lack of public amenities such as restrooms, parking, and handicapped accessibility. Knowing the need for public amenities and public access points along the shorelines will help Georgia's Department of Natural Resources implement future developmental projects. The purpose of this project is to use ArcGIS to create a visual reference of the public accessibility to beaches along Chatham County's shoreline. In this project I will use ArcGIS data layers provided by Georgia's Department of Natural Resources to map Chatham County's shorelines with direct water interface, and use these data to determine the accessibility of the beaches. In addition, I will

conduct a spatial analysis of the existing public amenities and the future need for public amenities due to population or tourism growth. The anticipated results will include an accurate spatially-derived needs analysis for Chatham County's beaches. Identifying areas that currently need increased public access or amenities will help Georgia DNR and local municipalities plan for future population growth.

### **GIS27 - Marqueshea Brown**

Dr. Tara Cox, Savannah State University

#### **How Accessible is Tybee Island Beach to handicapped citizens and visitors?**

Tybee Island Beach is a major visitor attraction in the Savannah area. We have visitors from all over the country to stop in to enjoy the Georgia sun. Parking is always an issue when an area is popular, but making sure the city of Tybee is in compliance with the Americans with Disabilities Act should be a priority. Tybee Island beach only has one restroom facility and four handicap parking spaces available to the public. In ArcGIS I was able to create a map of Tybee Island shoreline to see where the current amenities are located. Then I created point files for each location to give helpful information on entrances to the beach, approximate distance from amenities to beach, and valid handicapped parking spaces, so citizens can effectively use them. The research will show how accessible the shoreline is now to handicapped citizens and visitors and why we need some simple improvements to make everyone feel welcomed.

### **GIS28 - Maurice Bailey**

Dr. Tara Cox, Savannah State University

#### **How close are sex offenders living and carrying out their everyday lives next to Savannah State University**

It is very important to understand and have knowledge of the community. One major problem within the communities are sex offenders. Residents with children need to be aware of who they are raising children around. Children love to play outdoors a lot, and parents cannot monitor their child's life 100% of the time, so by knowing where danger is can eliminate the

risk. The Federal Government requires all sex offenders to register for the knowledge of others in the area. I will conduct research and mapping in the surroundings areas of Savannah State University on sex offenders in the area. The mapping will include only the 31404 zip code, but nothing greater than 5 miles from campus. Because the national sex offender register only has addresses of offenders, I will geocode the data first, then overlay it with a 5 mile buffer of Savannah State University. My final map will include specific pin point addresses of registered sex offenders.

### **GIS29 - Melike Saylam**

Dr. Tara Cox, Savannah State University

#### **Education of mariners on hazards of feeding wild dolphins**

Because Savannah, Georgia has the most cases of bottlenose dolphin (*Tursiops truncatus*) feedings, it is imperative that the public knows that feeding wild dolphins is illegal. There are currently signs posted in the coastal Georgia and South Carolina warning mariners against feeding the dolphins. This project will map out the locations of existing signs and also will mark where more signs are needed. We used ArcGIS to plot where the current signs are located based on their geographic coordinates. We found that there are only 38 signs posted between Georgia and South Carolina, 5 of which are in Savannah. Since Savannah has the highest rate of illegal feedings, more signs should be concentrated in the area, along with other tourist-heavy locations.

### **GIS30 - Milan Snipes**

Dr. Tara Cox, Savannah State University

#### **Type O and Rh Blood Type Distribution**

Although all blood is made of the same basic elements, not all blood is alike. In fact, there are eight different common blood types, which are determined by the presence or absence of certain antigens. There are four major blood groups determined by the presence or absence of two antigens – A and B. Type O blood has neither A nor B antigens on red cells (but both A and B antibody are in the plasma). In addition to the A and B antigens, there is a third antigen called the

Rh factor, which can be either present (+) or absent (-). O positive is the most common blood type, yet not all ethnic groups have the same mix of these blood types. With this being said, what is the amount of O negative blood type in relation to O positive on a global scale? I have found that type O positive blood is most prevalent in China, containing 49.7% of their 1,339,724,852 population and least in Japan, containing 29.9% of their 127,368,088. Type O negative is most prevalent in Brazil, containing 9.0% of their 198,739,269 population and least in the Philippines, containing less than 1% of their 99,863,000 population.

### **GIS31 - Miracle Willis**

Dr. Tara Cox, Savannah State University

#### **Migration of green sea turtles (*Chelonia mydas*) from St. Croix, US Virgin Islands**

Green sea turtles are one of the seven endangered species of sea turtles and are found mostly in tropical/ subtropical waters. This project examined the migration patterns of green sea turtles (*Chelonia mydas*) from their nesting beach in St. Croix, US Virgin Islands. Female green sea turtles were held in a corral for approximately an hour after nesting while satellite transmitters were attached in August 2015. Over the course of approximately three months, Emma Schultz (a SSU marine science graduate student) recorded the locations of these female green sea turtles. The purpose of this project was to investigate green sea turtle migration after their nesting period. Research questions included: where do female green sea turtles migrate? And do they stay by the coast or travel farther out into the open water? It was concluded that female green sea turtles investigated in this current study do not stay by the shore of their nesting grounds but instead moved along the coasts of other islands in the Caribbean.

### **GIS32 - Patrick Thompson**

Dr. Tara Cox, Savannah State University

#### **Migration of Basking Sharks, *Cetorhinus maximus*, near Bay of Fundy in 2011 to 2013**

The purpose of the study was to determine the migration patterns of basking sharks along the

east coast near the Bay of Fundy. This was done by tagging several Basking Sharks then tracking their movements by satellite geolocation. Using Arc Map the geolocation data was translated to show the migration pattern of each Basking Shark. The data showed that all the sharks migrated in and out of the Bay of Fundy. It is hypothesized these hot spots are a prime source of food and may possibly be a breeding ground for the sharks. The data could be used to help determine population and food destiny, which can help give us an assessment of plankton blooms in the area.

### **GIS33 - Phillip Hoang**

Dr. Tara Cox, Savannah State University

#### **Are there suitable locations for a Parachute Landing Area (skydiving facility) in Savannah, Georgia?**

From Savannah the two nearest airports with parachute landing area (PLA) designation are located in Statesboro, GA and Walterboro, SC. The purpose of this project was to determine if there are any suitable locations to open a drop zone, skydiving facility, in the Savannah area. Potential locations must be void of hazards such as interstates and major highways, waterways and other air traffic. This project was created as an aid to those entrepreneurs who are considering the possibility of skydiving in Savannah. This project will determine areas that are eligible PLAs according to FAA (Federal Aviation Administration) recommendations for the minimum distances required from hazards. Hazard layers will be overlaid in ArcGIS, and potential areas meeting criteria will be highlighted. Savannah has sufficient location(s) to open a skydiving business. Currently, many skydivers who live in Savannah have to travel to Statesboro to jump, often making the trip 2 times a week. A skydiving center in Savannah is not only possible, but also has the potential to be a profitable small business.

### **GIS34 - Stevenson Crowell**

Dr. Tara Cox, Savannah State University

#### **History of Savannah Possibly At Risk**

Downtown Savannah, GA is known for its historic buildings and landmarks, with most of these structures being over a century old. A hurricane has not hit the city of Savannah in over one hundred years, and may possibly hit soon. The purpose of this study was to identify what dangers could a hurricane pose towards these very fragile and old buildings in relation to flood levels and water damage in the Savannah area. Data for this study was collected from the SAGIS open data site. Datasets from 2012 hurricane SLOSH models for categories one through five hurricanes as well as tropical storms were overlaid in ArcGIS to predict what buildings were at risk. This study could serve as a prediction for future hurricane occurrences in regard to the historic buildings of Savannah, GA, by focusing on ways to preserve and save these sites.

### **GIS35 - Sydne Smith**

Dr. Tara Cox, Savannah State University

#### **Strand Feeding by Common Bottlenose Dolphins (*Tursiops truncatus*) and Developmental Impacts**

Bottlenose dolphins *Tursiops truncatus* use a wide variety of foraging behaviors. A feeding behavior displayed by bottlenose dolphins only in the southeastern United States waters is strand feeding. Working together they corral schools of fish in tidal creeks during low tide, drive the fish into tighter schools and toward gently sloping mud banks forcing the fish ashore, then throw themselves partially onto land to collect their prey. The objective of this study is to collect and overlay in ArcGIS spatial information of known strand-feeding locations and current development on the coast of South Carolina. Sightings of these strand feedings are near public beaches, neighborhoods, and hotels/resorts. The population density will also be displayed in the development areas. The spatial data shows the overlap between bottlenose dolphins and human development. Increased overlap of strand feeding and development mean increased human interaction with bottlenose dolphins increasing their risk for injury and death. Using these spatial



data, public awareness can be better allocated and regulations protecting this unique feeding habit can implemented.

**GIS36 - Sydney Woolfolk**

Dr. Tara Cox, Savannah State University

**Comparison of shoreline change to population growth along the Gulf Coast of the U.S.**

This study was conducted to investigate the relationship between shoreline change and population growth. This issue is important because the Gulf Coast shoreline provides habitats for various plant and animal species, and the shoreline is a popular location for development and recreation. Receding of the Gulf Coast shoreline would be detrimental to humans, plant and animal species. In ArcGIS, I will map shoreline change over time and population growth. I expect to find a positive correlation between shoreline change and population growth. I also expect to see the reverse for some areas and accelerated shoreline change in others due to factors that affect shoreline change that are not being accounted for. The findings of this project will display how strongly population growth affects shoreline change.

**GIS37 - Taylor Stephens**

Dr. Tara Cox, Savannah State University

**How Have Lionfish Progressed From 1985 to Present Day?**

An invasive species is an organism or plant that is introduced into a new environment where it is not native. Invasive species can be problematic because they can cause extinction of native species, reduce biodiversity, and compete with native organisms for limited resources. The lionfish, *Pterois volitans*, native to the Indo-Pacific Ocean, has become a serious issue since being first discovered off the Atlantic coast of Florida in 1985. Since then lionfish have flourished, and their distribution has spread up the Atlantic coast of North Carolina, South Carolina, and Georgia. The purpose of this project is to track the progression of the lionfish over the years when it was first spotted to now. I will use data gathered from USGS national repository for non-native aquatic species to plot

the temporal and special progression of the lionfish discoveries in ArcGIS. I anticipate the maps will demonstrate an abundance of locations along the Atlantic coast where populations of lionfish have flourished as well as demonstrating the differences of lionfish populations from 1985 to now. Understanding the spread of lionfish will help managers in preserving native species local to the Atlantic Ocean.

**GIS38 - Vanessa Foster**

Dr. Tara Cox, Savannah State University

**Bottlenose Dolphin (*Tursiops truncatus*) Begging Hotspots as a Result of Boat Density in the Marine Habitats in Savannah, Georgia**

The bottlenose dolphin (*Tursiops truncatus*) population that inhabits the southern coast of Georgia has often been known to frequent the rivers, waterways, and estuaries in Savannah, some even spending more time in these brackish environments than the coastal ocean. However, the rivers and waterways put the dolphins in close proximity to recreational and small commercial boats, increasing their interaction with humans, which often includes begging for food. The purpose of this project is to map the locations of sighted begging events as well as the density of the different boats in the area in order to find begging hotspots. We used ArcGIS to test the correlation between dolphin begging hotspots and high density boat areas. This analysis can be used for future monitoring of the areas and can assist in enforcing the law in order to diminish the amount of human interaction with the bottlenose dolphins, therefore minimizing the dolphins' change in behavior.

**Marine Science**

**Undergraduate**

**MSU01 - Cassandra Harris**

Dr. Tara Cox, Savannah State University

**Top associates of common bottlenose dolphins (*Tursiops truncatus*): Are they learning human-interaction behaviors from each other?**

Common bottlenose dolphins, *Tursiops truncatus*, in the estuarine waters near Savannah,

GA have the highest rate of human-interaction behaviors of any bottlenose dolphins worldwide. Human-interaction behaviors (HIB) include begging, patrolling, provisioning, scavenging, and depredating. Since these behaviors were first documented in 2009-2010, additional individuals have been observed engaging in these behaviors, but it is unknown how HIBs have spread through the population. Bottlenose dolphins are known for their fission-fusion society, which allows individuals many opportunities to interact with a large percentage of the population and results in the possibility of social learning within the population via peer-peer interactions (horizontal transmission). The objective of this study was to test the hypothesis of horizontal transmission by determining if beggars were more likely to have top associates who were beggars than non-beggars and to determine the same for non-beggars. Boat-based surveys were conducted between 2009 and 2014. Photos were taken and coefficients of association (CoAs) were calculated using SOCPROG on dolphins seen more than 10 times (n=118). For 55 beg and 63 non-beg individuals, top associates were identified by CoA. The mean CoA of beggars to beggar top associates was  $0.46 \hat{\pm} 0.18$  (n=34), non-beggars to non-beggar top associates was  $0.44 \hat{\pm} 0.20$  (n=43), and mixed status top associates was  $0.44 \hat{\pm} 0.21$  (n=41). All three of these groups' CoAs were similar, which indicated that no one group has a stronger bond than the other. These results support previous research indicating that social structure was not correlated to whether bottlenose dolphins were beggars. Therefore, if begging behavior is not spreading through top associates, horizontal transmission likely is not the primary mechanism of transmission of human-interaction behaviors.

