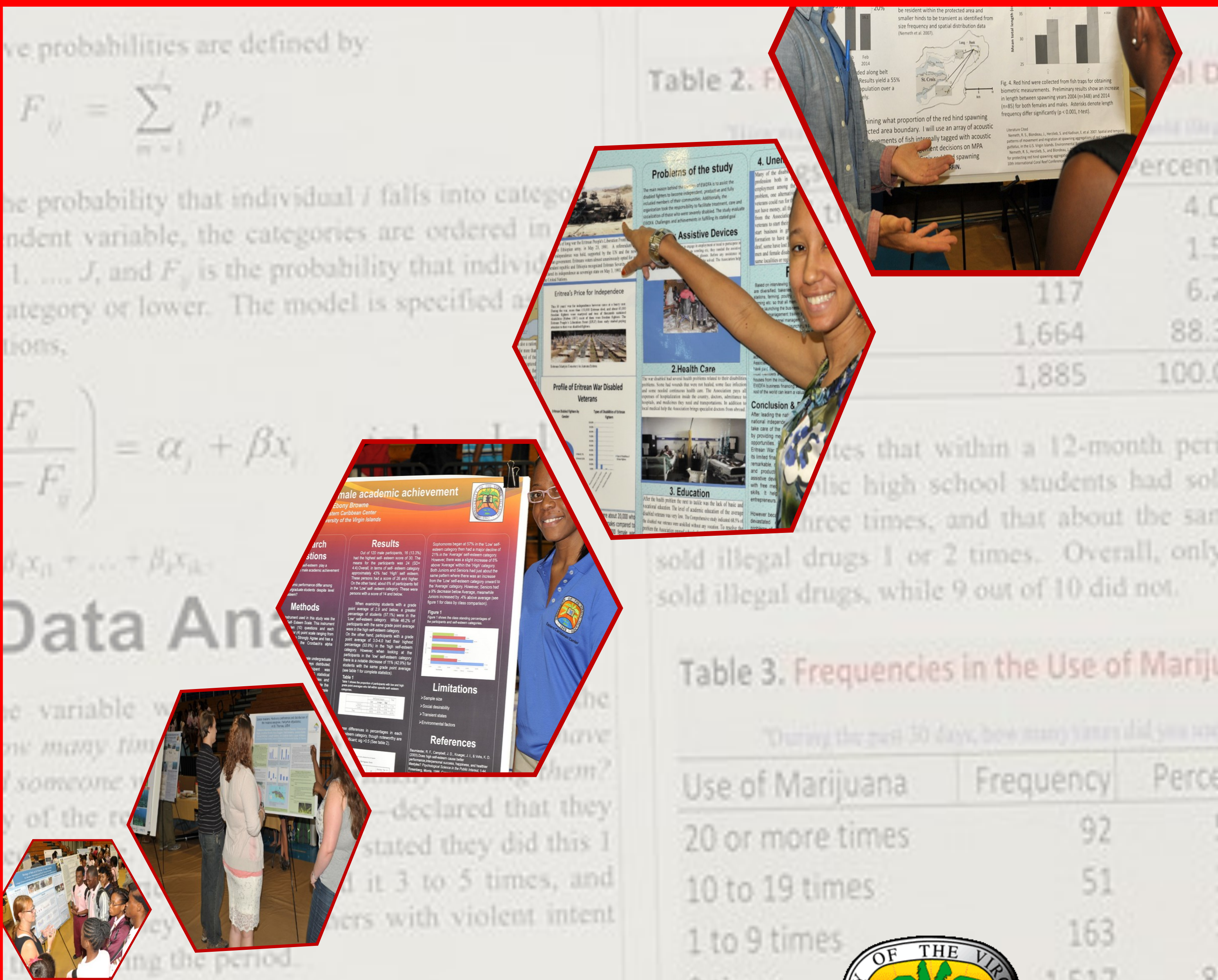
UVI Research Day

April 9, 2015

St. Croix :
UVI Great Hall

St. Thomas:
UVI Sports & Fitness Center



The *UVI Research Day* Committee

would like to express gratitude

to the sponsors of

UVI Research Day 2015:

- **Office of the Provost**
- **Office of the Vice Provost for Research and Public Service**
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**This program awarded a grant to the UVI Agricultural Experiment Station.*

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MESSAGE FROM THE PRESIDENT OF THE UNIVERSITY OF THE VIRGIN ISLANDS

It is my distinct honor and privilege to welcome you to the fourth annual ***UVI Research Day***! The University of the Virgin Islands embraces the unique responsibility that we have as the only public institution of higher education in the Territory to provide educational programs that address the challenges and embrace the opportunities that impact the Territory and the region. We at UVI are truly excited about the pivotal role that the University continues to play in the effort to respond to issues and challenges that have impacted the Territory, the wider Caribbean region, and beyond. One of the most thoughtful ways of doing this is through scholarly endeavors, chief of which is the conduct and pursuit of research endeavors. Today's UVI Research Day provides an opportunity for faculty, students and staff within the institution to showcase the research that they have undertaken to highlight diverse topics that impact our community and region.

Research Day has become one of the cornerstones of our University's community outreach. It is a special opportunity to showcase the important and cutting edge research of our students and faculty. I encourage members of the community to take advantage of this impressive display of projects, posters and experiments. Each year I have gained so much insights from this experience. We are especially excited that high school students from various local high schools will be in attendance. I know they will be inspired to create their own ideas and pursue their own research dreams.

The research showcased today represents a diversity of fields and is sure to pique the interest of those in attendance. Poster Sessions will showcase research in the areas of youth and gang violence, legalization of marijuana, intimate partner violence, environmental health in industrial areas on St. Croix, threats to our coral reefs, changes in lionfish prey consumption and biometrics, and the effects of social media. Roundtable discussions will focus on medical marijuana in the U.S. Virgin Islands, racial disparity within state and Caribbean prisons, the impact of social media on Virgin Islands and Caribbean culture, the issue of large-scale development on Mandahl Bay on St. Thomas, the effects of alcohol consumption on juvenile delinquency, and the emerging trends and risks of club drugs. I encourage all participants to take advantage of the opportunity that today presents to get a better understanding of the research being conducted at UVI and the significance of this research to educational, environmental, and economic health of the Territory.

I salute all the presenters and encourage each of you to continue your research endeavors. I especially want to thank Dr. Frank Mills, Vice Provost for Research and Public Service, for his outstanding and consistent leadership in organizing this important project. No university can be great without a strong research base. Research can and should be transformational – hence its importance in moving us forward on our path to greatness. Congratulations to the organizers and all those who worked tirelessly to ensure the success of the fourth annual UVI Research Day!

Research is the key to new worlds, and this day is an opportunity to see the worlds that our faculty and students are exploring and creating. I am confident that the day will be both educational and inspirational. Thank you for taking the time to experience this research showcase of the University.

David Hall

David Hall, SJD
President

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MESSAGE FROM PROVOST AND VICE PRESIDENT FOR ACADEMIC AFFAIRS CAMILLE A. MCKAYLE, PHD RESEARCH DAY 2015

Welcome to Research Day 2015! This annual event serves to give you a glimpse into an integral part of academia: research. Today, you will be immersed in current research emanating from the University. Projects will be presented by members from the University's Colleges and Schools: College of Liberal Arts and Social Sciences; College of Science and Mathematics; School of Education; School of Business; School of Nursing. In addition, research will be presented by members of the Research and Public Service arm of the institution: Agricultural Experiment Station; Eastern Caribbean Center; Center for Marine and Environmental Studies; Virgin Islands Water Resources Research Institute; and the Virgin Islands Experimental Program to Stimulate Competitive Research. There will also be presentations from some of the University's Centers: Caribbean Exploratory Research Center; Caribbean Green Technology Center; Virgin Islands Center for Excellence in Development Disabilities. Included will also be presentations from students, who have done research here at UVI, and also at other institutions across the Nation. Research Day 2015 embodies the teaching, learning and public service that is the life and mission of the University of the Virgin Islands.

A prominent goal of *Pathways to Greatness*, UVI's strategic plan for 2012-2017, is to "increase faculty productivity and effectiveness by expanding research and faculty scholarship expectations and opportunities". Many UVI faculty members inspire the next generation of researchers through the mentoring of UVI students. Those students who participate in UVI's special undergraduate research training programs go on to complete PhD programs at a rate (85%) that far exceeds the national average (50%). A few of those PhD recipients are our current UVI faculty. Our UVI students are the Nation's future researchers.

We invite the Virgin Islands community to see what excites our faculty and students. We invite researchers to see what others are doing and forge collaborations. We invite high school students to see what they can be doing in the not so distant future. We invite all to ask the tough questions that may spark the next research project.

UVI's Research Day epitomizes the University's mission which epitomizes excellent teaching, innovative research, and responsive community service.

Welcome, enjoy, and be inspired.

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Office of the Vice Provost for Research and Public Service

Our fourth annual *UVI Research Day* on the St Thomas and the Albert A. Sheen campuses promises to be larger and better. We are particularly pleased with the number of high school student participants that we have attracted to this year's event, as well as with the larger number of abstracts from both faculty and students throughout the institution.

Our current Strategic Plan 2017, *Pathways to Greatness*, embodies the idea that great research is necessarily a component of our work if we are to achieve greatness. We are delighted to welcome all participants, especially from the community, as we expose them to the various forms of UVI research—basic, applied and experimental development. The basic research of our natural scientists is largely driven by curiosity and a desire to expand our knowledge, as well as to enhance our understanding of the world around us. Our behavioral scientists are engaged in systematic inquiries that employ empirical methodologies to solve practical problems in the human environment. Our teaching faculty and their students, together with our research faculty and the students they employ, are all engaged in producing studies that we are eager to share with the community.

From time to time, residents seem to be consumed with controversial topics that seem to get vented largely on the radio. This type of discourse has its limits, and we therefore offer a number of round-table hot-button discussions that are led by persons who are informed on the subjects, and will offer opportunities to the layman for direct intervention in the informed debate.

Undergraduate students are enthusiastic about their poster presentations this year as their work is exposed to a larger viewing public, but also because their posters and presentations will compete for an award based on a set of research criteria.

Thank you for coming and for helping to inspire our students to achieve their best.

Frank Mills

Frank L. Mills

Vice Provost for Research and Public Service &
Chair, *UVI Research Day* Steering Committee

#2 John Brewers Bay ● St. Thomas ● U.S. Virgin Islands 00802-9990 ● Tel: (340) 693-1062 Fax: (340) 693-1065

Event Program

Thursday, April 9, 2015

ST CROIX

UVI Great Hall, Albert A. Sheen Campus, 9:00am – 3:00pm

a.	Poster presentations and display:	9:00am – 3:00pm
b.	Opening and keynote address:	11:00am – 11:30am
c.	Round-table discussions:	
	Low Level of Chytrid Fungus on the Island of St. Thomas	11:30am – 12:30pm
	Relationship between Childhood Maltreatment and Teen Dating Violence	12:30pm – 1:30pm
	Digital Cultures of Reconstruction After Place-Based Traumas: Rebuilding Home After Hurricanes Katrina and Hugo	12:30pm – 1:30pm
	Impact of Social Media on VI Caribbean Culture in the 21st Century	1:30pm – 2:30pm

ST THOMAS

UVI Sports & Fitness Center, 9:00am – 3:00pm

a.	Poster presentations and display:	9:00am – 3:00pm
b.	Opening and keynote address:	10:30am – 11:00am
c.	Round-table discussions:	
	Club Drugs: Emerging Trends and Risk	11:00am – 12:00pm
	A Comparative Analysis for Racial Disparity within State and Caribbean Prisons	11:00am – 12:00pm
	Impact of Social Media on VI Caribbean Culture in the 21st Century	11:00am – 12:00pm
	Does Alcohol Consumption Affect Juvenile Crime?	12:00pm – 1:00pm
	Shape Shifting: Transformation Through the Humanities	12:00pm – 1:00pm
	Influences that contribute to the rise in gun violence within our schools	12:00pm – 1:00pm
	Mandahl Bay: Is there an alternative to large-scale development?	1:00pm – 2:00pm
	Why do Youths Join Gangs?	1:00pm – 2:00pm
	Medical Marijuana in the U.S. Virgin Islands	2:00pm – 3:00pm

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UVI Research Day Committee (2015)

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Public Relations Specialist III, UVI Public Relations

St Croix poster presentations

Intimate Partner Violence: Characteristics of the Abuser

Wendy Aurelien
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

The purpose of this study is to determine if age, age differential, educational level, employment status and birth country of the male abuser predict the severity of intimate partner violence. The characteristics were purposefully selected characteristics in prior comparative case-control case study of 1,579 women in Baltimore, MD, St. Croix, VI, and St. Thomas, VI conducted by the faculty and consultants of the University of the Virgin Islands' Caribbean Exploratory Research Center from 2009 to 2011. Four hundred fifty six (456) women in the study stated they were abused by a male partner and reported that partner's age, education level, the employment status, country of birth. I will be able to calculate the age differential between the abuser and the victim. Women also completed the Danger Assessment Scale, which was used to assess the severity of the abuse. Using this secondary data, multiple linear regression analysis will be used to examine the factors associated with the possible risk for lethal violence among abused women.

STX-P1

Can you use alternative energy to run this system? Investment analysis in aquaponic system design

Donald Bailey
University of the Virgin Islands, Agricultural Experiment Station (Staff)

Aquaponics is an integrated aquaculture and hydroponic production system. It is operated as a recirculating system with the hydroponic beds acting as a biofilter for nitrification and the uptake of nitrate and other nutrients by vegetable crops. The intensive production of fish and vegetables in tanks requires energy inputs for water circulation and aeration to provide fish and nitrifying bacteria with oxygen for respiration and growth. The UVI Aquaponics System has continuous energy requirements of 3 hp; a 0.5 hp water pump, and 2 regenerative blowers; 1.5 hp for fish tank aeration and 1.0 hp for hydroponic bed aeration. The electrical power rate in the USVI for Commercial Service is $0.50719 per kWh consisting of the Base Rate: $0.103832, Fuel Charge: $0.400476 per kWh and other charges. This rate is three times the US national average and hinders the development of aquaponics. Alternative energy is proposed as a solution to offset the high cost of electricity but an investment analysis is needed to determine if a capital investment is a better option. Several alternative energy production scenarios exit, including solar, wind or mixed systems; off-grid or grid-tied. Investment analysis will study annual cash flow for an aquaponic system powered conventionally and compare with alternative energy scenarios. Payback period, net present value and internal rate of return for each scenario will be used to evaluate the use of alternative energy from an investment perspective.

