

CSI UNDERGRADUATE CONFERENCE 2020

THURSDAY, APRIL 30, 2020



Sponsored by the Division of Academic Affairs



College of Staten Island
The City University of New York



CSI Virtual Undergraduate Conference

Message from the President

Welcome to the 19th Undergraduate Conference at CSI, the first time the conference is being held virtually. This event is always a highlight of the Spring semester, and I am delighted that we have been able to continue an important tradition despite the many challenges we have faced. Students and faculty alike have had to be resourceful in ways none of us envisaged at the beginning of the semester. Yet you have risen above the challenges, and through persistence, commitment, and a love of learning/teaching, made this conference possible. That we are “here” today is a credit to you all.

We have approximately 100 student presentations representing research and scholarship across a range of disciplinary and interdisciplinary fields, and many more students are involved through collaborations and group work. Students at CSI are mentored by world-class faculty and it is widely recognized that these opportunities influence career choices and establish the foundational steps for future studies and professional training, often changing life trajectories. That so many students have experiential learning opportunities of the very high caliber afforded by our dedicated faculty is a signature of what CSI offers our undergraduates.

Let us take a moment to be proud, not only of the students and faculty represented in today’s conference, but of all students and faculty who have worked so hard throughout the semester. As the saying goes, “it takes a village” and I want to acknowledge the contributions of the people who have helped put together the conference program, abstracts and posters, and provided the technical expertise for the virtual meeting.

Congratulations to all participants and enjoy the presentations and posters.

Sincerely,

A handwritten signature in black ink, appearing to read "WJ Fritz".

William J. Fritz

President

Conference Schedule

	Track 1	Track 2	Track 3	Track 4	Track 5
START TIME	Psychology	Biology Computer Science	Chemistry Engineering & Env. Science Physical Therapy	Accounting Marketing Philosophy English/Linguistics History World Lang. & Literatures Performing & Creative Arts Media Culture Nursing	Psychology Political Science & Global Affairs
	WELCOME Katie Cumiskey Chair of Department of Psychology	WELCOME Michael Cavagnero Dean of Science & Technology	SESSION ONE WELCOME Marcus Tye Dean of the School of Health Sciences	WELCOME Susan L. Holak Dean of Lucille and Jay Chazanoff School of Business	WELCOME Sarolta Takács Dean of Humanities & Social Sciences
12:30					
12:40	<i>Sleep States' Relation to Motor Milestone Acquisition</i> PSY - Rebecca D'Aloia	<i>To See the Interactions Between Different Tau Mutants</i> BIO - Momtahina Akter Marven Fam	<i>Synthesis and Purification of Monosulfopeptides</i> CHM - Mahmoud Hassan Omar Musa Hannah Bruschi	<i>Understanding Social Justice Impacts of New York City's Transportation Infrastructure</i> ACCT - Matthew Griffin	<i>How Does an Orphan's Perceived Loneliness Affect their Sense of Belonging and Suicidal Behavior?</i> PSY - Kyle Macdonald
12:50	<i>Examining College Students' Media Literacy and Algorithm Understanding</i> PSY - Nada Tantawi Arshia Lodhi	<i>Are Muscarinic Receptors the Gates of Neuronal Death in Alzheimer's Disease?</i> BIO - Hrisula Dervishi	<i>Molecular Dynamics Simulation of Oppositely Charged Peptides With Alternating Chirality Patterns</i> CHM - Tania Rajpersaud	<i>The Past, Present and Future Role of the United States in Intergovernmental Economic Organizations</i> MKT - Resha Dehiwala	<i>A Model of Fever-Induced Seizures in the African Naked Mole-Rat</i> PSY - Samantha Narvaez
1:00	<i>Similarities and Differences in Middle-school and College Students' Conceptualization of the Internet</i> PSY - Arshia Lodhi	<i>Electrophysiological and Biochemical Characterization of Neuronal Excitability in Fragile X Mice</i> BIO - Reem Gouda	<i>Effect of Surface Topography on Singlet Oxygen Generation</i> CHM - Gil Barahman	<i>The Importance of Human Rights in International Business</i> MKT - Akram Munassar	<i>A Metabolic Switch for Colony Dispersal in the African Naked Mole-Rat</i> PSY - Corey Plate
1:10	<i>The Relationship Between Gender and Body Image Satisfaction and Self-Esteem in Relation to Exercising</i> PSY - Tristiana Adragna	<i>Taurine and Alcohol Interactions</i> BIO - Mustapha Kobeyssi	<i>The Effect of Hygroscopicity on Water Collection Rates and Self-Cleaning Rates in a Condensing Environment</i> CHM - Jordan Eidlisz	<i>The Utility of Philosophy</i> PHL - Yousef Albasir	<i>An Observation of Maternal Depression and Early Childhood Development</i> PSY - Margaret Gasparik
1:20	<i>The Effects of Subtle Reminders of Death and Religiosity on Medical Decision-Making</i> PSY - Marina Michail Daniel Kallinni Nadeen El-Nasharty Kirolos Shenouda Bishoy Salem	<i>Ultrastructural Characterization of Synaptic Connectivity in the Hippocampus of Fragile X</i> BIO - Kelly Liang	<i>Enhanced Water Collection from Air Using Hybrid-Hydrophobic Surfaces</i> CHM - Edmond George	<i>The Syntax and Semantics of WH-marked Yes/No Questions</i> ENGLING - Karen Correa	<i>Selective Attention and Emotion Recognition in College Students Assessed with the AQ and RAADS-14</i> PSY - Arouje Shaikh Adrienne Fitzer
1:30	<i>The Relationship between Prejudice and Denitition</i> PSY - Lidya Rizkalla	<i>Expression of Glucose Transporter, Insulin Receptor and Their Role in Bioenergetics</i> BIO - Olaya Torres Kamelea Torres	<i>Effect of Heat and Light on Stability of Chlorin e6 Photosensitizers for Dental Applications</i> CHM - Mehnoor Khan Danielle Ohana Samuel Krichavets	<i>Effects of Autistic Traits on Acoustic Measures of Vowel Dispersion</i> ENGLING - Krissy Dellecave Alexandra Diaz Samantha Randazzo	<i>Dopamine Neuron Release Sites in the Corpus Callosum: Implications for White Matter Plasticity</i> PSY - Elizabeth Fiore
1:40	<i>The Effects of the Trump Presidency and Existential Concerns</i> PSY - Kailey Volpetti Denis Eder	<i>Effect of Singlet Oxygen on Streptococcus Mutans</i> BIO - Manikkuwadura De Silva Zahra Raja Abdonnie Holder Brittany McCarthy Robert Persaud	<i>Dependency of Soiling Rate on Condensate pH using Calcium Carbonate Particles</i> CHM - Vladislava Lisina	<i>Italian Cinema and its Relationship with Postwar Italian History and Politics</i> HST - Christopher Hancock	<i>Impact of Staten Island's Freshkills Park to Property Value and Biodiversity</i> PSGA - Drew Stillman
1:50	<i>Knowledge of Campus Counseling Center Location in Relation to Mental Health Help-Seeking Orientation Among Diverse Undergraduate Students</i> PSY - Sade Thomas	<i>TH-17 Expression In Invasive Cancers</i> BIO - Michele Palermo	<i>Applications of Singlet Oxygen in Photodynamic Therapy: Evaluating the Stability of Chlorin e6</i> CHM - Anastasia Maximenko	<i>The Selling of the Past in the Illegal Arts Trade and the Effects It Has on Policies and Laws Established Within the United States</i> HST - Katelyn Goetten	<i>What has Caused Femicide in the City of Juarez Since 1993</i> PSGA - Mayra Aguilar Jannette Tenantitla
2:00	BREAK	BREAK	BREAK	BREAK	BREAK
	SESSION TWO				
2:10	<i>The Risk of Depression in Younger Youth Compared to Older Youth</i> PSY - Kira Chen	<i>Gene Expression Pattern Analysis of GBM and IDC</i> BIO - Briana Soto	<i>Hybrid Mineral: Biomaterial Scaffold to Probe the Origins of Animal Life Forms</i> CHM - Christina Viso	<i>The Effects of Short-Term Study-Abroad Programs in the Development of Willingness to Communicate in Spanish amongst High School Students Sojourning in Spain for Two Weeks</i> WLL - Evelyn Salazar	<i>US Involvement with Drugs in Latin America</i> PSGA - Anesa Andrade Jeanine Gentile Nicole Gutic
2:20	<i>The Effects of Arginine-Vasopressin V1A Antagonism on Social and Repetitive Behaviors in a Mouse Model of Autism Spectrum Disorder</i> PSY - Elizabeth DiLiberto	<i>A Novel Technique to Evaluate the Impact of Herbicides on Human DNA</i> BIO - Benjamin Gulino	<i>Does Staten Island Have a Problem With Microplastics? A Pilot Study of Microplastics on Lemon Creek</i> ENS/ESC - Ting Ting Chen	<i>Vibe Check</i> PCA - Thomas Aquino	<i>Struggle for Indigenous Rights and Recognition</i> PSGA - Emmanuel Appiah Alejandra Romero
2:30	<i>Pupillary Light Reflex and Social-Communicative Behavior in Infants With and Without Family History of Autism</i> PSY - Jacqueline Baudanza	<i>The Role of Probiotic Bacteria in Alcohol Intoxication</i> BIO - Nadya Widjaja Eun Jung Choi Haaziq Jawed	<i>Does Staten Island Have a Problem with Microplastics? A Continued Study of South Beach</i> ENS/ESC - Alex Fiero	<i>Streaming's Impact on the Music Industry</i> MC - Michael Pinto	<i>Guerrilla Movements in Latin America: A Comparative Case Study</i> PSGA - Yasmin Bahloul Alison Ortiz Sunna Lee

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2:40	<i>Correlations Between Autistic Traits, the Pupil Light Reflex, and Sensory Sensitivities in School-Age Children</i> PSY - Sandy Mettry	<i>Exploring the Impacts of Microplastics on Marine Invertebrates II: Using Confocal Microscopy to Assess Gut Residence Time of Microplastic Particles in a Suspension Feeding Zooplankton, Artemia salina</i> BIO - Stephen Biazio	<i>Properties of the Dacitic Pumice from Mount Pinatubo Eruption</i> ENS/ESC - Dan Jabez Sales	<i>Metabolic Syndrome Prevention in the Adolescent Population</i> NRS - Maher Alsawaf Fadkemi Adesina Amanda Alexis Joshua Li Chinazam Okeiche	<i>2016 Rio de Janeiro Olympic Games - Was it Worth it?</i> PSGA - Alberto Ballesteros
2:50	<i>Why are the Item Responses for Concentration Disturbance, Feelings of Worthlessness/Guilt, and Sleep Disturbance Good Indicators for Depression?</i> PSY - Victoria Mollo	<i>Understanding the Relationship Between Sediment Metal Concentrations and the Induction of Metal-binding Proteins (Metallothioneins) in an Important Estuarine Organism (the grass shrimp, Palaemonetes pugio)</i> BIO - Corey Zhong	<i>Vehicle Exhaust Powered Portable Charger</i> ENS/ESC - Matthew Damiani Alex Lam	<i>Stress Factors in Nursing</i> NRS - Eva Kuperman	<i>The United States Gaining of the Panama Canal</i> PSGA - William Brady
3:00	<i>Factors That Influence Career Choice: Insights from a Participatory Study with Autistic and Non-Autistic College Students</i> PSY - Chinnu Cherlyan Sergey Shevchuk	<i>Use of Indocyanine Green Dye to Enhance Imaging and Make Informed Surgical Decisions</i> BIO - Gurpreet Malhi	<i>Temperature Controller for a Stationary Sun Baked Car</i> ENS/ESC - Karl Jiang Daniel Makinde	<i>Is Social Media Anti-Vax Propaganda Causing a Drop in the Rates of MMR Vaccines Being Given?</i> NRS - Jillian La Fata	<i>The Decline of the Mayan Civilization</i> PSGA - Imran Fazal
3:10	<i>When Should Parents Talk with their Autistic Child about Autism? Insights from Autistic Young Adults</i> PSY - Oluwatomisin Oredipe Bella Kofner	<i>Optimization of Convolutional Neural Networks for Image Classification</i> CSC - Christopher Harris	<i>Reducing Water Use in Irrigation Using Solar Power in Mali</i> ENS/ESC - Muhammad Siddique Kassim Keita	<i>Health Promotion for Cardiovascular Disease</i> NRS - Rommel Martin Lauren Armada Alexis LoFaro Sandra Mach Danette Mancenido	<i>What are the Effects of the Venezuelan Refugee Crisis on Colombia and Peru?</i> PSGA - Jonathan Gutama
3:20	<i>The Effects of Relcovaptan/SR49059 Administration on ASD-like Behavior in BTBR T+Itpr3tf/J Mice</i> PSY - Aishwarya Udayan	<i>Deep Learning Image Recognition and Detection: Architectures, Learning and Applications</i> CSC - Dennis Kruptisky	<i>Trans-Cranial Direct Current Stimulation Changes ForePaw Preference in Mice</i> PHT - Baraa Abdelrahman Adnan Elcharfa Lilian Al-keswani Tarik Arabi	<i>Health Promotion for the Pediatric Population</i> NRS - Amanda Mendez Gianna Cialino Michelle Andolfo Taylor Mavaro Victoria Tanzi	<i>Affects of Deportation</i> PSGA - Michelle Jimenez Idelsy Rodriguez
3:30	BREAK	BREAK	BREAK	BREAK	BREAK
SESSION THREE					
3:40	<i>Pressure to Conform: The Impact of Peer Victimization on the Mental Health of LGBTQ+ Youth</i> PSY - Jessica Borowski	<i>Modeling Collaboration between Autistic Players using a Gesture-Based Video Game</i> CSC - Konstatin Novichenko	<i>Pain Therapy: The Evolution of Pain Therapy and its Future Role in Physical Therapy</i> PHT - Tiffany Mansour	<i>Health Promotion: Women through Life Span</i> NRS - Joyce Ann Taverner Miriah Kokkinos Sorayina Louis Katherine Morris	<i>Panama Canal</i> PSGA - Tiffany Perry
3:50	<i>First-Generation College Students Experiences vs. Non-First-Generation College Students Entering a 4 Year Institution in Academics, Transitioning, Financial Aid, Physiological Stress and Social Well-being</i> PSY - Araksy Naseif	<i>A 3D Game to Engage Students in Coding</i> CSC - Konstatin Novichenko	<i>Vascular Endothelial Growth Factor: a Potential Therapeutic Molecule for Spinal Cord Injury Patients</i> PHT - Michelle Puma	<i>Depression</i> NRS - Adele Buccigrossi	<i>Mothers of the Plaza de Mayo</i> PSGA - Tanya Salazar Karina Nava
4:00	<i>Factors That Affect the Formation of Sexual Self-Schemas in Women</i> PSY - Samantha Silber	<i>The Benefits of Computer Systems in Composing Music</i> CSC - James Loui		<i>What is Life Like for Patients Living with Dysautonomia?: A Literature Review</i> NRS - Gabrielle Colucci	<i>The Current State of Brazil Under Jair Bolsonaro</i> PSGA - Sarthak Taneja
4:10	<i>Evaluating Trans Representation and Biases in Introductory Psychology Textbooks</i> PSY - Annet Sokol				<i>What Caused Corruption in Venezuela</i> PSGA - Blake Zavadsky

POSTER PRESENTATIONS

ACCOUNTING AND FINANCE

POSTER: ACC/FNC-01

Understanding Social Justice Impacts of New York City's Transportation Infrastructure

Matthew J. Griffin

Faculty Mentor: Professor Jonathan Peters

Department of Accounting and Finance

The purpose of this study is to understand the social justice impacts of existing transportation infrastructure in New York City, as well as, the social justice impacts of proposed changes to infrastructure in the coming years. We want to understand who is, and who will be, served by existing and proposed infrastructure, who is missed, and how well these transportation systems serve the people of New York City, specifically low income, minority, and senior citizen customers. In order to analyze these proposed changes, and existing infrastructure, we will utilize census data to develop estimates of potential social justice changes in the MTA's 2020-2024 Capital Program. We will also utilize statistical methods and geospatial analysis in order to establish appropriate impact zones of planned changes, with the goal of exploring the demographic impact and regional equity.