**MSU02 - Cheyenne Coleman**

Dr. Tara Cox, Savannah State University

**Habitat preference of California sea lions *Zalophus californianus* in relation to environmental variables off the coast of Oregon and Washington**

California sea lions *Zalophus californianus* are widely distributed, ranging from southeast Alaska to central Mexico. Juvenile and adult California sea lions can withstand temperatures as low as  $6.4 \pm 2.2^\circ\text{C}$  without hindering metabolic and migratory functions. The purpose of this study was to determine the effect of sea surface temperature, chlorophyll a, and front probability on the distribution of California sea lions off the coast of Oregon and Washington. Satellite tagging data on 18 California sea lions were collected from the Oregon Department of Fish and Wildlife during 2005-2007. The mean values of each environmental variable were determined and exploratory maps were created to analyze habitat preferences in relation to sea lion presence or pseudo-absence. Chlorophyll a was  $9.033 \pm 13.87$  mg m<sup>-3</sup> when sea lions were present as opposed to  $3.25 \pm 6.72$  mg m<sup>-3</sup> for the pseudo-absence locations. The average sea surface temperature of the presence data was  $10.19 \pm 1.49$  °C and  $10.65 \pm 1.90$  °C for the pseudo-absence data. There was no correlation in habitat preference when comparing the sea surface temperature and oceanic front probability to sea lion presence or pseudo-absence. Future study observing known prey fish species of California Sea Lions could be used to compare whether the movement and migration of sea lions is correlated to fish distribution during 2005-2007 spatial and temporal period.

**MSU03 - Jennifer Colley**

Dr. Clark Alexander, Skidaway Institute of Oceanography

**Sediment size distributions and the limits of recent sediment in the Georgia bight**

Reconnaissance studies of Georgia continental shelf sediments in the 1960s and 1970s have shown a zone of influence approximately 5-16 km in width that defines the maximum seaward extent of Recent, river-derived sediments. Seaward of this narrow zone of influence lie relict sediments from the last lower stand of sea level, which are characterized by coarser grain sizes and iron-stained quartz. The purpose of this study was to identify sediment distribution patterns

within the Georgia Bight to more precisely determine the present location of the recent-relic sediment boundary. Sediment samples were collected at 103 sites, wet sieved at 4 phi and dry sieved at 0.25-phi intervals from -2 to 4 phi to determine mass per phi interval, and observed under a microscope to collect point count data to determine percentages of quartz, opaques, carbonate, and rock fragments. Grain sizes were calculated using the method of moments, classified using the Udden-Wentworth size scale, and plotted in ArcGIS for spatial data analysis. Grain size analysis showed that the sediments were dominated by 4 grain sizes i.e., coarse, medium, fine, and very fine sands. Coarse sands (mean size =  $0.8 \pm 0.2$  phi) and medium sands (mean size =  $1.5 \pm 0.3$  phi) were located seaward of 13 km offshore and in depths greater than 14 m. Fine sands (mean size =  $2.5 \pm 0.3$  phi) and very fine sands (mean size =  $3.1 \pm 0.1$  phi) were located closer to shore (within 13 km) and in depths less than 13 m. These findings are consistent with previous research (Pilkey and Frankenberg, 1964; Bigham, 1973) and validate the concept of a zone of modern sediment influence. The location of the boundary between the Recent and relict sediments does not appear to have changed, within the limits of our analyses, since these previous studies were conducted. However, the boundary's location is now better constrained between the widely spaced, 1960s-1970s survey transects.

### **MSU04 - Lauren Moore-Marin**

Dr. Sue Ebanks, Savannah State University

#### **Effects of Particulate Plastic on Daggerblade Grass Shrimp *Palaemonetes pugio***

Georgia salt marshes are a unique estuarine habitat, characterized by *Spartina* marsh grass, mudflats, and intertidal creeks. This habitat is not free of pollutants. Plastics, an ever-spreading pollutant, are the subject of much discussion in many scientific fields. The purpose of this project was to determine the effects of small plastic particles, including microplastics on one of the salt marsh's most ubiquitous and ecologically significant organisms, the daggerblade grass

shrimp *Palaemonetes pugio*. This preliminary study investigated the relationship between the availability of small plastic particles on growth and mortality in young adult *P. pugio*. These organisms play a significant role in detrital breakdown within their ecosystem. Shrimp, approximately 20 mm in length, were collected from Country Club Creek, Wassaw Sound Estuary, GA, U.S.A. during the lowest tidal stages of the mixed semidiurnal tidal site throughout the spring months of 2016. Shrimp were offered only plastic or crushed pellet food with 0, 25, 50, or 75% plastic by volume and were observed for mortality or measured for changes in length and weight. The premise of this study is to expand on previously collected information on the effects of bioaccumulation of microplastics in macroinvertebrates. Data from these experiments will be useful for future studies aimed at predicting the effects of microplastics, at environmentally relevant concentrations, on grass shrimp and how they can possibly affect the environment as a whole.

### **MSU05 - Patrick Clower**

Dr. Dionne Hoskins, Savannah State University

#### **Assessing *Asterias forbesi* populations in relation to temperature in the Wassaw Sound using boat trawls**

The seastar *Asterias forbesi* lives buried in rocky marine habitats usually nears jetties and other rocky outcrops (Kaplan 341). There is a population of *A. forbesi* in Wassaw Sound of the Savannah Estuary where they live in the benthic environment. The goal of this research is to determine if the population of *A. Asterias* in Wassaw Sound is affected by temperature changes between seasons. If temperature does affect populations of *A. forbesi* it may speak to the future effect of climate change. Seastars were collected using trawling methods where the number of seastars were counted per trawl. Trawl locations were near rocky areas of the Wassaw Sound. These locations will be displayed in GIS. Three days of trawls have been conducted. October 5, 2015 an average of  $17 \pm 24$  *A. forbesi* were caught when the temperature was  $23.5^\circ\text{C}$ ,

on November 30, 2015 zero *A. forbesi* were caught when the temperature was 17.4°C, and on March 2, 2016 an average of  $17.25 \pm 20$  *A. forbesi* were caught when the temperature was 14.7°C. A T-test will be performed to determine the significance of temperature to the abundance of seastars caught.

### Graduate

#### MSG01 - Chelsea Parrish

Dr. Dionne Hoskins, Savannah State University  
**Sediment Metals in the Savannah and Little Back Rivers, GA**

Trace elements released into the aquatic environment eventually settle in the sediments of estuaries and coastal zones (Bellas et al., 2007). These pollutants do not remain in the sediments indefinitely but are released again to the water column by biological, chemical, and physical processes (Fichet et al., 1998). The purpose of this study was to determine trace element concentrations in surface sediments from the Little Back River (LBR) and Savannah River (SR), Georgia prior to the Savannah Harbor Expansion Project (SHEP). Surface sediment samples were collected using a Petersen grab aboard the R/V Margaret C. Robinson. Ten stations were sampled in both the LBR and the SR. Three grabs were collected at each station: left bank (L-bank), right bank (R-bank), and main channel (Channel). Grain size distributions were determined by wet sieving and loss-on-ignition was used to determine organic content. Chromium, manganese, iron, nickel, copper, zinc, cadmium, and lead were analyzed using a Perkin Elmer model 8000 ICP-OES. Samples were analyzed for mercury using USEPA Method 7473. The concentration levels of all the metals in the LBR and SR decreased in the order Fe > Mn > Zn > Cr > Cu > Pb > Ni > Cd > Hg. The LBR contained greater concentrations of all of the elements compared to the SR but, manganese was the only metal with concentrations that were significantly different between the two rivers ( $p=0.0109$ ). Percent organic content and mean grain size significantly affected overall metal

concentrations ( $p=0.001$  and  $p=0.001$ , respectively).

#### MSG02 - Coral Thompson

Dr. Sue C. Ebanks, Savannah State University  
**Reproduction of Grass Shrimp *Palaemonetes pugio* in Savannah, Georgia**

The daggerblade grass shrimp *Palaemonetes pugio* inhabits estuaries along the East and Gulf coasts of the United States, is a link between trophic levels, and is exposed to varying environmental conditions. The purpose of this study was to determine spatial and temporal relationships between shrimp length, weight, and clutch size at 3 estuarine locations in Savannah, Georgia. The study was conducted throughout the shrimp reproductive season, August to October and February to August in 2014 and 2015, respectively, at Country Club Creek (CCC), Tom Thumb Creek (TT), and Moon River (MR). Ovigerous shrimp (N = 10 shrimp/site) were collected by dip net twice a month during low tide. Length and weight were measured and clutch size was determined. Overall mean clutch size was  $217.4 \pm 86.40$ ,  $195.1 \pm 90.88$ , and  $188.7 \pm 77.68$  eggs/shrimp at CCC, MR, and TT, respectively. Clutch sizes varied throughout the reproductive season, so the season was divided into early and late months, for months when at least 10 ovigerous shrimp were collected. Mean clutch size from April-June 2015 was  $292.6 \pm 70.86$ ,  $282.6 \pm 71.77$ , and  $255.9 \pm 60.49$  eggs/shrimp at CCC, MR, and TT, respectively. Mean clutch size from July-September 2014 was  $168.4 \pm 53.43$ ,  $136.6 \pm 47.12$ , and  $140.0 \pm 45.74$  eggs/shrimp at CCC, MR, and TT, respectively. Overall, clutch size was significantly larger from April-June than from July-September. Shrimp at CCC had the greatest average weight, length, and clutch size. Future research will include analyzing sediment and shrimp tissue to determine possible correlations with polycyclic aromatic hydrocarbon concentration and *P. pugio* clutch size.

### **MSG03 - Emma Schultz**

Dr. Dionne Hoskins, Savannah State University  
**Post-nesting movement patterns of the green sea turtle**

The green sea turtle *Chelonia mydas* is listed as threatened in the United States under the Endangered Species Act of 1973 and endangered by the IUCN Red List of 2004. The main purpose of this study was to investigate post-nesting movement patterns and habitat utilization of green sea turtles that have nested on the East End beaches of St. Croix, USVI. Seven Wildlife Computers® SPOT-352A platform transmitter terminals (PTTs) were attached to female green sea turtles on the East End beaches of St. Croix in August and October 2015. Satellite data was collected using the Argos system and filtered with the Satellite Tracking and Analysis Tool (STAT) on seaturtle.org. Movement patterns were mapped along with core and activity use areas during the tracked post-nesting periods with ArcGIS 10.2. Benthic habitat layers were incorporated to investigate habitat utilization during the post-nesting period. Three females remained within the same waters directly surrounding St. Croix during this period, while two females moved to the waters near St. Kitts and Nevis, and one moved to the waters to the northwest of Vieques. One PTT was lost before the turtle began post-nesting movements. ArcGIS is a valuable tool that allows satellite telemetry data to be used to map large-scale movement patterns of threatened and endangered species, which can be used by conservation managers to help protect areas that are utilized by these species. Future work involving the tracking of male green turtles will distinguish if different sexes utilize the same areas after the breeding season.

### **MSG04 - Nicholas Castellane**

Dr. Aron Stubbins, Skidaway Institute of Oceanography

#### **The Doliolid Carbon Shunt: Production of DOM During Doliolid Feeding**

The biological carbon pump (BCP) draws carbon dioxide out of the atmosphere and buries it at the

seafloor. The efficiency of the BCP is determined in part by the sinking rates of particulate organic carbon (POC) from ocean surface waters. Zooplankton can package POC into fecal pellets with higher sinking rates than their food source (e.g. phytoplankton), increasing the efficiency of the BCP. However, dissolved organic carbon (DOC) is also produced as zooplankton ingest and egest food, reducing the efficiency of BCP. The pelagic tunicate *Doliolitta gegenbaui* (doliolid) is a gelatinous zooplankton found at high concentrations in shelf waters, including our study site: the South Atlantic Bight. Doliolids are efficient grazers capable of stripping large quantities of phytoplankton from the water column. To determine the balance between pellet formation and DOC production during feeding, doliolids (6-7 mm gonozooids) were placed in natural seawater amended with a live phytoplankton food source and incubated on a plankton wheel. Dissolved organic matter (DOM) released directly to the water as well as the water soluble fraction of pellet organic matter were quantified and optically characterized. Colored dissolved organic matter (CDOM) absorbance and fluorescence spectra revealed that doliolid feeding produces DOM with optical properties that are commonly indicative of newly produced, highly biolabile DOM of microbial origin. Based upon these optical characteristics, doliolid-produced DOM is expected to be highly biolabile in the environment and therefore rapidly degraded by surface ocean microbes shunting phytoplankton-derived organic carbon out of the BCP and back to dissolved inorganic carbon.

### **MSG05 - Rebecca Thublin**

Dr. Sue C. Ebanks, Savannah State University  
**A Survey of Arm Length and Regeneration Abundance in the Forbes Sea Star *Asterias forbesi* in Wassaw Inlet, GA, USA**

In most environments, the sea star is a key inhabitant and its ability to regenerate is a vital asset in sea star survival. The purpose of this study was to determine whether there was a change in size distribution and prevalence of regeneration over time for Forbes sea stars

*Asterias forbesi* at Wassaw Inlet, Savannah, GA, U.S.A. Sea stars were collected via otter trawl. Four trawls, each lasting 8-15 minutes, were conducted on October 15, December 9, and February 2. Once in the laboratory, the arm lengths were measured and averaged and any incidence of regeneration was noted. Seventy stars were collected on October 15, 115 on December 9, and 69 on February 2. The percent of sea stars regenerating was 10.1%, 6.5%, and 11.4%, respectively. Because of unequal sample sizes across tows, average regenerating prevalence could not be determined. The average arm length by date for the collected sea stars was  $3.51 \pm 0.640$ ,  $5.75 \pm 0.860$ , and  $7.07 \pm 0.813$  cm, respectively. The prevalence of regenerating sea stars was lower than expected based on a cumulative study done by Lindsay (2010). The average arm length changed over the 3 trawl dates, which may show a migration pattern of the stars.