STX-P2

Predictors of Delinquency among Youth in the United States Virgin Islands

Shanah Bannis

University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

A correlational study will be conducted to determine if there are predictor variables of delinquency among youth in the United States Virgin Islands. This study will assess youth's biological parents' marital status, youth's educational attainment, youth's household structure, and youth's self-esteem. These variables will be assessed using a survey that was developed using the elementary version of Rosenberg's Self-Esteem Scale and questions from the Department of Human Services' inquiry forms supplied in the appendices of the Eastern Caribbean Center's (2003) published study. These variables will be assessed in both residents of the Youth Rehabilitation Center (YRC) and a comparison group of non-residents of YRC who attend licensed after-school programs. The youth in YRC will be surveyed after assent is received. An individually matched comparison sample, based on age and gender, will be established using youth in the after-school programs. The data obtained will be analyzed using a multiple logistic regression with odds ratio to determine the effect size of the prediction.

STX-P3

UVI Substance Abuse & HIV/AIDS Prevention Program

Doris Battiste, Alyssa Ryan, Kimarie Engerman & Shakina Plunkett
University of the Virgin Islands, Caribbean Exploratory Research Center
(Research Staff)

The prevalence of substance abuse and the high rate of HIV infection in the Virgin Islands among young adults are alarming and create challenges for schools, the Health Department, the criminal justice system and the community as a whole. As such, the University of the Virgin Islands Substance Abuse & HIV/AIDS Prevention Project uses evidence based intervention and environmental strategies to reduce drug use and prevent HIV infection among college students and young adults in the surrounding community. The target population consists of African American/Black and Hispanics/Latino between ages 18-24. The objectives of the project are to increase the number of first time HIV testers and HIV testing opportunities; decrease alcohol consumption of college students and other participants by 30% and 10% respectively; and increase awareness and knowledge by 25%. Through partnership with Community Based Organizations (CBOs), the program addresses community norms that serve as barriers to reducing and preventing substance abuse and the transmission of the HIV virus.

STX-P4

Nutrient Concentration and Chlorophyll a: Studies in Salt River Bay and Bioluminescent Mangrove Lagoon, St. Croix, US Virgin Islands

Bernard Castillo II[1] & Kynoch Reale-Munroe[2]
University of the Virgin Islands, [1]College of Science and Mathematics
([1]Faculty, [2]Independent contractor)

Mangrove Lagoon in Salt River Bay is one of the popular tourist destinations in St. Croix. Within the bay, bioluminescent dinoflagellates (Pyrodinium bahamense) emit a vibrant glow when the water is disturbed. In 2012, the University of the Virgin Islands in collaboration with the National Park Service, University of North Carolina Wilmington and the University of South Carolina conducted a study, "Ecological Characterization of Bioluminescence in Mangrove Lagoon, Salt River Bay, St. Croix, USVI." The purpose of the research was to perform a comprehensive investigation of the physical, chemical, and biological characteristics associated with the planktonic bioluminescence phenomena in Mangrove Lagoon to determine causal mechanisms and identify key factors necessary for the preservation of bioluminescent activity. The team from UVI was tasked to collect water samples for water quality and phytoplankton analyses. During the study, three UVI student projects were also conducted that specifically compared nutrient concentrations and Chlorophyll a in Mangrove Lagoon and Salt River Bay. Results relating to water quality and nutrient concentrations indicated that there were no significant differences between the Mangrove Lagoon and the Salt River Bay study sites. Chlorophyll a concentrations were found to be significantly higher in Mangrove Lagoon compared to Salt River Bay.

STX-P5

Antioxidant Activity of Local Marine Algae

Bernard Castillo II[1] & Eva Taylor[2]
University of the Virgin Islands, College of Science and Mathematics
([1]Faculty, [2]Intern-High School Student)

Antioxidants can be found in plants as well as in algae. Antioxidants are substances that protect us against harmful processes and reactions that cause oxidation. Antioxidants have been linked to the prevention of neurodegenerative disorders, such as Alzheimer's and Parkinson's diseases, rheumatoid arthritis and some cancers and aging. Algae are potential sources of natural antioxidants. Previous studies have shown significant antioxidant activity in several species of Hawaiian marine algae. The purpose of this study was to examine the antioxidant activity of six local marine macroalgae. We hypothesized that the brown algal species would have higher antioxidant activity than the red or green algal species. The antioxidant activity was determined using ABTS/H2O2/HRP decoloration method and monitored using a UV-Vis spectrophotometer. The antioxidant activity was reported as Trolox equivalent (TE) per grams of fresh weight. Our results showed that red algae, Gracilaria, had the greatest antioxidant activity (108.62 µmol TE per gram of fresh weight) relative to other algae tested. The alga with the least total antioxidant activity was a brown species, Turbinaria, with 18.80 µmol per TE gram of fresh weight. Our results did not show a consistent trend in antioxidant levels based on algae colors.

STX-P6

Antioxidants in Dried and Fresh Herbs

Bernard Castillo II[1] & Eva Taylor[2]
University of the Virgin Islands, College of Science and Mathematics
([1]Faculty, [2]Intern-High School Student)

Antioxidants, touted as beneficial for your health, potentially preventing degenerative, neurological and cardiovascular diseases are found in the highest concentration in herbs and spices. The purpose of this project was to determine and compare the antioxidant activity of fresh and dried herbs. Our hypothesis was fresh herbs would have higher antioxidant activity than dry herbs. We also hypothesized that the hydrophilic extracts would have higher anti-oxidant activity compared to the lipophilic extracts. We collected fresh and dried samples of three different herbs: namely thyme, oregano and basil. Antioxidants were extracted in both aqueous and organic solvents. Antioxidant activity was determined using the ABTS/H2O2/HRP decoloration method and scanned at 730 nm using a UV-VIS spectrophotometer. The antioxidant activity was reported as Trolox equivalent (TE) per grams dry weight. Fresh oregano had the highest total antioxidant activity (2088.51 µmol TE per gram dry weight), relative to all samples tested. Fresh thyme had the lowest total antioxidant activity (200.48 µmol TE per gram dry weight) compared to all other samples. In general, results showed that most hydrophilic extracts had higher antioxidant activity than the lipophilic extracts and fresh herbs had higher antioxidant activity than dry herbs.

STX-P7

Adaptation of Intervention Tools for Virgin Islands Women Victims of Intimate Partner Violence

Allena Clifford[1] & Gloria Callwood[2]
University of the Virgin Islands, Caribbean Exploratory Research Center
([1]Undergraduate student, [2]Faculty)

Intimate partner violence (IPV) is a serious, preventable public health problem that affects millions of Americans. The term "intimate partner violence" describes physical, sexual, or psychological harm by a current or former partner or spouse. This type of violence can occur among heterosexual or same-sex couples and does not require sexual intimacy. The goal is to stop IPV before it begins. Programs that teach young people skills for dating can prevent violence. Based on a previous study that found high prevalence of Intimate Partner Violence (IPV) among women in the Virgin Islands, an intervention clinical trial is being initiated. This intervention adapts a nationally recognized program, Sister to Sister, to be used with women who report being in an abusive relationship along with the DOVE Inc. program which provides support for women in these types of relationship. This project will examine the process of adapting the Sister-to-Sister program along with the DOVE Inc. program in the US Virgin Islands to assure that it is culturally appropriate for use among women in the Virgin Islands. Separate focus groups of many community leader and abused victims were held on each island district. The focus of this research however was on the women's focus group held on St. Thomas and St. Croix USVI. Transcripts of the focus groups were analyzed using qualitative analysis software, Atlas-ti. Based on the focus groups there are slightly different perspectives on IPV by island districts. Women on St. Croix reported that this program would be beneficial; it would help in leaving an abusive relationship. Women in the St. Thomas district reposted wanting active involvement from community leaders and the police. We hypothesize based on these focus groups that we can create a program that it culturally acceptable to help women in Intimate Partner Violence relationships. Results showed that there is a great need to have a program in the Virgin Islands that is culturally acceptable to bring awareness, discourse and end IPV.

STX-P8

Exercise Adherence among Veterans with Chronic Diseases

Leon Cole
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

This study is being conducted to determine the extent to which military veterans with chronic diseases adhere to prescribed exercise regimen and the factors that create barriers to exercise regimen adherence. The 45 participants for this study will be military veterans who have been diagnosed with at least one of three chronic diseases (cardiovascular disease, kidney disease and osteoporosis) which benefit from exercise. Surveys will be distributed at the three posts of the American Legion on St. Croix. The survey is composed of questions to determine the chronic diseases the participants have, the exercise regimen recommended by their physicians, the degree to which they adhere to exercise regimen (using a Likert scale) and, if they do not adhere to the exercise regimen, the reason why. The first research question is "Does exercise adherence depend on the type of chronic disease?" Because my predictor variable is measured on the ordinal scale, the Kruskal-Wallis test will be used to determine the effect of disease on exercise adherence. The second research question asks "What are the reasons for nonadherence?" The degree of adherence and reasons for nonadherence will be compared to those found for mainland non-veterans.

STX-P9

Environmental Health in the Industrial Area of St Croix

Asha DeGannes[1] & Frank L. Mills[2]
University of the Virgin Islands, [1]Eastern Caribbean Center (Faculty)
University of the Virgin Islands, [2]Research and Public Service (Vice Provost)

Around the world, scientists have searched for confirmation that pollution is harmful to life on earth. Environmental factors, especially pollutants in the air, water and soil, adversely affect the health of four to five billion persons worldwide annually. Within the US Virgin Islands, there is widespread speculation that environmental pollutants on St Croix, mainly of industrial sources, have adversely affected the health of many of the island's residents. This study sought out to reveal differences, if any, between the perceptions of residents of the target and reference areas concerning the presence of environmental occurrences and the prevalence of adverse health conditions. Results showed that industrial area residents (as opposed to control area residents) were more likely to report that their households were impacted by strong and irritating odors, mold, transportation emissions/exhaust and factory smoke. Furthermore, inferential statistics displayed a statistically significant difference between the intensity of environmental conditions in the industrial versus control zones.

STX-P10

Using Sorrel Floral Bud and Calyx Development to Predict Harvest Date

Shamali Dennery[1]& Thomas W. Zimmerman[2]
University of the Virgin Islands, Agricultural Experiment Station
([1]Undergraduate student, [2]Faculty)

Sorrel (Hibiscus sabdariffa) is an important crop during the holiday season for the red calyx used to make a flavorful juice. Breeding work at UVI-AES has developed sorrel varieties to extend the season of the sought after fruit. The objective was to study sorrel bud and calyx development from February through March to be able to predict days to harvest from the size of expanding floral buds and calyx. Three inbred varieties and two hybrids were used. Seeds were planted in January and data collected twice a week on developing floral buds length and width. Upon flowering, data was collected on the expanding calyx. Harvest was determined when the calyx expansion ceased as seeds in the capsule matured. January planting of sorrel resulted in floral induction within a month after germination due to the short-day photoperiod. Both developing floral bud length and width can be used to predict harvest date for a sorrel variety or hybrid. This research was supported by USDA-NIFA-Multistate Hatch and USDA-NIFA-Insular Tropical Grant funds.

STX-P11

Stress and Marital Satisfaction as it Relates to Relationship Satisfaction

Deidre DuBois
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

The study that will be performed will be a correlation study to find how stress and marital status relate to romantic relationship satisfaction. Using the quota sampling system, the participants in this study will be 40 married and 40 single adults. The instruments that will be used will be an online survey managed from the Google Docs application to collect the data, the Funk and Rogge's Couple Satisfaction Index four-item measure, Cohen, Kamarck, and Mermelstein's Perceived Stress Scale, and a self-report for marital status. The researcher will gather the participants from the Kmart Company at both the Sunny Isle and Frederiksted locations. There are two predictor variables, stress and marital status, and one outcome variable, which is romantic relationship satisfaction. Pearson Correlation Coefficients and multiple regression analysis will be used to examine the data collected. Based on previous research, I expect to find an inverse relationship between stress and relationship satisfaction. I also expect to find more satisfaction with married individuals than that of their single counterparts. I am unsure how the two together will predict relationship satisfaction.

STX-P12

A comparison of gastrointestinal parasites during the postpartum period in two breeds of hair sheep

Ayu Elicker[1], Sue Lakos[2] & Robert Godfrey[3]
University of the Virgin Islands, Agricultural Experiment Station
([1]Intern-High School Student, [2]Staff, [3]Faculty)

It is well known that in sheep there is a periparturient rise in gastrointestinal parasite levels. This study was designed to evaluate the parasite burden of St. Croix White (STX; n =7) and Dorper x STX (DRPX; n = 7) ewes during the postpartum period. Beginning within 4 d of parturition fecal and blood samples were collected from the ewes weekly through d 63 postpartum to measure fecal egg counts (FEC) and packed cell volume (PCV). All ewes were dewormed at 56 d postpartum. There was no difference ($P > 0.10$) in PCV between STX and DRPX ewes (24.1 ± 0.7 vs. 25.0 ± 0.7 %, respectively). The DRPX ewes had higher ($P < 0.003$) FEC than the STX ewes (992 ± 189 vs. 448 ± 173 egg/g, respectively). The FEC in both breeds decreased ($P < 0.0001$) during the first week postpartum. The FEC of DRPX ewes was higher ($P < 0.003$) than that of STX ewes from d 14 through d 42 postpartum. After d 56 FEC of all ewes decreased ($P < 0.0001$) but there was no increase in PCV. These results show that DRPX ewes have higher gastrointestinal parasite burdens than STX ewes during the postpartum period, although none of these values were high enough to indicate a serious risk to the animal. This may be due to the innate parasite resiliency of the St Croix White breed.