BIOLOGY

POSTER: BIO - 01

To See the Interactions between Different Tau Mutants

Momtahina Akter, Marven Fam

Faculty Mentor: Professor Alejandra Alonso

Department of Biology

The purpose of this research is to assist in the understanding of Alzheimer's disease mechanisms. Alzheimer's disease is a progressive disease that mainly destroys the memory of an individual and other important mental functions. Tau is a microtubule-associated protein whose purpose is to stabilize the microtubules in the neuronal axons in the Central Nervous System (CNS). Tau is a phosphoprotein and the degree of phosphorylation is very important for its normal functioning. Normally, tau contains 3 moles of phosphate per mole of protein. In Alzheimer's disease, tau protein gets hyperphosphorylated and contains 7-10 moles of phosphate per mole of protein. When hyperphosphorylated, tau cannot bind to tubulin and stabilize microtubules, instead, it binds to normal tau and sequesters it from microtubules resulting in microtubular disruption and ultimately death of the neuron. This research project was designed to examine the interactions between different tau constructs. In our lab, we have four tau constructs (wild type, tau pseudophosphorylated at Thr 212, Thr 231, Ser 235 and Ser 262 tau with R406W mutation and tau pseudophosphorylated at Thr 212, Thr 231, Ser 235 and Ser 262 with R406W mutation) tagged with GFP. To achieve our objective we want to tag our tau constructs with DsRed which will give us the ability to observe the interactions between two different tau mutants.

POSTER: BIO - 02

Are Muscarinic Receptors the Gates of Neuronal Death in Alzheimer's Disease?

Hrisula Dervishi

Faculty Mentor: Professor Alejandra Alonso

Department of Biology

Abnormal hyperphosphorylation of the microtubule-associated protein Tau is a hallmark of Alzheimer disease and related diseases called tauopathies. As yet, the exact mechanism by which this pathology causes neurodegeneration is not understood. The present study provides direct evidence that Tau abnormal hyperphosphorylation causes its aggregation, breakdown of the microtubule network, and cell death and identifies phosphorylation sites involved in neurotoxicity. The disease manifests in the hippocampus, resulting in gradual deficits of learning and memory. It later affects areas in the cerebral cortex responsible for language, reasoning, and social behavior. In neurodegenerative diseases, like Alzheimer's disease (AD), pathological tau spreads from neuron to neuron enhancing neurodegeneration. Previously we have found that PH-Tau binds to M1- and M3- type muscarinic receptors, resulting in extracellular tau uptake. This project will characterize the expression of M1 muscarinic receptors in a pseudophosphorylated tau (Pathological Human Tau, PH-Tau) mouse model. We studied the Muscarinic receptors because our results showed that these receptors are involved in the propagation of Tau toxicity.

The future goals of this study will be to analyze the distribution of M1-type muscarinic receptors in the cellular level and M3-type muscarinic receptors. This research will further shed light on how differences in receptor distribution throughout the central nervous system affect the progression of hyperphosphorylated tau.

POSTER: BIO - 03

Electrophysiological and Biochemical Characterization of Neuronal Excitability in Fragile X Mice

Reem Gouda

Faculty Mentor: Professor Abdeslem El Idrissi

Department of Biology

In this study, we examined the fragile x mouse model, fmr1 KO mouse to characterize the excitability of neuronal circuits using the stretch reflex as a model. The FMR1 KO exhibited an enhanced stretch reflex response characterized by an increase in both muscle tension and electromyogram amplitude. The enhanced stretch response was mediated both at the level of CNS and muscle. FMR1 KO mice showed enhanced muscle tension under isoflurane anesthetic. At the level of the muscle, we found histological alterations characterized by changes in the distribution of connective tissue and the diameter size of muscle fibers. Furthermore, FMR1 KO muscle

displayed ultrastructural modification characterized by longer and thinner sarcomeres. These histological alterations in myofibril and extracellular components of the muscle could explain the exaggerated response of the stretch reflex that is due to the passive properties of the muscle. Immunofluorescence of the spinal cord showed enhanced immunoreactivity in both glutamic acid decarboxylase and choline acetyltransferase and a decreased expression of both GABAA and glycine receptors in the taurine deficient mice compared to controls. Disruptions of the cholinergic, GABAergic and glycinergic systems in the spinal cord may be contributing to the enhance reflex due to changes in excitability and inhibitory functioning. In this study, we propose to further characterize neuronal excitability in *fmr1* mice by looking at neurotransmitter receptor expression in the brain and the functional consequences of altered expression of these receptors by measuring neuronal excitability electrophysiologically.

POSTER: BIO-04

Taurine and Alcohol Interactions

Mustapha Kobeyssi

Faculty Mentor: Professor Abdeslem El Idrissi
Department of Biology

The purpose of this study is to investigate the interactions between the amino acid taurine and ethyl alcohol in the cerebellum. Taurine, 2-aminoethanesulfonic acid, is a semi-essential amino acid widely distributed in animal tissues. Taurine is one of the most abundant amino acids in the brain and plays an integral role in physiological processes such as osmoregulation, neuroprotection and neuromodulation. Both taurine and ethanol exert positive modulatory effects on neuronal ligand-gated chloride channels as well as inhibitory effects on other ligand- and voltage-gated cation channels. In this study we show behavioral and electrophysiological evidence suggesting that taurine and ethanol can independently and synergistically alter the locomotor activity and neuronal excitability. Assessment of locomotor activity was performed using DigiGait walking belt and analysis software that monitors footsteps and measures the range of distance. Neuronal excitability was measured with intracerebral electrodes that monitor frequencies and amplitudes of neuronal discharge. We focused our evaluation on cerebellar granule cells as these are the principal cells of the cerebellum and they have the ability to act as resistance modulators during a high volume of incoming signals from proprioceptors, basal ganglia and other areas of the brain. Application of taurine hyperpolarized Purkinje cell membrane, inhibited somatic Na⁺ spikes and dendritic Ca²⁺ spikes, and decreased somatic membrane resistance. On the other hand, alcohol affects brain function by interacting with multiple neurotransmitter systems, thereby disrupting the delicate balance between inhibitory and excitatory neurotransmitters. Acute alcohol exposure tilts this balance in favor of inhibitory influences through positive allosteric modulation of GABAA receptors and negative allosteric modulation of NMDA receptors. Furthermore, we found that the pharmacological effects of taurine and alcohol were synergistic when these two compounds were simultaneously administered. Taken together, these data suggest that the endogenous taurine system may be an important modulator of effects of ethanol on the nervous system.

POSTER: BIO-05

Ultrastructural Characterization of Synaptic Connectivity in the Hippocampus of Fragile X

Kelly Liang

Faculty Mentor: Professor Abdeslem El Idrissi
Department of Biology

Fragile X Syndrome is the most commonly known genetic cause of autism. *Fmr1*-KO mouse lacks the Fragile X Mental Retardation Protein (FMRP) and is used as a model of the syndrome. The core behavioral deficits of autism may be conceptualized either as excessive adherence to patterns as seen in repetitive actions and aberrant language, or as insensitivity to subtle but socially important changes in patterns. The hippocampus receives information from the entorhinal cortex and plays a crucial role in the processing of patterned information. The function of the hippocampus is pattern completion from entering separated information, forming episodic memories. In this study, we used paired-pulse stimulation of the afferent perirhinal path and recorded from the CA3 region of the hippocampus. This stimulation paradigm allowed us to examine the processing capabilities of the dentate gyrus as a function of increasing inter-stimulus interval (ISI) and how taurine, a GABAA receptor

agonist affects such information processing. We found that WT slices showed pair-pulse facilitation at ISI of 50-300 ms whereas the Fmr1-KO slices showed a consistent pair-pulse depression at a comparable ISI. Addition of 10 mM taurine to the WT slices resulted in a drastic decrease of the peak response to the second stimulus, resulting in an initial depression at 50 ms followed by potentiation at higher ISI (100 ms and above). In the present study, we proposed to characterize synaptic connectivity in the hippocampus by examining the number of synapses in the dentate gyrus electron microscopy and immunohistochemistry.

POSTER: BIO - 06

Expression of Glucose Transporter, Insulin Receptor, and Their Role in Bioenergetics

Olaya A. Torres, Kamelea H. Torres

Faculty Mentor: Professor Abdeslem El Idrissi

Department of Biology

We have shown that taurine supplementation increased islet size in the pancreas and insulin production by β cells. These changes in pancreatic function are responsible for the increased resistance to glucose challenges in taurine-fed mice. Control mice showed a significant increase in plasma glucose concentration 30 min after glucose injection with a gradual decrease thereafter. By 120min, mice were slightly hypoglycemic relative to baseline. In contrast, taurine-fed mice showed a drastically different response to glucose injection. There was a delayed peak of plasma glucose at 60 min post-injection and the plasma glucose in these mice was significantly lower than controls at all times measured ($p < 0.001$). These data were reproduced in avian. Insulin is primarily a metabolic hormone functioning on muscle, fat, and liver via activation of the IR receptor. Insulin also functions on other non-metabolic tissues such as the brain. Once insulin is secreted it crosses the blood-brain barrier by a transporter-mediated saturable mechanism. The IR is widely expressed in the brain at various levels. This regional specificity implicates insulin, through activation of its receptor, in various brain functions that are mediated by these brain structures. In this study, we propose to examine the levels of insulin receptors (IR) expression in the pancreas and brain in controls and taurine-fed pigeons. In mice, we found a significant increase in IR expression in all brain regions and the pancreas compared to controls. Here, we propose to investigate the expression pattern of IR and how it is affected by taurine in the avian model. Interestingly, changes in the expression levels of insulin receptors were associated with changes in the expression levels of glucose transporter (Glut 4) in neurons. We suggest that circulating levels of insulin regulate the expression levels of insulin receptors in the brain that in turn regulate neuronal bioenergetics through regulation of the expression of Glut4.

POSTER: BIO - 07

Effect of Singlet Oxygen on Streptococcus Mutans

Manikkuwadura N. De Silva, Zahra A. Raja, Abdonnie R. Holder, Brittany L. McCarthy, Robert Persaud

Primary Faculty Mentor: Professor Carol Hartman | Co-Mentors: QianFeng Xu, Alan Lyons

Department of Biology

Periodontal disease affects over 700 million people worldwide. Currently, there are various approaches used to treat periodontal disease, such as tooth scaling. While this method effectively reduces the microbial density in the periodontal pockets, it is not able to eliminate pathogenic bacteria. In the experiments conducted for this project, our main goal was to observe the effects that singlet oxygen had on the bacterial strain *Streptococcus mutans*- a facultative anaerobe that is known for initiating dental caries. Singlet oxygen is a highly reactive oxygen species that has the ability to kill bacteria. The singlet oxygen was generated by irradiating a superhydrophobic film containing a photosensitizer with red LED light. Superhydrophobic film samples were immersed into a UV-vis cuvette filled with a controlled number of bacteria and irradiated while being constantly mixed. A series of irradiation times were used to identify the time interval required to achieve a five log reduction in bacteria per milliliter. For each irradiation time, two superhydrophobic film samples were run in parallel along with two controls: one with the superhydrophobic film but with no light and one with no superhydrophobic film, but with light. A five log reduction was observed by counting colony-forming units (CFUs) after a 30 minute irradiation time. Our eventual goal is to treat periodontal disease, and other diseases, by using singlet oxygen.

POSTER: BIO-08

TH-17 Expression in Invasive Cancers

Michele Palermo

Faculty Mentor: Professor Nancy Liu-Sullivan

Department of Biology

Cancer is a proliferative mitotic disease that plagues thousands of individuals yearly. Cancer is capable of hijacking normal cells through mutations and suppressing the body's normal signals to prevent malignancy. Five genes along with two isomers of TGF β were studied for their involvement in three most invasive forms of cancer (glioblastoma, invasive ductal breast cancer, non-small cell lung cancer) via the TH-17 pathway. Cytotoxic T lymphocytes (CTL) are crucial in recognizing unwanted cells including cancer cells. However, it is well characterized that cancer cells are capable of secreting molecules to inhibit CTL activation and thereby inhibiting CTL from eliminating cancer cells. CTL activation utilizes T helper cell activation as a prerequisite. Once activated, CD4+ T helper cells differentiate into four T helper subsets and T helper 17 (Th17) is one of them. Cytokines play an important role in Th17 biological processes. Th17 differentiation is driven primarily by transforming growth factor beta (TGF- β) and interleukin 6 (IL-6) cytokines. Th17 cells release interleukins 17 (IL-17) and interleukin 22 (IL-22) and both cytokines have been implicated in the induction of autoimmune response and inflammatory response. Interleukin 23 (IL-23) has been reported to play an important role in maintenance of Th17 responses. Glioblastoma multiforme (GBM) is the most aggressive brain cancer. The specific role of Th17 and associated cytokines in GBM is yet to be clarified.

All data utilized was based on an inclusive genetic database of cancer and normal tissue called Oncomine. Results were taken of specific studies only, discluding cell culture or DNA results. All data were based on the median log₂ average of normal vs. cancer types. Of this pool the mean of all median log₂ values was taken and charted on google tables. The average of all averages was taken for both studies, as well as a standard deviation and a two tailed T-test was used to determine the statistical relevance of findings. The T-test result was compared to a T- test table based on degrees of freedom and either rejected or failed to reject the null hypothesis.

POSTER: BIO-09

Gene Expression Pattern Analysis of GBM and IDC

Briana A. Soto

Faculty Mentor: Professor Nancy Liu-Sullivan

Department of Biology

Glioblastoma multiforme, GBM, is categorized as the most aggressive form of gliomas found along the central nervous system. While gliomas approximately make up 80% of all malignant brain tumors, GBM is responsible for approximately half of all primary brain and CNS cancers. This form of cancer targets more men than women and increases in tumor frequency with age as well. Once diagnosed, patients will typically receive a poor medical prognosis with an average survival rate of 12 to 18 months. Invasive ductal carcinoma, IDC, is one of the most common forms of breast cancer diagnosed in women. Approximately eight out of ten women, who are diagnosed with breast cancer, will be diagnosed with IDC. The tumors will initially form in the milk ducts of breasts but will then infiltrate the surrounding fatty breast tissue. At stage IV, the cancer has progressed outside of the milk ducts and fatty tissues and will have metastasized to other parts of the body such as the surrounding lymph nodes, liver, lungs, bones, and or brain. Once GBM and IDC have advanced to stage IV, both cancers will show resistance to standard cancer treatments. The gene expression patterns of both cancers will be studied, through computational analysis and the Oncomine database, in order to determine which set of genes are being over and under-expressed. The genes that are over-expressed will be used as potential biomarkers and help to shed light on potential molecular targets for novel drug treatments.

POSTER: BIO - 10

A Novel Technique to Evaluate the Impact of Herbicides on Human DNA

Benjamin Gulino

Faculty Mentor: Professor Chang-Hui Shen

Department of Biology

Genotoxins are agents that damage cellular DNA via interactions with the DNA sequence and structure. These agents can possibly cause mutations in DNA (mutagens), they may trigger cancer (carcinogen) or maybe even birth defects (teratogen). We have begun studying a mammalian cell line known as HeLa cells in the lab. This research will be focusing on observing and evaluating how these cells are damaged by the chemicals we are treating them with. We have chosen to study the effect of herbicides as we humans may commonly encounter them. In the lab, we are currently developing a novel technique to evaluate DNA damage through the use of herbicides. To aid our research, we are using the method known as comet assay in order to assess whether or not the variety of herbicides being used inflict damage on the HeLa cells. DNA damage is symbolized with a comet where the longer the tail, one can infer more damage has occurred.