### **MSG06 - Sarah Webb**

Dr. Mary Carla Curran, Savannah State University

#### **Differences in habitat utilization and temperature preferences of male and female Atlantic Stingrays *Dasyatis sabina* in the Herb River near Savannah, Georgia**

Atlantic Stingrays *Dasyatis sabina* are ecosystem engineers and opportunistic benthic predators found in coastal and estuarine waters from New England to the Gulf of Mexico. They can tolerate wide ranges in salinity and temperature and are year-round residents of the Herb River near Savannah, Georgia. The purpose of this study was to determine differences in habitat utilization and temperature preferences of male and female Atlantic Stingrays. Twenty-two stingrays were caught from April-June 2015 via longline and surgically implanted with Vemco acoustic transmitters. Data were downloaded monthly from 10 acoustic receivers placed in varying stream orders within the creek system, with 1st order creeks being the smallest and 5th order the largest. Mean percent usage of receiver location  $\pm 1$  SD was calculated and then mapped using

ArcMap. The major finding of this study was that male and female stingrays utilized 3rd order streams more often than any other stream order ( $35.85 \pm 35.33\%$  of d and  $51.64 \pm 33.04\%$  of d, respectively) across all months. There was no significant difference between the average temperature of females ( $27.88 \pm 3.36^\circ\text{C}$ ) and males ( $27.72 \pm 2.95^\circ\text{C}$ ) across all months or within individual months. Temperature differences were reported in other studies but only when females were pregnant, which we were unable to assess. The frequent use of 3rd order streams by both sexes may be because these creeks retain water throughout all tidal stages while possibly providing more protection from predators than deeper creeks.

### **Physics and Mathematics**

#### **PHM01 - Ayana Tiller**

Dr. Mulatu Lemma, Savannah State University

#### **My Journey with Perfect Numbers**

Mathematicians have been fascinated for centuries by the properties and patterns of numbers. They have noticed that some numbers are equal to the sum of all of their factors (not including the number itself). Such numbers are called perfect numbers. Thus a positive integer is called a perfect number if it is equal to the sum of its proper positive divisors. The search for perfect numbers began in ancient times. The four perfect numbers 6, 28, 496, and 8128 seem to have been known from ancient times. In this paper, we will investigate some important properties of perfect numbers. We give easy and simple proofs of theorems using finite series. We give our own alternative proof of the well-known Euclid's Theorem (Theorem I). We will also prove some important theorems which play key roles in the mathematical theory of perfect numbers.

#### **PHM02 - Cristin Lynch**

Dr. Travis Sippel, Iowa State University

#### **Using a Mathematical Model to Determine the Flame Propagation of Aluminum-Polytetrafluoroethylene Mechanically Activated Composites**

Aluminum is being used as the fuel in the combustion of composite energetic materials because of its high energy density and low ignition temperature. Although nano-sized aluminum (nAl) burns faster than micron-sized aluminum ( $\mu$ Al), nAl's high oxide content causes safety and propellant issues which are not common when burning  $\mu$ Al. Adding polytetrafluoroethylene (PTFE) to the  $\mu$ Al material as an oxidizer instead of an oxygen-based oxidizer has shown to have a greater performance. Rather than just mixing, intimately meshing the fuel and oxidizer into one particle by mechanical activation allows for a faster, more efficient combustion. There are multiple applications for energetic materials, but thermites specifically are utilized mostly when an operation calls for a small but intense heat-focused material. In the military, defense operations that use flares to defer heat seeking missiles depend on flares composed of a thermite material, just like Al/PTFE. The concern with Al/PTFE is that its flame propagation is currently slower than nAl, although it is much safer to handle. The main objective of my research was to not only increase the speed of the flame propagation of Al/PTFE, but I planned to make it eventually burn faster than nAl. There were three benchmarks that must have been met in order for me to complete my objective. The first benchmark was to fully understand Al/PTFE by characterizing its combustion in a confined channel. My mentor and I experimented with multiple parameters to try and achieve this. The second benchmark was to devise a mathematical model of Al/PTFE in a confined channel using the thermal properties of the combustion to determine the rate of the flame propagation. Finally, the third benchmark was to utilize the flame propagation model to enhance the combustion of Al/PTFE in a confined channel. After increasing the speed of the flame mathematically, we then wanted to do it experimentally. There is still much to be understood about the thermal and heat properties of the material, so I left Iowa State still in the first benchmark of my project. I am eager and hopeful

for the chance to expand on my current research for better future results.

**PHM03 - Dhruvika Patel**

Dr. Hyounkyun Oh, Savannah State University

**Attack of Grasshoppers: Application of Inexact Newton-Raphson's Methods for Multidimensional nonlinear equations**

The Newton-Raphson method is based upon the convergence of the vector sequence  $x_{(n+1)}=x_n-J^{-1}(x_n)f(x_n)$  for  $n \geq 0$  to a solution of system of nonlinear equations  $f(x)=0$ , where  $x_0$  is a well-chosen initial vector. However, depending on the complexity of  $f(x)$  the calculation cost of its nonsingular Jacobian matrix  $J$  and its inverse matrix  $J^{-1}$  may be quite expensive. As an alternative, this study examines the convergence of inexact Newton-Raphson method to the solution  $x^*$  by defining an inexact Jacobian matrix  $J^*$  whose components consists of linear Taylor polynomials instead of exact partial derivatives. For more interesting simulation, an imaginary scenario is designed: A flying airplane collides with a group of grasshoppers in the air.

**PHM04 - Dionte Samuels**

Dr. Agegnehu Atena, Savannah State University

**Bessel Functions and Their Applications**

In this paper we studied the Bessel function, which is defined as a particular solution of a linear differential equation of the second order with variable coefficients known as Bessel differential equation. This equation is often used as a model for real-world application problems. For example, the vibration of springs and electric circuits leads to Bessel's differential equation. Besides presenting the regular series expansion of the Bessel functions and their properties, this paper extends to discuss some applications of these functions. We used a computer program, Maple, to compute the Bessel Functions and graph them.

**PHM05 - Isaac Wright**

Dr. Janet Best , Dr. Eloise Kaizar, The Ohio State University

**Exploring Reaction Times of Children Using Psychomotor Vigilance Test**

Often, children who are in deep sleep do not awaken from alarms typically used in households. In emergencies such as fires when every second is crucial, this can be problematic. When the children are awakened they may experience delayed awareness and reaction times due to sleep inertia. Sleep inertia is the period after awakening in which people may experience confusion, reduced alertness, and slower reaction times. In order to study sleep inertia, we must first know if reaction times are trait-like. The data used in the study was collected using a ten minute Psychomotor Vigilance Test (PVT). Subjects were given the test before sleep to create a baseline, then were awakened twice during the night to complete the ten minute PVT. Our project aims to understand the underlying trends in reaction times associated with children ages 5 to 12. We hypothesize that reaction times are trait-like across nights. We are also interested in trends in reaction times across age and the duration of the test. Bootstrapping, we created a 95% confidence interval for the night coefficient in our regression model, assuming our null hypothesis is true. From the analysis, we concluded there was enough evidence to reject the null hypothesis and conclude that PVT results are not trait-like in studies like this one. In addition, we found that baseline speed increases as children age and baseline speed decreases as the PVT progresses.

**PHM06 - Shunsey Brooks**

Dr. Sujin Kim, Savannah State University

**Use of Bio-Statistical Approaches in Research**

There are several basic bio-statistical approaches in research and especially, we could use specificity, sensitivity, odds ratio, and relative risk in case-control research. We have used the data in Tiepu Liu, et al. paper to show if race or age can be biomarkers for cervical dysplasia which was inspected through the case-control

study because they are characteristics of the test and population has nothing to do with them. We have found that the test has relatively low sensitivity and specificity for age and race. But the test shows that race is an important factor with odds ratio 1.92 rather than age.

**College of Business Administration**

**Management and Marketing**

**Undergraduate**

**MGMTU01 - Brendan Martin**

Dr. Anshu Arora, Savannah State University

**Counterfeit vs Original: The Fight to Victory**

In recent years the "counterfeit" industry has grown beyond measure and has become irrepressible. Counterfeit products are manufactured and transported globally. The counterfeiting industry is a global phenomenon feeding off of the potential growth of original brands. Consumer's preferences on counterfeit brands can result from affordability, accessibility, consumer preference, and a number of other factors. This study discusses how these counterfeit issues are resolved. Additionally, this study presents the barriers that are currently utilized to minimize such counterfeit issues. This study also recognizes the impact that counterfeit brands have on original brands. Lastly, the reasons these counterfeit products exists on the market are discussed, and how do "original" brands counterattack these counterfeit problems.

**MGMTU02 - Gina Butler**

Dr. Jun Wu, Savannah State University

**Cultural Influences in Advertising and Promotions on the German Automotive Industry**

This research explores the cultural differences that influence advertising in the German Automotive Industry. We focus on BMW's advertising and promotion strategies and how affects sales. The author will explore the techniques used to advertise such products. German car companies advertise ideas evoking cultural awareness toward social, economic, environmental issues, as well as developing



competitive advantages. We analyze these advertising techniques and compare those techniques with company sales figures to determine the relationship between the two. We also discuss the preference of consumer taste among the preferred German or American made car. This research paper will address the following questions:

- What factors of culture motivate BMWs advertising?
- What is the direct relationship between advertising and sales?
- How is advertising different when promoting German made cars, from American made cars?

**MGMTU03 - Jonathan Givens**

Dr. Amit Arora, Savannah State University

**The Impact of the Savannah Port Expansion on Third-Party Logistics Companies: A Case Study of D.J. Powers**

This research explores the Savannah Port Project and how the expansion of the port can affect Georgia's Third-Party Logistics Companies (3PL). Savannah Port is the second largest Atlantic Coast container port in the United States since 2007. Savannah Harbor Expansion Project (SHEP) will deepen the Savannah Harbor federal shipping channel from a depth of 42 feet to 47 feet at an estimated cost of \$706 million. This research will evaluate the impact the SHEP Project will have on international trade, the local economy and environmental sustainability. The research will be conducted using collected data related to the SHEP project, D.J. Powers Logistics Company, and other logistics companies. Research questions:

- What are the 3PLs advantages and disadvantages prior to the Savannah Port Expansion?
- How can the expansion of the Savannah Ports affect other Coastal Ports in the United States?
- How will the 3PLs impact not only the local economy but the state economy as a whole?

- Will the expansion result in creating job opportunities for recent graduates or employees in the industry?

**MGMTU04 - Kendall Walker**

Dr. Jun Wu, Savannah State University

**War on Youth, Alcohol and Violence: Is interactive Advertising to Blame**

Marketing has effectively utilized the transition of today's society to cultivate a new focal point of human beings. This combined with current observations of identities has resulted in an understating and acceptance of leading forces of consumption. These marketing creations take part in alcohol advertising practices targeting today's youth. This research focuses on alcohol advertising, and their subsequent responses, attitudes and behaviors. This article reports findings from the youth that mirror the acceptance of such identities and notices the difficulties that these developments symbolize for the general wellbeing and the prosperity of the youth.

**MGMTU05 - Lakesia Gordon**

Dr. Anshu Arora, Savannah State University

**A Never Ending Battle: Diversity and Discrimination in the Workplace**

Though the world has evolved from the major inequalities against minorities across the nation there are still some foreseen areas. Diversity within the economy is becoming more and more required to gain a secure, positive, and fair outlook amongst corporate organizations and businesses. Investors and business partners are more concerned with the social views and impression their business has in the media more than profit gain. This therefore prompts the need for more diverse candidates to be employed in their businesses. The reality is minorities are still being discriminated against because of race, gender and culture. This study will outline the many ways sophisticated racism and prejudice has made its presence and how businesses and organizations are being so discrete while doing so. This research answers the following questions and helps understand the impact of consumer race and gender base discrimination in the workplace:

- In what ways do employers discriminate without being caught?
- Does diversity increase the effectiveness
- Or productivity of an organization/business?
- Is there discrimination against select minorities or all minorities?
- Would an organization function more effectively if there were more diverse employees?

### **MGMTU06 - Phoung Vo**

Dr. Amit Arora, Savannah State University

#### **Cultural Differences in Business: Asian Cultures versus Western Cultures**

This paper was conducted in order to establish an understanding of how cultures vary from different parts of the world and how certain behaviors should be exhibited. These articles present some information about cultural differences in various parts of the world, especially in China. China has become a large market that many still need guidance in understanding because of a collectivism viewpoint, which can also be seen throughout Asia, versus individualistic one seen in places such as America. This research presented will include businesses that have failed due to lack of research of a few foreign countries' culture and how enhanced knowledge can prove successful in the long-term. The questions that will be answered in this article are:

- How does cultural differences affect business transactions?
- How have businesses failed in foreign markets?
- How have businesses succeed in foreign markets?

### **MGMTU07 - Rafaella Gavino**

Dr. Amit Arora, Savannah State University

#### **Strategic Marketing of Vegetarian Products as a Solution to the Herd Behavior Related To Meat Consumption**

Meat consumption played an important role in human evolution, however nowadays human beings do not need to consume meat anymore in order to increase their brain mass. Instead, many

other protein sources are available such as grains, seeds, and roots which have been used by new industries that are creating plant-based and dairy-free products. Meat consumption is, therefore, part of herd behavior "the attitude of joining the collective decision making" and a lack of detachment from ancestral habits. This study will examine how vegetarian industries can, through strategic marketing focus on ethics, health and sustainability, decrease meat consumption, and grow their market share. The questions to be answered in this research paper are:

- How do consumers make food choices?
- Do meat consumers have preconception against vegetarian products?
- Can information about ethical, health and sustainable harmful effects of livestock production change consumer's food choices, raising vegetarian products sales?
- What marketing strategies should the vegetarian industries implement in order to increase competitiveness?