STX-P13

Inducing Irish Potato Microtubers in Tissue Culture

Kenya M. Emanuel[1]& Thomas W. Zimmerman[2]
University of the Virgin Islands, Agricultural Experiment Station
([1]Undergraduate student, [2]Faculty)

Irish potatoes, Solanum tuberosum, regularly grown in Jamaica and St Kitts, are planted in October. Harvest of Irish potatoes stateside is September through October. However, freshly harvested Irish potatoes require 2-3 months of cool storage, vernalization, to break dormancy to sprout and grow. The objective was to try to induce microtubers in tissue cultured Irish potato that could be harvested and vernalized year-round for planting in the Virgin Islands. Virus-free Irish potato germplasm, 30 varieties, was obtained from the USDA as in vitro plants. Tissue culture medium was prepared with 10% sucrose and short nodal sections of potato stems placed on the gelled medium. Data was collected weekly on microtuber formation. After four weeks, ten varieties started to form microtubers but at a low percentage per variety. Within eight weeks, 18 varieties had formed microtubers. The microtuberization rate was between 10 – 33% per variety. Microtubers can be induced from Irish potato cuttings for 60% of the varieties tested after eight weeks in vitro on 10% sucrose. Further studies will be developed to enhance microtuberization efficiency incorporating reduced light and plant growth regulators. This research was supported by USDA-NIFA-Multistate Hatch and USDA-NIFA-Insular Tropical Grant funds.

STX-P14

Neurogenesis In Adult Zebrafish Requires Two Nights

Lynisha Farrell
University of the Virgin Islands, College of Science and Mathematics (Undergraduate student)
Department of Anatomy & Neurobiology, Boston University School of Medicine (Summer Intern)

Circadian rhythms control the body's sleep rhythms, core temperature, hormone release, and feeding patterns in animals and humans. Although the cell cycle has been shown to oscillate as a function of circadian rhythms, its contribution to adult neurogenesis remains uncertain. The objective of this project is to investigate how circadian rhythms affect the rate of neurogenesis by observing the length of the cell cycle in the zebrafish. We will study this process through the use of the zebrafish, Danio rerio, because similarly to humans, they are diurnal vertebrates. Cell cycle phases are moderated by check points called cyclins that form complexes with Cyclin Dependent Kinase (CDK). We hypothesized that cell cycle occurs over the course of two-nights with a cycle of about 24-hours. Using a CDK4/6 inhibitor, we were able to show a decrease in the number of bromodeoxyuridine (BrdU) labeled cells the following night. Thus, two consecutive nights are needed for cell proliferation in zebrafish brain. Lastly, determining the length of cell cycle phases would help us to understand optimal times and conditions for proliferation. Potentially, this information could be applied to time treatments of patients with neurodegenerative diseases or traumatic brain injuries.

STX-P15

Evaluation of Six Edible-Pod Pea Varieties as a Potential High Value Crop in the U.S. Virgin Islands

Thomas C. Geiger[1], K. Paul Beamer[1] &Stuart A. Weiss[2]
University of the Virgin Islands, Agricultural Experiment Station ([1]Staff, [2]Faculty)

Snow peas (Pisum sativum L. var. saccharatum) and sugar snap peas (Pisum sativum L. var. macrocarpon) are high value vegetables. We evaluated the yield potential of six pea varieties on St. Croix. The experimental design was a complete randomized block consisting of three snow peas ('Oregon Giant' [OG], 'Mammoth Melting' [MM], 'Little Sweetie' [LS]) and three sugar snap peas ('Cascadia' [CA], 'Sugar Sprint' [SS], and 'Super Sugar Snap' [3S]) with four replications. Peas were planted in Spring, 2014 in a double row with 7.6 cm in row spacing and 1m between rows for a total of 263,157 plants/ha. Plants were trained on 1.5 m tall plastic mesh trellises installed between metal posts at 3 m intervals. Plots were irrigated with t-tape drip lines and fertigated weekly at a rate of 67 kg/ha nitrogen using 20-20-20 soluble fertilizer. LS produced the highest total fruit yield (14,306 kg/ha) compared to all cultivars, greater than OG (9,982 kg/ha) and CA (7,397 kg/ha) ($p<0.0002$). 3S yielded 9,042 kg/ha, followed by MM (4,237 kg/ha) and SS (3,103 kg/ha). Non-marketable fruit represented 12% of the total harvest for LS, similar to all other cultivars except MM (27% non-marketable fruit) ($p<0.01$). All cultivars were similar in °Bx (% soluble solids), while all three sugar snap cultivars presented higher values ($p<0.05$). Results indicate that LS snow pea and 3S sugar snap varieties have potential as a short season high value crop when grown in the cooler months on St. Croix, USVI.

STX-P16

Performance of Nine Butternut Squash Varieties in Summer in the U.S. Virgin Islands

Thomas C. Geiger[1], K. Paul Beamer[1] & Stuart A. Weiss[2]
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Butternut squash (Cucurbita moschata) is a high value vegetable with similar flavor and texture to other Caribbean pumpkin (Cucurbita pepo) varieties. We evaluated the yield potential of nine butternut squash varieties on St. Croix, USVI. The experimental design was a complete randomized block consisting of nine cultivars ('Waltham Butternut' [WM], 'JWS 6823 PMR' [JW], 'Metro' [MO], 'Hunter' [HR], 'Honey Nut' [HN], 'Nutterbutter' [NB], 'Tiana' [TA], 'Butterbush' [BB], and 'Pilgrim' [PM]) with three replications. The field was prepared following standard cultivation practices (ploughing, harrowing, and rototilling). Squash were seeded on June 9, 2014 with 0.8 m in-row spacing and 1.5 m between rows for a total of 18,750 plants/ha. Plots were irrigated with 40 cm T-Tape (John Deere, Moline, IL) and fertigated weekly using soluble 20-20-20 fertilizer at a rate of 100 kg N/ha. The first harvest was 71 days after planting (DAP) and final harvest was 98 DAP. All varieties had similar total yield (JW 7,294; TA 7,040; HN 6,529; WM 6,390; PM 5,626; NB 5,301; MO 5,296 kg/ha) except for BB (2,833 kg/ha) ($p>0.05$). The marketable fruit weight was not different among the nine varieties ($p>0.05$). HN had the highest sugar content at 11.7 °Bx, followed by MO (8.0 °Bx) and PM (7.2 °Bx). All the other varieties presented the same brix, ranging from 4.7 to 7 °Bx ($p<0.0001$). TA presented 50% more melonworm moth (Diaphania hyalinata) than the varieties WM, NB, HR and BB ($p<0.05$). HN had higher leaf miner (Liriomyza sativa) (48) than NB, PM, WM, JW (20-40), and BB. WM, JW, and BB were more tolerant to leaf miner than the other varieties (8-15) ($p<0.05$). Results indicate that all varieties except BB have potential as a high value vegetable crop for St. Croix, USVI.

STX-P17

The Satisfaction of Romantic Relationships and its Connection with Length of Relationship, age Differential and Gender on St. Croix

Dizhan Hicks
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate Student)

A study will be conducted to determine if age differential, gender and length of a relationship can predict the satisfaction of romantic relationships. There have been few studies that have explored relationship satisfaction as it relates to age differences in couples. There have been mixed findings about the gender differences; however, research on South African couples revealed that women were less satisfied than their male partners. A recent longitudinal study revealed that marital satisfaction declines slightly over the duration of the relationship. My research will target individuals who will be shopping at Plaza Extra on St. Croix. Surveys using Funk and Rogge's Couple Satisfaction Index and questions about age differential, gender and length of relationship will be issued to individuals who are at least 18 years old and are in a romantic relationship at the time of the survey. Quota sampling will be used to ensure 50% males and 50% females with 1/3 of each gender being in a relationship with a person at least one older, one year younger and within one year of each other for a total of 90 participants. A multiple regression analysis will be conducted to find the best equation to predict relationship satisfaction.

STX-P18

Influence of Postharvest Storage on Sweet Potato Sugar Content

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([1]Staff, [2]Faculty)

Sweet Potato (Ipomoea batatas), is a tuberous root crop native to South America and cultivated by the ancient Incas in Peru. Sweet potato is one of the ground provisions grown in the Caribbean. Consumers want their sweet potatoes to be sweet. Sweet potatoes require a postharvest curing to set the skin prior to storage. The objective of this study was to determine the influence of time and temperature on the postharvest sugar content of ten sweet potato varieties. Soluble sugar content was determined at harvest using a garlic press and refractometer. The tuberous roots were cured at room temperature for five days then place at 40oF, 60oF and room temperature (~80oF). Nine varieties had a soluble sugar content of 4-6% Brix while 'VIP' was at 8.5% brix at harvest. The soluble sugar content more than doubled after two weeks of storage. There was only a small change in sugar content between the second and fourth weeks. While all three temperatures resulted in increased sugar content the room temperature and 60oF resulted in higher soluble sugars than 40oF. Postharvest storage of sweet potato results in a significant increase in sugar content within two weeks.

This research was supported by USDA-NIFA-Regional Hatch.

STX-P19

Dog Almond (Andira inermis, (W. Wright) D. C.), a Native Caribbean Tree Species with Landscape Potential

Michael Morgan[1] & Thomas Zimmerman[2]
University of the Virgin Islands, Agricultural Experiment Station
([1]Staff, [2]Faculty)

Dog Almond (Andiria inermis) is an attractive medium sized tree with dark green leaves and showy purple pink flowers. It is fast growing and flowers at a young age. This poster will describe the best way to propagate the tree from seed, how the tree grows in field trials, species ecology, and, most importantly, the uses and limitations of the species in landscape plantings.

STX-P20

Influence of Seed Pre-Treatments on Bursera simaruba Germination

Tyrone Pascal[1], Michael Morgan[2] & Thomas Zimmerman[3]
University of the Virgin Islands, Agricultural Experiment Station
([1]Undergraduate students, 2Staff, [3]Faculty)

Turpentine tree (Bursera simaruba L. Sarg.) is a tree native to the dry forests of the Virgin Islands. The hard seeds of the tree are encased in a red fleshy aril that is eaten and dispersed by birds. The hard seed coat can be a hindrance to germination. The objective of this study was to evaluate the influence of seed pre-treatments to enhance on the germination rate. The turpentine tree seed pre-treatments are expected to soften the seed coat and allow water and air to reach the seed embryo. The following pre-treatments were used: mechanical scarification with sandpaper, hot water soak, soaking in sulphuric acid for 4 minutes and soaking for four hours in the hormone Gibberellic acid. A control treatment had nothing done to the seeds and were directly planted as is. Preliminary results indicated that manual scarification with either sandpaper or sulphuric acid enhanced seed germination. This research was supported by USDA-NIFA-Insular Tropical Grant funds.

STX-P21

The Effect of Employment and Academic Achievement

Samantha Roberts
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

This explanatory study examines the effect of employment hours and location on academic achievement of students at a Historical Black College and University. A survey will be administered to 90 full-time students of sophomore classification of higher at the University of the Virgin Islands, Albert A. Sheen Campus. The survey will consist of three questions asking about student classification, location of employment and hours of employment. Students will grant permission for their cumulative GPAs to be acquired from UVI Information Technology Services. Each consent form and survey will be coded per participant to ensure anonymity. A 2x3 Two-Way Analysis of Covariance will be computed to analyze the independent variables, employment location (on campus or off campus) and hours or employment (none, less than 20 hours, or at least 20 hours), the dependent variable; academic achievement measured by cumulative GPA with student classification as the covariant. A Scheffé post-hoc test will be computed if the main effect of hours of employment is significant. The results of this study will be beneficial to students and advisers when contemplating employment during college.

STX-P22

Beginning a longitudinal analysis of UVI student information literacy skills: 2012-2014

Judith Rogers, Celia Richard & Tanisha Mills
University of the Virgin Islands, Libraries (Faculty)

The project to assess UVI freshman information literacy skills began in Fall 2012 with the collection of baseline data from in-coming students. Using the Standardized Assessment of Information Literacy Skills (SAILS), 266 students were assessed on 45 items in eight skill sets. The data collected established a benchmark of performance among incoming UVI students, to answer the question: "What are our students' strengths and weaknesses in regard to information literacy?" Information literacy instruction designed to address the gaps identified in the 2012 results, was delivered to the students, who enrolled in FDS 100, SCI 100, and SSC 100 during the semesters since fall 2012. In fall 2014, sophomore and junior students were again assessed in seven of the eight information literacy skills sets presented through SAILS. Overall scores show improvement in all skill sets. Compared to other masters institutions, UVI sophomore/junior students performed about the same in the skills of Using Finding Tool Features, and Retrieving Sources. Although scores improved in the remaining skill sets, the results still place UVI students below the institution-type benchmark. Poster will share comparative results of this quantitative assessment, address challenges in collecting information literacy data at UVI, and discuss plans for a 2015 UVI faculty/librarian training initiative to integrate information literacy activities into course assignments.

STX-P23

The Relationship among Financial Aid, Federal Loans, Residential Status and Academic Performance

Brandys Scott
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

The problem that I will investigate is how financial aid, federal loans and residential location relate to academic performance. In order to attend college, students are required to pay tuition. Some living on-campus includes living-learning communities that are design to promote higher learning. My accessible population will be full-time students of the University of the Virgin Islands, both campuses. I will use stratified random sampling to select 30 junior-standing students, 30 sophomore-standing students, and 30 senior-standing students. I will not be using any freshman-standing students because they have not established a GPA, which is the operational definition of my dependent factor. I will also be excluding military veterans because their method of payment because it is automatic and is limited to a small subset of my target population. The second independent variable will be place of residence, which has two levels, either living on campus in a residence or hall or off campus. Participants will grant permission for UVI's Institutional Research and Planning (IRP) unit to provide me with information on an Excel sheet with each participants' de-identified method of payment, residential status, and cumulative grade point average. Once data are obtained, they will be entered into SPSS version 22 and analyzed using a three-way analysis of variance (ANOVA).

STX-P24

Do Sex, Age, Education, Residence and Employment Status Predict Probation Revocation?

Sheniqua Slader
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate Student)

The United States Federal Probation and Pretrial Services is an office of the United States District Court. Established in 1994, the purpose of the federal probation system is to ensure that probation and pretrial services for federal case are done effectively and to provide for the safety of the public. The main contribution of the federal probation is to help reduce the level of crime by working with the offenders to change their behavior. Violation of probation is a major concern in the federal probation service. The objective of this research is to understand how sex, age, education, employment status, and residence of the probationer predict probation revocation in the U.S. Virgin Islands. These predictor variables were selected because they are the only personal information in the federal probation database and all have been shown to be predictors of prison recidivism. Although there has been research on recidivism, I was unable to find any research on violation of parole. I will review record of 1,263 probationers during the period 1994 to 2014 maintained in the U.S. probation database. All cases that include all of the predictor and outcome variables will be analyzed. A logistic multiple regression will be used to analyze the data.