POSTER: BIO - 11

The Role of Probiotic Bacteria in Alcohol Intoxication

Nadya Widjaja, Eun Jung Choi, Haaziq Jawed

Faculty Mentor: Professor Chang-Hui Shen

Department of Biology

Chronic alcohol consumption has shown an emergence of medical disorders including alcoholic liver diseases, pancreatitis, cardiomyopathy, acute respiratory distress syndrome, and brain injury due to overexposure of alcohol in the human body. Endotoxin has played a critical role in the advancement of alcohol-induced tissue, and organ damage. The correlation between endotoxin and liver damage was confirmed by researchers conducting an experiment, and detecting increased plasma endotoxin levels is always linked to patients diagnosed with alcoholic liver diseases. This finding was further investigated by using a rat model, administered with an endotoxin such as lipopolysaccharide, extracted from the cell wall of gram-negative bacteria living in the intestine, leading to the progression of fatty liver, and resulting in necroinflammatory changes. A usually minor quantity of the endotoxin is taken up by the intestine via the intestinal epithelial lining that is transported via the portal vein to the liver. The Kupffer cells of the liver usually clear up the endotoxin, but a surplus amount of the endotoxin being exposed to the liver can activate Kupffer cells to trigger liver inflammation, and circulation of the endotoxin in the human results in further damage to other organs. Probiotic bacteria can improve the host health and its immune system by promoting an anti-inflammatory environment to combat endotoxin production, bacterial translocation, and improve intestinal barrier integrity. It is suggested that the probiotic bacteria control inflammation by reducing the gut pH, and compete with pathogens for binding as well as receptor sites. In the current study, we examine how probiotic bacteria *Streptococcus thermophilus* and *Lactobacillus bulgaricus* respond to ethanol. These probiotic bacteria were isolated from 5 different commercially available yogurts. Growth curves were generated using a microplate reader at different ethanol concentrations to see how the bacteria respond in the presence of ethanol. These results will provide crucial information in genetically engineering the cells to resist high levels of ethanol, and assist in ethanol oxidation to treat alcohol intoxication.

POSTER: BIO - 12**Exploring the Impacts of Microplastics on Marine Invertebrates II: Using Confocal Microscopy to Assess Gut Residence Time of Microplastic Particles in a Suspension Feeding Zooplankton, *Artemia salina*****Stephen N. Biazio**

Faculty Mentor: Professor William Wallace

Department of Biology

A recent UN report predicts that by 2050 plastic waste in the oceans will outweigh fish, and in some areas of the ocean (the Northern Pacific Gyre) plastic currently outweighs plankton. Overtime, this plastic waste breaks down via wave action and exposure to ultraviolet radiation into smaller particles known as microplastic (MP) (<5mm). Ingestion of MP by marine invertebrates from a variety of taxa is now well documented. The effects of MP ingestion vary depending on organism, size of particle, and type of particle consumed. Assessing how the ingestion of MP affects marine invertebrates, specifically zooplankton, that occupy an important trophic link in marine food chains, is essential to understanding ecological impacts of this emerging pollutant. The objectives of this study were to: examine the relationship between varying algal/MP ratios and feeding rate in *Artemia*, a model marine suspension feeder, and to observe the digestive tract of *Artemia* having had ingested MP. This was accomplished by feeding *Artemia* with suspensions of algae and MP in various ratios (algae: microplastic @1:0, @3:1, @1:1, or @1:3) maintaining a constant particle concentration of 3500 cells per ml. Feeding rate was assessed by comparing $t=0$ counts to $t=60\text{min}$. Subsequent to feeding experiments, *Artemia* were examined using confocal microscopy at the Advanced Imaging Facility CUNY, College of Staten Island. Although not statistically significant, results suggest that *Artemia* exhibit a reduced feeding rate when presented with higher MP concentrations. For instance, feeding rate for *Artemia* exposed to algae/MP @ 1:3 was ~ 2.5 lower (1×10^5 cells/hr) than that of *Artemia* exposed to algae/MP @3:1 (2.5×10^5 cells/hr). This could be indicative of a high cost/low reward for processing MP which have little nutritional value. Imaging of *Artemia*, subsequent to feeding exposure, revealed that gut processing (i.e., throughput) of MP by *Artemia* is not straightforward; some particles remain in the gut much longer than others. The consequences on energetics and physiology associated with processing of MP particles will be examined further.

POSTER: BIO - 13**Understanding the Relationship Between Sediment Metal Concentrations and the Induction of Metal-binding Proteins (Metallothioneins) in an Important Estuarine Organism (the grass shrimp, *Palaemonetes pugio*)****Corey Zhong**

Faculty Mentor: Professor William Wallace

Department of Biology

Marine organisms inhabiting urban estuaries (such as the New York Harbor) are exposed to a variety of anthropogenic stressors (i.e., low oxygen, organic pollutant, and toxic metals). Toxic metals (such as Cu, Cd, Zn, Pb and Hg) are of concern due to the potential for transfer up food chains. One mechanism by which these organisms can detoxify metals is by the induction of metal-binding proteins called metallothioneins (MT). Interestingly, however, storage via MT can increase metal transfer to predators. The purpose of this project is to understand the relationship between sediment metal concentrations, metal concentration in an important estuarine organism (the grass shrimp *Palaemonetes pugio*) and levels of MT in their tissues. Grass shrimp and sediments were collected from various sites around Staten Island (SI), NY. These sites included: Lemon Creek, Main Creek, Mill Creek, Neck Creek, along with a reference site in southern NJ (Tuckerton). Metals in sediment and shrimp were assessed via acid digestion followed by analysis via ICP (or CVAAS for Hg). MT was determined using a radioisotope (Hg-203) based assay procedure. In general, sediment metal concentrations were found to be the lowest at Tuckerton as compared to the SI sites, which were rather similar. Interestingly, however, sediment Hg concentrations at Neck Creek were substantially higher than other SI sites ($\sim 1,400$ ppb vs $130\text{--}830$ ppb). In general, metals in shrimp across the study sites tracked sediment concentrations, with shrimp from Main Creek having at the highest Me-Hg concentrations (~ 170 ppb). These shrimp were also found to have the highest MT concentrations ($\sim 2\times$ fold higher) than all other sites (which were similar to the reference, Tuckerton). These results suggest that sediment Hg levels (and associated accumulation by grass shrimp), may be the driver of increased MT production inside shrimp, which, in turn could result in an increase of metal trophic transfer to grass shrimp predators.

POSTER: BIO - 14

Use of Indocyanine Green Dye to Enhance Imaging and Make Informed Surgical Decisions

Gurpreet S. Malhi

Faculty Mentor: Professor Grozdena Yilmaz

Department of Biology

Indocyanine Green (ICG) is a dye that is used in clinical settings to augment the imaging such as X-ray and fluoroscopy. ICG is administered intravenously a few minutes before the surgery. ICG is anionic, water-soluble, but relatively hydrophobic, tricarbo-cyanine molecule with a molecular mass of 776 Daltons. Due to its hydrophobic nature, absorption by the tissue is high. ICG can be excited by a varying wavelength of infrared light depending on the concentration from anywhere between 600 – 900nm and as a result, it can appear as “glowing in the dark.” The extent to which specific location illuminates green can show normal or abnormal tissue depending on the type of procedure being performed. If you inject into a tubular system, it can be used to view the anatomy of an organ such as determining the hepatic portal system during hepatic surgeries. Analysis of data will be performed on recently published studies to determine if ICG assisted surgical procedures have helped the patient have a better outcome compared to the patients who did not receive ICG. This will be achieved through a comprehensive literature review on the intra-operative use of ICG to detect abnormalities in human tissue. Furthermore, we will conduct one surgeon survey to inquire about the use of ICG to help make surgical decisions. Based on literature overview, interviews, and surveys, we expect to confirm that the administration of ICG increases accuracy in detecting tissue abnormalities which helps surgeons make crucial decisions improving the surgical outcome of patients which can decrease recovery time and intra-operative complications.

CHEMISTRY

POSTER: CHM - 01

Synthesis and Purification of Monosulfopeptides

Mahmoud M. Hassan, Omar Musa, Hannah Bruschi

Faculty Mentors: Professor Leah Cohen, Fred Naider

Department of Chemistry

Post-translational modification of peptides plays an important role in various protein-protein interactions. One such modification is the sulfation of tyrosine residues on transmembrane proteins. The sulfation of these proteins can alter the binding affinity between the extracellular portion of the protein and its respective ligand. C-C chemokine receptor type 5 (CCR5), an HIV-1 coreceptor found on white blood cells, is a transmembrane protein that interacts with chemokines, such as gp120 on HIV-1. The affinity of chemokines to CCR5 is affected by the different sulfation patterns of tyrosine residues on the extracellular portion of the receptor. Isolating the CCR5 protein is inefficient for studying the effects of different sulfation patterns on its affinity because the expression of the protein leads to a heterogeneous mixture of sulfation patterns. Instead, a region of the extracellular N-terminal portion of the protein, Nt-CCR5(8-20), was chemically synthesized using solid phase synthesis, with sulfation of the tyrosine 14 residue. After synthesizing the desired peptide, and studying the deprotection of the neopentyl ester protecting group, the crude product was purified using reverse phase HPLC. The availability of this sulfated N-terminal receptor peptide will enable future experiments to study the interaction between this purified peptide and chemokines.

POSTER: CHM - 02

Molecular Dynamics Simulation of Oppositely Charged Peptides with Alternating Chirality Patterns

Tania Rajpersaud

Faculty Mentor: Professor Sharon Loverde

Department of Chemistry

Molecular dynamics (MD) is the study of atomic behavior in a defined chemical system, where each atom exerts a force on all other atoms as a function of distance. Being a form of the N-bodies problem, modeling molecular behavior quickly becomes difficult as more atomic bodies are added to the system. Using the MD simulation software, Nanoscale Molecular Dynamics (NAMD), it is possible to predict the movement of atoms, within a chemical system, by approximating each resulting force for a small time step, allowing the system to evolve in a stepwise fashion. Building on a previous study from Dr. Tabandeh, on the self-assembly of polyelectrolyte complexation [Molecules 2019, 24, 868], this project intends to use NAMD to simulate the complexation between three different pairs of polypeptide strands, each having identically charged monomers arranged with an alternating chirality pattern between either adjacent lysine or glutamic acid, followed by either glycine, alanine or leucine. Running three separate 100 ns simulations for each polyelectrolyte pair, we can prepare a dynamic model and view the interaction between each pair in order to understand how electrostatics and hydrophobicity affects complex action. The results of these simulations will be analyzed using Python to determine several factors such as rotation of gyration and the center of mass for each complex.

POSTER: CHM - 03

Effect of Surface Topography on Singlet Oxygen Generation

Gil Barahman

Faculty Mentor: Professor Alan Lyons

Department of Chemistry

Singlet oxygen (1O_2) is an excited state of oxygen that has many real-world applications, such as killing bacteria. It is currently being considered by dental professionals to kill the bacteria associated with periodontal disease. Singlet oxygen is generated when a laser diode, emitting light at a wavelength of 669 nm, illuminates photosensitizer particles in the presence of oxygen gas. The current method uses a sensitizer applied directly into the periodontal pocket that limits the delivery range to about 3 mm. This method is an issue, as some pocket depths reach 8-10 mm. The development of a device with the ability to deliver highly localized singlet oxygen at these depths would be a breakthrough for periodontal dentistry.

In this project, we have prepared a superhydrophobic surface that is coated with a photosensitizer. When the photosensitizer is incorporated into a superhydrophobic surface, ground-state oxygen availability is maintained even when the surface is submerged in fluid. Our hypothesis is that the ability to trap air will result in a higher yield of singlet oxygen. Here, five polydimethylsiloxane samples coated with Chlorin e6 were analyzed for their hydrophobicity, morphology, and singlet oxygen-generating properties when submerged into an aqueous trapping solution. Ultimately, the most hydrophobic samples showed the highest rates of singlet oxygen generation. Future work includes characterization of surface topography using optical profilometry and confocal microscopy.

POSTER: CHM - 04

The Effect of Hygroscopicity on Water Collection Rates and Self-Cleaning Rates in a Condensing Environment

Jordan Eidlisz

Primary Faculty Mentor: Professor Alan Lyons | Co-Mentors: Ilya Nayshevsky, QianFeng Xu
Department of Chemistry

Solar power has emerged as a major worldwide form of efficient clean energy. However, a major issue for solar photovoltaic panels is soiling, which can cause a significant loss of electrical output, sometimes as high as 70%. In addition, dew can promote interactions between the dust and glass that can lead to increased cleaning difficulty and expenses. To combat these losses, anti-soiling coatings have been developed that reduce the soiling rate and enhance the cleaning rate, reducing overall costs. Experiments have been done prior in the group of Professor Lyons to test the soiling rate of various soils, and their cleaning rates. However, the types of mineral soilants vary with geography and an experiment has not yet been performed to answer the question of whether the hygroscopic nature of particles will affect both the soiling rate of a surface, and the cleaning rate of a surface. In addition, there are no experiments reported that determine how the pH of dew will affect both the soiling rate, and the cleaning rate, of these surfaces. In the era of climate change, we see differences in precipitation pH not just worldwide, but even within the United States itself, and understanding the effect of pH on soiling rates will further help to make the cleaning process of solar panels more efficient and less costly. Time permitting, the pH of the water within the condensation chamber will also be varied.

POSTER: CHM - 05

Enhanced Water Collection from Air Using Hybrid-Hydrophobic Surfaces

Edmond P. George

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Department of Chemistry

Water is very essential to life. Harvesting water from the air can supply water for communities in excessively dry environments. Hydrophilic surfaces, which attract water, allow water to condense on the surface in fair amounts. Hydrophobic surfaces, which repel water, allow water to slide off and so be removed from surfaces easily. A combination of a hydrophobic surface with hydrophilic features allows the best utilization of both hydrophobic and hydrophilic properties. This project is aimed at quantifying the amount of water that can be harvested from hybrid hydrophobic-hydrophilic surfaces.

Hydrophobic surfaces were produced and are composed of a fluoropolymer coating on photovoltaic cover glass. Hydrophilic features were produced by mechanically removing the fluoropolymer coating leaving exposed hydrophilic glass. Surface properties were analyzed by measuring water contact angle, water sliding (slip) angle, and contact angle hysteresis (CAH). The water collection properties of the surfaces were analyzed by exposing the surfaces to a controlled humid environment inside a laboratory condensation chamber, and weighing the amount of water that condensed and slid off from surfaces. Bare (uncoated) glass, and a glass with a continuous hydrophobic coating were used as controls. The amount of water harvested over ~24 hours for each type of surface will be presented.

POSTER: CHM - 06**Effect of Heat and Light on Stability of Chlorin e6 Photosensitizers for Dental Applications****Mehnoor Khan, Danielle Ohana, Samuel Krichavets**

Primary Faculty Mentor: Professor Alan Lyons | Co-Mentor: QianFeng Xu

Department of Chemistry

Singlet oxygen (1O_2) is an excited state of oxygen, which could be applicable in the real world. One of the benefits singlet oxygen has is its ability to kill bacteria. Currently, it is being studied by dental professionals to eradicate bacteria that is linked to periodontal diseases. The existing approach uses a sensitizer that is directly applied to the periodontal pocket and limits the delivery span to about 3 mm. This is a concern, as some pocket depths reach 8-10 mm. The advancement of a device with the capability to deliver highly localized singlet oxygen at these depths would be monumental for periodontal dentistry. Singlet oxygen is produced when a laser diode emits light at a wavelength of 669 nm onto a superhydrophobic sample that is coated with a photosensitizer. This illuminates the sensitizer particles that then react with proximate oxygen gas. In this study, the thermal stability and photostability of samples were tested. The sample used is coated with a solution of Chlorin e6 (Ce6) dissolved in dimethyl sulfoxide (DMSO). Thermal stability was tested by heating the sample at 60°C for varying times, as well as testing a control group, which was not exposed to any heat. Photostability was tested by photobleaching the samples, which entails placing a sample in an empty cuvette and exposing it to an LED light for 30 minutes. After exposing the samples to these accelerated conditions, they were placed in a uric acid trapping solution to quantify the amount of singlet oxygen generated by the surface. Rates were determined using UV-Vis spectroscopy. Preliminary results will be reported.

POSTER: CHM - 07**Dependency of Soiling Rate on Condensate pH using Calcium Carbonate Particles****Vladislava Lisina**

Primary Faculty Mentor: Professor Alan Lyons | Co-Mentors: Ilya Nayshevsky, QianFeng Xu

Department of Chemistry

Soiling of cover glass causes a substantial loss of electrical output from photovoltaic (PV) solar panels. In the presence of dew, dust cements to the surface, chemically and physically bonding to the glass, exacerbating the cost of cleaning PV solar panels. To reduce soiling rates and decrease cleaning expenses, anti-soiling coatings are being developed. Calcium carbonate dust particles are commonly observed as contaminants in many regions of the world where limestone is found on the surface. This mineral is partially soluble in water at neutral pH, and dissolves/ reacts rapidly at acidic pH. However, the interactions of $CaCO_3$ with anti-soiling coatings have not been reported under acidic conditions.