### **MGMTU08 - Sil Patel**

Dr. Amit Arora, Savannah State University

#### **Propensity to Spend: Proving your Part of the Higher Status Quo**

Throughout history, there has been a noticeable positive trend towards consumers wanting luxury items. However, consumers who are part of the lower class are still buying those branded luxury items. Why? If the lower and middle class are unable to afford these items, then why do people continue to shop for them? A sales specialist in a retail environment brings those consumers in and later persuades them to buy something; whether it is by promotions, advertising new products, or even loyalty programs. Yet, why are these consumers still mislead and pour half their paycheck on a single luxury item? It is proven that most of these behaviors relate to consumer buying psychology. It can be identified that lower and middle class consumers want what the upper class is buying to prove that a better self-image can be achieved. Most consumers will invest a whole paycheck into one handbag or suit for a special occasion so that him/her don't look or

emotionally feel different from the upper class. This study will examine the mentality of consumers and how consumers are driven to buy status items to perceive a higher status quo.

### **MGMTU09 - Uyen Hill**

Dr. Amit Arora, Savannah State University

#### **The Relationships between Culture, Leader-Member Exchange Quality, and Job Satisfaction of Vietnamese Employees**

Experienced human resource professionals recognize the importance of maintaining and promoting employees job satisfaction in talent management and retention. Scholars have done extensive research on job satisfaction of workers in developing economies in the North America and Western Europe. However, there is limited research that examines workers in developing countries, specifically workers in contemporary Vietnam. This paper investigates Hofstede's six cultural dimensions of Vietnamese employees on individual levels. This paper aims to study the relationships between individual cultural dimensions and the quality of the leader-member exchange, and the leader-member exchange quality and job satisfaction of Vietnamese employees. Studying the influence of culture on job satisfaction of workers in developing nations is important for both domestic and international managers. Managerial implications, limitations, and future research are also discussed.

### **MGMTU10 - Wykella Patrick**

Dr. Anshu Arora, Savannah State University

#### **What's Your Type? Stereotype that is: African American Stereotypes in Advertising**

This research discusses the use of advertisements considered to be stereotypical and the way they are perceived by consumers. This research discusses the stereotypical advertising portraying African Americans. In this research, the focus is on the way advertisers use stereotypes to promote their products. Popular companies often use advertisements that are stereotypical to cultures. This paper not only focuses on print ads but also radio ads and television commercials. Moreover, this research examines the success of the product after the release of the advertisement. This

research will seek to address the following questions:

- What are African-American stereotypes held in America?
- What are the differences between ads featuring Caucasian Americans and African Americans?
- How do African American consumers respond to these stereotypical advertisements?

### **Graduate**

#### **MGMTG01 - Adrienne L. Kilgore**

Dr. Inessa Korovyakovskaya, Savannah State University

#### **The Study of Impact of Conflict on Organizational Performance: Employees and Managers' Moods and Emotions**

If not managed properly, conflicts in organizations may prevent organizations from accomplishing their set goals. Some of organizational goals include high levels of job satisfaction and positive job attitudes in their employees. With a focus on emotions and moods of employees, organizations will be able to apply management techniques to effectively manage conflicts. This study conceptualizes and tests hypotheses on relationships among job satisfaction, job attitudes and conflict in managers and their subordinates in organizations. Although this research was well thought through, this study is limited in scope. The study results are valuable to managers on all levels in organizations in that the study identifies emotions and moods that cause conflict and recommends conflict management strategies. Future researchers will find it beneficial to explore relationships among other organizational variables and conflict management tools.

#### **MGMTG02 - Esmira Gheisary**

Dr. Anshu Arora, Savannah State University

#### **Confessions of a Shopaholic: The Value of Luxury Brands on Society**

This study focuses on the analysis of luxury and its major definitional and conceptual issues into the Fashion industry. With a rising globalization

and daily changing economy, luxury brands play a vital role in political, social and business spheres by fulfilling people's physical and psychological needs. This research provides a framework for investigation the consumption and management of luxury on today's society. Further it examines the different consumers' perspective of luxury, known as 'semi-luxury' and its impact to the market. The aim of this research is to give a sense of characteristics of luxury and semiluxury brands for academics and practitioners in the luxury fashion industry as it involves findings from focus group, one-to-one interviews, and online surveys. Finally this paper offers insights and pointers for future research.

### **MGMTG03 - Janeth Gabaldon**

Dr. Inessa Korovyakovskaya, Savannah State University

#### **Success Overseas: Global Managers Have Global Mind-Sets**

Our ability to learn and process information is crucial for us, as individuals, to make the right decisions. This applies to multinational organizations as well. There is an increasing need for individuals with a global mindset to successfully connect operations among companies globally. International Labor Organization indicates that at the present there are 50,000 multinational enterprises and their 450,000 affiliates employ over 200 million people around the world. As a result, managers at all levels face new challenges brought in by globalization. This study examines three sets of relationships among various variables that affect the development of mindset of global managers. The first set of variables demonstrates a positive relation among intellectual capital, international experience, global outlook, and complex cognitive characteristics. The second set of variables explores psychological capital and its relationship with passion for diversity, emotional intelligence and self-assurance. The final set of variables depicts a positive relationship among social capital, intercultural empathy, social network, and diplomacy.

### **MGMTG04 - Latasha Hickson**

Dr. Inessa Korovyakovskaya, Savannah State University

#### **Communication Barriers and Technology in Higher Education**

In the modern age of technology, communication is becoming more prevalent yet ambiguous. Technology has become the primary source of communication for many college students. Research has shown that many college students' preferred method of communication is through some type of technology. Therefore, the traditional face-to-face approach is becoming more obsolete resulting in many physiological and psychological barriers. The purpose of this research is to examine the barriers that effect the communication among college students and their learning performance disparity. It will address the following research questions: Can college students effectively identify the distinction between professional and colloquial communication? What are the evident social disconnects among college students? What learning performance disparities exist in academia?

### **MGMTG05 - Leila Rastegar**

Dr. Inessa Korovyakovskaya, Savannah State University

#### **Lifting sanctions against Iran opens doors for business to the United States**

Broad customer base and being first in new markets are the keys to success for every company in this competitive business world. A unique geographical location, rich natural resources, populous domestic market, labor privileges are some of the characteristics that make Iran's market the most attractive for foreign investors after the lifting of international sanctions. Iran will be a beneficial destination for every foreign company that looks forward to capitalize on abundant opportunities in the potentially lucrative markets. To be successful, the company needs to be able to understand Iranian national and regional cultural characteristics. This research outlines a number of differences and similarities in cultural values

and behaviors between Iranian and American that affect international business. This study is very useful for those companies who want to benefit from being the first-movers and to avoid the negative impact of cultural diversity on their business.

### **MGMTG06 - Nana Duah**

Dr. Suman Niranjana, Savannah State University  
**Financial literacy and retirement planning among the working class in the United States**

The study employs a structural equation model technique with a sample of 103 using an online questionnaire as the research instrument. Eleven scales, that include financial literacy, money management, understanding asset development strategies, retirement planning, financial independence, socio-economic independence, power distance, uncertainty avoidance, collectivism, long-term orientation and masculinity are measured. Structural equation modeling is used to evaluate the hypotheses. Findings indicate that money management significantly has a positive relation to retirement planning, financial independence and socio-economic independence. The current study requires additional validation through larger sample data from the working class in the States.

### **MGMTG07 - Rashmil Singh**

Dr. Inessa Korovyakovskaya, Savannah State University

#### **Role of leadership in change management**

The globalization has converted the world into a small village inside which there is a high level of competition in organizations. In order to sustain this cut-throat competition, every business has to think of innovative ideas or bring changes to its organization with respect to products, systems, and policies. The ability to change is crucial to the success of any organization. Leadership plays an important role in change management at all levels - individual, group and organizational. This study focuses on how organizations are implementing change management to achieve organizational success. The paper examines planned change and unplanned change; how leaders act as an interface between organizational

levels; change as a process; change management and leadership styles; and challenges faced by leaders and their coping strategies.

This study will answer the following research questions: How change can be beneficial for organizations? What impact does change have on employees in various organizations? How leadership styles help leaders in acting as an interface? How do leaders play an important role in implementing change in their organizations?

## **College of Liberal Arts and Social Sciences**

### **Social and Behavioral Science**

#### **SB01 - Alexis Fleming**

Dr. Amanda Mahoney, Savannah State University

#### **Assessment of Food Preference in a Loggerhead Sea Turtle**

Behavior analytic research has been conducted in zoos and aquariums with the goal of improving the quality of life for the animals. Evaluating preference in both humans and animals has been shown to be important in developing good behavioral interventions. Assessing food preference, for example, helps identify effective edible reinforcers. The purpose of this project was to determine food preferences for a loggerhead sea turtle (*Caretta Caretta*) at the Georgia Marine Extension Program's aquarium on Skidaway Island. Results indicate this turtle prefers fish and shrimp to gel food and carrots. Environmental enrichment procedures arrange contingencies to maintain behaviors that are necessary for survival in the wild such as foraging and making choices. In the next phase, we plan to incorporate preferred color and food to further increase the frequency and duration of interaction with enrichment stimuli.

#### **SB02 - Alysia Potts**

Dr. Sherry Serdikoff, Savannah State University  
**Examining the Social Validity of the Immediate Feedback Assessment Technique (IFAT) in College Students**

Work in our lab has replicated and extended previous studies showing positive effects on college students' learning from using answer-until-correct (AUC) class assessments that provide immediate corrective test-item feedback. The current study examined the social validity of the specific AUC we employed; the Immediate Feedback Assessment Technique (IFAT). At the end of a semester using IFAT forms, students completed a questionnaire that contained items pertaining to social validity that were adapted from items examined in previous research studies using this technique and from claims made on the website of the company that manufactures the IFAT forms. Our data show statistically significant agreement with most statements that described positive characteristics of using IFAT forms and failed to show statistically significant agreement with any of the statements describing what have been considered negative characteristics of IFAT forms. Issues surrounding more widespread use of IFAT forms will be discussed

### **SB03 - Carter Collins**

Dr. Kimberly Frame, Savannah State University  
**What make a dog attractive in a picture?**

There has been some research recently conducted in an effort to identify variables which affect adoption rates of shelter dogs (Protopopova, Gilmour, Weiss, Shen, & Wynne, 2012; Protopopova & Wynne, 2014). Some variables that have been identified are the breed, color, size, behavioral characteristics (sociability, activity level, interactions with other species, etc.), and location of placement in the shelter setting. In the second experiment in Protopopova et al., (2012) the researchers specifically looked at ratings of dog morphology and the correlation between those ratings and the outcome of the dog. (adoption/ euthanization). All pictures were taken from shelter dogs and excluded any humans from the pictures. The results indicated that dogs that were rated as more attractive also were more likely to have been adopted. In the current study we are interested in identifying if adding a human to the picture will increase the attractiveness of a

dog. This information could be helpful for shelters and rescue organizations when advertising adoptable dogs. A group research design will be used with three pictures of the same type of dog (three beagles, three Pomeranians, etc). Each dog breed will have the dog pictured with one female, one male, and one without a human in it. The pictures will have two small dog breeds (Yorkshire terrier and Pomeranian), two medium sized dog breeds (Beagle, Labrador), and three large dog breeds (Rottweiler and German Shepard).

### **SB04 - Marion Gould**

Dr. Kimberly Frame, Savannah State University  
**Examining decision making for an evidence-base for treatments for Autism Spectrum Disorder**

There is currently quite a bit of research attempting to identify why and how parents of children with autism select treatments for their children (Bowker et al., 2011; Goin-Kochel et al., 2009; Matson et al., 2013). Most of the research is correlational, identifying variables that may affect treatment choices, but none of the research to date has attempted to identify how to teach parents to make treatment choices that are evidence-based. One of the variables affecting treatment choices may be a poor understanding of what constitutes an evidence-based treatment (Frame et al., 2014). This proposed study is an attempt to fill the gap in the literature by identifying an efficient way to teach individuals what constitutes an evidence-based treatment. A randomized control trial was used to evaluate the effects of the different training procedures. The four conditions in the study looked at how much training was required to help a person identify an evidence base for a treatment. The trainings included in each condition were as follows: 1) Evidence-based treatment, non-evidence based treatment, testimonials; 2) Evidence-based treatment and non-evidence based treatment; 3) Evidence-based treatment and testimonials; 4) A control condition where the participants learned about bird feeding.

**Social Work**  
**Undergraduate**

**SWU01 - Ashleigh Montford**

Dr. J. Elmore, Savannah State University

**Unfair Welfare**

There is an abundance of information and resources present for government assistance, also known as welfare. However, there is also a great amount of misguided information present in various communities. In America, there is a certain stigma associated with a person or family that is in need of welfare. This shame comes from the misrepresentation of its usefulness, as well as those who are consuming welfare, especially in Black communities. It is advertised that most recipients of welfare are those in the Black community, and it is exhibited as though it is a black hole. Meaning, once a person is obtaining these funds, that there is no way out for them and they fall into a specific category in which is scowled upon. There are positives for those in need, however may not know because of being ashamed. With this research project, the main objective is to educate different ethnicities about the accurate allocation of its funds, who welfare assists the most and the truths versus myths of someone being on welfare.