STX-P25

Introversion-Extraversion: Trait or State?

Jermaine Tavernier
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

A study to determine whether introversion-extraversion can be classified as a personality trait or a function of the environment (state) or a combination of trait and state will be conducted. The researcher has targeted college students at the University of the Virgin Islands because of their unique environment at a Historically Black College and University located in an island with a history of slavery and independence where Blacks are the majority. Thirty (30) male and thirty (30) female undergraduate students who should be either non-Hispanic or Hispanic will complete a standardized survey of introversion-extraversion under three different hypothetical conditions: with parents, with friends, and with classmates. The dependent variable is the introversion-extraversion score on the Personality Questionnaire by Eysenck. A mixed Analysis of Variance will be conducted with condition as a within-subject variable and gender as a between-subject variable. Based on previous research, it is expected that both gender and condition will affect introversion-extraversion.

STX-P26

Screening of Five Broad Leaf Plants for Use As Tropical Cover Crops and Their Response to Termination with a Roller-Crimper

Stuart Weiss & Kenneth Beamer
University of the Virgin Islands, Agricultural Experiment Station (Staff)

Cover crops (CC) that are mechanically terminated with a roller-crimper produce surface sheet mulch that can protect and improve soil health, suppress invasive weed development, reduce soil temperature, and increase water availability to the farming system. This experiment evaluated 5 warm season CCs, determined their potential nutrient contribution, and measured roller-crimper termination on CC regrowth and weed development. CC response to roller-crimper termination was determined by measuring CC regrowth at 3, 6. 9, and 12 weeks after termination. CCs evaluated are; velvet bean (Mucuna pruriens (L.) DC. cv. Vine 90; VB), sunn hemp (Crotalaria juncea L. cv. IAC-1; SH), pigeon pea (Cajanus cajan (L.) Millsp. cv. BRS Mandarim; PP), sesame (Sesamum indica L. cv. ns; SE), and sun flower (Helianthus annus L. cv. Black Oil; SF). Cover crops were planted on August 9, 2013 at the AES located on St. Croix in the USVI. The CCs VB, SH, SE, and SE were terminated 70 days after planting (DAP) and PP was terminated 150 DAP with a roller-crimper. CCs were terminated 70 DAP, SH produced the greatest biomass with 7,967 kg/ha, had the second highest plant tissue nitrogen (N) percent of all CCs at 2.91%, and contributed an estimated 231 kg/ha of N which was greater than VB, SE, and SF, but lower than PP. Both SH and SE had the lowest weed biomass at termination with 419 and 235 kg/ha, respectively. SE, SF, and SH residues exhibited weed suppressive potential up to 6 weeks after termination.

STX-P27

Using Low Sucrose Concentration to Extend Time between Sweet Potato Transfers

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([1]Faculty, [2]Undergraduate student)

Virus-free sweet potato plants are being maintained in culture to supply clean plantlets, for field plot trials, and require frequent transfers due to the rapid rate of growth. However, between trials a system was needed to control rate of growth and increase the intervals between transfers. Long-term in vitro maintenance, on MS medium containing 0-12% sucrose, was used to evaluate shoot growth over time on six sweet potato cultivars. Sucrose levels from 2-12% had no influence on controlling in vitro rate of growth and development over time. Having no sucrose in the medium resulted in minimal growth but was lethal to 50% or more of the cultures. The rate of growth and leaf development was greatly reduced on sucrose levels from 0.1-0.3%. These low sucrose levels controlled the rate of growth and extended the interval between transfers from monthly to 9 - 12 months. Explants recovered when transferred back to 3% after one year. Low sucrose concentrations can be used to control the rate of in vitro growth of sweet potato and extend the intervals between transfers.

This project was developed through grant funding by the USDA-NIFA-Insular Tropical Grant funds and USDA Specialty Crops Block Grant administered by the VI Dept. of Agric.

STX-P28

St Croix round-table discussions

Low Level of Chytrid Fungus on the Island of St. Thomas

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Major insect predators such as frogs, function in the maintenance of balance in the insect food chain. Populations of these amphibians are declining worldwide. A contagious fungus known as Batrachochytrium dendrobatidis (Bd) has been affecting frogs by disrupting osmotic regulation which then leads to suffocation and ultimate death. Recent studies were done on the island of St. Thomas in 2011 where three out of one hundred amphibian samples tested positive for the fungus. Therefore, the aim of this 2014 study is to learn whether the chytrid fungus is still active, and how it may negatively affect the amphibian population on St.Thomas. We predict the 2014 study to yield similar, if not heightened results. To test this, frogs of the Eleutherodactylus coqui (E.coqui) and Eleutherodactylus antillentis (E. antillentis) species were captured from various sites and swabbed to collect any possible fungus present on the skin. Any DNA present on the swabs or on the frog collection bags were extracted. Lastly, PCR was done to amplify any possible Bd DNA. One sample yielded a very low positive result that contradicts the hypothesis and shows that the frogs here are not infected.

STX-R1

The Relationship between Childhood Maltreatment and Teen Dating Violence

Berlina Wallace[1], Lisa Ryan[2], Khnuma Simmonds Esannason[3], Maudiana John-Baptist[4] & Clema Lewis[5]
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[4]Virgin Islands Behavioral Services
[5]Women's Coalition of St. Croix

Research indicates that individuals who have experienced childhood maltreatment tend to be at greater risk for engaging in teenage relationships where violence occurs. The round-table discussion will focus on a correlational study containing data from 2014. The participants of the study were 146 students enrolled in private, public, and parochial high schools on St. Croix. These participants had been in relationships in the past year at the time that the data were collected. The following strong significant direct relationships were found between: 1. childhood physical abuse, childhood emotional abuse and teen dating sexual abuse, teen dating relational abuse 2. childhood physical neglect and teen dating relational abuse 3. childhood emotional abuse, childhood physical abuse and teen dating emotional and verbal abuse I will present the findings of my research and then the panelists will offer their reactions and related experiences. We will discuss how the research findings can be used as a catalyst for future discussions, information dissemination, and interventions that will assist with reducing incidents of childhood maltreatment and teen dating violence. The audience will join in with questions and comments.

STX-R2

Digital Cultures of Reconstruction After Place-Based Traumas: Rebuilding Home After Hurricanes Katrina and Hugo

Carrie Coaplen
University of the Virgin Islands, College of Liberal Arts and Social Science (Faculty)

How do Hurricanes Katrina and Hugo survivors write about and reconstruct home? In "Writing Place," Jennifer Sinor contends that "In the end, it seems to me, the acts of writing and of being placed are the same. To be placed and to write place both require the distillations of experience into certain, specific details…and experiences." (14). Reflecting on Sinor's assertion, hurricane survivors define home places as houses or land where they once lived (as expected); home is also defined by culture, lifestyle, landscape, and family. Sinor adds that "Place writing becomes, then, an ethical act. To belong to a place and to write about that connection mean that one more place might escape damage," and that "place writers are conservationists, then, even when the places they write about are preserved only in memory" (9). I think of conserving, etymologically, as an act done "with service," (con-serve). Conservation also refers to an ongoing vitality. Places and lives continue to become revitalized through writing. My project highlights how writing conserves the homes and communities being reconstructed after Hugo and Katrina.

STX-R3

Impact of Social Media on VI Caribbean Culture in the 21st Century

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[1]Virgin Islands Caribbean Cultural Center
University of the Virgin Islands, [2]Cooperative Extension Service
([1]Faculty, [2]Staff, [3]Undergraduate students)

The roundtable "Impact of Social Media on Virgin Islands Caribbean Culture in the 21st Century" is designed to explore the sociological and technological behaviors, attitudes, communicative technologies and perspectives influencing contemporary and traditional Virgin Islands and wider Caribbean cultural heritage, values, customs and traditions. The common acceptance of continental American music, technologies and social media of the 21st century replacing earlier VI and wider Caribbean cultural practices will be objectively clarified. References to research publications and social media resources developed as part of the UN designated International Decade for People of African Descent (2015-2024) and its' impact on VI Caribbean culture, heritage and media will be elucidated. Comparative analysis for the Heritage Education and Arts Legacy in the Virgin Islands (HEAL VI©) research project inclusive of transculturalism, spoken word/Caribbean expressions, social justice and identity in media will be explicated.

STX-R4

St Thomas poster presentations

Guantánamo and the Empire of Freedom

Jessica Adams
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This project is a collection of new scholarship that considers the history and current iterations of Guantánamo, Cuba. It emphasizes Guantánamo as a specifically Caribbean site, even as it examines the way in which it exists in national and legal limbos. America's "founding father" Thomas Jefferson championed a vision of economic prosperity and moral virtue that was dependent upon an expansive "Empire of Liberty" with Guantánamo, Cuba, as one of its key sites. The haunting paradox of his words alludes to the many layers and contradictions that cluster around the Caribbean site known today as the Guantánamo Bay Naval Station. Research examines links between Guantánamo and Jefferson's "Empire of Liberty" and the Atlantic world; people as property (e.g., the enslaved, the indentured, soldiers, prisoners, detainees); contemporary fiction and literatures of confinement; Cuban responses to the US military base, including those of writers, artists, labor groups, and politicians; US invasions of Haiti and policies toward Haitian refugees; post 9/11 realities in societies in the circum-Caribbean; ideologies of resistance, solidarity, and sacrifice in the Middle East and "Global South"; the War on Terror and Barack Obama's promise to close "Gitmo"; performance and protest; new media, surveillance, and technologies of power; Caribbean Studies as a political project; Commemoration, remembrance, reconciliation, and restorative justice.

STT-P1

Testing of a Narrow Gap Detector designed for a sensitive X-ray polarimeter

Rafael Almonte
University of the Virgin Islands, College of Science and Mathematics (Undergraduate student)

Time projection polarimeters are gas detectors where incident X-rays interact with a gas atom to produce a photoelectron whose direction is correlated with the polarization of the incident X-ray. By imaging the path of many photoelectrons the polarization of the incident X-ray can be determined. The next generation of time projection polarimeter incorporates a narrow gap detector to minimize the diffusion in the transfer gap between the gas electron multiplier and the readout strips. We report on the testing performed to bring the narrow-gap design to Technology Readiness Level (TRL)-6. TRL-6 testing included random and sine burst vibration tests and thermal cycling tests. In addition thermal shock tests and creep tests were performed to further demonstrate that the design would meet requirements, particularly flatness, throughout the life of a 2 year mission. The post-test inspection following the vibration testing showed no degradation or loss of flatness. Thermal Shock testing showed no indication that the extreme temperature had any effect on the detector. Creep testing showed no positive or negative trends in flatness. Thermal cycle testing also showed no change in detector behavior. All the requirements have been met and the narrow gap polarimeter is at TRL-6.

STT-P2

Estimating the Aerobic Dive Limit of Captive South American Sea Lions (Otaria flavescens)

Madeleine Arencibia[1], Paul Jobsis[2] & R. Lee Kellar[3]
University of the Virgin Islands, [1]College of Science and Mathematics (Graduate student)
University of the Virgin Islands, [2]Center for Marine and Environmental Studies (Faculty)
[3]Coral World, St Thomas, USVI (General Curator)

Marine mammals in captivity provide an opportunity to collect metabolic data and calculate aerobic dive limit (ADL) on species and sexes where limited data from wild populations are available. Through the use of male South American sea lions (Otaria flavescens) in captivity at a facility in St. Thomas, USVI, and estimations based on literature, the metabolic rate and ADL will be determined for the species. The metabolic rate will be determined through oxygen consumption tests and the ADL will be determined by dividing the estimated total oxygen stores by the oxygen consumption rate determined through the trials. The metabolic rate information will help to further improve the husbandry of South American sea lions in captivity. Knowledge of the ADL of the species provides a physiologic measurement, which reveals predicted constraints on natural diving behaviors. Once an estimated ADL is known, observations of subjects in the wild can be better comprehended, leading to an understanding of the effects of physiological and ecological factors on their behavior.

STT-P3

The presence of Halophila stipulacea within the Virgin Islands: an analysis based on boating activity

Jan-Alexis Barry[1], Alexandria deJarnett[1], Anthonio Forbes[1], Kari Gehrke[1], Haley Goodson[1], Sarah Groves[1], Dan Holstein[2], Marilyn Brandt[2], Renata Platenberg[2] & Tyler Smith[2]
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([1]Graduate students, [2]Faculty)

The invasive seagrass, Halophila stipulacea, is spreading throughout the Caribbean and has the potential to outcompete native seagrasses that are important habitat and foraging grounds for commercially important and endangered species. However, little is known about its dispersal and colonization mechanisms. One hypothesis is that boat anchoring promotes the spread of the invasive species via fragmentation and disturbance. This project aims to illuminate whether there is a relationship between boating activity and the presence and abundance of H. stipulacea. Ten embayments surrounding St. Thomas and St. John were selected based on accessibility and placed into three boating usage categories: 1) no boating activity, 2) mooring allowed/no anchoring, and 3) anchoring allowed. NOAA benthic maps were used to delineate submerged vegetation patches and served as a basis for the distribution of random points where surveys were conducted. Five underwater surveys were conducted in each bay, consisting of 10 quadrats to determine total benthic coverage of seagrass. Roving divers were also utilized to determine presence/absence at each survey point. Preliminary results show that H. stipulacea presence is not independent from treatment, with no boating activity bays demonstrating lower presence. These results will aid resource managers in developing management strategies for this species in regards to boat use in the territory and wider Caribbean.

STT-P4

Perceived and projected alcohol and drug use among college students

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University of the Virgin Islands, Caribbean Exploratory Research Center (Research Staff)

The prevalence of substance abuse and the high rate of HIV infection in the Virgin Islands among young adults are alarming and create challenges for schools, the Health Department, the criminal justice system and the community as a whole. As such, the University of the Virgin Islands Substance Abuse & HIV/AIDS Prevention Project uses evidence based intervention and environmental strategies to reduce drug use and prevent HIV infection among college students and young adults in the surrounding community. The target population consists of African American/Black and Hispanics/Latino between ages 18-24. The objectives of the project are to increase the number of first time HIV testers and HIV testing opportunities; decrease alcohol consumption of college students and other participants by 30% and 10% respectively; and increase awareness and knowledge by 25%. Through partnership with Community Based Organizations (CBOs), the program addresses community norms that serve as barriers to reducing and preventing substance abuse and the transmission of the HIV virus.