In this study, the anti-soiling properties of glass soiled with $CaCO_3$ were studied in the presence of dew and as a function of pH. Experiments were conducted on both un-treated glass (hydrophilic) and fluoropolymer coated glass (hydrophobic) with condensed water vapor at neutral (pH = 7.4) or acidic (pH = 1.4) conditions in the presence of $CaCO_3$ dust. Increasing acidity (lower pH) causes most of the $CaCO_3$ to dissolve. Upon drying, the dissolved compounds precipitate, forming a transparent film that allows most of the light to be transmitted. In contrast, at higher pH (neutral water), the $CaCO_3$ particles do not substantially dissolve. As a result, the solid particles on the surface scatter light, reducing the amount of light transmitted through the glass. Under soiling conditions, the fluoropolymer coating was found to increase transmittance over uncoated glass, and was especially effective in acidic conditions.

POSTER: CHM - 08**Applications of Singlet Oxygen in Photodynamic Therapy: Evaluating the Stability of Chlorin e6****Anastasia Maximenko**Primary Faculty Mentor: Professor Alan Lyons | Co-Mentor: QianFeng Xu
Department of Chemistry

Photodynamic Therapy (PDT) uses light, a photo-sensitizer, and molecular oxygen to form an excited state of oxygen, known as singlet oxygen to cause cell death and kill microbial cells. PDT is a minimally invasive technique because the lifetime of the excited state is less than 10 microseconds before it decays back to the molecular oxygen ground state. However, it can be used to treat various malignant cancers, macular degeneration, psoriasis, actinic keratosis, and periodontal disease. Chlorin e6, a hydrophobic photo-sensitizer (PS), can be derived from algae and is used in several countries for PDT. It was selected for this project because of its low cost and high efficiency in the generation of singlet oxygen. The purpose of this study is to evaluate the stability of chlorin e6 when exposed to the excitation wavelength. The study will use a high intensity LED (Cree Semiconductors, peak output at 664 nm) to irradiate the sample and UV-vis absorption spectroscopy to analyze the absorption maxima of the molecule that occur at 405 nm and 658 nm. A series of concentrations of chlorin e6 in aqueous PBS buffer solution will be studied as a function of irradiation time. A Beer's Law calibration plot was used to quantify the concentration of chlorin e6 in solution. The degradation of chlorin e6 vs time and the decomposition rates in the dark vs during exposure to the red LED will be presented.

POSTER: CHM - 09**Hybrid Mineral: Biomaterial Scaffold to Probe the Origins of Animal Life Forms****Christina M. Viso**Faculty Mentor: Professor Krishnaswami Raja
Department of Chemistry

This work expands the scope of chemobronic chemistry to produce biopolymer-intercalated inorganic tubes that structurally and chemically resemble oceanic hydrothermal vent tubules (stromatolites) and the scaffolds of tubular sponges. The sponge mimetic tubules (SMTs) are formed by seeding concentrated sodium silicate-potassium phosphate solutions containing solubilized biopolymers of cyanobacterial origin with calcium chloride and a carbonation reaction has beenolites further employed on the resulting tubules to produce calcium carbonate enhanced SMTs. It is believed that unicellular choanoflagellates, which closely resemble choanocytes evolved to produce the first sponge. The Salpingocea rosetta strain of choanoflagellates was successfully attached on the surface of cell adhesion molecule coated SMTs to create simple model sponge mimetic assemblies. Fluorescein diacetate staining followed by live-cell imaging and confocal laser scanning microscopy was used to confirm viability of choanoflagellates on the SMTs. The feeding behavior of cells on the assemblies was observed by live-cell video microscopy. This study establishes the feasibility of the hypothesis presented and lays the fundamental groundwork for building a biomimetic sponge bottom up.

COMPUTER SCIENCE

POSTER: CSC - 01

Optimization of Convolutional Neural Networks for Image Classification

Christopher Harris

Faculty Mentor: Professor Natacha Gueorguieva
Department of Computer Science

Deep Learning Neural Networks (DLNNs) proposed in recent years have enabled massive performance gains in tasks of various fields including computer recognition, biology, finance, and natural language processing. Convolutional Neural Networks (CNNs) are highly layered structural neural networks, most of which have the same basic function layers including convolution layers, pooling layers and a classification layer. The idea of CNNs is to create a neural network which learns the most effective features utilizing different filters.

Each convolutional layer summarizes the input by extracting features of interest from it and produces feature maps in response to different feature detectors. Each layer builds on the output of the previous one, so the model gathers information to gain a bigger picture of the image to produce a higher-order feature detection. CNNs and generally DLNNs feature hierarchy increases complexity and abstraction which is what makes deep-learning networks capable of handling very large, high-dimensional data sets with billions of parameters that pass through nonlinear functions.

One of the most important parameters in a DLNN is the choice of optimizer function. The optimizer is responsible for updating a model in response to the loss function. That is, the optimizer is the force behind a model's ability to learn a specific task. Current research focuses on proposing new optimizers to improve accuracy and reduce training time.

The above determines the goal of this research: study the implementation of different optimizers (Adam, RAdam, AdaBound, Yogi, RMSProp) in CNNs, as well as the choice of topology and different parameters as activation function, learning rate, batch size and the implementation of evaluation metrics in solving image classification problems.

POSTER: CSC - 02

Deep Learning Image Recognition, and Detection: Architectures, Learning and Applications

Dennis Krupitsky

Faculty Mentor: Professor Natacha Gueorguieva
Department of Computer Science

Machine learning is an ever-growing, popular field within the artificial intelligence world, and a subset of machine learning is Deep Learning. This specific subset is a learning technique for computers involving algorithms, and neural networks inspired by the human brain to learn from huge amounts of data. The process of creating a model could grow quite extensive as there are many facets to account for. A simple definition for a deep learning model can be described as an algorithm repeatedly performing a task, and each time have certain tweaks in order to improve the outcome. Deep learning has only come to surface as one of the most useful AI techniques in the last few decades, as we now have access to large amounts of labeled data for training (over 2 quintillion bytes of data is generated daily), and substantial computing power to train our models. Overall, deep learning allows modern machines to solve complex problems, by learning from experience.

The goal of this paper is to demonstrate the several different approaches that can be used to create a well performing machine learning model, and what are some of the biggest factors in the process. A deep dive is taken into what is deep learning, data preparation and preprocessing, the structure of a neural network, the various algorithms and functions needed, and several experiments in creating a machine learning model. From these models we acquire data which will demonstrate whether there needs to be adjustments made based on its accuracy. The main goal was to create as accurate a neural network as I could. One of the main focal points in why I decided to take up this research project is to gain insight as to how I can construct different models so I can then, in the future, scale and create more accurate models that can then be successfully applied to huge amounts of data for knowledge discovery, application of this knowledge, predictions based off the knowledge, etc. Deep learning is becoming a major focal point within society and the technology we collectively use as it allows us to advance and innovate within the real world, and is one of the most powerful aspects of machine learning.

POSTER: CSC - 03

Modeling Collaboration between Autistic Players Using a Gesture-Based Video Game

Konstantin Novichenko

Faculty Mentor: Professor Deborah Sturm
Department of Computer Science

We extended a two-player research game that is designed to study the collaborative and emotion recognition abilities of players on the autism spectrum. Players view animations before each scene and assemble a puzzle by using gestures to select the appropriate emotion of the protagonist. We expected that when an expert player models behavior, a novice player will learn game mechanics and will communicate more as the game progresses. Each testing session consisted of five levels. During the first three levels, the modeler exaggerated all the movements and initiated a discussion about the appropriate emotion of the main character. After the first three levels until the end of the game session, the modeler stopped exaggerating movements and didn't initiate a conversation to see if the novice player will proceed by themselves and initiate conversation. We conducted a series of tests with 14 typically developing players and 7 players on the autism spectrum. 6 out of 14 of the typically developing participants and 5 out of 7 of the participants on the autism spectrum stated that expert peer modeling improved their understanding of gameplay and helped them to communicate and collaborate more. After analyzing video sessions, we concluded that 8 out of 14 of the typically developing participants and 6 out of 7 of the participants on the autism spectrum adopted the modeled behavior and initiated conversations later in the game.

POSTER: CSC - 04

A 3D Game to Engage Students in Coding

Konstantin Novichenko

Faculty Mentor: Professor Deborah Sturm
Department of Computer Science

We extended a 3D serious game to teach and reinforce fundamental coding concepts. The objective of the game is to find missing animals scattered around the city and help them to return home by solving coding assignments. The built-in IDE (Integrated Development Environment) supports multiple programming languages that could be easily changed by instructors in the instructor's portal. This innovative feature allows instructors to create customized programming challenges that students solve in the context of the game. The game was designed to engage and motivate all students, with a special focus on women and underrepresented groups in computer science. A preliminary evaluation of the game at three colleges in CUNY shows promising results in the use of the game as a teaching tool.

POSTER: CSC - 05

The Benefits of Computer Systems in Composing Music

James Loui

Faculty Mentor: Professor Sarah Zelikovitz
Department of Computer Science

This paper will discuss how data used by computer systems can benefit the composition process of music. One objective of our work is to design a program that composes, plays, or modifies music. The program is written in Python, a programming language, and uses pyo, a library related to Python and music, in order for the program to compose and play music. The program uses MIDI note number data to compose and play music and a form of user input to modify music. The program will be tested to see how effective it is in composing, playing, or modifying music based on multiple different combinations of user input. One potential finding is that since rest notes do not have MIDI representations, the option to add rest notes to a song has to be implemented in a way which may have its limitations. One conclusion that can be made is that the program will help in understanding specifically how music can be modified to benefit the composition process of music. This research was pursued because of my passion for music and because I was interested to see how computer systems can have a role in benefiting the composition process of music.

CURRICULUM AND INSTRUCTION

POSTER: C & I - 01

From Manipulatives to Mental Math

Christine Millad

Faculty Mentor: Professor Judit Kerekes
Department of Educational Studies

During my research, I worked with a small sample size of students. They learned how to add double digit numbers and how to mentally create a ten with the ones given to them in an equation mentally. First they were taught by using manipulatives such as “base tens and ones” which is a ten rod and a single unit cube. They learned how to add single digits that are no more than ten then increased their knowledge and learned how to add double digit numbers to add up to no more than one hundred. From here we moved to using unifix cubes, learning that ten ones are the same as one ten. This is because the unifix cube is breakable and this helps the pupil develop the concept of the unit. During this learning process the students will gain a deeper understanding of mental mathematics of double digit addition. The limit of this research was a small sample of the students.

ENGINEERING AND ENVIRONMENTAL SCIENCE

POSTER: ENS/ESC - 01

**Does Staten Island Have a Problem with Microplastics?
A Pilot Study of Microplastics on Lemon Creek**

Ting Ting Chen

Faculty Mentor: Professor Jane Alexander
Department of Engineering and Environmental Science

Microplastics are small fragments of larger plastic products and are typically classified as being smaller than 5 mm. They have the potential to harm our environment and many animals that live in the marine environment. We've discovered microplastic in sand samples from Lemon Creek, a beach in Staten Island, New York City. We first dry the samples, then sieve the samples in 5 mm, 1 mm, 300 μ m to separate the sediments into groups of different sizes. Then we removed organic matter for 300 μ m – 1 mm and < 300 μ m using hydrogen peroxide. After the organic matter was removed we did a density separation using a saturated salt solution. Density separation is a process that separates plastic and sediments because microplastics are less dense than the sediments. The surface of the salt solution, including the microplastics, is removed by vacuuming. The plastic was collected on a glass fiber filter. We then examined the filter under the microscope and discovered there were many fibers and other microplastics.

POSTER: ENS/ESC - 02

**Does Staten Island Have a Problem with Microplastics?
A Continued Study of South Beach**

Alex M. Fiero

Faculty Mentor: Professor Jane Alexander
Department of Engineering and Environmental Science

Microplastics are extremely small pieces of broken-down plastic objects. Microplastics include anything less than 5 mm. Some plastics are shaped like pellets or fibers and these microfibers come from clothes; this debris can be found on beaches. The purpose of this research is to determine the quantity and nature of the microplastics in sand samples. Sand cores were collected from a beach on Staten Island. The samples were separated based on grain sizes as 1-5mm, 300 μ m -1mm and <300 μ m. Each subset was treated with hydrogen peroxide to eliminate any organic material that may have been mistaken for a plastic. Next, a density separation was performed to extract the plastic from the sediment using a saturated NaCl solution. The difference in density allows the microplastic to stay suspended in the solution, while the rest of the sample sinks. The remainder of the sample that floats was collected on a glass fiber filter, then microplastic shape, color and abundance were recorded. Each sample was treated and separated in order to measure the amount of microplastics, if any, based on the different grain sizes the plastics were found with. Microplastics that were collected are light brown to opaque. Their shapes vary from smooth pearls to fragmented textured chunks. The microfibers look like string that have been stretched and thinned out, and some have more ripped texture. Their color has been mostly silver and clear but there are various colors in our collection such as red, blue, and black.

POSTER: ENS/ESC - 03

Properties of the Dacitic Pumice of the Mount Pinatubo Eruption

Dan Jabez Sales

Faculty Mentor: Professor Alan Benimoff
Department of Engineering and Environmental Science

The Mount Pinatubo eruption on June 15, 1991 in the Philippines, was characterized by explosive outbursts of pyroclastic materials and ejections of gas and volcanic ash materials that deposited igneous supplies. Dacitic-pumice igneous rock was identified to be a product of this activity. The dacitic pumice was categorized into two types: (a). Phenocryst rich pumice, and (b). Phenocryst poor pumice. By using a scanning electron microscope and an image analysis system, petrographic data was obtained through these samples. (a) Phenocryst abundant pumice shows 16 volume % of phenocryst materials while (b) Phenocryst poor pumice has a lower 10% phenocryst content. These data imply that even though there are different volume percentages present of minerals in the sample, they still have identical mineral make up. The analytic data was obtained by utilizing the Strontium (Sr) and Neodymium

(Nd) Isotopic analytic method determination process. There are three steps involved in running this test: (1) sample preparation; removal of anhydrite evaporite content from the sample, (2) chemical separation; separation of strontium and rare earth elements materials, and (3) mass spectrometry; measurement of strontium and neodymium isotopic ratio. By subjecting the samples in these processes, petrologic data was obtained. The results in this research review suggest that the origin of the dacite composition was formed through the mixture of magma through the subduction and dehydration of the subducted slab; besides, it interprets the formation of the Mt. Pinatubo along a volcanic arc.

POSTER: ENS / ESC - 04

Vehicle Exhaust Powered Portable Charger

Matthew Damiani, Alex Lam

Faculty Mentor: Professor Jessica Jiang

Department of Engineering and Environmental Science

With the rise of smart phone and tablet technology, users need a passive method of charging their electronic devices. Since many people drive cars on a daily basis, car exhaust gas is usually never given a second thought, as it is a natural byproduct of engine combustion. The goal of this project is to use the velocity of vehicle exhaust gas expelled from the exhaust tip of vehicles to rotate a propeller mounted to a DC generator. The electrical energy harvested shall be collected in a power bank for later use by the user. In addition, the user will be able to read output voltage from the generator, the RPM of the propeller, and be notified if there is a fault in the hardware or software (broken propeller, short, etc).

POSTER: ENS / ESC - 05

Temperature Controller for a Stationary Sun Baked Car

Karl Jiang, Daniel Makinde

Faculty Mentor: Professor Alfred Levine

Department of Engineering and Environmental Science

Cars are getting heated by parking under the sun. Like the human body, everything in a car is releasing heat from itself. Since the compartment is a sealed space, there is no place for the heat to escape. This heat will slowly build up and become hotter. Modern cars are equipped with ventilation systems to regulate the air conditions inside the car, such as air quality and interior temperature. These systems can only operate normally when the car is on, and they are in standby all other times. Opening a window up and down is the most energy efficient because temperature is cooled by natural wind. Temperature may not drop to the desired level within 10 minutes by fully opening the windows. It takes a long time to regulate temperature, but time can be shortened by reducing the temperature difference. Our project is using a thermometer to monitor the temperature inside the car in real time and using a controller to control the windows to let the natural wind cool down periodically. We use a Negative-Temperature-Coefficient thermistor to measure temperature. It has the nonlinear characteristics of higher temperature with lower voltage. The current temperature can be calculated by measuring the output from the thermistor and converted to temperature. When the current temperature reaches a certain level, our windows will be controlled to pull down to a certain temperature level. The system will automatically return to temperature measurement after regulation. The windows up-down movement is operated by a Direct Current motor. It is controlled by the polarity of current; When the direction of current changes, the movement of the window will be reversed. The rate of temperature drop is depending on the area of the window that is opened, and the rate decreased as the area increased. Our system will open the window in a small percentage of area for safety and energy saving purposes. Small percentage of opened area will result in a longer interval for temperature regulation and the minimum temperature is higher than that of a fully opened area. The power window will not operate frequently in a short period and therefore it is saving the battery consumption.