**Graduate**

**SS-SW01 - Adeola Gbadebo**

Dr. Shinaz Jindani, Savannah State University

**Solution Focused Journaling to Increase Life Contentment**

Speech and Hearing Impaired client was faced with custody issues of her children. Using the theory of Intersectionality, Solution Focus Approach was adopted. As this approach is less pathologizing, and growth oriented therapy that is supported by Strengths Perspective. This perspective identifies and builds upon, and amplifies people's strengths, resilience, and resources. Solution Focused Approach enabled client's new coping skills. It was hypothesized that as client gains coping skills, Life Contentment will increase. Using Likert Scale, a ten item instrument was designed. SINGWIN

compared first five data points (phase I) with second half five data points (phase II). Proportion Frequency noted significant changes between phases ( $p=0.00$ ). Delta Index noted 25.5% increase in Life Contentment. Client reported increased engagement with her children. The integration between the assessment (IDV), intervention (X) and resulting goals (DV), and continuous measurement gave me a perspective about my own practice effectiveness. As the intervention unfolded I grew more confident that the strengths perspective was appropriate as it informed the entire project. Not to mention that Solution Journaling matched the client's speech and hearing status. With all the right matches and integration I have gained a sense of self efficacy as an effective social worker.

**SS-SW02 - Aisha Mack**

Dr. Shinaz Jindani, Savannah State University

**Impact of Cognitive-Behavioral Therapy on Anger Management**

The client with a family history of substance abuse and gambling was seeking help to regulate her anger, as it had impacted her daily functioning. Her chart noted Axis IV problems with primary support group, loss home, conflict with family and Axis V GAF 5. Using Cognitive behavior theory, talk therapy and relaxation was implemented. Eight data points were gathered measuring her anger on a bi-weekly basis. In order to compare, the data was divided into two equal phases. Proportion Frequency noted significant changes between phases ( $p=0.0$ ). Delta Index Effect Size noted 10% increase in desired direction. This project has been an assets to my learning. I learnt to conduct research review to select the best intervention (X) for the client to maximize the outcome (Dependent Variable). This best intervention was not just floating, it was grounded in a scientific theory. I learnt how the assessment factors (Independent Variable), Intervention (X) and the Goals (Dependent Variable) be linked and measured using research methods. I learnt to design my own tool that was customized to this specific social work practice. The data gave me feedback, which

I then used to help the client in regulating her anger. Research was not my favorite subject. Numbers always scared me. But now with this project, I feel empowered to direct my own practice. SINGWIN is easy to use and graphs easily helps with visual analysis. This project has made me a confident social worker and has helped me gain an internal sense of practice effectiveness.

**SS-SW03 - Alicia Tanner**

Dr. Shinaz Jindani, Savannah State University

**Improving Quality of Life for Dialysis Patients Through Cognitive Behavior Therapy**

DaVita Kidney Care is a leading provider of dialysis services in the U.S. DaVita Kidney Care treats patients with chronic kidney failure and end stage renal disease (davita.com). DaVita Kidney Care strives to improve patient's quality of life by innovating a clinical care and by offering integrated treatment plans, personalized care teams, and convenient health management services (davita.com). The hypothesis of this single subject research is that my dialysis patient can improve her quality of life through Cognitive Behavior Therapy. Before receiving Cognitive Behavior Therapy, my client would frequently miss dialysis appointments, she would eat foods that would increase her fluid levels, and she would be hospitalized frequently because of these factors. Using the sample of 10 completed questionnaires were gathered from a dialysis patient. As a result of the questionnaires, the client's attendance to dialysis appointments improved. She had fewer missed appointments. The client started to eat and drink according to her dietary orders. The client maintained her emotional stability after receiving Cognitive Behavior Therapy. The hypothesis is validated by the results of the study.

**SS-SW04 - Amarria Phillips**

Dr. Shinaz Jindani, Savannah State University

**Experiential Therapy: Measuring Mood of Four Year Old Using Smiley Faces**

The Single Subject Client for this study was a four-year-old male, attending the Pre-K program at the Ear Child Care Center. The Client exhibited

classroom misbehavior and was referred for counsel by his teacher. The evidence based intervention was age appropriate, Montessorri, Experiential Learning. Data was collected twice a week using a 10 item, 1-3 Likert Scale Smiley Faces. Since the sample size was small, proportion frequency did not note any significant changes between phases ( $p=0.25$ ). However, D-Index noted 39% increase in desired direction. Even though there was no statistical significance, the counselor and the teacher observed an academic and behavior improvement in the student. Through this project I learnt to integrate, theory and intervention and customized it to match the diverse client demographics. The measure was creatively designed so that the four year old could easily respond to the Smiley Faces. The entire process gave me a personal sense of practice effectiveness.

**SS-SW05 - Anika Futch**

Dr. Shinaz Jindani, Savannah State University

**Tackling Depression Through Case Management and Cognitive Behavior Therapy via Telephone Therapy**

Depression is a serious mental health condition that requires understanding, treatment and a good recovery plan. According to The World Health Organization depression is one of the most disabling disorders in the world, it affects one in five women and one in ten men. Client is a 58 year old African American male referred to social services for assistance in finding housing, employment, medical, and educational opportunities. Researcher however discovered client was suffering with depression. Using Cognitive Behavior Therapy and Case Management Services; researcher hypothesized a decrease in client's depression. Beck's Depression inventory scale was used to measure variation in client's level of depression during the course of treatment. Using the Desired Zone of 31.5 and Proportion Frequency noted significant changes between phases ( $p=0.00$ ). Delta Index noted Effect Size of 50% decrease in desired direction. Though client still has challenges regarding employment, he has made great strides



in overcoming his depression. Researcher has learned to integrate all the aspects of social work practice and realized one is incomplete without the other.

**SS-SW06 - Asea Gilmore**

Dr. Shinaz Jindani, Savannah State University  
**Continuing Bond Theory: Processing Grief and Its Relationship With Life Contentment**

An 18-year-old female sought out individual counseling sessions to improve her relationship with her boyfriend. Client expressed struggling with rejection from her father and her brother who died by suicide. The life contentment scale was used to track her progress with two (out of ten) surveys being baseline data. The data was tested for autocorrelation. Baseline ( $p=1.00$ ) and Intervention ( $p=0.39$ ). Using the Desired Zone of 34 and above Proportion Frequency noted significant changes between phases ( $p=0.00$ ). D-Index noted 8.% increase desired direction.

**SS-SW07 - Britney Sykes**

Dr. Shinaz Jindani, Savannah State University  
**Regulating Major Depressive Disorder: Can Group Therapy Alone Produce Results?**

Major Depressive Disorder (MDD) is among the most common and most debilitating of psychiatric disorders. It has a wide range of symptoms, causes, and risk factors. Children and teens at higher risk for depression include those who have attention deficit/hyperactivity disorder, learning or anxiety disorders and oppositional defiance disorder. A young person who has experienced considerable stress or trauma, faced a significant loss or has a family history of mood disorders is at increased risk for depression. Using Cognitive Behavior Therapy, this single subject study implemented group therapy for the first three weeks and then added, individual Talk Therapy to reduce depressive and suicide ideation. The data was tested for autocorrelation. Proportion Frequency noted significant changes between phases ( $p=0.00$ ). D-Index noted 45 % decrease in desired direction. Intervention did make a difference.

**SS-SW08 - Brittney Lollis**

Dr. Shinaz Jindani, Savannah State University  
**Post Hospitalization Treatment: Use of CBT to alleviate symptoms of Depression and Suicidal Ideation**

Cognitive Behavioral Therapy (CBT) is an empirically-validated psychotherapy that is recommended as a first-line treatment for depression in the VA/DoD Clinical Practice Guideline for Management of Depressive Disorder (2009). This is why it is the recommended treatment for Depression. The Strengths Perspective is also proven by research to be effective in treating Depression when paired with a therapy such as CBT. Due the short duration of the treatment, proportion frequency noted no significant change between the phases. In fact, the Effect Size noted the progress in opposite direction. Further recommendations are made to modify the intervention plan.

**SS-SW09 - Dorsenia Hendrix**

Dr. Shinaz Jindani, Savannah State University  
**Suicide Risk Assessment of a Bi-Polar Depressive Client**

During my internship at Coastal Harbor Treatment Center, I experienced and gain knowledge in mental health disorders. Coastal Harbor Treatment Center (CHTC) approach is to design an individualized treatment plan to help patients overcome their mental, emotional or psychiatric issues. This single subject design included measures of suicide Risk assessment. Using Data Collection, I conducted a 10 week suicide risk assessment to track the progress of her thoughts and behavior. The theoretical framework sought out was cognitive behavior because it teaches how to identify and change destructive or disturbing thought patterns that have a negative influence on behavior. Incorporating, medication, individual, and family interventions to treat suicide ideations shows a decrease of negative behavior and revealed a positive dialogue and continued regulation of his/ her behavior. To utilize practice effectiveness, I reflected upon theory treatment

and measures to gain a sense of practice effectiveness.

**SS-SW10 - Ebony Wright**

Dr. Shinaz Jindani, Savannah State University

**Stress and Life Contentment**

The client is a 23-year-old single African American male that has issues with stress. Using individual therapy, assertiveness training/social skills training, exercise, and reading a Bible verse every week the client learnt to reduce stress. Ten item instrument with a Likert scale 1-4 (SD-D), lower the better, measured stress. Proportion Frequency noted significant change between phases ( $p=0.05$ ). Delta Index noted 16% increase, however it was in the opposite direction. The integration between the assessment (IDV), intervention (X), goals (DV), and continuous measurement gave me a perspective about my own practice effectiveness. Using scientific way of conducting assessment and matching that with research based evidence to design an intervention was one of the strengths of this project. Additionally I learnt to measure the client's progress on bi-weekly basis and use it in turn to strengthen the intervention. As the intervention unfolded I grew more confident that the strengths perspective as the right theory that informed the entire project. Not to mention that Solution Journaling matched the client's speech and hearing status. With all the right matches and integration I have gained a sense of self efficacy as an effective social worker.

**SS-SW11 - Edna Carter**

Dr. Shinaz Jindani, Savannah State University

**Using Self Determination to Enhance Self Worth**

Previous research has shown that low self-worth is correlated with a number of negative outcomes, such as depression. Socially, children with low self-worth can be withdrawn or shy, and are more likely to yield to group pressure and are more vulnerable to being bullied. Children who suffer through years of torment and torture are likely to exhibit even more severe self-esteem issues. Some of the effects of bullying on child's self-worth include self-doubt, self-criticism, and

isolation. The client in this study is a 10 year old biracial female suffering with depression. Client is experiencing a low sense of self-worth after being confronted with bullies at her school. Using a strengths perspective, the self-determination theory, and evidenced based interventions, researcher hypothesized an increase in client's level of self-worth. Rosenberg's self-esteem scale was used to measure variation in client's level of self-worth during the course of treatment. Using the Desired Zone of 25 and above Proportion Frequency did not note significant changes between phases ( $p=0.25$ ). Delta Index noted 49% increase in desired direction.

**SS-SW12 - Erika Cuttray**

Dr. Shinaz Jindani, Savannah State University

**Impact of Positive Self Talk On Self Esteem**

Accepting the vast changes that occur upon graduating from high school is a hard task for many students in an academic setting. Throughout this transition period, many young adults face unique challenges linked with the responsibilities associated with living independently from home for the first time. Adjusting to this change may be difficult to deal with considering stressors that may arise as a result of college life including: financial issues, peer pressure, academics challenges, and learning to coping with new expectations that college brings. Additionally, many college students have high expectations that may lead to higher demands on themselves. These stressors may bring about a number of mental and physical issues on the body. This paper will focus life challenges that transitioned aged youth experience and how those life stressors affect self-esteem.

**SS-SW13 - Fridea Whitby**

Dr. Shinaz Jindani, Savannah State University

**Impact of recreation therapy and cognitive behavioral therapy on depression**

Body image is the self-perceived mental representation of the appearance of one's body. Researchers assert that it is a multidimensional construct that incorporates both emotional and cognitive perceptions and attitudes. This

construct may be intellectualized on a continuum with most people experiencing a mild to moderate level of distress. At one end is low body dissatisfaction, which is associated with normative discontent. At the other end lie higher levels of distress where individuals experience a greater degree of clinical difficulties such as eating disturbances, depression, and low self-esteem. Many health professionals working in university counseling centers have reported an increase in the severity of presenting problems. School, clinical, and cognitive psychologists have spent time studying the efficacy of cognitive-behavioral modification interventions with students suffering from emotional/behavioral disorders in areas of aggression, anxiety, and depression. In addition to formal therapy typically carried out by a licensed mental health care provider, research also supports the use of recreational therapy in treating depression. This single subject study explores the implementation of recreational and cognitive behavioral interventions with a 25 year old African American male college student presenting with depression due to low self-esteem and negative body image.

### **SS-SW14 - Imasha Adisa**

Dr. Shinaz Jindani, Savannah State University

#### **The Impact of Mindfulness-Based Cognitive Therapy on Anxiety**

Unfortunately, mental health is not curable, it is only treatable. Hence, clients have to learn skill sets to regulate and manage symptoms of mental health. This single subject research combined behavior, cognitive, and social learning theories and designed interventions that used Mindfulness and Cognitive Behavior Therapy to help the client learn sustainable coping skills and regulate anxiety. In order to ascertain the effectiveness of this intervention, a 13 item instrument was used to assess fluctuations in anxiety levels. Four data sets were gathered before the intervention was implemented. Five data sets were gathered during the implementation phase. In all, eleven data sets were collected and analyzed using SINGWIN. The proportion frequency noted significant

changes between phases ( $p=0.01$ ). Delta index noted 45% increase in the desired direction. Developing a synthesized therapeutic approach through combining theories that were carefully chosen resulted in an effective intervention. Additionally, research data affirmed the progress on a weekly basis that provided impetus to the social work practice process and contributed to my own sense of practice effectiveness.