STT-P5

White Pox Prevalence and its Relation to the Human Pathogen, Serratia marcescens, in the US Virgin Islands

Victoria Beasley
University of the Virgin Islands, College of Science and Mathematics (Graduate Student)

Coral disease has been widespread throughout the Caribbean in recent years. Acropora palmate, once dominant Caribbean coral species, has been particularly decimated by disease (Patterson, et al., 2002; Gardner et al., 2003). Acroporid serratiosis, or white pox disease, has been a major contributor to its demise (Sutherland et al., 2004). The causative agent of white pox in the Florida Keys is known to be the bacterial pathogen Serratia marcescens (also found in the human gut) (Patterson et al., 2002). However, it is unknown whether white pox signs in the US Virgin Islands are the same etiology as that observed in the Florida Keys, because similar signs may represent different etiologies (Pollock et al. 2011). This study examines the relationship between the occurrence of S. marcescens and white pox disease in A. palmata populations in the US Virgin Islands. Sampling occurred at 3 sites varying in anthropogenic influence, where Acropora palmata populations were locally abundant and white pox disease was known to occur. Coral mucus samples were analyzed from diseased and healthy A. palmata along with healthy S. siderea (used as a procedural control) using qPCR to determine the presence and abundance of S. marcescens. Water samples were analyzed with qPCR to determine presence of S. marcescens and other enterococcus. Prevalence of disease was measured at sample sites using circular plots. This study will provide the first evidence for Acroporid serratiosis in the US Caribbean.

STT-P6

Spillover Effects in Catalysis by First Principles

Keturah Bethel
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Heterogeneous catalysts consist of small metal particles which carry the chemical activity dispersed on an inert support. A good active phase will bind the reactants strongly enough so that they produce reaction intermediates but weakly enough so that products can leave the surface thus allowing more reactions to occur at that site. At the same time, a good support material should not bind the reactants, allowing the chemical reaction to happen in the active phase. However, in realistic environments, spillover effects are present and reactant molecules tend to bind to the support, hence decreasing the overall activity of the material. Despite the recent advances in rational catalysis, the mechanism of spillover in most systems remains poorly understood. In this project, we will study the spillover effect of O2 molecules on MgO supported Pd4 clusters. Our final goal is to study the spillover effect of O2 molecules on MgO-supported Pd4 clusters. As a starting point, we use a combination of density functional theory calculations and atomistic ab initio thermodynamics, and compute the energetics of O2 adsorption on a gas-phase Pd4 cluster. We report binding energy changes with coverage and we estimate the pressure and temperature conditions for O2 to adsorb into the cluster.

STT-P7

Movement and Resident times of Dog and Cubera Snapper within a Spawning Aggregation in the U.S. Virgin Islands

Chris Biggs
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(Graduate student)

Spawning aggregations are a common reproductive strategy for large, reef fish. The majority of studies on spawning aggregations have not gone beyond describing behavior or reporting the time of visual observation. Acoustic telemetry provides the opportunity to expand the extent and detail of information collected regarding the timing and movement of fish at an aggregation site. This study describes the duration and monthly variation of an aggregation of dog snapper (Lutjanus jocu) and Cubera snapper (Lutjanus cyanopterus) at the Grammanik Bank, U.S. Virgin Islands using acoustic telemetry. Twenty-two Cubera and 29 dog snapper were implanted with acoustic tags and tracked between June and December 2014. Residence events were calculated when two or more detections were recorded at one receiver within 0.5 hour. Dog and Cubera snapper begin aggregating in February, with peaks in March and May respectively. Cubera were resident in pulses during the first two weeks after the full moon June-September, but were not resident the third week after the full moon in several months. Individual Cubera were resident for just over a week on average. Dog snapper had the most residence events in the first two weeks after the full moon, but tended to remain in the array throughout the following weeks. These results provide information that is critical to the effective design and implementation of protected or closure areas around spawning sites.

STT-P8

A Hierarchical Clustering Approach to Analyze Similarities between Sea Surface Temperature Patterns in the Caribbean

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The past two decades, intense efforts have been developed to monitor sea surface temperatures (SST) via remote sensing and in situ technologies. As a result, an increasing number of applications and opportunities are becoming available to drill into these data sets and contribute to developing ecological forecasting system in the Caribbean and globally. Machine learning techniques have been successfully used in many knowledge discovery applications but there has been very few studies on NOAA/NESDIS/CRW (National Oceanographic and Atmospheric Administration National Environmental Satellite, Data and Information Science Coral Reef Watch) data sets in the Caribbean. Our goal is to supplement existing models by automatically extracting new knowledge from NOAA/NESDI/CRW times series. In this study, we are interested in determining if time series are similar in order to group virtual stations in the Caribbean according to SST patterns. Unsupervised techniques (cluster analysis) are performed on data collected from 2000 until 2014 on twenty three stations in an attempt to discover SST similarities and patterns. These patterns might reveal interesting relationships between SSTs and stressing patterns that might affect coral reef health in the region. Surprisingly, the dendogram shows that there are more similarities between the USVI and Negril (Jamaica) than the USVI and Puerto Rico.

STT-P9

The Identification and Analysis of Escherichia coli in Watersheds on St. Thomas, United States Virgin Islands

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Escherichia coli is a bacterium that is an indicator of fecal coliforms, and is usually expelled in waste material of warm-blooded animals. E. coli presence in waterways is used as an indicator of fecal contaminants and potential health risks to animals and humans. Because the United States Virgin Islands relies on septic systems, we investigated E. coli contamination on the island of St. Thomas. These system are not connected to a larger sewage treatment plant, and often have drainage fields. In addition, livestock the on island can contribute to contamination of watersheds. These contaminants can be spread during rain events in watersheds around the island in various locations, flowing from a source to a sink. This study utilizes microbial source tracking methods to identify the source of E. coli contamination. A number of sites were sampled in correlation to rain events from August 2014 to January 2015. Samples were then analyzed by isolating bacterial content through water filtration and DNA extraction. Results show that some waterways were contaminated by E. coli, but not all. Further analysis of E. coli is being performed to identify the source of contamination.

This research was funded by NIH MBRS-RISE 5R25GM061325 and NIH MARC 5T34GM008422

STT-P10

Testing modes of disease transmission in a Caribbean sponge

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Diseases affecting marine organisms have resulted in dramatic changes to coral reef communities, and sponge diseases are increasingly recognized as important contributors to these changes on Caribbean coral reefs. Aplysina Red Band Syndrome (ARBS) is a disease that primarily affects Aplysina cauliformis, a dominant branching sponge found on shallow Caribbean reefs. The etiologic agent and mechanism of ARBS transmission are unknown, although both direct transmission through contact and water borne transmission have been demonstrated under laboratory conditions. Without an identified etiologic agent with which to perform experiments, identifying the primary mechanisms of ARBS transmission in natural populations is difficult. Here we use an epidemiological model and ecologic data on the dynamics of disease in monitored populations to test the hypothesis that ARBS is transmitted through direct sponge-to-sponge contact. Modeling results suggest that the number of adequate contacts necessary to produce observed disease patterns is lower than what would be expected if water-borne transmission were an important mode of transmission and instead were consistent with the number of direct sponge interactions measured in the field. These results suggest that direct contact is the necessary mode of transmission for ARBS and this finding has management implications for this disease system.

STT-P11

Marine Disease Management

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Emerging marine diseases have been increasing in abundance and extent over the last several decades. The emergence of these diseases has been associated with habitat alteration and destruction as well as stressors resulting from climate change. While research is ongoing into the etiology of many of these emerging marine diseases, there is great debate over whether it is possible, ethical or cost-effective to directly manage disease when it occurs in wild populations. This roundtable discussion will debate the merits, ethics, and potential impacts of attempting to directly manage marine diseases in wild populations through mechanisms such as culling, quarantine, genetic manipulation and antibiotic application.

STT-P12

Ciguatera Fish Poisoning: long-term dynamics of Gambierdiscus spp. on coral reefs in St. Thomas, US Virgin Islands

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The benthic dinoflagellate Gambierdiscus spp. creates the putative precursor toxins that ultimately lead to ciguatera fish poisoning (CFP); however, very little is known about the dynamics of natural populations of this genus on coral reefs and the dominant controls of their abundance and toxicity. This information is critical to the development of predictive models of whole reef toxicity and, hence, spatially explicit advice that minimizes CFP risk to seafood consumers. We have examined quarterly to monthly changes in Gambierdiscus spp. abundance and cell-specific toxicity on natural (macroalgae) and artificial substrates from 2009 – 2015 on four long-term coral reef monitoring sites along the southern shelf of St. Thomas, an area hyperendemic for CFP. Along with Gambierdiscus spp. investigations, we collected environmental data (wind, waves, temperature, chlorophyll, nutrients, light) and biological data (benthic cover, coral health, algae heights, and fish communities). The abundance of Gambierdiscus spp. varied among and within years and showed dynamics that were both the same among sampling sites and decoupled. Multivariate analysis showed that Gambierdiscus abundance was most related to measures of benthic temperature, water motion, and substrate availability. This project offers hope that proactive management of CFP from biological monitoring is possible.

STT-P13

Seasonal dynamics of energy content is greater in mesophotic corals

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Energetic responses of corals along depth gradients has relevance to the thermal stress refugia potential of mesophotic coral ecosystems (MCE). Five collections of tissue—from the species Orbicella faveolata and Agaricia lamarcki—for caloric assessment have been carried out south of St. Thomas, US Virgin Islands beginning April, 2013 in an effort to assess the refugia potential of mesophotic coral ecosystems (MCE). Four sites ranging in depth from 4m to 60m were selected to capture energetic differences across the full range of coral habitats in the USVI. Previous observations suggest that MCE in this region are thermally buffered during the hottest parts of the year and reside within or just below the chlorophyll maximum, suggesting abundant food sources. Calorimetric analyses indicate that O. faveolata may be at risk during late summer stress—mesophotic colonies exhibited a significant reduction in caloric content during the month of September, 2013 compared to mid-depth and shallow colonies ($p=0.032$). Though A. lamarcki experiences similar caloric variability in the twilight zone, timing of the caloric minimum—a significant reduction in energy status occurred in July, 2013 for deep colonies ($p=0.014$)—suggests this species may be better suited for mesophotic conditions.

STT-P14

Audiobooks: The Reinvention the Oral Tradition

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(Undergraduate student)

In this new digital era, technologies are challenging traditional definitions of what it means to be literate. Many fear that these new technologies will weaken the literacies, reading and writing, which have been central to our culture. Audiobooks, digital recordings of a text made available for download, are one of these new technologies that many scholars fear will increase the growing number of illiteracy. This paper will argue that the new explosion of audiobooks will not diminish literacy but rather expand it. In particular, arguing that audiobooks have revived the importance of listening and re-balanced literacy so that printed text remains an important facet of literacy, but is not itself synonymous with literacy. This paper will address how audiobooks are affecting the relationship between listening and literacy by examining (1) the evolution of orality to literacy and how literacy, (2) the consequences of literacy on the culture and social structure, (3) how audiobooks use the same techniques that storytellers of oral traditions use to engage their audience, (4) and how audiobooks are transporting us into a secondary and post literate oral culture.

STT-P15

A Proposed Investigation of the Cytotoxicity of the Crude Ginger Oil

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Goal of the study: Ginger, Zingiber officinale, is an edible rhizome used for over 2,500 years for treating nausea, cold and flu, motion sickness, muscle aches and pains and poor circulation. In addition to its stomach soothing benefits, ginger oil exhibits antioxidant properties, which makes it a potential candidate for the prevention and treatment of cancer. Its benefits are due to its chemical composition. Ginger oil contains 35% zingiberene, 10% AR-curcumene, 10%, β-sesquiphellandrene, 8% bisabolene, 6% dextro-camphene, 3% β-phellandrene and 2% 1.8-cineole. The aim of this study is to extract ginger oil from ginger roots and to determine the cytotoxicity of the crude ginger oil against brine shrimp. We plan to perform a literature study to determine the anticancer benefits of ginger oil. We hope to determine a suitable method of extracting the oil from ginger grown in Dominica. Consequently, we would like to conduct a brine shrimp toxicity assay to determine its LC50 (lethal concentration which kills 50 % population).

STT-P16

An Application of Graph Theory to Coral Disease Transmission

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([1]Undergraduate students, [2]Faculty)

Coral reefs in the US Virgin Islands have experienced dramatic changes due to outbreaks of coral diseases. A key stumbling block in the study of diseases among coral reef environments in the Virgin Islands is the lack of determination of the mode of transport of infections between them. The main question that arises is, "does the transports of these deadly diseases occur due to proximity or carried along through ocean currents?" In order to answer this question, we must first understand the connectivity between the reefs which is quite important in the comprehension of meta-population dynamics, population persistence and series expansion. As method of determining this connectivity, we hope to use a Eulerian advection-diffusion approach to model this connectivity which can then be analyzed using graph theory. Graph theory can be used to explore the spatial connections, as well as for determining the importance of each site and pathway to local – Virgin Islands- and regional connectivity (Treml, et al. 2007). We have created graphs which emphasize the pathways of possible infection distribution along the major ocean current within our region. For future direction, we hope to create an algorithm which will allow us to map this connectivity and give quantifiable evidence to the natural method of disease dispersal.

STT-P17

Using Implicational Scaling and Variation to Predict Student Performance on Language Variables

Vincent Cooper
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Over the past four decades, scholars such as William Labov, Peter Trudgill, and Braj Kachru, and Dennis Craig have used their research in sociolinguistics to support the use of contrastive grammar, and TEOSL programs in schools throughout the former British Commonwealth an North America. Craig during the 1980-1990s , an education professor at the University of the West Indies in Jamaica, also argued for the use of transitional bilingualism/bidialectal programs in Caribbean schools.The proposed investigation uses implicational scaling and variation methodology to offer a contrastive analysis of 60 University of the Virgin Islands General Education students in English classes. The study examines student performance of 12 linguistic variable involving pronunciation and grammar.The study examines the relationship between the students' performance in the home dialect and the language of the classroom. Otheer variables considered in the study include: socioeconomic background, country of origin, and parents educational background.