POSTER: ENS/ESC - 06

Reducing Water Use in Irrigation Using Solar Power in Mali

Muhammad Siddique, Kassim Keita

Faculty Mentor: Professor Alfred Levine

Department of Engineering and Environmental Science

Farming accounts for roughly 80% of water usage in the world. In places like Mali, a country in West Africa, water is a resource that is scarce amongst the region, especially in deserted climate areas. In Mali, water is used to feed crops and animals as well as for human use.

In traditional irrigation systems, water gets evaporated in soil from the heat during the day. This makes the water not get into the root of the crop, making the water a waste. Our project attempts to tackle the large amount of consumption of water in traditional irrigation systems and make irrigation more efficient by reducing the amount of water evaporated.

In Mali, there are many areas where there is not access to power or infrastructure and our project wanted to address this problem. We wanted our project to benefit areas internationally as well as nationally where there is not much infrastructure for power and water and use it to increase efficiency in irrigation.

Our project is a system design of a water tower that is used to irrigate crops from the use of a pump which is powered by solar power. The solar panel powers the pump which then delivers water from a primary water source (groundwater, lakes, reservoirs, etc..) to a water tower. The water tower then uses gravity to disperse the water to crops. This system design is self sufficient, solar powered and modular so that it may be implemented in places all across the world.

As of now we have estimated figures and ordered parts so that a proof-of-concept prototype can be built and implemented.

ENGLISH/LINGUISTICS

POSTER: ENG / LING - 01

The Syntax and Semantics of WH-Marked Yes/No Questions

Karen S. Correa

Faculty Mentor: Professor Jason Bishop

Department of English/Linguistics

In this study we examine what we refer to as WH-marked Yes/No questions (WHYN) in the New York City variety of English (NYC English). An example of a WHYN is shown in (1):

(1) Who am I? George Washington? It is clear that WHYNs are not genuine questions, i.e. they are rhetorical rather than actual requests for information. Moreover, the WH-component does not seem to be pronounced like a genuine WH-question. For example, compare the WH-part of (1) with the WH-question in (2), which is a genuine request for information, and requires an explicit answer:

(2) Who am I?

In (1), the main stress appears to be on the WH-word, "who". In (2), however, the main stress falls on the verb "am".

The goals of our study are the following. First, we will attempt to confirm the difference in pitch and tone just described, using a computable analysis of a coded corpus of speech produced by speakers of NYC English. Second, we will use the tools of syntactic theory and semantic analysis, to study meaning and structure, including for example, logic, modal logic and lambda calculus to understand the structure and meaning of WHYNs in more detail.

POSTER: ENG / LING - 02

Effects of Autistic Traits on Acoustic Measures of Vowel Dispersion

Krissy Dellecave, Alexandra Diaz, Samantha Randazzo

Faculty Mentor: Professor Jason Bishop

Department of English/Linguistics

Previous research has shown that some measures of speech production and speech perception vary systematically in relation to autistic traits. For example, speakers with more autistic-like personality traits as estimated by measures such as the Broad Autism Phenotype Questionnaire show a decreased use of context in speech perception and complex patterns of vowel-to-consonant interactions in speech production. The present study extends the discussion to differences in vowel production. We test the hypothesis that the acoustic clarity of speakers' vowels is systematically related, in part, to their autistic traits. A large group of native speakers of American English produced words containing four corner vowels i, ε, α, u. Two acoustic measures of vowel dispersion (a measure of acoustic clarity) will be derived for all speakers, and correlations with different measures of autistic traits tested.

HISTORY

POSTER: HST - 01

Italian Cinema and Its Relationship with Postwar Italian History and Politics

Christopher M. Hancock

Faculty Mentor: Professor Jacob Collins

Department of History

For my Honors Thesis in History, I am going to be researching and writing about Italian Cinema and its relationship with postwar Italian history and politics. During the postwar era in Italy, Neorealists depicted Italian filmmaking and producing from the standpoint of lower-class society. Neorealists, like Federico Fellini, Michelangelo Antonioni, Bernardo Bertolucci, and Lena Wertmüller, all created films whose purpose was to represent human life and society in new ways. After the Second World War, Italy's culture and society changed. Both films and books were written to document the shift in human life and society.

My main research question that will be answered throughout my honors thesis will be: How did Italian Cinema correlate with postwar Italian history and politics and as an historian, I will also be considering what these films can tell us about class, politics, and sexuality in postwar Italian society. The books that I am going to be using as research are: Italian Cinema: From Neorealism to the Present by Peter Bondanella, Italian Film in the Light of Neorealism by Millicent Marcus, The Italian Political Filmmakers by John J. Michalczyk, A History of Contemporary Italy, 1943-1988 by Paul Ginsborg, and The Italian Cinema and the Italian Working Class by Ruth Ben-ghiat. Since I am studying Italian Cinema, it would be without question that I will also be using numerous Italian films from the postwar era, 1940s and onward, in my research and in my honors thesis. Some of the films are: Rome, Open City directed by Roberto Rossellini, La Strada directed by Federico Fellini, La Dolce Vita directed by Federico Fellini, and Divorce Italian Style directed by Pietro Germi.

My Honors Thesis and research on Italian Cinema during the postwar era is a unique and different research topic. During the winter break, I had the wonderful opportunity of studying abroad in Florence, Italy. Being in a different country for the first time and by myself was a very challenging, yet rewarding opportunity. This is why I wanted to research something related to Italian culture and society. I felt that this was a great research topic for me to write since I was just living in Italy for the month of January and experienced Italian culture and society in person.

POSTER: HST - 02

The Selling of the Past in the Illegal Arts Trade and the Effects It Has on Policies and Laws Established within the United States

Katelyn R. Goetten

Faculty Mentor: Professor Catherine Lavender

Department of History

This research will focus on the international black-market art trade and the legality and morality of the trade itself and its participants. This global trade involves the flow of art taken out of its origin country and into art-intense countries such as the United States, France and England. Many of these trades occur without the origin country's permission to transport artifacts and illegal digging practices that not only jeopardizes the condition of the artifacts themselves but sometimes violates customary practices in the origin country and the history of the artifacts themselves. This is an international problem involving institutions such as the Metropolitan Museum of Art and the British Museum that are frequented by millions of visitors each year. Policies such as the National Stolen Property Act (NSPA) have attempted to control property sold in the United States under the understanding that it has been stolen from another nation. Policies such as NSPA are weak however in that they are very difficult to prosecute in cases when the vendor did not have apparent prior knowledge to the object being stolen. Cases such as United States v. McClain have challenged the use of NSPA and its inability to effectively protect alleged stolen artifacts. The Native American Graves Protection and Repatriation Act (NAGPRA) takes a different approach in that it forces museums that hold artifacts that are associated with various native tribes to be returned to their descendants. Museums of course do not want to lose pieces in their exhibits and have come out on stances that acknowledge culture as being a global right to all humans, not just a few. Meanwhile, the International Council of Museums (ICOM), an organization that represents 3,000 globally found museums, released a statement acknowledging that organizations under their leadership have participated in activities that jeopardize their integrity in receiving artifacts.

To pursue this research, I will be working with Professor Catherine Lavender for my Capstone Project and to pursue honors in my history major to examine the policies currently in place with the attempt to cease the illegal art trade.

MARKETING

POSTER: MKT - 01

The Past, Present, and Future Role of the United States in Intergovernmental Economic Organizations

Resha Dehiwala

Faculty Mentor: Professor Alan Zimmerman

Department of Marketing

Being the largest economy in the world, with a GDP of approximately \$20.5 trillion, the United States has historically been a frontrunner in vital decision making and troubleshooting during major world events. Utilizing intergovernmental organizations, such as the World Trade Organization, the World Bank and International Monetary Fund, has made it possible for the United States to take a strong role in decisions regarding international trade and politics. Participation in these organizations has historically proven to be successful and beneficial to the country, and many argue that those globalization efforts have been a vital aspect of the United States' attaining the powerful status it possesses today. However, the argument that the United States' effort in participating in intergovernmental organizations hinders its ability to grow domestically has also been present, with the current administration's attitudes highlighting this argument. This paper will examine the historic and contemporary benefits and drawbacks on the United States of participation in the World Trade Organization, the World Bank and the International Monetary Fund.

POSTER: MKT - 02

The Importance of Human Rights in International Business

Akram S. Munassar

Faculty Mentor: Professor Alan Zimmerman

Department of Marketing

International business should be used to advance human rights. This can only be done if the main actors in international business take concrete steps to push human rights forward. Many things must be addressed in order to come up with a plan to do this. Firstly, the current state of human rights must be highlighted. Secondly, the trends that allow for human rights to be put higher on the business agenda have to be discussed in detail. Thirdly, governments must be shown what steps they can take to ensure that they are a positive force in this effort. Fourthly, businesses must also be provided with a guideline to follow in order to improve their social sustainability and responsibility goals. Finally, the world must be shown how countries and companies that pursue a policy of respecting and advancing human rights end up having far more success than countries and companies which do not.

MEDIA CULTURE

POSTER: MC - 01

Streaming's Impact on the Music Industry

Michael J. Pinto

Faculty Mentor: Professor Reece Peck
Department of Media Culture

The music industry has undergone numerous changes in the last twenty years. From compact discs to the advent of the MP3 file to streamable music, digitization and new media have certainly caused shifts in this very dynamic industry. Digitization of music has led to increased sharing of content across all different platforms. Recorded music is now being experienced across more devices in the world than ever before. In today's age of music consumption, streaming reigns supreme, and digital sales and stores, such as the Apple iTunes store, are on the decline. Streaming services, such as Spotify and Apple Music, are only facilitating this streaming renaissance. With the release of Spotify in 2006, the industry was shaken up due to the "freemium service" that the platform offered. People soon realized that they would much rather pay a monthly rate for unlimited music than pay for every song they wanted individually through a digital or physical retailer. Soon thereafter, streaming began its rise to prominence in the industry.

This project will take a deep dive into what makes streaming apps, such as Spotify, so powerful and why they are able to strong-arm the music industry to bend to its will. An analysis on the algorithms Spotify uses to position certain artists and songs are explored, along with some data on what genres are benefiting in this new age of music streaming, and which ones are losing. Questions of user privacy are also addressed, as well as an explanation as to what Spotify does with the user information it generates. A look into how radio has been affected by the advent of streaming is also presented. As it stands now, music streaming is rapidly changing the way the music industry operates and the effects it has on both the artists and their chart performances. There is no way to tell what the future holds, but it appears that the industry is certainly experiencing a monumental shift.

NURSING

POSTER: NRS - 01

Metabolic Syndrome Prevention in the Adolescent Population

Maher Alsawaf, Fadekemi Adesina, Amanda L. Alexis, Joshua Li, Chinazam Okeiche

Faculty Mentor: Professor Regina Gonzalez-Lama

Department of Nursing

Today with the increasing numbers in obesity amongst the adolescent population, the prevalence of metabolic syndrome has also been increasing. Metabolic syndrome, which is characterized by insulin resistance and inflammation puts adolescents who acquire it at risk for developing cardiovascular disease and type 2 diabetes. Adolescents with metabolic syndrome often present with features such as obesity, hypertension, dyslipidemia, and abnormal glucose metabolism related to insulin resistance. Prevention of metabolic syndrome can be accomplished by implementing lifestyle modifications, diet modifications, behavioral interventions, assessing for environmental factors, and by screening for physiological risk factors.

POSTER: NRS - 02

Stress Factors in Nursing

Eva Kuperman

Faculty Mentor: Professor Regina Gonzalez-Lama

Department of Nursing

In this paper, the author will look at several stress factors that can occur in nursing. Stress can be good and have many positive outcomes, but it can also be detrimental to one's wellbeing. Stress can be physical, emotional, and moral. A few of the factors that may impact a nurse's stress level include: the work environment, organization of a unit, and relationships formed on the job. As a result of stress, there can be changes in the nurse's behavior, mental health problems, physical health problems, and even burnout. These can be severe and influence the care the nurse is able to provide to his or her patients. This issue impacts all nurses as they are the patient advocates tasked with providing safe, culturally competent, quality care. Some of the ways that stress can be alleviated in nursing such as positive self-talk, speaking to management, and mentorship are also discussed.

POSTER: NRS - 03

Is Social Media Anti-Vax Propaganda Causing a Drop in the Rates of MMR Vaccines Being Given?

Jillian La Fata

Faculty Mentor: Professor Regina Gonzalez-Lama

Department of Nursing

There are multiple diseases that can be prevented with immunizations. The measles, mumps and rubella (MMR) vaccine is one that has caused much controversy internationally for many years. There are several research studies regarding the link between MMR vaccination and Autism. When this discovery came about in 1998, an anti-vaccination movement occurred and is still a conflict in the current year of 2020. Since technological advances have been made, anti-vax propaganda is being spread across the internet through social media platforms causing many parents to question whether or not they want their child to receive the vaccination. This paper will discuss how and why the anti-vax movement started, the pros and cons of the MMR vaccine, social media propaganda, and whether or not the decrease in vaccinations has led to the measles outbreak of 2019 through a systematic review of literature.

POSTER: NRS - 04

Health Promotion for Cardiovascular Disease

Rommel Martin, Lauren Armada, Alexis LoFaro, Sandra Mach, Danette Mancenido

Faculty Mentor: Professor Regina Gonzalez-Lama

Department of Nursing

Cardiovascular Disease (CVD) refers to the conditions that involve disease vessels, structural problems such as narrowed or blocked blood vessels that can lead to a heart attack and blood clots. More than 85.6 million Americans have one or more types of CVD including hypertension, coronary artery disease (CAD), heart failure, stroke, and congenital cardiovascular defects. Multiple modifiable factors can take place in a person's life to help them decrease risk for CVD. Factors that negatively influence an individual's life include smoking, obesity, physical inactivity, unhealthy diet, diabetes, hypertension, and hyperlipidemia. Non-modifiable risk factors such as gender, age, and race can also increase an individual's risk for developing cardiovascular conditions. Key components of the cardiovascular system assessment for a patient who is at risk for heart disease. The assessment consists of a health history, physical assessment, and monitoring of laboratory and diagnostic test results. The health history allows the nurse to assess patients' understanding of their personal risk factors for peripheral vascular disease, cerebrovascular disease, CADs, and any measures they are taking to modify these risks. Individuals can be educated on health promotion strategies to prevent their risk for CVD, as well as managing its symptoms.

POSTER: NRS - 05

Health Promotion for the Pediatric Population

Amanda Mendez, Gianna Cialino, Michelle Andolfo, Taylor Mavaro, Victoria Tanzi

Faculty Mentor: Professor Regina Gonzalez-Lama

Department of Nursing

The intentions of this presentation are to explain health promotion topics related to the pediatric population. The pediatric population goes through many changes and milestones from infancy through adolescence. The purpose of this presentation is to explain health promotion topics related to this population by exploring various levels of development, associated milestones, and skills that correlate to infancy, toddlerhood, preschool, school-age, and adolescence. Our goal is to provide information to better the well-being of the pediatric population and help provide caregivers with better insight to what their child may be experiencing during various stages of life. We provide topics based on each group in relation to development, milestones, and skills deemed appropriate for that group.

POSTER: NRS - 06

Health Promotion: Women through Life Span

Joyce Ann Taverner, Miriah Kokkinos, Sorayina Louis, Katherine Morris

Faculty Mentor: Professor Regina Gonzalez-Lama

Department of Nursing

Women throughout their lifetime encounter physical, emotional, and social wellness issues, which compromise their overall health. This collaborative project explores four diverse issues through the lifespan of women with an overarching intent to promote health wellness. Topics will include adolescent self-body image issues and eating disorders; the high maternal mortality rate of minorities; mental health care promotion; and osteoporosis in the older adult women. We will discuss the impact and implications, explore various solutions, and promote health wellness through positive body image and self-esteem, increased safety standards, mental health care tools, and preventative illness measures.