### **SS-SW15 - Ja'Lisa Stuckey**

Dr. Shinaz Jindani, Savannah State University

#### **Post Hospitalization Treatment: Use of Psychoeducation To Mitigate Depressed Moods**

It is believed that CBT is effective in decreasing depressed moods. The purpose of this study was aimed to examine whether an intervention has the intended effect on an individual. This study was conducted during a fall semester Internship at the Children and Behavioral Health Systems Clinic at the Winn Army Hospital at Ft. Stewart. The focus was post hospitalization treatment for depressed moods. The client began receiving bi-weekly session of CBT via Psycho-Education and Positive Self-Talk. The study utilized the single subject design model (A, B) to compare the client progress following the interventions. Even though the sample size was small, proportion frequency noted significant changes between phases ( $p=0.03$ ). Findings noted a change of 37% in the desired direction.

### **SS-SW16 - Julian Prosser**

Dr. Shinaz Jindani, Savannah State University

#### **Therapeutic Process: Constructs of Life Contentment**

This research explores the process of treating an individual with Depression, Anxiety, and Post Traumatic Stress Disorder by way of Cognitive Behavioral Therapy (CBT). The data has been collected over a period of 19 weeks using the Counseling Center Assessment of Psychological Symptoms (CCAPS) measurement tool, which is a 30-item likert scale questionnaire. The data reflected in this report compartmentalizes various facets of life into subscales including; Depression, Anxiety, Academic Distress, Eating

Concerns, and Hostility. Each subscale is measured for progress within the CBT treatment framework, and an overall representation of the student's development in counseling is present. The dependent variables, which measure treatment effectiveness, include; self-awareness, self-confidence, independence, management of suicidal ideations and anxiety. The data supports a claim that the therapeutic intervention did not work with this student overall. In 19 weeks, the student has an increase in Academic Distress, Eating Concerns and Hostility, moving toward the undesired zone over time.

### **SS-SW17 - Karen Hasselman**

Dr. Shinaz Jindani, Savannah State University

#### **Dialectic Behavioral Therapy Mediated Single-Subject Research Design**

Client sought crisis and counseling support after having suicidal ideations and struggling with issues of depression, anxiety, and increased panic attacks. After monitoring client's reported distress and suicidal ideation over two weeks, client and counselor developed a treatment plan. Due to client's emotional lability and lack of effective coping skills dialectic behavioral therapy (DBT), an evidence-based treatment, was the chosen premise for both individual and group therapy. Client learned distress tolerance skills over 4 weeks, and results showed a significant decrease in depression at conclusion of study. Time limitations and academic distress skewed results in this brief study but client reported fewer suicidal thoughts, enjoyed DBT, and did not regress during treatment. In conclusion, DBT seems to be a positive treatment modality for this client and with continued treatment researcher expects data to reflect further positive results.

### **SS-SW18 - Ketra Muldrow**

Dr. Shinaz Jindani, Savannah State University

#### **Effects of Talk therapy on Coping in a School Setting**

It is not unusual for an adolescent to have behavior problems especially when they are experiencing a grief due to loss of a parent. The single subject client for this research study was a high school student who needed to regulate stress

due to multiple problems. Using Cognitive Behavior Theory, based on published evidence, Motivational Counseling and Talk Therapy was implemented to help process grief and develop coping skills to regulate stress. A 12 item questionnaire measured stress every week. In all 10 data points were gathered, of which 4 served as a baseline. The data was tested for autocorrelation. Baseline ( $P=0.84$ ) and intervention ( $p=.370$ ). Using desired Zone of 48 and above Proportion Frequency noted significant changes between phases ( $p=0.00$ ). Delta index noted 14% decreased in stress levels. . Through this project, I learnt to integrate assessment factors (Independent Variable) with intervention (X) and arrive at goals (Dependent Variable). Using research methods I learnt to track weekly changes which then looped back into strengthening the intervention. This entire process built my confidence as a social worker and gave me a sense of practice effectiveness.

### **SS-SW19 - Linda Stafford**

Dr. Shinaz Jindani, Savannah State University

#### **Impact of Mindfulness on Depressive Thought Patterns**

Mindfulness has been proven to be an effective tool in treating depression. The use of mindfulness based techniques have been proven to improve depression symptoms and prevent symptom relapse. For the purposes of this study, a client with recurring depression followed a Mindfulness-Based Intervention (MBI) at the end of each therapy session. During the first session of the intervention, 15 take-home questionnaires were administered to the client measuring Life Contentment and Mindfulness Awareness. The client was asked to complete one questionnaire each day. Data was collected from these instruments in a self-reported Likert-scale format. Results from the study were not statistically consistent with existing research which corroborates the use of MBIs for the treatment of depression. Upon consideration of the results and information reported by the client, the clinician concludes that a different variety of instruments

should be used to measure changes clients' depression symptoms in future studies.

**SS-SW20 - Magdalene Vasconez**

Dr. Shinaz Jindani, Savannah State University

**Self-Esteem and Alcohol Use Disorder**

A single-subject simultaneous observation and intervention study involving a woman in her 50's with severe alcohol use disorder. The subject received group therapy through an intensive outpatient program in Savannah, Georgia. The group therapy intervention included psycho-education and mindfulness based intervention training components. The dependent variable was self-esteem, measured using Rosenberg's Self-Esteem Scale. Results indicate a statistically significant increase in self-esteem throughout the data collection period, with an alpha of 0.038.

**SS-SW21 - Marquis Morgan**

Dr. Shinaz Jindani, Savannah State University

**Self-Esteem and Ease at School**

This research explores strengthening the client's engagement in a school setting dealing with his self-esteem. The client in this research was an eighth grade Hispanic teenagers. The client lack engagement in school due to his low self-esteem. Working alone with my client and introducing him to a better coping mechanisms. The finding indicate that my client low self-esteem was decreasing. In social work practice, the strengths perspective has emerged as an alternative to the more common pathology-oriented approach to helping clients. Instead of focusing on clients' problems and deficits, the strengths perspective centers on clients' abilities, talents, and resources. The social worker practicing from this approach concentrates wholly on identifying and eliciting the client's strengths and assets in assisting them with their problems and goals. The Evidence Based Intervention used was Talk therapy counseling. And homework assignments used to stimulate the relationship intrinsically. As motivational interviewing is goal oriented and client center, it was to help the client explore inner contradiction in the relationship with school. Practical Significance: Engaging the client to participate in talk therapy. Allowing the

client to emote on what made him have low self-esteem and how it correlate to a school setting. Talk therapy involves a client discussing problems, issues, and life events with a therapist. The goal is that by talking about these issues, the client will be able to gain insight and find relief. My client used his strength to better cope and engage in the school setting. In which cause his low self- esteem to decrease.

**SS-SW22 - Matthew Brown**

Dr. Shinaz Jindani, Savannah State University

**Behavior Modification and Positive Reinforcement and Its relationship with Mood**

In using strength perspective, the therapist has to affirm and show interest in child's behavior and normalize and/or capitalize upon child's strengths and accomplishments. This perspective is used to identify power that the child possesses from the variety of past experiences and influences (Turner, 2011). Under Behavior Modification practice modality was used to help learn new behaviors, discard unproductive behaviors and reinforce child's strengths from within. An instrument was designed with five items using five point Likert Scale, smiley faces. This was administered twice a week. Celeration graph noted the movement of scores towards the desired zone. Singwin was used to analyze the data. The data was tested for autocorrelation, baseline, ( $p=0.62$ ) and intervention ( $p=0.07$ ). Using the desired Zone of 18.5 and above, Proportion Frequency noted significant changes between phases ( $p=0.00$ ). Delta Index noted 50% increases in desired direction. This project helps me integrate social work theory with intervention. When further integrated with research methods it informed me if the client was moving in a positive direction or not. This encouraged me to continue using strength perspective and behavior modification that supported the client sustain positive behavior. This help me gain a sense of practice effectiveness.

**SS-SW23 - Melissa Givens**

Dr. Shinaz Jindani, Savannah State University

**Gate Theory: Pain Management Through medication and Talk Therapy**

A client from a low income group reported high levels of pain due to back surgery. The intern connected the client to various resources and facilitated the pain medication. The intern used Talk Therapy to increase the impact of medication. Using 214 Severity Pain Index, seven data points were obtained. Proportion Frequency was used to detect the difference between the baseline and intervention phases ( $p=0.00$ ). Delta noted 50% decrease in pain in intervention phase. Talk therapy would not have been effective, had the client not had pain medication. It was the medication that closed the gate and blocked the T-cells from firing the pain signals that brought the relief. This relief enabled the client to respond to the talk Therapy.

**SS-SW24 - Miranda Wright**

Dr. Shinaz Jindani, Savannah State University

**Use of socratic dialogue and reality testing as part of cognitive behavior therapy**

Anxiety is a common symptom of bipolar disorder. The subject of the single subject design facing termination from housing program, and experienced a heightened level of anxiety. Using cognitive behavioral therapy, the client was able to attain skills necessary, such as thought challenging, reality testing, and other, to lower the effect that the anxiety had on clients daily functioning. Ten item instrument measured client's level of anxiety. While completing field experience at the National Association for the Advancement of Colored People (NAACP), the client was administered this instrument every time before the meetings between the client and intern. Ten data points were gathered. For the first two measures, no meeting followed, a meeting followed the measures for the following 8 data points. Proportion frequency noted a 49% decrease in desired direction. Perspective of practice effectiveness was provided through the integration of assessment (IDV), intervention (X) and the resulting goals (DV).

**SS-SW25 - Precious Brandford**

Dr. Shinaz Jindani, Savannah State University

**Impact of Imaginal Exposure Therapy On Self Esteem: Learning To Overcome Social Anxiety**

It is not unusual to use Exposure Therapy to treat Generalized Anxiety Disorder (GAD) that is marked by excessive and uncontrollable worry. With the help of visualization techniques the client vividly imagines the feared object or situation, this is then reframed using Cognitive-behavioral therapy, which encourages healthier coping skills. Using 20 item scale, anxiety and self-esteem were measured. Ten data points were gathered and tested for autocorrelation by phases; Phase I ( $p=.37$ ) Phase II ( $p=.51$ ). Using median of 71, the proportion frequency noted significant changes between phases ( $p=.00$ ) and D-Index noted 47% increase in the desired direction. This project helped me understand how to evaluate my own practice and contributed to my very own sense of practice effectiveness.

**SS-SW26 - Qu'Shon Nelson**

Dr. Shinaz Jindani, Savannah State University

**Job Satisfaction among College Going Students**

According to Chaudhuri (2014) a satisfied worker is a happy worker and of course can prove to be most productive, prolific, and industrious in his/her work and in execution of his responsibilities (pg 73). Low job satisfaction impacts the work environment as the employees experience high levels of stress, demonstrate low morale, low productivity and high turnover rate. The effects of low job satisfaction are not only limited to the employing agencies. Its consequences reaches other roles employees performs in daily life; such as being a parent, caregiving to the elderly parent, participating in community life and simply just enjoying life. This research assumes that low job satisfaction is associated with employees over all life contentment. This is all the more important within a student population, as they work and support their educational expense as well. They are likely to continue to survive through low job

satisfaction until they complete their education. Understanding student's level of life contentment can shed light on their daily challenges and additional support service they may need to supplement their efforts in completing their education. Sample of convenience will be used and 61 items questionnaire will be administered to the students at Savannah State University. Findings will be analyzed using IBM SPSS Statistics. Recommendations for the support services for this population will be outlined in the research findings.

**SS-SW27 - Randolph Glee**

Dr. Shinaz Jindani, Savannah State University  
**Strengthening the Parent-Child relationship after Molestation**

This research explores strengthening the parent-child relationship after molestation. The biological mother was in denial and was refusing to engage with the adolescent child after the stepfather molested her. Motivational Interviewing was used to stimulate the relationship intrinsically. As motivational interviewing is goal oriented and client-centered, it was used to help the client explore inner ambivalence in a relationship. The Strength Perspective produced positive results, as this fostered positive affect and the process motivated the client to look forward to the positive relationship with her child. Two scales were used to track the progress: Index of Parental Attitude (IPA) and Child's Attitude toward Mother (CAM). The instrument was administered weekly, for ten weeks. The data was tested for autocorrelation; and divided into two phases. The data was analyzed using SINGWIN. Using the desired zone of 65, the Proportion Frequency noted significant differences between phases,  $p=0.00$ . D Index indicated 49% increase in the desired area. Statistical Significance was attained. Using measurements on a weekly basis help me understand the weekly progress of the client, and help me make changes and strengthen the intervention accordingly, which in turn benefitted the client and improved the social

work practice process. Now I feel competent as I know how to measure my own practice.

**SS-SW28 - Rashuanna Taylor**

Dr. Shinaz Jindani, Savannah State University  
**Impact of Motivational Interviewing on Life Contentment**

Certainly unemployment has a strong causal effect on negative mental health outcomes and lower life contentment. Based on Social Learning Theory, Motivational Interviewing was used to teach new Life and job skills to the client. Strength Perspective complemented this intervention resulting in higher life contentment. Ten item instrument measured life contentment. Proportion Frequency noted significant changes between phases ( $p=0.00$ ). Delta Index noted 7% increase in desired direction. Thus integrating evidence based theory and practice approach resulted in attaining social work goals. As this practice process continues, the client will need other skills to sustain the employment and regulate her behavior at work. This may call in for a therapeutic intervention and restructure of a thought process. Through this process I learned how to measure my own practice and results helped me understand my next steps in the intervention process. This has contributed to my own sense of practice effectiveness as a social worker.