STT-P18

Environmental Health in the Industrial Area of St Croix

Asha DeGannes[1] & Frank L. Mills[2]
University of the Virgin Islands, [1]Eastern Caribbean Center (Faculty)
University of the Virgin Islands, [2]Research and Public Service (Vice Provost)

Around the world, scientists have searched for confirmation that pollution is harmful to life on earth. Environmental factors, especially pollutants in the air, water and soil, adversely affect the health of four to five billion persons worldwide annually. Within the US Virgin Islands, there is widespread speculation that environmental pollutants on St Croix, mainly of industrial sources, have adversely affected the health of many of the island's residents. This study sought out to reveal differences, if any, between the perceptions of residents of the target and reference areas concerning the presence of environmental occurrences and the prevalence of adverse health conditions. Results showed that industrial area residents (as opposed to control area residents) were more likely to report that their households were impacted by strong and irritating odors, mold, transportation emissions/exhaust and factory smoke. Furthermore, inferential statistics displayed a statistically significant difference between the intensity of environmental conditions in the industrial versus control zones.

STT-P19

Spanish at UVI! Why?

Rocio Delgado
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The geographic location of the United States Virgin Islands (USVI), specifically St. Thomas, seems to be the perfect venue for a strong Spanish second language program, located at the University of the Virgin Islands. A survey given to over one hundred students at UVI on "Attitudes Toward the Spanish Language" demonstrates that even though a large group of students stated their desire to become fluent in the language in order to communicate, their actual oral and written proficiency levels fail to fulfill their desire. Furthermore, the survey shows that students do not benefit from the opportunity to improve their target language through exposure to the Hispanic community residing in the USVI—17.4% (2010 Census). Students have very reduced contact with the target community, in part, due to the weak connection between UVI and the latter.

STT-P20

Environmental Assessment of Sunken Derelict Vessels in Coral Harbor St. John

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([1]Graduate student, [2]Faculty)

Derelict vessels can cause extreme blowouts in seagrass beds. These blowouts are capable of recovering to pre-injury conditions if the seagrass initiates colonization. However, based on the current state of seagrass research, overall recovery time can take 10-25 years. Although derelict vessels can be of harm to seagrass beds, they can also become artificial reefs by providing habitat for marine flora and fauna. The Coral Bay Community Council plans to remove the derelict vessels in Coral Bay, St. John, US Virgin Islands. I will be conducting an environmental assessment to monitor the sunken derelict vessels in Coral Bay and determining the potential after effects on the benthic community once the vessels are removed. The BACI (before-after-control-impact) design will be used for this assessment. The BACI design is used to determine the difference in interactions between controlled and impacted sites before and after the disturbance or impact begin. The environmental assessment can aid the Coral Bay Community Council in making decisions on how to remove these vessels in an environmentally safe way and how to confront future development plans in the bay.

STT-P21

The Identification and Analysis of Escherichia coli in Watersheds on St. Thomas, United States Virgin Islands

Shanan Emmanuel & Rhodel Bradshaw
University of the Virgin Islands, College of Science and Mathematics
(Undergraduate students)

Escherichia coli is a bacterium that is an indicator of fecal coliforms, and is usually expelled in waste material of warm-blooded animals. E. coli presence in waterways is used as an indicator of fecal contaminants and potential health risks to animals and humans. Because the United States Virgin Islands relies on septic systems, we investigated E. coli contamination on the island of St. Thomas. These systems are not connected to a larger sewage treatment plant, and often have drainage fields. In addition, livestock on the island can contribute to contamination of watersheds. These contaminants can be spread during rain events in watersheds around the island in various locations, flowing from a source to a sink. This study utilizes microbial source tracking methods to identify the source of E. coli contamination. A number of sites were sampled in correlation to rain events from August 2014 to January 2015. Samples were then analyzed by isolating bacterial content through water filtration and DNA extraction. Results show that some waterways were contaminated by E. coli, but not all. Further analysis of E. coli is being performed to identify the source of contamination.

STT-P22

Coral reef health responses to chronic and acute changes in water quality gradients in St. Thomas, US Virgin Islands

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Alteration of coastal land cover has increased sediment and nutrient loading into the nearshore marine environment, causing or contributing to coral disease, bleaching, and mortality. The southern coast of St. Thomas, USVI contains highly developed areas and it is suspected that nearshore water quality and coral reef health have suffered. Therefore, chronic and acute changes in water quality, sediment deposition, and coral reef health metrics were assessed in three zones based upon perceived degree of human influence: nearshore high impact, nearshore intermediate impact, and offshore low impact. Significantly higher in nearshore zones were total nitrogen, total phosphorus, chlorophyll, and turbidity. Net sediment deposition and terrigenous sediment content increased with watershed development. Prevalence of coral bleaching and macroalgae overgrowth significantly decreased along a nearshore to offshore gradient. During acute events of heavy rainfall, net sediment deposition, terrigenous sediment content, and coral bleaching significantly increased.

STT-P23

Potential for Tripneustes ventricosus (West Indian sea egg) functioning as a biological control agent for the invasive seagrass species, Halophila stipulacea

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University of the Virgin Islands, College of Science and Mathematics ([1]Graduate student, [2]Faculty)

The recent invasion of Caribbean waters by the seagrass species, Halophila stipulacea, has severely affected both the benthic seagrass and macroalgae communities. H. stipulacea's ability to reproduce via fragmentation as well as its rapid growth rates have contributed to its success as an invasive species, allowing it to outcompete native seagrass species such as Thalassia testudinum and Syringodium filiforme. Its continued expansion in the Caribbean has led to the development of the following question. Can the West Indian sea egg (Tripneustes ventricosus), an urchin species native to Caribbean waters and known for grazing on various seagrass and microalgae species function as a bio-control mechanism for H. stipulacea? My research goals are: (1) Establishing feeding preferences of the urchin via multi-choice feeding assays (2) Quantifying feeding rates utilizing no-choice feeding assays (3) Quantifying growth and health of the urchins eating either H. stipulacea or eating other macroalgae and seagrasses (their natural diet). Previous studies have suggested that long-term exposure to a single species can alter the feeding preferences of urchins; therefore, long-term exposure to H. stipulacea may invoke either a preference or avoidance behavior. Answers can aid resource managers in making decisions on how to confront the invasive seagrass.

STT-P24

Grammar in Action

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Our posters will demonstrate key grammatical concepts in Standard Written English (SWE) through sentence diagramming and interactive exercises and discussion. Each participant's poster will focus on a single concept (sentence structure, parallelism, the semicolon). Presenters will engage audience participants in grammar quizzes or exercises that further demonstrate or practice the grammatical concepts. The concepts chosen for presentation are from the 20 most commonly made student errors, as identified in research by Andrea Lunsford and others.

STT-P25

Perceived and projected alcohol and drug use among college students

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University of the Virgin Islands, [3]Student Affairs
([1]Undergraduate student, [2,3]Faculty)

In the United States, alcohol and drug use by college students has led to an increase in violence, illegal activities, risky behaviors, and death. The purpose of this research is to examine the relationship between the frequency of perceived and projected alcohol and drug use by students at the University of the Virgin Islands. The CORE Alcohol and Drug Survey was administered to 53 students between the ages of 18 to 24 who were enrolled in lower-level courses. Results from Spearman's rho Correlation revealed a statistically significant moderate direct relationship between the frequency of perceived alcohol use and projected alcohol use, ($r=.49$, $p<.05$). However, there was no statistically significant relationship between the frequency of perceived marijuana use and projected marijuana use. The findings from this study can help create programs that aid in reducing the use of alcohol and drugs among college students.

STT-P26

Space Invaders: The Effect of HIV/AIDS Testing Attitudes on Actual Testing

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([1]Undergraduate student, [2]Faculty)

The pandemic of HIV is an issue that is constantly being battled throughout the world. The HIV rates in the Caribbean ranked second only to Sub-Saharan Africa; and the Virgin Islands ranked highest in the United States. Furthermore, statistics show that young adults are most at risk for contracting, and have the highest rates of HIV. Therefore, there is a need to increase prevention efforts and knowledge among young adults. For this reason, the purpose of this study is to determine whether there is a negative relationship between the concern about being judged for getting tested and having already been tested. The study focuses on HIV/AIDS awareness in the local USVI community.

STT-P27

Complexometric Titrations Using A Platinum Sensing Electrode

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([1]Undergraduate students, [2]Faculty)

In a complexometic titration, the end point of the titration is marked with an indicator. EDTA is a strong metal binding agent, which makes it ideal for the titration of metallic ions. Based on the fact that the reduction potential for a metal ion can change upon complexation of a ligand such as EDTA, we propose that this can be used to detect the endpoint of the titration of a metal ion using EDTA and a platinum-sensing electrode. Our experiment was broken into two methods. For the indicator method, we weighed out the solution in a flask, added water, buffer, and some indicator and then added EDTA from a burette. For the electrode method, we followed the same steps but instead of indicator, we used a small platinum-sensing electrode to monitor the changes and added the EDTA in increments, using a pipette. There was a color change with the indicator method and there was a sharp change in the graph of the electrode method. The experiment was successful. The sharp rise in the graphs meant that the platinum sensing electrode successfully monitored the titration and spotted the endpoint.

STT-P28

The Genetic Basis of Phenotypic Variation in Threespine Stickleback

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The threespine stickleback is an ideal model system to interrogate the mechanisms that underlie phenotypic evolution—a fundamental question in evolutionary biology. Across geographic space, ancestral, marine stickleback have repeatedly and independently invaded freshwater environments and over time have adapted to the local environment. While many phenotypes evolve in this transition, one of the more promnent phenotypic differences is the reduction in skeletal armor and variation in armor size. We wish to find he genetic basis of more fine-scaled lateral plate variation and covariation among plates. I used a genome wide association (GWA) approach and analyzed a natural population of stickleback variable in lateral plate number and size. I hypothesize that the genomic regions contributing to plate variation will include regions previously implicated in lateral plate loss as well as other genomic regions. I measured lateral plate height, width, and area using ImageJ software and then statistically associated individual's genotypes to the phenotype with the software package. I identified several regions of association between one supporting lateral plate height and genotype on chromosome 5, 11 and 19. Assessing the covariation of supporting plates increased the statistical association on chromosomes 5, 11, and 19 and revealed more regions of association on chromosomes 3, 4, 13, and 20 which had not previously been implicated in lateral plate loss or plate height.

STT-P29

Physical drivers of community structure and growth among mesophotic coral ecosystems surrounding St. Thomas

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(Graduate student[1], Faculty[2])

Mesophotic coral ecosystems (MCE) are deep (>30m), light-dependent communities that are fantastically abundant in the northern US Virgin Islands. Compared to their shallow water counterparts, MCE remain understudied, and this is particularly true on the large north bank of St. Thomas. South of St. Thomas, mesophotic coral abundance varies from zero to the highest known in the USVI, but observations of the northern bank suggest limited coral cover. The cause and extent of these differences remains an enigma, and little is known about how the physical environment affects MCE composition. Using geospatially explicit observations of coral health (benthic diver and video surveys), coral growth rates (skeletal cores of Orbicella spp. and Porites astreoides) and sea surface temperature (as a proxy for upwelling), I will investigate differences in community structure and growth among mesophotic corals. I predict that south bank reefs will have higher coral cover and higher growth rates in O. annularis and P. astreoides, however, north bank corals will have denser skeletons, indicating higher net calcium carbonate. Factors limiting coral growth in north bank reefs may be higher frequency of periodic wave disturbance and upwelling associated physical characteristics such as increased nutrients and lowered light. This research will contribute to our knowledge of the geologic history of these valuable resources and improve our understanding of depth refugia.

STT-P30

Photosynthetic Caribbean sea slugs: Is there a best food? Or is a mixed diet required?

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Sacoglossan sea slugs can consume and retain chloroplasts which continue photosynthesis. Because of this unusual relationship of an animal maintaining plant organelles, these animals are being extensively studied. To understand this pattern, the Virgin Islands lettuce sea slug E. crispata was given six green algal species for three days with algal weights collected before and after feeding. E. crispata slugs fed on the different algal species exhibited no preference (Friedman's test, $p=0.178$), which is unusual because most sacoglossans are specialists. Planned studies will compare the growth of slugs fed separately on specific green algal species as well as consumption rates between treatments and between mixed and single treatments. Differences in growth rates or survival rates may suggest that E. crispata has a single optimal algal species, but has adapted to utilize a wide variety in order to improve survivorship in the face of unstable algal populations. If the slugs with a mixed diet grow best, that would suggest that different algal species are required for nutrient balancing or toxin dilution.

STT-P31

Predicting metapopulation persistence as a function of connectivity and refugia

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The persistence of natural populations, such as coral reefs, is threatened by the reduction of occupied habitats due in part to climate change and human development. Predicting metapopulation persistence following perturbations or management interventions is critical to effective conservation, yet is currently not incorporated into most environmental policy. Using network theory, we developed a model of metapopulation persistence to investigate the effects of refugia habitats. As expected, large, well-connected refugia networks increase the probability of metapopulation persistence. Of particular interest is that it appears that refuge habitats need not be invulnerable to perturbation to contribute substantially to metapopulation persistence; on the contrary, refuges are still effective when vulnerable if the refugia network is large (many habitats) and well connected. Thus, the maintenance of refuge habitats may be critical to the effective management of natural populations, even if those refuges are found to be vulnerable to climate change or human development.

STT-P32

Swift Observations of the Recent X-ray Activity of Eta Carinae

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The extremely massive Luminous Blue Variable binary star, Eta Carinae, lies 7,500 light years away, deep within the Homunculus nebula where vigorous Wind-Wind collisions between the primary star and the companion star generate high-energy gases that produce X-rays. Complex X-ray variations occur near periastron, the point of least stellar separation between the two stars. Understanding the variability in Eta Carinae's high-energy spectrum during this period gives us a better understanding of the system's physical and stellar properties. We present the processing techniques and background estimation methods used to process and analyze weekly observations done with Swift's X-ray Telescope during Eta Carinae's most recent periastron passage in 2014. We present analysis of Eta Carinae's current column density and compare it to that of previous cycles. The exact nature of Eta Carinae's X-ray minimum activity, which occurs every 5.54 years, is still unclear. A detailed understanding of the mechanisms of the X-ray deep minimum stage and the associated differences in column density in each cycle will contribute to a clearer understanding of the wind-driven mass-loss from this unique system.