POSTER: NRS - 07

Depression

Adele Buccigrossi

Faculty Mentor: Professor Barbara Schiano

Department of Nursing

In the United States, the rate of depression has steadily been increasing throughout the years. This is because the stigma that once surrounded depression is slowly fading away. While there still is a stigma associated with mental health it is more socially acceptable to talk about. Since depression is becoming more acceptable to talk about, it is now more important than ever to educate. Education does not mean just talking about what depression is, but what encompasses depression. This means educating about how there are several different forms of depression, as well as different signs and symptoms that go along with those forms of depression. In addition to this, education needs to be done about risk factors and causes of depression. Along with this, more education needs to be focused on the treatment of depression. Treatment does not just mean medication, and treatment is different for everybody. Treatment comes in different forms just like depression, and more people need to be aware of this. Lastly, more education needs to be done in regards to prevention and intervention. The rate of depression can be reduced and all it takes is people knowing how to properly intervene.

POSTER: NRS - 08

What Is Life Like for Patients Living with Dysautonomia? A Literature Review

Gabrielle M. Colucci

Faculty Mentor: Professor Barbara Schiano

Department of Nursing

A disease affecting the autonomic nervous system, dysautonomia, while not rare, is rarely known about. Patients living with this condition often struggle to receive a diagnosis and proper treatment due to the complexity of the disease and lack of knowledge within the healthcare system. This systematic review of literature will provide an overview of dysautonomia and the autonomic nervous system, as well as identify and describe five of the most common types of dysautonomia, each of their signs and symptoms, diagnostic processes, and treatment regimes. Neurocardiogenic syncope, postural orthostatic tachycardia syndrome, multiple system atrophy, autonomic dysreflexia, familial dysautonomia, and common triggers will be discussed. Additionally, it will give an overview of the quality of life for these patients and importance of raising awareness.

PERFORMING AND CREATIVE ARTS

POSTER: PCA - 01

Vibe Check

Thomas Aquino

Faculty Mentor: Professor Isidore Ramkissoon
Department of Performing and Creative Arts

Vibe Check is an electronic composition. The piece is a study on the balance between frequencies in music and environmental sounds. Some key focuses are the biological makeup of environmental sounds and how they relate to the orchestral instrument of the vibraphone. This piece utilizes electronics in order to meld the two orchestral and environmental worlds. The piece is semi-improvisational, because it uses unconventional written notation and signs to be interpreted by the performers. The composition is designed for two performers, one on computer and another on vibraphone. The vibraphone is being recorded with a microphone which is sent to the computer. A patch in MAX/MSP allows for live sampling of the vibraphone as well as the use of effects, spatialization, volume, and filters. Through this performance there will be a discovery in the connection between the environment and music.

POSTER: PCA - 02

A Study of Self

Cynthia A. Sinodinos

Faculty Mentor: Professor Beatrix Reinhardt
Department of Performing and Creative Arts

As I embark on this journey of self-reflection and realization I intend to transform the invisible constraints of anxiety to something tangible. By studying my own mind and body through self-portraiture, I explore the symptoms within myself and create them in visual form. Through the analyzation of various artists' photographic series, paintings, sketches, and writings, I unfold that although our individual situations may vary, our overall struggles remain indistinguishable: feeling like prisoners in our own bodies, feeling extremely limited by our thoughts and emotions, and feeling alone. It is important that I encourage the spread of awareness and open conversation to blur these boundaries of isolation. As someone who is close with those who deal with anxiety disorders and experiences high anxiety myself, I've come to see great importance in sharing experiences.

I've given up almost all control as I partly break from the digital camera to brave the realm of polaroids. I reduce myself to the notion of chance and learn to embrace its raw outcome.

PHILOSOPHY

POSTER: PHL - 01

The Utility of Philosophy

Yousef F. Albasir

Faculty Mentor: Professor Stephen G. Morris
Department of Philosophy

In this presentation, I aim to address four main subjects and bring them together to demonstrate that students ought to study philosophy. I begin with the question: (1) What is philosophy? Its etymology is derived from the Greek word "philosophia", where "philos" means to love and "sophia" means wisdom; it, therefore, literally means "the love of wisdom". The more technical definition of philosophy is the study of concepts such as the nature of being, knowledge, ethics, phenomena of the world, and aesthetics. From there I move on to ask: (2) What can philosophy teach us? It can teach us how to form arguments and look for fallacious ones. It can improve our listening and speaking, reading and writing, and refine our analytical and critical thinking skills. Once we become more familiar with recognizing the pattern of arguments, we can learn how to effectively form our own. I then move on to ask: (3) What is the benefit of learning these skills? To answer this question, I point out that such skills aid one in solving problems and researching material relevant to one's studies/interests. In light of this enormous benefit, it is crucial that people employ the skills developed by philosophy to accomplish the primary goals, whatever they may be, that each of us prioritize. Finally, I'll discuss: (4) How we may apply these skills in our lives and for the benefit of the world. The two main skills (analytical and critical thinking), which are built upon a good foundation in listening, speaking, reading, and writing skills, have virtually unlimited utility in every field of study. From social issues to biology to even the creative arts, possessing strong analytical and critical thinking skills helps one to understand the fundamentals of any concept in any field of study because those fundamental ideas are usually principles that have basic arguments. Understanding these fundamentals allows one to develop more complex and abstract ideas, as well as problem-solving skills, which often lead to creative and effective solutions to problems that impact individuals and the world at large. Thus, by bringing these four notions together I aim to show that pursuing either a minor or a major in philosophy would give students the necessary skills to navigate their way through the world, whatever their particular interests may be.

PHYSICAL THERAPY

Note: Undergraduate Research students have been mentored by faculty in Physical Therapy. The department does not offer an undergraduate major.

POSTER: PHT-01

Trans-Cranial Direct Current Stimulation Changes ForePaw Preference in Mice

Baraa Abdelrahman, Adnan Elcharfa, Lilian Al-keswani, Tarik Arabi

Faculty Mentor: Professor Zaghloul Ahmed

Department of Physical Therapy

Handedness is a strong preference to use either the right or the left hand when performing skilled manual actions. Past MRI-based methodology studies have linked this ability to underlying functional and structural motor control, giving insight to new neurorehabilitation therapies. Transcranial Direct Current Stimulation (tDCS) is a well-known clinical technique which has proved to be of growing interest for applications in neuromodulation. The aim of the current study is to examine the effects of applying sub-threshold tDCS to the contralateral hemisphere of the dominant paw in mice. The mouse is placed in a clear cylinder and filmed when rearing to explore the environment. Each instance in which the mouse uses each paw to touch the cylinder will be assessed to determine handedness. Following this analysis, each mouse was then administered either anodal or cathodal tDCS. Compared to baseline, anodal tDCS diminished paw preference, and cathodal tDCS caused a reversal in paw preference from right to left. These findings suggest that tDCS modifies functional connectivity in the brain possibly through modulation of cortical excitability. These findings also support the use of tDCS in rehabilitation of hand or limb neglect in patients with stroke and other brain disorders.

POSTER: PHT-02

Pain Therapy: The Evolution of Pain Therapy and Its Future Role in Physical Therapy

Tiffany E. Mansour

Faculty Mentor: Professor Michael Chiacchiero

Department of Physical Therapy

Pain, known to most as, “an unpleasant sensory and emotional experience (Davis, Moayedi, p.5)” is not a phenomenon very well understood. Pain is a phenomenon wired within the mind. Its obscene power consumes both the mind and body. Pain cannot be understood with the use of one simple algorithm. A multitude of factors aid in determining the strength, consistency, and construction of pain for an individual. Pain must be understood and evaluated on a physical, emotional, and behavioral level. In order for a patient to achieve full recovery, a therapist should be able to understand the impact of pain on the body. Western philosophers such as Descartes, Erasistratus, and Herophilus have contemplated the “what, where, why, when, and how,” of pain. With their contributions and the work of those scientists and philosophers to follow there are four influential theories of pain perception referred to today. These renowned theories are known as the Specificity (or Labeled Line), Intensity, Pattern, and Gate Control Theories of Pain. Following the evolutions of these, clinicians and therapists have conjoined and showed a shift in treatment attentiveness to Pain Neuroscience Education (PNE). PNE has tapped into the psychological, psychosocial and physiological factors of all varieties of pain. It consists of educational sessions for patients describing in detail the neurobiology and neurophysiology of pain and pain processing by the nervous system. The development of PNE and the examination of its future role in Physical Therapy can greatly enrich the field of rehabilitation.

POSTER: PHT-03

Vascular Endothelial Growth Factor: A Potential Therapeutic Molecule for Spinal Cord Injury Patients

Michelle E. Puma

Faculty Mentor: Professor Sreyashi Samaddar

Department of Physical Therapy

Trans-spinal direct current stimulation (tsDCS) is a neuro-modulatory technique, extensively used to positively effect spinal plasticity and motor function in Spinal Cord injured patients. tsDCS causes immediate and long-term effects in spinal excitability (Ahmed, 2011, 2013 Ahmed and Wieraszko, 2012). Spinal Cord Injury (SCI) is a condition that affects physiological, psychological, emotional, social, economic and sexual aspects of a patient's life. Scientists around the globe are working towards deciphering a remedy that might be able to impart a better quality of life to these patients. The objective of this study is to understand the effect of tsDCS on the expression a specific growth factor, vascular endothelial growth factor (VEGF). VEGF, a potent angiogenic factor, also plays a significant role in bone formation, hematopoiesis, wound healing, development, neural migration and neuroprotection. Our experimental paradigm will consist of injured, injured-stimulated, non-injured-non-stimulated and non-injured-stimulated along with appropriate controls to compare the expression of VEGF. Analyzing this growth factor may help us in developing future therapeutic measures for spinal cord injured patients.

POLITICAL SCIENCE AND GLOBAL AFFAIRS

POSTER: PSGA - 01

Impact of Staten Island's Freshkills Park to Property Value and Biodiversity

Drew S. Stillman

Faculty Mentor: Professor Nerve V. Macaspac
Department of Political Science and Global Affairs

In this research I examine the relationship between the development of park spaces, property values and impact to biodiversity, specifically in the case of Staten Island's Freshkills Park. Through Geographic Information Systems (GIS) I integrate demographic, economic and ecological data to trace the changes in property values and biodiversity levels prior to and after the development of Freshkills Park. I also compare my findings with regional and national trends. My research reveals that the development of Freshkills Park increases the value of adjacent properties while restoring and improving biodiversity in Staten Island. At stake in this research is a better understanding through quantitative and geospatial analysis of the economic and ecological impact of maintaining and increasing the number of park spaces and wetlands within cities. One implication of this research is to conduct a related study on succeeding impact once all phases of Freshkills Park are complete and operational.

POSTER: PSGA - 02

What Has Caused Femicide in the City of Juarez since 1993

Mayra E. Aguilar, Jannette Tenantitla

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

Throughout the end of the 20th century up until now the femicide rates in Mexico, more specifically in the city of Juarez, have increased drastically. In our project we aim to uncover a deeper understanding of why this has happened. What has the government, as well as the citizens of Mexico done to help this issue? Since 1993 the number of women being murdered has increased and it may be the fault of the city's new economic source, industrial production. We aim to see the ways this industrial boom has affected the treatment of women and why the murder rate has increased at an alarming rate when comparing women and men's fatalities. One theory is how the increase of jobs and citizens also increased the amount of gangs and drug violence within the city. The city's location right alongside of the border can be a big factor in this because of the ability to smuggle drugs through the border. Another theory is that because of the scarce amount of protection the owners of the factories give to their employees holds a great risk for the woman. Whatever the case may be, we want to be able to have a deeper understanding of why this is happening and what can be done to protect the woman of the city of Juarez. We want to understand what laws and protection the government has in store for women and how much more can be done.

POSTER: PSGA - 03

U.S. Involvement with Drugs in Latin America

Anesa Andrade, Jeanine Gentile, Nicole Gutic

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

Whilst there are a plethora of US policies towards Latin America, one of the most salient ones has always been to put an end to the spread of illegal drugs from Latin America and liberal market reforms. The "war on drugs" boomed by the end of the 1980s in the United States and became a primary feature with regards to Latin America. Due to the spread of drugs being ever so prevalent in Latin America, the United States has imposed strict economic and political policies in the region due to Latin America's debt and very less than mediocre economics. With the prevalent threat of drugs being pushed into the United States from Latin America led to extreme measures to be taken. With the United States being so close to Latin American and not much blocking them from entering the country, this caused quite a panic. Consequently, due to the myriad of extreme measures that the United States has taken, Latin America is forced to comply with these strict measures to the illicit drug trade often through US assistance and through the IMF. In many Latin American countries, the illegal drug trade is often integrated into their national economies and an illocutive component to the private sector of their economies. Through our research project, we will show how these policies from the US actually ended up hurting several countries in Latin America, not only economically but also politically and socially, and how the war on drugs has repeatedly failed. A few countries in our study will include Bolivia, Peru, and Columbia.

POSTER: PSGA - 04

Struggle for Indigenous Rights and Recognition

Emmanuel Appiah, Alejandra Romero

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To understand the scope and nature of afflictions and problems Latin American indigenous people face today, it is pertinent we understand their history. This paper aims at elaborating the position indigenous people occupied in the past and occupy currently in Latin American societies. It is without question that, indigenous people have endured the most inflictions and problems as a result of the European conquest. In every way possible indigenous people were very significant in fighting for independence and yet the indigenous have typically held and still hold a low social and economic position in Latin American societies (Smith & Green, 2019). Under the banner of nationalism and the formation of a homogeneous nation, indigenous people have been disadvantaged, ostracized and isolated from national development (Smith & Green, 2019). This review takes into account Mexico's (EZLN), Zapatista National liberation Army's insurgency and revolution of January 1994, that sought to demand economic, social and political justice and benefits for the poor, which was mostly made up of peasants and indigenous people (Inclan, 2012). This paper seeks to explain the strands that sparked this indigenous uprising in Chiapas and subsequently to most parts of Mexico (Lynn, 1997). By emphasizing the demands made by this social movement group which became guerillas as well as the (PRI) Mexican Government's responses to demands, the conversation of nationalism shifts to a much broader one (Wager, 1994). As this conflict unfolded in Chiapas, it aroused a domestic consciousness of indigenous rights and promoted national recognition but most importantly it started a global awakening in regards to indigenous rights and recognition (Howley, 2008).

POSTER: PSGA - 05

Guerrilla Movements in Latin America: A Comparative Case Study

Yasmin Bahloul, Alison Ortiz, Sunna Lee

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

The establishment of guerrilla movements in Latin America has resulted in substantial political transformations in the region. By looking at specific guerrilla movements in Colombia, El Salvador, and Peru, one can begin to understand the complex implications that these movements had in reshaping the structure of these Latin American nations. Through this comparative case study, we will see how the efforts made by guerrilla movements affected the politics of the countries being studied. By looking at primary sources, analyses, and data and statistics provided by intergovernmental and non-governmental organizations, the extent to which guerrilla movements in Latin America have been successful will become clear. The research will reveal how the outcome of guerrilla movements differed based on each country's history as well as its political, economic, and social structures today. This will provide insight into how similar and different these movements can be in relation to each other and establish a more informed and appreciative understanding of these Latin American countries.

POSTER: PSGA - 06

2016 Rio de Janeiro Olympic Games - Was It Worth It?

Alberto Ballesteros

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

Hosting the Olympic Games has always been seen as a glorious honor and feat but in recent years that tide has begun to sway. My research focuses on the 2016 Rio Summer Olympics. I analyze three aspects: the social and cultural aspects, the political side and the economic side of the games. For the social/cultural side of the research, I analyze articles and data that give a more "on the ground" account of the games. For this part of my research, I gathered data from the Brazilian Journal of Tourism Research which recorded the thoughts of 1,211 interviewees from the Rio De Janeiro area. For the political portion of the games, I analyze many points, but specifically, how local politics affected the games from when it was announced that Brazil would be hosting the Olympics to the commencement of the games. For the economic section of my research, I look at it in two different ways: the

numbers side and what is actually happening today. The official Olympic website has reports of the continued economic growth they say is still taking place in Rio. I will compare this report to the cost and what went into producing the games to determine whether this investment has paid off, or if Rio De Janeiro is still paying the price for this costly endeavor.