**SS-SW29 - Sandra Scott**

Dr. Shinaz Jindani, Savannah State University  
**Medication Magic Followed by Dialectical Behavior Therapy**

A depressed elderly female patient was admitted to the Senior Care Unit of Memorial to treat her diagnoses. Using Dialectical Behavior Therapy, the client was able to learn that she was afraid to express her needs to her family due to fear of disappointing them. Using the Generalized Contentment Scale consist of ten items the tool was able to measure the effect DBT had on the patient's depression. The small sample size small proportion frequency did not note any significant changes between the phases ( $p=0.11$ ). However, the D-Index noted a 4% increase in the desired direction. The assessment (IDV), intervention (x1

& x2), resulting goal (DV), and continues measurement gave me my perspective of my DBT practice effectiveness.

**SS-SW30 - Sara Weikel**

Dr. Shinaz Jindani, Savannah State University

**Regulating Anger of an Incarcerated Client**

Single Subject was a 76 year old, incarcerated, male client, with a diagnosis of Cognitive Disorder NOS and Depressive Disorder due to Traumatic Brain Injury. The client identified anger as a major issue. Using Evidence Based Intervention, the TARGET model was selected as a mode of intervention to help him regulate his anger. This model takes into account the trauma and extreme emotions of the client. Under this model, talk therapy, counseling, and journaling were combined to help the client regulate his anger. This enabled the client to openly discuss what angered him, and identify his triggers. A twenty item scale was used to measure the client's anger. In all, eight data points were gathered. The first four data points (Phase I) were compared with the second four data points (Phase II). Proportion Frequency noted significant changes between phases ( $p=0.00$ ). Delta Index noted a 30.3% decrease in desired direction. Through this project I learned to adapt the treatment plan (X) with assessment factors (Independent Variable). As the treatment progressed, I was able to use the weekly data to inform my practice. Further, I understood how the theory provided overarching framework to the entire social work practice process. I not only learned to integrate research methods with the practice process, I also learned to use this to loop back into improving my practice. Reflection has helped me obtain a view about my own sense of practice effectiveness.

**SS-SW31 - Shante Butler**

Dr. Shinaz Jindani, Savannah State University

**Implementing Behavior Activation Therapy and Positive Self Talk To Regulate Mood and Depression**

When a veteran is repeatedly deployed in a combat zone, it is obvious that medication alone may not be sufficient. Therefore, a careful

selection of Behavior Analytical Theory that supports Behavior Activation Therapy was implemented to help this Single Subject client with Mood Disorder and Depression. Using a 10 items instrument six data points were obtained to measure fluctuations in mood and depression. First three data points (phase I) were compared with last three data (phase II) points. Proportion Frequency noted significant changes between phases ( $p=0.00$ ). Delta noted Effect Size of 49% improvement in mood regulation and lowered depression. Through this project I learnt to use Evidence Based Intervention that was rooted in theory. I also learnt to measure practice effectiveness and gain an understanding of how my practice was impacting client's lives in positive ways. In this sense I have gained a specific sense of Social Work as part of my unfolding social work identity.

**SS-SW32 - Shonta Hazel**

Dr. Shinaz Jindani, Savannah State University

**Empowerment Theory As A Process: Constructs of Self Worth**

There are an old sayings such as, beauty is only skin deep • and beauty lies within, how true that is for some people. Depending on how one may view themselves will determine which statement is true or not. Self worth plays a part in those views. Often being used interchangeably with self esteem, self-worth is about who you are, whereas self esteem is about what you do. We spend years of critiquing ourselves and we still don't know who we really are-inside or out, until someone convinces us with what they think beautiful is. This research examines the seven contingencies of self-worth to determine its effectiveness in increasing self-esteem using the empowerment theory.

**SS-SW33 - Stephanie Miller-Hiatt**

Dr. Shinaz Jindani, Savannah State University

**Reflections From Autoethnography: Liberating From a Negative Experience**

I made a conscious decision to seek social work. Throughout my journey of becoming a Master of Social Work (MSW) I have faced many challenges as well as positive experiences. Either



way I have learnt a lot and grown, professionally and personally. This Autoethnography research reflects upon my subjective analysis of personal philosophy of social work and my track as to how I arrived at it. Using Narrative Inquiry, I described a Critical Incident, where I did not experience automatic acceptance by one of the agency staff members. I was nested in a hostile environment, where I did not find support and constantly had to prove my skills. The perception of constantly being under watch was stressful. One of the respondents stated, 'If you are holding someone hostage for what they do or did in your own mind, you are investing your own energy in that negative experience'. This has helped me arrive at a personal philosophy to be engaged with those who see my strengths and foster my confidence. And now, I do the same with clients and use 'Strength Perspective' as my Theory in Action. This perspective is rooted in 'System Theory' that emphasizes reciprocal relationships, respectful exchange and supportive social environments. This is my Espoused Theory. I see linkage with a holistic method of 'Meaning-Centered Therapy' that is focused on a mind, body and soul approach. I therefore purport mindfulness as an important component of Clinical Social Work.

### **SS-SW34 - Taleshia Wilson**

Dr. Shinaz Jindani, Savannah State University

#### **Depression & Anxiety:**

Given the high prevalence and burden associated with depression and anxiety disorders and the existence of treatment barriers, there is a clear need for brief, inexpensive and effective interventions such as passive psychoeducational interventions. There are no published meta-analyses of the effectiveness of passive psychoeducation in reducing symptoms of depression, anxiety or psychological distress. Depression disorders are common major sources of personal distress and social disability (Dowrick, 2000). Psychoeducation emphasizes instruction not therapy and promotes relaxation, positive thinking, pleasant activities, and social skills (Dowrick, 2000). The purpose of this study

was aimed to examine whether an intervention has the intended effect on an individual/client. This study was conducted during the fall semester of the 2015 school term. The focus was on a young mother with three small children suffering from depression and anxiety. The client came to the attention of Child Protective Services due to lack of supervision and mother not addressing her depression and anxiety. The client began receiving services. The intervention technique that was used was psychoeducation as a form of CBT.

### **SS-SW35 - Tia Fletcher**

Dr. Shinaz Jindani, Savannah State University

#### **Using Talk Therapy as an Enable for Self-Esteem**

When I look at myself, I do not recognize the woman I've become. My hair, my eyes. My face, my voice, my appearance has changed and I don't know how to feel better about me. Self-esteem can be defined as an overall opinion that a person has of themselves and the attitude they have toward themselves as well. When a person has a low self-esteem or a diminished sense of self-worth there is an increased chance of individuals tolerating unhealthy relationships, not being able to make positive advancements in treatment and become a higher risk for other mental issues. This paper will look at how talk therapy, also known as psychotherapy acts as an enabler for individuals that may be suffering from low self-esteem.

### **SS-SW36 - Tysheka Rice**

Dr. Shinaz Jindani, Savannah State University

#### **Solution-Focused Therapy with an Adolescent: Strengthening Self-Esteem and Peer Relations**

On a daily basis school social workers encounter students with a plethora a social emotional issues which negatively impact the students' academic performance. As the school setting is centered on academics, there is limited opportunities for social workers to engage students in regular one on one counseling. In recent years solution focused brief therapy (SFBT) has received more

attention in school settings. SFBT focuses more attention to problem solving rather than problem dwelling. Journaling and role play was implemented for an adolescent client that experiences difficulty with peers and has been the victim of bullying. Using the AB research design, self-esteem and peer relations were measured for 11 weeks using a fourteen item questionnaire. Effect Size Delta noted a 40% increase in the desired direction at the end of week 11. This research project informed me about the client's progress, which I then reflected upon and gained a sense of practice effectiveness.

### **SS-SW37 - Vernetta Poston**

Dr. Shinaz Jindani, Savannah State University

#### **In Deep Thought: Using Meditation to Ease the Symptoms of Depression**

Depression is a mental illness which effects people regardless of age, race, nationality, gender, culture, socioeconomic background, or sexual orientation. Research has noted various possible causes for depression but we are still far from finding a cure. There are many treatments for the symptoms of depression, from therapy to medication and many in-between. However, in this day and age with so much knowledge at our finger tips, people are growing more and more interested in diagnosing and curing themselves as opposed to going to a medical professional. Meditation may not be the cure for depression, but could it be a contender in controlling depressive episodes?

### **GR-SW01 - Christy Anderson**

Dr. Shinaz Jindani, Savannah State University

#### **Parental Perception Of Their Children's Body Weight**

Parent's communication style and their perception about their own weight and their child's weight influence how children feel about themselves. Additionally parents who perceive that their children are overweight will make some effort in helping their child get to the ideal weight. They may even communicate their concern to their child/children. On the other hand, parents who do not see their child as overweight

or obese, may make no efforts in fostering life style changes. This research explores the relationship between parental perception of their relationship with their child and how they choose to teach or not teach healthy food habits (dependent variable) to their children. Using sample of convenience, a 10 items instrument will be administered to parents.

### **GR-SW02 - Cristian Rodriguez**

Dr. Shinaz Jindani, Savannah State University

#### **Stigma of Hospice**

This study will explore the reasons people are reluctant to seek hospice care. Hospice is recognized for providing excellent end-of-life care to patients who have six months or less of life to live. Although the information about hospice service is readily available, there's a huge stigma about hospice that describes hospice as a death bed. Historically, there is lower satisfaction among patients and family members who are referred to hospice after prolonged aggressive treatment. Using the sample of convenience this research will administer 29 item scale to the respondents. The questionnaire uses Rosenberg's Self Esteem Scale and self-created 19 items on knowledge and perception about hospice services. The data will be analyzed using SPSS. Descriptives will be reported. Social work implications will be discussed.

### **GR-SW03 - Crystal Harris**

Dr. Shinaz Jindani, Savannah State University

#### **The Marginalization of the Homeless: Employers' Prevailing Attitudes and Hiring Practices**

Homelessness is an undesired outcome of unemployment and underemployment. How can society end homelessness? Often times, the public's response is affordable housing. How affordable must housing be when you can't afford the application fee? Homelessness is a multifaceted issue with no single entry point solution. This research explored Effingham County, Georgia employers' perception about the causes of homelessness. Research has shown that individuals preconceived attitude towards the homeless can impact hiring policies.

Furthermore, we explored if a correlation existed between employers' attitudes towards homelessness and hiring practices. The primary methodology utilized was a seven item Likert scale survey with closed and opened ended questions. Our sample frame consisted of hiring managers within the business community. We used the survey as a tool to facilitate meaningful conversations regarding what may constitute as gatekeeping policies in practice. Gatekeeping policies that were of particular interest were the pre-screening, screening, and multiple interviewing practices for non-managerial positions. This exhausting process was seen as mechanical, impersonal and gatekeeping by design to further marginalize skilled applicants. The intended impact of this mixed-method research was to dispel the myths about homelessness and to advocate for whom we have identified as a special population of skilled applicants. The supported findings were shared with local homeless agencies to identify businesses in support of ending homelessness through economic empowerment.

### **GR-SW04 - DeShyla Brockington**

Dr. Shinaz Jindani, Savannah State University

#### **What Influences does an effective teacher have on students success?**

More than any other aspect of schooling the teachers matter more to the student achievement. Many factors contribute to a student's academic performance, including individual characteristics and social environment experiences, but research suggests that among school related factors, teachers matter most. Effective teachers are not easily identified by their credentials, the way to measure a teacher's effectiveness is to examine their performance which must include their classroom behavior and their student's progression. This research studies the relationship between effective teaching and student success. This is measured through 23 item questionnaire that uses 1-5 Likert Scale. Using the sample of convenience this questionnaire will be administer to the students at Savannah State Campus. The data will be analyzed using IBM

SPSS Statistics. This research hopes to build knowledge that will help many professors strengthen their teaching.

### **GR-SW05 - Duane Burton**

Dr. Shinaz Jindani, Savannah State University

#### **Homelessness and its Impact on Religious and Spiritual Beliefs.**

This study explores a relationship between individual's homelessness and their religious and/or spiritual beliefs. It might be worth to discover this relationship as one might assume that when one is in constant search of survival resources, how one can also be in constant search of god or higher power. Does homelessness strengthens spiritual beliefs or deters one from believing? This research compares two groups, homeless and not homeless and uncovers spiritual beliefs as dependent variable. Using a sample of convenience, 37 item questionnaire including demographics will be administered to 100 individuals. Bivariate analysis will be reported. Implications for social work will be discussed.

### **GR-SW06 - Jacquelyn Ferguson**

Dr. Shinaz Jindani, Savannah State University

#### **Applying mindfulness Meditation for Stress Relief**

Stress is defined as an occurrence between the person and their environment that elicits a stimulus and response process which typically has a negative outcome (Lazarus and Folkman, 1994). The American Psychological Association has reported that 67% of Americans experience emotional symptoms of stress and 72% of Americans experience physical symptoms which makes stress one of the leading health issues of today (American Psychological Association, 2014). Stress may lead people to negatively cope and cause an impact on our physical and mental well-being, causing such illnesses as high blood pressure and depression. Becoming aware of how stress impacts our daily living and learning how to alleviate it may lower our chances of illnesses and disease. Current research has documented mindfulness meditation as a useful resource in stress relief. Since meditation is a free medical model in which to lower stress levels in our daily

lives, it is an affordable and sustainable alternative to other costly therapies. The goal of this study is to study the relationships between mindfulness meditation, awareness, and stress symptoms.

**GR-SW07 - John Estep**

Dr. Shinaz Jindani, Savannah State University

**Combating Homelessness: A comparative study**

In 2009 the Obama administration set a goal to eliminate veteran homelessness by the end of 2015 and since then tremendous strides have been made in efforts to accomplish this goal. Various laws and policies have been introduced based on individuals in the field believed to be best practices and best for the individuals who are facing homelessness. The current methodology for combating homelessness is a housing first model. The housing first model does allow individuals to get off the streets faster than other models furthermore, studies seem to show that this is an effective model in the fight against homelessness. In this study the author will explore what other models are being used to combat homelessness and are they as effective or more so?