STT-P33

DeFCoM: A Novel DNA Footprinting Method for Accurately Detecting and Analyzing Transcription Factor Binding Sites

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A significant fraction of the human genome consists of regulatory elements. Methods for predicting the binding sites of specific transcription factors have been developed to better understand regulatory DNA-protein interaction and the role of transcription factor binding site mutation in pathogenesis. In related studies, experimental sequencing methods have been used to gather information on DNA-protein binding events. In particular chromatin immunoprecipitation sequencing (ChiP-seq) identifies binding sites genome-wide for a single factor. Alternatively, DNase I hypersensitive site mapping (DNase-seq) more generally identifies regions of nucleosome-free open chromatin where nearly all types of factors bind. Algorithms using DNase-seq data have been developed to predict the location of individual transcription factor binding sites (TFBS's), referred to as DNaseI footprints. Our research presents evidence that our novel statistical method for predicting specific TFBS, named DeFCoM, is more accurate than existing methods. We calculated the accuracy of DeFCoM in identifying TBFSs for multiple factors, as identified by ChIP-seq, using DNase-seq data. We compared these results to those of existing methods run on the same data. Results showed that our method more accurately and efficiently predicted true positive binding sites than that of four existing DNA foot-printing methods.

STT-P34

Benthic competitors influencing coral competition and aggression interactions on Palmyra Atoll

Cheryl Petsche[1], Clinton Edwards[2], Yoan Eynaud[2] & Jennifer Smith[3]
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[2,3]Scripps Institution of Oceanography ([2]Staff, [3]Faculty)

Coral reefs are highly complex and taxonomically diverse. Corals are constantly contending with adjacent benthic competitors for space, a limited resource. Coral competition can be seen in numerous ways such as coral aggression by means of mesenterial filaments, overgrowth and shading. These competitive interactions can be categorized into win, loss, and neutral interaction zones. We intended to see if the identity of the benthic competitors influence the outcome frequency of interaction and if there is a difference in the frequency of outcomes between different coral growth forms. To determine this, photos were collected along transects with ten permanent photoquadrats per transect along the fore reef at Palmyra Atoll. All hard corals and major algal groups were digitized and designated. Interactions between focal coral species (Pavona varians and Favia stelligera) representing two dominant growth forms- encrusting and massive respectively- and adjacent benthic functional groups were scored as coral win, neutral, or coral loss to determine frequency of interactions. Photos were examined as an individual time point and as a photo time series. Analysis suggests that the identity of benthic competitors influence the outcome of the interactions for both growth forms. We plan to use linear measurements and percentage of colonial interactions with adjacent benthic functional groups to ascertain possible rates of change such as growth and mortality fluctuations.

STT-P35

Terrorism and Security in the Caribbean: A Look Back at the 1976 Cubana Disaster off Barbados

Dion Phillips
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Faculty)

In the recently heralded normalizaion of relations between Cuba and the United States under the administration of President Barack Obama, the Cubana disaster off Barbados in 1976 remains a bone of contention in view of Cuba's retention on the U.S. State Department's list of countries that sponsor terrorism. Whereas, the Cuban government continue to implicate the U.S. as an accomplist in the Cubana airline disaster. Using archival data, this study examined the Cubana airline crash in light of political terrorism in the Caribbean. With respect to the selected case study, it was determined that the category within which the Cuban airline disaster fell, according to Mickolus' typology of terrorism, was political terrorism. In addition, the motivation of the terrorists as well as limited aspects of the legal issues that arose with regard to the Cuban crash were discussed. Finally, it was shown that as a result of the Cuban disaster, not only Barbados but the other Caribbean countries began to place unprecedented emphasis on security concerns that has became to this day.

STT-P36

Sophorolipid Production Using Candida Bombicola

Bonnie President
University of the Virgin Islands, College of Science and Mathematics (Undergraduate Student)

A sophorolipid is a surface-active glycolipid compound that can be synthesized by a selected number of non-pathogenic yeast species. In this study the species of yeast used was the Candida bombicola. C. bombicola is a species of yeast added to the substrate from which the sophorolipids will be extracted. There are a variety of ways of producing sophorolipids and the method used in this production was the Batch method. The purpose of this experiment was to produce sophorolipids and also to determine the better form of extraction. The batch method was used to produce the sophorolipids and additional analysis including GCE and HPLC were used in this experiment. It could not be concluded which extraction procedure worked best since the method used for the EH2 sample did not work. A calculated average sophorolipid yield was 51.62777778 g/L.

STT-P37

Beginning a longitudinal analysis of UVI student information literacy skills: 2012-2014

Judith Rogers, Celia Richard & Tanisha Mills
University of the Virgin Islands, Libraries (Faculty)

The project to assess UVI freshman information literacy skills began in Fall 2012 with the collection of baseline data from in-coming students. Using the Standardized Assessment of Information Literacy Skills (SAILS), 266 students were assessed on 45 items in eight skill sets. The data collected established a benchmark of performance among incoming UVI students, to answer the question: "What are our students' strengths and weaknesses in regard to information literacy?" Information literacy instruction designed to address the gaps identified in the 2012 results, was delivered to the students, who enrolled in FDS 100, SCI 100, and SSC 100 during the semesters since fall 2012. In fall 2014, sophomore and junior students were again assessed in seven of the eight information literacy skills sets presented through SAILS. Overall scores show improvement in all skill sets. Compared to other masters institutions, UVI sophomore/junior students performed about the same in the skills of Using Finding Tool Features, and Retrieving Sources. Although scores improved in the remaining skill sets, the results still place UVI students below the institution-type benchmark. Poster will share comparative results of this quantitative assessment, address challenges in collecting information literacy data at UVI, and discuss plans for a 2015 UVI faculty/librarian training initiative to integrate information literacy activities into course assignments.

STT-P38

Frequency of Fission and Fusion in Colonies of Madracis mirabilis

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In coral population ecology, it is important to study fission/fusion events, how they change through time, and ultimately their role on coral persistence. This research focuses on the frequency of fission and fusion in colonies of the pencil coral, *M. mirabilis,* from the Caribbean island of Curacao across a 5 yr period. Additionally, qualitative comparisons of fission/fusion frequency data to local weather patterns were also undertaken to explore the hypothesis that there will be significantly more fission and fusion in *M. mirabilis* colonies during unfavorable weather conditions. Five year bi-annual photographic time series were taken from permanently marked quadrats in Curacao. PhotoQuad, a free downloadable program, was utilized to digitize the photos. Fusion occurs, but is rare (<0.1% at all times). Less than 0.1% of the colonies broke apart (fission) in all the time series except for one period (2010-2011). This spike in fission can be correlated to the sudden increase in rainfall from 2009-2011. Average proportional colony growth shows that most surviving colonies experienced net growth. This exploration is important for understanding the relationships between environmental and ecological demographic events happening within a Caribbean coral reef.

This project was funded by the University of California Office of the President.

STT-P39

My Ghost Has a Name: Memoir of a Murder

Rosalyn Rossignol
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Faculty)

For the past ten years, I have been researching and writing a non-fiction account of the murder of a South Carolina woman who was, in my youth, a dear personal friend. The title of the resulting book, which is now under consideration by the University of South Carolina Press, is My Ghost Has a Name: Memoir of a Murder. My research methods included investigation of police records such as notes on interviews with suspects and witnesses, the crime scene report, and crime scene photos, plus interviews (personal) with detectives who investigated the case, interviews with the three young people charged with the murder, with their attorneys, with witnesses, and with family members. I traveled to South Carolina on numerous occasions to carry out this field research, and was even called to testify in one of the convicted teens' appeal hearing. I believe that this poster which will discuss my methods and present some of my findings, will be both interesting and informative to other faculty and students who are interested in conducting field research in the Humanities and Social Sciences, and particularly in the area of Criminal Justice.

STT-P40

Species Distribution and Density of Fiddler Crabs Based on Habitat Characteristics in St. Thomas, USVI

Kelsey Schumacher
University of the Virgin Islands, College of Science and Mathematics (Undergraduate student)

Fiddler crabs are small crustaceans that live in colonial burrows along the water's edge. Over 90 different species are distributed across the globe. On average, 4-7 different species of Fiddler crabs (Uca) can be found at any one location in the Caribbean. However, there are few studies which have examined how habitat characteristics may affect the wide range in species distribution. During this investigation, 5 species of Uca were documented in three distinct habitats across 9 different sites on St. Thomas in the U.S. Virgin Islands. Ten 1m2 quadrats were randomly placed at each site and more than 100 specimens were identified in February 2015. Substrate and water samples were taken from each site for habitat analysis. Based on the analysis of habitat salinity, substrate composition and vegetative cover, each species seems to prefer a particular niche. This study aids in the understanding of ecological interactions in different species of Caribbean Uca as well as intra- and interspecific differences.

STT-P41

Disturbance as a control of upper mesophotic coral community structure on the southeastern Puerto Rican shelf edge

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University of the Virgin Islands, [2]College of Science and Mathematics
([1]Faculty, [2]Graduate student, [3]Staff)

Distinct habitats of mesophotic coral ecosystems (MCE) are present within the same depth ranges and across small distances indicating that there are strong and poorly understood mechanisms controlling horizontal community structure. Preliminary observations of Caribbean MCE of the southeastern Puerto Rican shelf of the US Virgin Islands suggested that the 71 km long shelf edge bank had limited coral development. We hypothesized that this pattern was controlled by low frequency mechanical disturbance caused by swell. We tested this idea by conducting stratified random surveys of benthic cover and coral health in shallow (27-34m) and deep (35-43m) habitats and leeward and seaward habitats. We expected that only the deeper habitats on the leeward side away from swell impact would have high coral cover. We found that depth controlled coral cover, with moderate cover (>10%) in deeper habitat of the shelf edge, mostly related to the cover of Orbicella spp., and low cover (<4%) in shallow habitat, which was largely sparsely colonized hardbottom. All habitats of the shelf edge contrasted strongly with adjacent on shelf banks in the same depths, which had relatively high coral cover (>30%). In addition, coral health patterns among shelf edge habitats did not indicate chronic stressors as controlling the distribution of coral cover. Swell disturbance is likely restricting the establishment of coral reefs on this shelf edge MCE and may exert similar control across the Caribbean.

STT-P42

The Cytotoxic Studies of the Crude Lemongrass Oil on Brine Shrimp

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The Pan American Health Organization reported in 2012 that about 611,000 cancer related deaths occurred within the Caribbean and Latin America. Prostate and breast cancer remain prevalent with projected statistics revealing an increase in both incident and mortalities. Since there is a lack of medical specialty, equipment and with the high cost associated within the treatment of cancer, an alternative method is needed. The West Indian lemongrass is abundant throughout the Caribbean and has been used for decades by our forefathers for its medical effects. We plan to investigate lemongrass for its cytotoxic properties as a potential preventative and treatment alternative. The aim of this study is to extract lemongrass oil from lemongrass and to determine the cytotoxic studies of the crude lemongrass oil on brine shrimp. Brine shrimp eggs are use to determine the cytoxicity of the lemongrass oil at various concentrations to develop its LC50 (lethal concentration which kills 50 % population).

STT-P43

The Transformation of *The Hero's Journey* throughout the ages

Stephan Todman
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

This project is about The Hero's Journey. The thesis statement for this project is "As 21st century media becomes complex so does the Hero's Journey". The methodology used in this project will be a correlation study. The research draws on different websites that deals with The Hero's Journey but it mostly focuses on Joseph Campbell's work such as The Hero with a Thousand Faces and The Power of Myth. Oral traditions, books, movies, and video games will be analyzed and the research will be then applied to them. In the end, the research will prove the thesis statement true.

STT-P44

Mapping the Spawning Site of Yellowfin Grouper

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The Yellowfin Grouper (Mycteroperca venenosa), is a large species (50 – 100 cm length) that forms annual spawning aggregation at specific times and places. Yellowfin grouper are currently threatened due to targeted fishing at spawning sites. The purpose of this research is to create probability distributions of time and space used by fish during spawning. This study will help determine where and when the fish spawn and are most active. The goal is to create a protected area that is large enough to protect the fish, but small enough to ensure the sustainability of the local fishermen. The importance of this research is to ensure that this species of grouper continues to form Fish Spawning Aggregations in St Thomas and does not become extinct due to overfishing. The data used in this study was collected by surgically implanting an acoustic transmitter into a fish that transmits a unique signal , which is detected by receivers in different locations on the Grammanik Bank. The receiver detects the acoustic signal when the fish is in close proximity. Using the data we create mathematical probability models of where fish are located during spawning in order to map the area that needs to be protected. Building on previous studies we will continue this research and build a continuous model to refine the existing results. The methods of calculating various probability distributions can be applied to other species in the future.

STT-P45

Myostatin Inhibition alters GDNF expression of skeletal muscle cells in culture

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[2]Western Michigan University (Faculty)

Sarcopenia (age related muscle wasting) amyotrophic lateral sclerosis (ALS), muscular dystrophy and cachexia (muscle wasting as the result of disease) are very common occurrences in society today. These various muscle-wasting syndromes decrease the quality of life for everyone who is afflicted by them. Results of recent studies suggest that altered neuromuscular communication may be a critical element in the loss of muscle strength and muscle mass observed with aging and disease. Glial cell line-derived neurotrophic factor causes beneficial changes in motor neurons which, include axonal regeneration and provides motor neuron support. GDNF has the potential to be used as therapy in treating various neurological disorders. Treatment with anti-myostatin causes muscle hypertrophy in the absence of exercise, so we used this treatment to cause hypertrophy without exercise and examined whether GDNF expression increased. The purpose of this study was to test the hypothesis that treatment with anti-myostatin will cause muscle hypertrophy and increase GDNF production in skeletal muscle cells in culture. The results show that signaling pathways activated by myostatin also affect GDNF production by skeletal muscle, providing a possible link between signaling pathways regulating muscle hypertrophy and those regulating neural plasticity.

STT-P46

Sierpinski's triangle

Kamira Webster[1], Kalina Webster[1] & Candace Petersen[2]
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University of the Virgin Islands, [2]College of Science and Mathematics
(Undergraduate student)

The whole idea of Sierpinski's fractal deals with the process of recursion, which is the computer programming process behind it. Recursion is the application of a function to its own values to generate an infinite sequence of values. The recursion formula or clause of a definition specifies the progression from one term to the next, as given the base clause f (0) = 0, f (n + 1) = f (n) + 3 specifies the successive terms of the sequence f (n) = 3 n. We have used ratio, midpoint and mid segments to prove that the triangles are equilateral. Let us take two equilateral triangles, and one is placed inside of the other being composed of the mid segments of the other. If we were to continue this process repeatedly inside of each new triangle formed, eventually we would have an infinite amount of triangles forming a fractal.