POSTER: PSGA - 07

The United States Gaining of the Panama Canal

William J. Brady

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

This presentation addresses the United States' involvement in and the political aspects behind the creation and control of the Panama Canal. My research question is "What was the impact of the United States' construction of the Panama Canal and was it more beneficial for Panama or for the U.S.?" I focus on aspects such as the 1902 passage of the Spooner Act, which marked the beginning of the canal's creation. I also examine Panama's claiming of its independence and how that country decided to agree to give an important part of its territory to the U.S. I discuss the treaties they used to come to the agreement that was ultimately established. I discuss the United States' motives to construct the Panama Canal, such as the desire to link the Pacific and Atlantic Oceans, to increase trade at a faster and more efficient rate, and to help increase the U.S. economy. I discuss the outcome of the Panama Canal and the U.S. ideas behind it with things like the bills passed and any changes made and consequences on both the U.S. and Panama's end. The presentation focuses mainly on the U.S. side of the argument and their attempts to control the Panama Canal through political means, as well as the conflict between the U.S. and Panama throughout the canal's construction. Finally, I discuss the aftermath of it all and any intervention it involved. Overall, I plan on presenting the history of the Panama Canal from the U.S. perspective, with the treaties and agreements made on both sides of the conflict and how it worked to the United States' benefit, examining who gained the most from the Panama Canal and why.

POSTER: PSGA - 08

The Decline of the Mayan Civilization

Imran Fazal

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

The Maya created one of the greatest civilizations in human history. It was amazing that ancient people were able to accomplish such an amazing feat; the beautiful and fascinating architecture led me to research more about Mayan culture. And equally intriguing was its sudden demise. The focus of this project is, "What was the primary factor that led to the fall of the Mayan Empire?" The multiple possible causes for its downfall will be investigated to see whether or not they are the most plausible.

In order to fully understand which theory is the most effective, there will be in depth analysis of each supposition. Disease was a major issue for the Mayans from the early Christian era all the way to European contact in the 16th century. The drought theory is one with a lot of evidence. The Mayans were hit with a severe drought in 820 AD which pushed them to the edge of survival. Another theory is foreign invasion which is a theory that has historical support. Overpopulation is a strong theory because the Mayans had a lot of problems, and a high population density amplifies those problems, possibly leading to their fall. There are many other theories, but these four have the most evidence.

After analysis, the research concludes that the drought theory is the most plausible cause of the fall of the Mayan empire, surpassing other evidence that supports other hypotheses. The drought that hit the Mayans in 820 AD was the main factor for the fall of the Mayan empire.

POSTER: PSGA - 09

What Are the Effects of the Venezuelan Refugee Crisis on Colombia and Peru?

Jonathan F. Gutama

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

Venezuela has undergone a political and economic crisis that has drastically changed the way of life of millions. As a result, Venezuelans are “fleeing a profound economic and political crisis, characterized by the systematic violation of human rights and a deepening humanitarian emergency.” (Wilson Center, 2019, p. 1). The United Nations states that a refugee is someone who is forced to leave a country and “has a well-founded fear of persecution for reasons of race, religion, nationality, political opinion or membership in a particular social group.” (UNHCR, 2020, p. 1). It is clear that, based on this definition, Venezuelans are refugees and are entitled to migrate to other countries to seek refuge from the crisis in Venezuela. As a result, over 4 million Venezuelans have fled since 2015 (International Rescue Committee, 2020). While many South American countries have welcomed Venezuelan migrants, most take refugee in neighboring countries Colombia and Peru. (Labrador, 2019). However, Colombia and Peru have greatly suffered as a result of the influx of Venezuelans because “the uncertainty of the crisis in Venezuela, and the lack of an immediate solution increases the need for local governments to provide long-term economic opportunities for migrants in their countries.” (Carpio, 2019, p. 1). The purpose of this research project is to determine the positive and negative effects, both economically and socially, of the Venezuelan refugee crisis on Colombia and Peru. Through data and research articles, I will determine what the Colombian and Peruvian governments are doing to assist the Venezuelan refugees, examine whether or not the Venezuelan refugees are enhancing the economies of those countries, and assess the social welfare of the communities in which they do not take part.

POSTER: PSGA - 10

Mental Ground: Evaluating the Efficacy of Psychiatric Drugs in American and Canadian Adolescents

Rinor Jani

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

Within the United States and Canada, Psychiatric drugs are one of the first lines of treatment for adolescents ages fourteen to eighteen who are experiencing mental health challenges. Within the past 20 years, the rates have tremendously increased. However, this has not always proved effective in every case. In this paper, the efficacy and impact that these drugs and the pharmaceutical industry have in both countries are evaluated. It presents the developmental, political, economic, and cultural impacts that have been made. The results found in each country on the general approaches to mental health in youth are compared and the distinguishing factors have been highlighted. The importance of these findings is necessary as the rate of addiction to these drugs is alarmingly rising and they are also causing addictions to other types of substances.

The overall rates of anxiety, depression, and suicide have reached astronomical levels. With the number of drugs that are being prescribed, it has been found that it is still not sustainable in approaching mental health care in adolescents. Additional findings include the political influence to enact legislation that makes psychiatric drugs the primary line of treatment for adolescents. Also, it shows the stark demographic differences in usage among different ethnicities. These findings are critical as they point to the foundation of the pharmaceutical industry and with all its wealth and power it still cannot sustain the mental well being of youth in the United States and Canada. It is an opportunity that gives context as to why alternative methods of treatment should be further explored.

POSTER: PSGA - 1 1

Effects of Deportation

Michelle S. Jimenez, Idelsy Rodriguez

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

According to the dictionary, deportation is the removal from a country of an alien whose presence is unlawful or prejudicial. To some, that word just means being separated from family, friends and the place they're accustomed to living in. This has been a big issue in the United States for several years. It causes trauma for the children that have to witness their family members go through it. Deportation also causes separations that can lead to both physical and psychological damages. Some people are against mass deportation, while others support it. Many scholarly articles present the statistics and the data on immigrants coming into this country, which is a high rate. But they fail to explain immigrants' contributions or role in society. Not all immigrants that come into this country have bad intentions. Most of them just want a better future for themselves and their families. During Obama's presidency it's said that he was one of the first presidents to deport a high number of immigrants; he deported almost two million people during his administration. This time around, President Trump has also deported many immigrants, but he has added the intention of building a wall to prevent immigrants from coming in. This research examines several aspects of contemporary immigration policies. First, will the statistics/rates of deportation go down or remain the same after the wall is built? Are walls a deterrent to immigration? Second, a comparison between the policies of Presidents Obama and Trump will be made to analyze differences in the numbers of deportations, with conclusions examining the impact of these policies on immigrants during the deportation processes mandated by each of these presidencies.

POSTER: PSGA - 1 2

Panama Canal

Tiffany T. Perry

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Department of Political Science and Global Affairs

Security in ports is of primary importance in the neutralization of terrorist risk. It is a consideration that errors frequently observed with regard to counter-terrorism countermeasures are sufficient to think that the evaluation of a single vulnerability weakens the port or other important infrastructure. However, if the vulnerability assessment is a solid foundation for using measures to saturate the installation, the client will be inadequate and will not be able to manipulate the port.

The threat is large, refined, sufficiently funded, and for attack purposes, there is a vulnerability that can be exploited for installation. In fact, not all facilities and harbors register the same threat. Therefore, it is necessary to evaluate the vulnerability with specific threat analysis and to establish the quantification of the risk. Once the level of risk is calculated, the way to protect the port becomes apparent.

It is on this basis that this research examines the critical areas of concern for any port that are not like those collected in other fields - physical, personal, and security information. Physical security accompanies any installation, including fencing, lighting, access control, etc., as well as more specific techniques such as X-rays and gamma rays for the protection of intermodal containers. The security staff not only handles the protection of employees, visitors, passengers, but also security forces to protect the port. In the Panama Canal, like many other international shipping routes, there is a law to comply with private security contracts. Clearly, it is necessary to have a jury near the harbor. They not only get arrested but also fulfill the role of deterrence. Private security staff also plays a very important role. The costly use of highly trained police officers, such as ticket surveillance, CCTV surveillance, warnings, etc., is not a responsible way to use human resources or financial resources.

POSTER: PSGA - 13**The Decline of Cuban Society under the Castros****Marcus Ramirez**

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

This project aims to diagnose the three main points that speak to the decline of Cuban society in terms of economics, poverty, and democratic freedom.

When considering the island of Cuba and its significance in Latin American politics, it is almost ironic that such a tiny island could have so much power as to harness the hostility and protection of two super power nations for decades. The Cuban Revolution, led by Fidel Castro in the mid 20th century, was followed by many bold moves which saw the Cuban government breaking ties with spheres of influence that previously dominated Cuban culture such as the US, and which saw the Cuban government create new bonds with socialist governments. The economic and social policies of the Cuban communist party have aided in the decline of Cuban society as an oppressive government restricted the civil liberties of its people for decades. The external forces such as the world's response to this oppressive government have also played a role in the decline of this society. To study the decline of Cuban society under the Castros is to not only identify the missteps of an oppressive communist government, but it is also to identify the external dynamics that have affected Cuba BECAUSE of the Castros throughout the Castros' time in office.

POSTER: PSGA - 14**Mothers of the Plaza de Mayo****Tanya Salazar, Karina Nava**

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

From 1973-1983 Argentina suffered its worst years in history, a period better known as the "Dirty War." This era was a time of violence, family destruction, when hundreds of human lives were lost, but above all an era full of human rights violations. Crimes committed by the military government, at the margins of law, directed by General Jorge Rafael Videla. Who were the mothers of the Plaza de Mayo? What was the impetus for their march? What did their white scarves symbolize? What were the group's origins? How long have they marched? This research examines the background, methods and persistence of this important human rights organization from the 1970s to the present.

The Mothers of the Plaza de Mayo were a response to the disappearances of people at the hands of the military government. Mothers in Argentina were able to mobilize together leaving aside their personal backgrounds (their social status, religion, politics, etc) to claim the truth about their children. In order to identify each other as a member of the group, they decided to use a white scarf that symbolizes their movement. On April 30, 1977, mothers organized and mobilized in Buenos Aires (Argentina) in the struggle to obtain information about their missing children, and at the same time draw the attention of the media worldwide. The Mothers of the Plaza de Mayo were the first group to protest against human rights violations. They were the first women to raise their voices in defense of their families, in their role as mothers. Its effects, effectiveness and global coverage have been very successful, thanks to effective group organization, the use of symbolism and slogans, and their silent protests that are carried out until today. The Mothers of the Plaza de Mayo continue to actively participate in the defense of human rights, not only in Argentina but also throughout Latin America for nearly five decades.

POSTER: PSGA - 15

The Current State of Brazil under Jair Bolsonaro

Sarthak Taneja

Faculty Mentor: Professor Jane Marcus-Delgado
Department of Political Science and Global Affairs

On October 29, 2018 Jair Bolsonaro, former military officer and otherwise undistinguished politician, won the presidential election of Brazil with a resounding 55% of the vote. In an unprecedented way, he campaigned as—and indeed, judging from comments candidly made over a thirty-year political career, very much was—a figure of the far right, running on a platform that promised extreme law and order and openly demonized indigenous people, the LGBT community, and feminists alike. Considering the political makeup of the administration preceding him, presided over by the center-left Worker's Party, Bolsonaro's ascension seemed to suggest that a significant and dramatic shift was in store for Brazil. Over a year has passed since Bolsonaro's victory, enough time to credibly assess the following question: to what extent, if even, has Bolsonaro's rhetoric, and the policy platform which he campaigned on, manifested in his administration? The picture that emerges, upon researching this question, is dire. Bolsonaro's administration has been rife with controversy and accusations of corruption ever since his first day in office; according to some official metrics, Brazil's observance of the rule of law (be it government restraint or criminal justice) has markedly declined. Political dissent, while not barred in any legal capacity, has been clamped down on through the use of small-scale violence, intimidation, and other means. And while Bolsonaro has been unable to make good legislatively on his original campaign's cultural promises (in spite of his concerted efforts), he has nonetheless utilized social media platforms to spread his views and mobilize and embolden his base.

POSTER: PSGA - 16

What Caused Corruption in Venezuela

Blake M. Zavadsky

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Department of Political Science and Global Affairs

In a country where approximately half of the population are poor and lack basic needs, it is important to investigate the underlying causes. In this paper, factors such as economic decline, mismanagement of public funds, and crime have been examined and linked to Venezuela's crisis. This paper finds that, to an appreciable extent, the corruption caused by the collusion of private managers and public officials with the aim of amassing undue profits has weakened Venezuela's economy. This paper has also analyzed the political and social underpinnings of corruption in Venezuela. Although corruption is a common problem in several countries, it is not often a central problem. The paper argues that the current state of corruption in Venezuela has impoverished its people and plunged the country into an economic crisis that will need systemic solutions to be mitigated.

PSYCHOLOGY

POSTER: PSY-01

Sleep States' Relation to Motor Milestone Acquisition

Rebecca E. D'Aloia

Faculty Mentor: Professor Sarah Berger
Department of Psychology

Sleep is an essential component for physical and cognitive functioning and can influence how well certain tasks are performed. (Lopp, Navidi, Achermann, LeBourgeois, & Diniz Behn, 2017). During sleep, individuals cycle through two stages, rapid eye movement (REM) and non-REM (NREM). There is little information about infant sleep states, as they differ from adults', or how aspects of sleep states may be related to infants' learning. In this study, we examined infants' sleep and its relation to motor milestone acquisition. Specifically, we looked at how sleep states are affected the night before and after infants learn a new motor skill. Nanit, a commercially available video baby monitor, was used to record nightly videos of the participants' sleep. The nights of sleep before and after the infant learned to crawl and walk were obtained and then behaviorally coded into stages of REM, NREM, indeterminate and wake. Data coding is ongoing and we will analyze the impact of motor milestones on the duration of each sleep state.

POSTER: PSY-02

Similarities and Differences in Middle-School and College Students' Conceptualization of the Internet

Arshia K. Lodhi

Faculty Mentors: Professor Patricia J. Brooks, Jessica Brodsky
Department of Psychology

We explored conceptual understanding of the Internet in a rural sample of middle-school students (Study 1, N = 78) and an urban sample of college students (Study 2, N = 125). Participants were asked to draw a picture to "show what the Internet looks like" and answered follow-up questions to explain their drawings. To code the drawings and explanations, we adapted a coding scheme from Zhang (2008) based on college students' mental model of the Internet. We expected the middle-school students to lack conceptual knowledge of the Internet relative to college students, who were expected to have a broader grasp of the Internet's complexity. In light of increased concerns about fake news, Internet addiction, spamming, phishing, doxxing, and the like, we expected college students to express more negative feelings about the Internet than middle-school students. Results of chi-square analyses indicated that groups did not differ on 70% of the indicators of the Internet (i.e., attributes, technical terms, functional features, feelings). Middle-school students were more likely than college students to describe the Internet as a source of entertainment and college students were more likely to describe using the Internet to shop. Although college students more often indicated negative feelings about the Internet, suggesting greater awareness of problematic aspects, the majority did not express such concerns. This is in keeping with findings by Yan (2009) that even adults have limited understanding of the Internet's social complexity and negative consequences. Middle-school and college students appear to hold similar conceptions of the Internet for the most part, and their conceptualizations appear to be closely linked to the specific ways of engaging with the Internet. While both groups demonstrated functional understanding of the Internet, their limited understanding of its technical components and social complexity suggest the need to add instruction on how the Internet works in media literacy efforts.

POSTER: PSY-03

Examining College Students' Media Literacy and Algorithm Understanding

Nada S. Tantawi, Arshia K. Lodhi

Faculty Mentors: Professor Patricia J. Brooks, Jessica Brodsky
Department of Psychology

As users peruse the Internet, website algorithms track their online behaviors. Information collected via algorithms is used to customize what we see online (eg., targeted advertisements and search results) thus creating a curated environment where each user's online behaviors influence what information they see in the future. In the current study, we examined relationships between students' general media literacy knowledge and their algorithm awareness in two online contexts: shopping and searches. College students from an urban university (N=244) completed an online survey in which they answered questions about the role of algorithms in personalizing online

shopping and online searches, as well as questions assessing their general media literacy knowledge. Students were also randomly assigned to watch a ~5 minute video about algorithms or about how the Internet works. Most students demonstrated awareness that the Internet tracks what they have been shopping for and uses the information to recommend products. For questions related to online searches, students who watched the video about algorithms were more likely to demonstrate algorithm awareness than students in the control group. Overall, college students demonstrated high general media literacy knowledge. Algorithm-aware students demonstrated more accurate media literacy knowledge than algorithm-unaware students on shopping-related questions. However, media literacy knowledge was unrelated to algorithm awareness for online searches. These findings suggest that the relevance of general media literacy knowledge for algorithm awareness varies by context. Students may already be familiar with algorithms through targeted advertisements for products that follow them across platforms (Head et al., 2020). While students who watched the video about algorithms did make gains in their algorithms awareness for online searches, more extensive formal instruction is needed in how the Internet personalizes search results.