**GR-SW08 - Joy Smalls**

Dr. Shinaz Jindani, Savannah State University

**Job Characteristics Study**

It is not secret that workers will be more productive if they experience job satisfaction. This study explores the relationship between Pay, Job Characteristics and Job Satisfaction. It hypothesizes that Pay and Job Characteristics will predict Job Satisfaction. Using 24 Item questionnaire, respondents will be asked to respond to a two page questionnaire that also includes demographics. This questionnaire will be administered at a small business organization. Employees will volunteer and respond. There is no reward associated with participating in this survey. Currently IRB request is under consideration. Data will be gathered and responses will be tabulated using IBM SPSS Statistics. Implications for Social Work will be discussed.

**GR-SW09 - Lauryn Webster**

Dr. Shinaz Jindani, Savannah State University

**Quality of Life**

The quality of life indicator is frequently studied to arrive at an understanding of a community's survival and thriving nature. In order to study quality of life, a 24 item questionnaire along with demographics has been designed. This questionnaire uses 1-4 Likert Scale. This will be distributed throughout the housing complex to each apartment. A responsible adult in each of these families will respond to this questionnaire. This study hypothesizes a positive relationship between educational levels and quality of life. Further it assumes that there will be positive links between the use of services and quality of life. Analysis and data collection will be conducted after IRB approval.

**GR-SW10 - Lori Williams**

Dr. Shinaz Jindani, Savannah State University

**Does knowing your HIV Status help determine your generalized level of contentment?**

Every year a growing number of students are being infected with the Human Immunodeficiency Virus (HIV) on college campuses. In 2001, the Centers for Disease Control and Prevention (CDC) issued revised guidelines for HIV counseling and testing, emphasizing the importance of testing in non-traditional settings (Cuneo, Hicks, Miligan, & Rutstein, 2014). Non-traditional settings include college campuses. While a number of campuses have certified agents on campus to do HIV testing, there are still an alarming number of campuses who do not have protocols in place for testing. College campuses may provide a unique setting to deliver HIV testing and may help increase the percentage of young people who are aware of their serostatus, particularly younger, female, and African American students who may be less likely to undergo testing in traditional clinic settings. (Przybyla, S. (2013)). Therefore the role of HBCU becomes all the more important as it is traditionally recognized for enrolling African American. This research explores student's 'Level of Contentment' as a Dependent

Variable and HIV status as Independent Variable. In additionally, qualitative interviews with key staff members on Savannah State University's campus will explicate the protocols not only for testing but also for prevention education.

**GR-SW11 - Lynett Marsh**

Dr. Shinaz Jindani, Savannah State University  
**Underage Drinking on a College Campus, Did It Really Start At Home?**

There are young people drinking on a college campus. However did they begin drinking while in college or did they really start while they were at home in high school, or middle school. Some say that college students feel peer pressure to drink on campus. However, college student who drink at college possibly started to drink before they came to college. The only pressure that a student has encountered is from their parents and not from their peers. Studies are showing that teenagers are starting to drink more at home, because they see their parents drinking. Also, they start to drink because their parents talk to them about not drinking that they end up rebelling against their parents. Some parents provide the alcohol to them. In most states it is not illegal to be around your parent or a spouse, if the minor is married and have a drink. This study might find an association between the college students starting to drink at home before they arrive at college and not while they are in college. It is therefore imperative that College campuses offer alcohol anonymous groups and other support services that will regulate drinking in college going population.

**GR-SW12 - Nathaniel Maddox**

Dr. Shinaz Jindani, Savannah State University  
**The Significance of Social Attachments for Life Satisfaction among Gender Nonconforming College Students**

Prior scientific studies demonstrate that life-satisfaction is negatively correlated with gender nonconformity in adolescents. There is, however, little agreement as to why. Some argue that gender nonconformity is negatively correlated with life-satisfaction not because of gender nonconformity as such. Rather, the individual's

internalized felt need to conform to an external, ideal standard of behavior is the primary contributing factor. Still others argue that consistent exposure to negative parenting and peer interactions, such as bullying, inconsistent parenting, and lack of peer acceptance likely account for the negative correlation between gender nonconformity and life-satisfaction. Our research seeks to determine if healthy attachment styles among gender nonconforming college students is positively correlated with life satisfaction. Healthy attachment styles among gender nonconforming college students might be a mitigating factor, increasing likelihood for life-satisfaction among gender nonconforming college students when compared with peers with poor attachment styles. By better understanding the impact of gender socialization and conformance on life satisfaction, systematic approaches can be developed to assist nonconforming college student in building positive and meaningful life. Recommendations will be made based on findings.

**GR-SW13 - Safiyah Alexander**

Dr. Shinaz Jindani, Savannah State University  
**What percentage of children that witness domestic violence become victims as adults?**

The intention of this research is to determine what percentage of children exposed to domestic violence become victims of domestic violence as an adult. Numerous studies have demonstrated that children exposed to domestic violence and/or child abuse are more likely to experience a wide range of adverse psychosocial and behavioral outcomes (Moynan, et al., 2009). Beyond the psychological effects, studies have found that children who witness domestic violence are at higher risk than other children for experiencing physical abuse themselves (Antle, Barbee, Yankeelov, & Bledsoe, 2010). Every year an estimated 3.3 million to 10 million children are exposed to domestic violence in their home (Moynan, et al., 2009). In a recent study of the intra- and intergenerational associations between domestic violence and child maltreatment, Renner and Slack (2006) found that childhood

physical abuse, sexual abuse, and witnessing domestic violence were significant predictors of adult violence victimization (Antle, Barbee, Yankeelov, & Bledsoe, 2010). The data will be collected by surveying 100 random individuals that may or may not have experienced violence as a child or as an adult. The survey is comprised of 20 questions limited to the link of the individuals' childhood experiences with or without domestic violence and their adult experiences with or without domestic violence experiences. The participants (adults) will be between the ages of 18 and 65+ years old. This study measures whether or not there is a relationship between experiencing abuse as a child and becoming a victim of domestic violence as an adult. A sample of 100 randomly selected individuals will receive this questionnaire. This study hypothesizes that there is a direct correlation between children experiencing or witnessing domestic violence and the odds of them becoming a victim of domestic violence as an adult. The data collection is currently in process. Findings will be reported using bivariate statistics. Social Work implications will be discussed. Person-in-Environment is the theoretical framework that will be used in this study. The environment influences the outcome of the individual's life experiences, and expectations, which in turn will determine the outcome of the life of the individual. Children that witnesses domestic violence in the home on a regular basis will believe that domestic violence is 'normal'. As human beings we live what we learn. When taking the environment into consideration, it provides a background for the development of an individual's pattern of thought and expectations.

### **GR-SW14 - Shaneka Riley**

Dr. Shinaz Jindani, Savannah State University

#### **Life Contentment and Its Relationship with Domestic Violence**

In 2014, there were 117 domestic violence deaths recorded in Georgia. (Georgia Health News, 2014). Domestic violence can be physical, sexual, emotional, economic, or psychological actions or threats of actions that influence another

person. This includes any behaviors that intimidate, manipulate, humiliate, isolate, frighten, terrorize, coerce, threaten, blame, hurt, injure, or wound someone (United States, Department of Justice (2015). It is therefore no surprise that the victim's life contentment dwindle to zero, as this is a life changing, traumatic experience. The purpose of this study is to explore a relationship between the past domestic violence experience and current level of life contentment. This study assumes that seeking shelter at domestic violence shelter will increase life contentment. Is it so? This study will administer a questionnaire to the shelter residents and gather data. The questions on physical and nonphysical violence (independent variable) will help establish the level of domestic violence and the questions on life contentment (dependent variable) will help understand their current levels of contentment. The study is under data collection process. Findings will be analyzed using IBM SPSS Statistics. The report will include recommendations for human service professionals.

### **GR-SW15 - Shermaine Johnson**

Dr. Shinaz Jindani, Savannah State University

#### **Family Relations and Career Aspirations**

Research on career development has provided information on the influence of family contextual factors, such as socioeconomic status, that are associated with career development, yet it is unclear how the relationships within the family facilitate or inhibit successful career development (Rebecca June-Schapeler Bergen, 2006). This research explores the relationship between family relations and career aspirations of college going students with all classification statuses. It hypothesizes that the students who have higher family relations are more likely to have higher career aspirations than those who have lower family relations. This study uses a 20 item questionnaire, along with demographics to have a more concise reading for results. Using the sample of convenience this will be administered to the Savannah State University students. The data will be analyzed using IBM SPSS Statistical

package. Findings will be used to recommend appropriate services for students.

**GR-SW16 - Staci Brownlee**

Dr. Shinaz Jindani, Savannah State University  
**Family Engagement Events Effect on Young Children's Early Literacy Skills**

Family engagement events are crucial to any Head Start Program. It is unfortunate that many parents cannot take advantage due to other demands. One of the major goals of Head Start Program is to enhance literacy skills of the students. This can be enhanced through family engagement. The purpose of the study is to determine if the Head Start family engagement events have an effect on young children's early literacy skills. This study explores the relationship between Family's attendance to the events and children's literacy skills. Hopefully this will produce an evaluative data and inform on success and barriers to Family Engagement events. The data collection is in the process. IBM Statistics will be used to analyze the data. Recommendations will be made to strengthen Family Engagement and improve student's literacy skills.

**GR-SW17 - Stacy Mcnair**

Dr. Shinaz Jindani, Savannah State University  
**Life Contentment with Permanent Housing**  
Life contentment is associated with living conditions, such as food, health, and shelter. Permanent supportive housing is used to address homelessness. Supportive housing offers services such as case management, treatment services, and counseling to aid reintegration into the community. The purpose of this study is to determine the life contentment with permanent supportive housing. This study explores the contentment of permanent supportive housing. Hopefully through this study it will produce data that is beneficial to permanent supportive housing. The data collection is in the process. IBM statistics will be used to analyze the data. Recommendations will be made to strengthen the contentment of permanent supportive housing and improve resident's outlook on life.

**GR-SW18 - Stephanie Butler**

Dr. Shinaz Jindani, Savannah State University  
**Does Forensic Human-Animal Interaction Paired with Group Therapy Increase Prosocial Behaviors in Low Risk Offenders While Incarcerated?**

This experimental field study will evaluate the effects of a forensic human-animal interaction program on the prosocial behaviors of low-risk offenders while incarcerated. The study will assess the impact of a human-animal interaction (HAI) program using between subject methods and analyses. There will be a total of 20 male inmates that will participate. The participating inmates will allow researchers to access their institutional files and complete self-report measures. It has been hypothesized that the HAI program will result in positive behavioral and psychological outcomes for the inmates in the areas of responsibility, empathy, self-control, and cooperation. The analyses will compare two groups of inmates in a pretest-posttest repeated measures design, comparing a treatment group and a control group. The treatment group will participate in the programs Operation New Hope (ONH) and Promoting Prosocial Attitudes With Success (PPAWS), while the control group be comprised of inmates in the work release program. Both the treatment group and the control group are inmates within the Chatham County Jail that are hired to work within the jail. The inmate treatment group, are hired to work for Operation New Hope and are paid \$28 a week. This payment comes from the jail, not from the researcher. The inmates who are a part of the control group are also hired by the jail, these inmates hold a variety of jobs, but are also paid by the jail, not by the researcher. Once the data has been collected, the pre and posttests from both the treatment group and the control group will be compared to see what progress or gains that individual inmate has made, these results will also be compared treatment group vs. control group. The HAI scale will be filled out everyday by all participates; this data will then be separated by treatment and control group and then

compared against each other. Results of the data analysis will be indicated in April of 2016.

**GR-SW19 - Tameka Brown**

Dr. Shinaz Jindani, Savannah State University

**What Factors Influence Career Choice**

The purpose my research is to determine what factors ignite career aspirations. It is readily agreed that education is the answer to any country's poverty problems. Poverty is the biggest crisis of our time, as one my professor states. This research assumes that education alone is not enough. Family, school and social media together must ignite career aspiration. Education plus career aspiration will resolve poverty in our society. Over time the job market has seen many changes. Economic growth, improvement in technology, demographic shifts, and changes in consumer taste have all affected employment both positively and negatively. Both the number of jobs and the type of jobs that are available have been affected. As our country evolves and grows, our job fields will continue to grow and change (Beggs, 2004) Therefore this research explores how career aspirations were acquired by the respondents age 18 and older. It uses a 20 item questionnaire along with demographics, to investigate the role played by the family, school and other institutions in igniting Career Aspiration. The data will be analyzed using IBM SPSS Statistics. Bi-variate analysis will be used. Findings and Social Work implications will be discussed.

**GR-SW20 - Tashina Hopson**

Dr. Shinaz Jindani, Savannah State University

**The Effects of Disorganized Neighborhoods on the Higher Learning of the Homeless and Those at Risk of Being Homeless College Students**

The McKinney-Vento Act was put in place as a result of homelessness. The McKinney- Vento Act only mentions education for students in kindergarten through twelfth grade. Young adults who have previously graduated high school and are interested in pursuing higher learning are left out of this policy and others similar. Because

homeless individuals tend to reside in disorganized neighborhoods, they face environmental stressor while obtaining a degree. The idea of the social disorganization theory is that a lack of parental supervision leads to delinquency, failing grades, and all around deviance among children and teens. Because no other theories have sprung from McKay and Shaw's theory nor has more research been done on the topic, there is a lack of information regarding the delinquents after delinquency or those that were an exception. The correlation between homelessness among college students and their disorganized environmental backgrounds, I expect, have an effect on students in this particular circumstance motivation to attend college, their academic abilities while attending college, and their financial stability.



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