STT-P47

Threats to Our Reefs: Changes in Lionfish Prey Consumption and Biometrics

Amelle Williams
University of the Virgin Islands, College of Science and Mathematics
(Undergraduate student)

Lionfish (Pterois volitans) are an invasive species from the Pacific Ocean who are excellent predators and feed on herbivorous fish that live on coral reefs. The primary objectives for this project were to collect lionfish biometrics and to perform gut analyses. We were interested in returning to the same location in the west end of St. Croix, USVI where a study in 2011 was conducted to assess potential changes in prey consumption. We also wanted to detect potential changes in biometrics of lionfish found at the same site over time. Our first hypothesis was that a difference in gut contents would be observed due to over consumption of preferred prey. The second hypothesis was that lionfish lengths and weights would have increased. In 2011, the top three identifiable lionfish prey were juvenile wrasse, damselfish and crustaceans. Our data this year showed the top three identifiable prey species were similar. The data suggests that there was a drop in the number of damselfish and wrasse as well as a substantial increase in the number of crustaceans. Our biometric data showed that lionfish were becoming heavier per millimeter of body length, showing that they will need to eat more to sustain themselves.

This research was funded by NSF HBCU-UP (Grant Number HRD – 1137472).

STT-P48

Attitudes of University of the Virgin Islands students toward Intimate Partner Violence (IPV)

Andrea K. Wilson
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate Student)

This study investigated the attitudes of University of the Virgin Islands (UVI) Students toward Intimate Partner Violence (IPV) towards Women in 2015. It focused on four aspects namely, age, sex, academic status and also the situation in which IPV occurs. The study answered three research questions. What situations do students think allows for IPV? Do females have more negative attitudes than male students towards IPV? What is the relationship between age and negative attitude towards IPV? This research replicates that developed by Judith Bell who conducted a survey in schools across Northern Ireland in 2007. It postulated that young people agreed that situational differences allows for Intimate Partner Violence. Participants of this study were 120 students who are enrolled full time at UVI each student responded to a questionnaire made of 13 items. Cross Tabulation tested the hypothesis and chi square was used to test statistical significant relationship between variables. Test results were analysed at the 0.05 level of significance. The analysis revealed there is statistical significant relationship between the situations students think allows for IPV, that females have a more negative attitude than male students towards IPV and also between age and negative attitude towards IPV.

STT-P49

The Relationship between Depression and Academic Performance in Students at the University of the Virgin Islands

Krystal Wynter
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Many people experience the first symptoms of depression during their college years. Students who experience mild or moderate symptoms of depression or anxiety also demonstrate more academic difficulties and lower GPA then non-depressed students. Studies have shown that a high number of depressive symptoms are associated with poor health and impaired functioning, whether or not the criteria for a diagnosis of major depression are met. Preliminary studies have shown that 5% of college students prematurely end their education due to psychiatric disorders. The purpose of this study is to investigate the relationship between depression/depressive symptom and the academic performance of undergraduate students at the University of the Virgin Islands. The study hypothesizes that depression/depressive symptoms have a negative effect on academic performance of undergraduate students at the University of the Virgin Islands. The sample consists of male and female undergraduate on-campus and commuter students from all standings at the University of the Virgin Islands St. Thomas campus. Data will be collected through surveys administered to the students during the spring 2015 semester. The findings should be useful in designing intervention programs for students with depression.

STT-P50

Surface Segregation in Mixed Metal Oxides

Ykeshia Zamore
University of the Virgin Islands, College of Science and Mathematics (Undergraduate Student)

The composition of the surface differs from the actual bulk of the material. This phenomena is known as surface segregation. With the use of quantum mechanical modeling techniques, we study the surface segregation energy of several mixed oxides. We have used the real grid-based projected augmented wave (GPAW) code to run the density functional theory (DFT) calculations [JJ Mortensen, PRB Vol. 71, 035109,]. The main contribution to the surface segregation energy is given by the difference in the surface energies of the impurity and the host [A.V. Ruban, Physical Review B (1999) – APS, (59) 24]. Our results have allowed us to gain insight on the actual composition of the elements with the oxides. These results will help us to obtain an understanding of each impurities catalytic properties in chemical production.

STT-P51

Comparison of Hydrophilic and Lipophilic Antioxidant Activity between Commercial and Fresh Herbs

Elangeni Yabba
University of the Virgin Islands, College of Science and Mathematics (Undergraduate Student)

Antioxidants are substances that removes potentially damaging oxidizing agents in living organisms. Research suggests that their properties allow them to be used as precautionary methods for certain degenerative diseases, such as cancer. The purpose of this this research was to quantify and compare antioxidant activity in commercial and fresh herbs and spices. Based on previous published work, we hypothesized that the fresh herbs would have higher hydrophilic, lipophilic, and total antioxidant activities than the commercial spices. Four different commercial spices, namely basil, oregano, thyme, and cilantro, were purchased in St. Croix, USVI. Those same spices were also grown in the greenhouse at the University of the Virgin Islands on St. Croix. Antioxidants from these spices was extracted in both aqueous and organic solvents, separately. The antioxidant activity was determined using an ABTS/H2O2/HRP decoloration method and monitored at 730 nm using a UV-VIS spectrophotometer. This method with certain modifications, determined the hydrophilic and lipophilic antioxidant activity. Preliminary results show that the antioxidant activity for all hydrophilic extracts were significantly greater than the lipophilic extracts.

STT-P52

St Thomas round-table discussions

Club Drugs: Emerging Trends and Risk

Che'Vaune Brooks
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

This research will outline the use of drug, and their mind altering effects, with amplification in the use of a new group of psychoactive substances known as 'club drugs'. "Club Drugs" have become a universal expression for a number of illicit drugs, which are most frequently stumbled upon at bars, nightclubs, concerts, and parties by young people. These detrimental drugs that include GHB, Ketamine, MDMA, GBL, Rohypnol, LSD, PCP, and methamphetamine have amplified in attractiveness because they are perceived to enhance energy, sociability and sexual arousal. The vast popularity of these illicit drugs has been brought about due to the false pretense that such drugs are not addictive or detrimental as dependent drugs such as heroin and cocaine. Club drugs continue to be mass-produced and modified, making them very intricate to supervise resulting in high accessibility and an enhancement in doctor medical visits for access to such drugs. In addition, we will examine the growing trend of synthetic drugs being sold on the Internet with a slight chemical alteration, thereby avoiding them being labeled as illegal.

STT-R1

A Comparative Analysis for Racial Disparity within State and Caribbean Prisons

William Curtis
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Faculty)

For years social scientists have attempted to identify the reasons for the racial disparity, particularly between African American and white inmates, in America's state prison systems. Research has found that in every state within the United States, African American inmates far out number their white counterparts, per capita. This disparity has not only been found in states with large urban arrears, but also in states which are primarily rural, with a very low African American population and a large white population. This disparity has been linked to any number of theories, such as: racial bias within the criminal justice system, the targeting of African American males by police, aggressive prosecution by criminal justice agencies, unjust sentencing, poor education, dysfunctional family and neighborhood environments, and social economic status. However, despite numerous studies, no clear consensus has yet been identified that can be directly attributed to this disparity. This research seeks to identify an ideology that can be directly attributed to the disparity between African American and white inmates within America's state prison systems.

STT-R2

Impact of Social Media on VI Caribbean Culture in the 21st Century

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University of the Virgin Islands, [2]Cooperative Extension Service
([1]Faculty, [2]Staff, [3]Undergraduate students)

The roundtable "Impact of Social Media on Virgin Islands Caribbean Culture in the 21st Century" is designed to explore the sociological and technological behaviors, attitudes, communicative technologies and perspectives influencing contemporary and traditional Virgin Islands and wider Caribbean cultural heritage, values, customs and traditions. The common acceptance of continental American music, technologies and social media of the 21st century replacing earlier VI and wider Caribbean cultural practices will be objectively clarified. References to research publications and social media resources developed as part of the UN designated International Decade for People of African Descent (2015-2024) and its' impact on VI Caribbean culture, heritage and media will be elucidated. Comparative analysis for the Heritage Education and Arts Legacy in the Virgin Islands (HEAL VI©) research project inclusive of transculturalism, spoken word/Caribbean expressions, social justice and identity in media will be explicated.

STT-R3

Mandahl Bay: Is there an alternative to large-scale development?

Howard Forbes, Jr.
University of the Virgin Islands, Center for Marine and Environmental Studies (Staff)

An Area of Particular Concern (APC) contains habitat which provides important ecological functions, recreational value, and is especially vulnerable to human induced degradation. Mandahl Bay area, noted for its mangrove forests, sea grass beds, coral reefs, and marine/terrestrial life is 1 of 18 designated APCs in the territory and these designations were made in 1979 by the Department of Planning and Natural Resources (DPNR) and Coastal Zone Management (CZM). To date, two attempts have been made to develop Mandahl Bay; development which would include a marina, two resorts featuring a convention center, timeshare units, and several other amenities. Both proposals were met with outcry by the community resulting in either lengthy delays of the project or complete withdrawal by the developers. It is apparent that persons that are in favor of development and those in favor of environmental preservation have a vested interest in the future of Mandahl Bay, both from an economic and historical/cultural perspective. This discussion will provide an opportunity for those individuals to find a common ground – discuss development alternatives that are environmentally stable, bolsters the economy, and benefits society; all aspects of sustainable development.

STT-R4

Does Alcohol Consumption Affect Juvenile Crime?

Chaz Goodings
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

This paper will explore the effects of alcohol consumption on juveniles in the United States Virgin Islands and their propensity to commit crime. In determining the crime rates of juveniles who are under the influence of alcohol, we would identify which age group is most susceptible to these influences, which age they start consuming alcohol, and at which point in their drinking do they begin their criminal behavior crime. We will also examine the types of crimes being committed and the level of violence involved. It is the goal of this research to identify and determine the level of alcohol consumption, and the influences on criminal behavior. We will also explore the varying crime rates of juveniles and identify which ones have had the influence of alcohol. This research will also identify which crimes juveniles are more likely to commit under the influence of alcohol. In addition, we will examine the level of influence alcohol has on incidents of juvenile domestic violence. It is the goal of this research to identify avenues to limit the use of juvenile alcohol consumption, and decrease the rate of crime committed by these individuals under the influence.

STT-R5

Shape Shifting: Transformation Through the Humanities

Patricia Harkins-Pierre[1], Kaleah Brewster[2], Elisa Thomas[2] & Stefan Todman[2]
University of the Virgin Islands, College of Liberal Arts and Social Sciences
([1]Faculty,[2]Undergraduate students)

Each Fall the Senior Seminar students on the St Thomas campus choose a topic that will help shape the research projects they begin working on in HUM 497 that semester and complete during HUM 498 in the Spring. For the 2014-2015 school year, the students chose the topic "Shape Shifting—Transformation through the Humanities." Today, Dr Harkins-Pierre's discussion will explore how dreams and visions of family transform, constantly shifting shape and context, over time in Danticat's compelling Caribbean novel *Claire of the Sealight.* Senior Seminar student Elisa Thomas will be discussing some ways in which Mother Goose Tales have shifted shape throughout their surprisingly complex history. Student Stefan Todman will discuss examples of how heroes have shifted shape and even gender over the long centuries of their popularity. And student Kaleah Brewster will focus on the ways in which audiobooks have become transforming agents of change in the world of storytelling since their introduction in the twentieth century.

STT-R6

Influences that contribute to the rise in gun violence within our schools

Brea Joseph
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

This research, focusing on elementary, middle/junior high, and high schools, explores the various influences that gun violence has played within today's' school systems. By looking at those students who may be susceptible to the outside influences portrayed by the gun culture and other violent behavior found within today's social culture. We will examine why some students fall prey to this violent behavior and some do not. Our research would also measure which grade level holds the most incidents of gun violence and which grades do not. In addition, have media outlets and social media overreacted to school shootings, bringing about what some researchers have called the construction of moral panic, and our we slipping into a trend of an inflated sense of alarm over perceived threats. But it is unclear if incidents of gun violence in schools can be sufficiently distinguished and defined from other violent behavior in our country. The goal of this research is to narrow the scope, and focus in on the causational factors that brings about the behavior. Thereby allowing for the development of programs to assist students, no matter what age group, who may be predisposed to gun culture and its violent behavior.

STT-R7

Why do Youths Join Gangs?

Christopher Lockhart
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate Student)

Since the early 80s the United States has had an increase in gang activity in every state and territory located in the country. With the increase of gang activity, there has also been an increase in gang memberships. The majority of these new members are young pre-teens and teenagers. Older gang members target young males and females to integrate them to become a part of the gang lifestyle. There are numerous theories as to why youth turn to gangs. Some of these theories are credible while others have been proven to be a myth. Even with all of the research that has been done, the numbers of youth's joining gangs continues to grow. This research seeks to identify steps to solving this problem and figure out what is making our future generation, put so much energy into a street gangs, instead of things such as athletics, social clubs, and schoolwork. There are many programs throughout the country that are alternatives for gangs, and that also focus on gang prevention. Some of these programs work while others seem to not be as effective. The goal of this research is to find out why so many kids are turning to street life. The research will focus on youths in both rural and urban areas. It will also look at things such as household income, family dynamics, and parental involvement with the child's education.

STT-R8

Medical Marijuana in the U.S. Virgin Islands

Tamra Olive
University of the Virgin Islands, College of Liberal Arts and Social Sciences (Undergraduate student)

The purpose of this study is to determine whether or not there would be benefits of decriminalizing marijuana for medical use in the United States Virgin Islands. Since the 1970's, efforts have been made to decriminalize medicinal marijuana throughout the United States. Attitudes of citizens are now changing towards these efforts in a variety of states, most notably in Washington and Colorado. Since 2012, Senator Terrance "Positive" Nelson has made similar efforts here in the U.S. Virgin Islands. This study will indicate the possible benefits of decriminalizing marijuana for medical purposes. The researcher for this study entails random sampling of University of the Virgin Islands (UVI) students. Using a questionnaire as the research instrument, data will be collect regarding the opinions and attitudes of the UVI student body. A correlation analysis will be used to determine if there are any relationships between the use of medicinal marijuana and its potential benefits, the legal recreation use of marijuana, and the illegal recreational use of marijuana. In addition, we will evaluate the level of knowledge the research participants have on the positive and negative effects of marijuana.

STT-R9