POSTER: PSY-04

The Relationship between Gender and Body Image Satisfaction and Self-Esteem in Relation to Exercising

Tristiana Adragna

Faculty Mentor: Professor Florette Cohen

Department of Psychology

Previous studies have investigated the relationship between the amount of exercise and psychological well-being. Studies involving the social comparison theory have investigated how individuals determine their own social and personal worth based on how they compare themselves to others, constantly evaluating themselves through a range of domains such as attractiveness, intelligence, wealth, and success. The current study will look at the relationship between gender and its influence on an individual's motivation to exercise and how frequently one exercises. The current project will build on previous research and will utilize the various questionnaires such as the Body Shape Questionnaire, Motives for Physical Activities Measure – Revised, Rosenberg's Self-Esteem Scale, Body Appreciation Scale, and Body Esteem Scale as the primary forms of data collection. There will also be demographic questions included in the survey. Participants included 50 college students (18 males, 31 females) at the College of Staten Island campus from PSY 350 and PSY 100. Univariate 2 x 3 ANOVAs (gender by level of exercise) were run. Majority of results showed that there was no significant main effects for gender, no significant main effect for exercise days, and no significant interaction between gender and exercise days on any measured construct. These results are not what was anticipated, but do allow for further research on the topic and raises into question the operational definition of exercise for males and females.

POSTER: PSY-05

The Effects of Subtle Reminders of Death and Religiosity on Medical Decision-Making

Marina Michail, Daniel Kallini, Nadeen El-Nasharty, Kirollos Shenouda, Bishoy Salem

Faculty Mentor: Professor Florette Cohen

Department of Psychology

Research based in Terror Management Theory (TMT; Greenberg et al., 1990) has shown that subtle reminders of death punish moral transgressors more severely and promote belief in religious dogma. Recent research further reveals that reminders of death increase disapproval of birth control (Zhou, 2008) and morality-based controversies have halted many people from receiving major vaccinations (Lechuga, 2012). With the recent outbreak of measles reported in the tri-state area this project aims to understand the unconsciously driven reasoning behind major medical decisions. Participants completed a mortality salience manipulation or one of 2 control manipulations and then completed a survey regarding simple medical procedures. Terror management theory explains a type of defense in human thinking and behavior that comes from an awareness and fearing death. Our findings suggest that religiosity is the strongest determining factor in making medical decisions.

POSTER: PSY - 0 6

The Relationship between Prejudice and Dentition

Lidya Rizkalla

Faculty Mentor: Professor Florette Cohen

Department of Psychology

This study examined the relationship between prejudice and dentition. Participants were presented with three identical photos. There was only one difference in each of these photos, the persons' dentition was different based on three different levels, (1-good, 2- average, 3- bad.) Participants were asked to judge the photo given, based on attractiveness and how likely they are to hire the person in the photo. This task was given to random participants at The College of Staten Island, specifically building 1-L (library). There was a total of seventy participants, 38 male and 36 females. I hypothesized that there was a significant effect on judgement of whether the participant would hire, and level of attractiveness based solely on dentition. The dependent variables were how likely the participant will hire and the level of attractiveness. A multivariate test was used to analyze data at a P value 0.01. Results revealed that there was a significant effect on prejudice between subjects based on dentition.

POSTER: PSY - 0 7

The Effects of the Trump Presidency and Existential Concerns

Kailey R. Volpetti, Denis Eder

Faculty Mentor: Professor Florette Cohen

Department of Psychology

President Donald Trump stirs many strong emotions in people—one of those being fear. In this study, terror management theory (TMT Greenberg, Pyszczynski, & Solomon, Rosenblatt, Vedeer, Kirkland & Lyon, 1990) is used to explain how our unconscious fears impact our motivation and behavior. A large amount of support for TMT is from studies of death salience or “morality salience” (MS Burke, Martens, & Faucher, 2010). This requires people to think about death by being subtly exposed to the word “death” or “dead”. According to TMT, MS increases distal worldview and self-esteem defensiveness by arousing unconscious death-thought accessibility (DTA). DTA refers to how available cognitions related to death are in one's mind. In this study, it was found that when exposed to MS, scores of DTA went up for “Trump” and “death”, but not for our control group “pain”. These findings suggest that thoughts of one's own death (mortality salience MS) and thoughts of President Donald Trump will lead to higher death thought accessibility (DTA) scores than thought of pain. Meaning that the public associates President Donald Trump with feelings of death.

POSTER: PSY - 0 8

Knowledge of Campus Counseling Center Location in Relation to Mental Health Help-Seeking Orientation among Diverse Undergraduate Students

Sade Thomas

Faculty Mentor: Professor Kathleen Cumiskey

Department of Psychology

Although the prevalence of mental health issues among college students has increased steadily in recent years, many fail to seek professional support from campus-based resources. Reasons for students' failure to seek treatment may include lack of time, financial constraints, stigma, and uncertainty about the usefulness or confidentiality. These factors may influence one's help-seeking orientation (HSO), a predisposition to seeking care for mental health issues. A variable that could impact HSO, but has not been previously investigated, is whether students know the location of their campus counseling center. We asked undergraduate students at nine CUNY campuses to report whether they know the location of their college counseling center. Those who indicated that they do know were asked to report that location. Next, we investigated whether HSO was higher for students with correct knowledge. Results, controlling for age, support our hypotheses: students who knew the correct location scored highest on HSO, students who incorrectly identified the location scored second highest, while students without knowledge of location scored lowest ($p < .001$). Females comprised the majority among groups who correctly or incorrectly identified counseling center location (75% and 73%), but comprised about half of those who

said they did not know its location ($p<.001$). Psychology majors were overrepresented in groups that identified (either correctly or not correctly) the counseling center location, relative to students who did not know ($p<.001$). Students who knew the counseling center location seemed more open to actually availing themselves of services. The implications for designing effective educational interventions will be discussed.

POSTER: PSY-09

The Risk of Depression in Younger Youth Compared to Older Youth

Kira Chen

Faculty Mentor: Professor Ellen-ge Denton

Department of Psychology

Depression is rising in society. Yet, we do not know which age groups have the greatest risk for depression. On the Beck Depression Inventory (BDI-21 questions) severe depression ranges from 29-63 and 15-16 on the Center for Epidemiological Studies-Depression (CES-D). Adults over 65 have a prevalence of major depression of 4.6% to 9.3%, but in patients over 85 years old the prevalence increases to 27%. The CES-D was given in: Zambia, Zimbabwe, Malawi, Kenya, and Tanzania to youth ranging from 13-28 years old. Compared across 5 countries, Tanzania had the highest depression mean score of 11.76 among youth 14-28 years old. Zambia had the lowest depression mean score of 7.89 among youth 13-17 years old. In a sample of 236 youth, a depression mean score of 7.09 was observed for disabled youth ages 12-17 and it rapidly increased to a mean of 11.5 by the time they turned 18 years old. Based on the summary of these data, the present study will answer the question, how does depression symptoms in younger youth compare to older youth? Using a CESD and BDI average for 6 participants younger than 12 years old (younger group) and 44 participants older than or equal to 12 years old (older group), I will compare mean depression response scores. My hypothesis is that older youth will have a higher mean depression score range of 12-18, compared to younger youth. I will use t-test mean comparisons to examine the difference between younger and older youth.

POSTER: PSY-10

How Does an Orphan's Perceived Loneliness Affect Their Sense of Belonging and Suicidal Behavior?

Kyle G. Macdonald

Faculty Mentor: Professor Ellen-ge Denton

Department of Psychology

Loneliness is a common feeling experienced by one in five people throughout their lifetime. However, little is known about how loneliness becomes pathological and leads to depression or suicide. In 33,004 middle-school age children, adjusted analysis showed that children who reported a suicide attempt were 1.86 times more likely to report feeling lonely than those who did not report a suicide attempt. This analysis also showed that children who reported a suicide attempt were 2.50 times more likely to report having no close friends than those who did not report a suicide attempt. Lower levels of parental belongingness, a construct variable of loneliness, was correlated with higher attempts of suicide ideation ($r=-0.75$) in a sample of 11,010 adolescents. Loneliness at age fifteen was associated with a 1.94 greater odds of suicide ideation and a 1.86 greater odds of suicide attempt compared to teenagers who were not lonely at age 15. Additionally, loneliness in middle childhood was associated with a 1.37 greater odds of suicide attempt compared to teenagers who were not lonely in middle childhood. A study conducted on 6,531 adolescents showed an odds ratio of 3.25 for the relationship between loneliness and suicide ideation and showed an even greater odds ratio of 3.63 for the relationship between loneliness and suicide attempt.

In my research, I expect to observe higher scores of loneliness among orphaned Guyanese youth who report recent suicide ideation and lifetime suicide attempt. Loneliness will be operationalized using four questions taken from the Childhood Depression Inventory (CDI) and two questions from the Center for Epidemiological Studies Depression Scale for Children (CES-DC) that ask about the youths' experience of feeling alone. Recent suicide ideation and lifetime suicide attempt were measured using the DSM-5 Self-Rated Cross-Cutting Symptom. Thirty-one youth responded to the CDI, 50 to the CES-DC, and 82 adolescents responded to the DSM-5.

POSTER: PSY - 1 1

Why Are the Item Responses for Concentration Disturbance, Feelings of Worthlessness/Guilt, and Sleep Disturbance Good Indicators for Depression?

Victoria Mollo

Faculty Mentor: Professor Ellen-ge Denton

Department of Psychology

Knowing which depressive symptom subscales best indicate depression diagnosis is crucial for clinical treatment. Healthcare professionals can recognize responses to client questions about sleep disturbance, feelings of worthlessness/guilt, and concentration disturbance as good indicators of depression. Three analytical techniques: response frequency, correlations, and item discrimination parameters, will be used to analyze clients report of concentration, worthlessness, and sleep. In a sample of 207 Hong Kong clinical outpatients ages 19-69, the Beck Depression Inventory (BDI) and Center for Epidemiological Studies Depression (CESD) scale items of worthlessness and concentration had a higher response frequency for the least severe symptoms (client response of 0 or 1). Yet, for sleep items, Hong Kong outpatients frequently reported severe symptoms (client response of 2 or 3). In three different samples: 207 Hong Kong outpatients, 4,025 Brazilians, and 560 8th and 12th grade US students, items for worthlessness exhibited the highest discrimination, ranging from 2.17 to 2.33, but for sleep, item discrimination ranged between 0.84 and 1.35. Based on these findings, I hypothesize that items for both concentration and worthlessness will not be highly endorsed among Guyanese youth. I expect that feelings of worthlessness will exhibit the highest discrimination of ~2.20, followed by ~1.40 and ~1.05 for concentration and sleep subscales. Using IRTPRO, I will analyze 14 items on concentration, worthlessness, and sleep subscales from the BDI and CESD. Participant's responses to the 14 depression items, ranging from 'not at all' to 'a lot', will be compared for frequency of response patterns, item correlations, and discrimination parameters.

POSTER: PSY - 1 2

Factors that Influence Career Choice: Insights from a Participatory Study with Autistic and Non-Autistic College Students

Chinnu A. Cheriyan, Sergey Shevchuk

Faculty Mentor: Professor Kristen Gillespie-Lynch

Department of Psychology

Introduction: Autistic individuals are less likely to obtain employment than people with other disabilities (Shattuck et al., 2012). Past research highlights environmental factors that keep some autistic people from succeeding in the workplace, including discrimination (Pfeiffer et al., 2017) and difficulties with social communication (Antonak & Livneh, 2000). Still, autistic individuals have many strengths that can assist them in the workplace (Sperry & Mesibov, 2005). Little remains known about how possible strengths and challenges influence the career choices of autistic individuals.

Objectives: To identify autistic college students' career interests and determine how they intend to use their strengths to overcome challenges seeking work.

Methods: Autistic students (n=85) recruited across multiple college campuses and non-autistic students (n=56) from a single-subject pool answered open-ended questions regarding career interests as well as expected strengths and challenges in an online survey.

Results: Both groups expressed similar reasons for selecting a career. Autistic students identified writing and pattern matching as skills that could help them get their dream job and discrimination, social challenges, and psychological difficulties—as barriers more frequently than non-autistic students did.

Conclusions: Despite the stereotype that autism is defined by “fixated interests,” both autistic and non-autistic students were guided toward their dream jobs by a passion for their interests. These findings indicate that programs to help autistic university students obtain meaningful jobs should build from their strengths, should provide mental health supports and help adapting to workplace social norms, and should focus on combating discrimination among potential employers and coworkers.

POSTER: PSY-13

When Should Parents Talk with their Autistic Child about Autism? Insights from Autistic Young Adults

Oluwatomisin A. Oredipe, Bella Kofner

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Department of Psychology

Prior literature has documented parental experiences with their child's autism diagnosis. However, studies that address how parents disclose the diagnosis to their children are quite scarce. The purpose of this study is to examine how parental decisions to disclose their child's autism diagnosis influence the child's wellbeing and quality of life as adults. This study is part of a larger participatory online study that sought to understand autistic people from their own personal perspectives. Participants in this study were autistic college students who completed open and close-ended questions. Some questions presented were "How old were you when you first learned you were autistic?", and "If you had a child with autism, when would you tell them about autism?". Findings indicate that parents disclosed autism to their children from ages 3 to above 21. Consistent with our hypothesis, participants who learned that they were autistic at an earlier age were discovered to have significantly greater wellbeing and a higher quality of life. A majority (71.25%) of the participants did not specify a preferred age to disclose autism to their own children. Those that specified, however, recommended disclosure in early childhood. Participants also recommended that the severity of a child's autism and the child's ability to understand the diagnosis are vital factors to consider when disclosing. The key recommendation from this research is that parents should explain their child's diagnosis to them in a way that they can understand soon after diagnosis.

POSTER: PSY-14

An Observation of Maternal Depression and Early Childhood Development

Margaret Gasparik

Faculty Mentor: Professor Jennifer Guinta

Department of Psychology

Many are aware of the commonality of post-partum depression, as well as the potential effects it may have on a child's development. This study aims to look closer at the effects maternal depression may have on an infant's development, as well as the potential effect of common interventions. For one year, a participant of an intensive home-visiting primary preventive program, Healthy Families, was observed. This participant, who has a diagnosis of Major Depressive Disorder, completed bi-monthly developmental screenings (Ages and Stages Questionnaire/Social-Emotional) with her child. Parent-child interaction was observed, as well as the meeting of the child's developmental milestones. The mother also self-reported progress in individual therapy, along with her daily moods. Higher depressive symptoms at the time of the developmental screening predicted lower total developmental milestones, as well as decreased parent-child interaction. The meeting of developmental milestones and the scores on the developmental screenings, along with parent-child interaction, increased as the mother sought more involvement in therapy. The findings suggest that post-partum depression does have additive effects on both a child's social-emotional and overall development.

POSTER: PSY-15

Pressure to Conform: The Impact of Peer Victimization on the Mental Health of LGBTQ+ Youth

Jessica Borowski

Faculty Mentor: Professor Darryl Hill

Department of Psychology

How do gender identity and sexuality relate to pressure to conform to societal norms? The purpose of the current study was to take an intersectional approach to the subject of peer pressure faced by LGBTQ+ teenagers and the negative mental health symptoms they experience as a result. The term "intersectional" refers to how certain facets of one's identity (e.g., race, socio-economic status) might play a role in the discrimination they put up with in life. Thirty sources (peer-reviewed journal articles and books) were compiled and analyzed in order to determine the

extent of the homophobic/transphobic harassment faced by high school-aged LGBTQ+ individuals, the mental health ramifications, and if there were any noteworthy differences between ethnicities, socio-economic statuses, and generations in terms of oppression faced. The analysis showed that LGBTQ+ and questioning students experienced more discrimination and negative mental health symptoms than those who were heterosexual. In addition, LGBTQ+ people of color reported more pressure than white LGBTQ+ people as well as more targeted attacks, possibly as a result of their race; working class LGBTQ+ people and those from older generations reported similar experiences. Future research in this area should look deeper into the experiences of LGBTQ+ individuals of color, from older generations, and from socio-economic classes other than the upper and middle classes, and it should take care to note any differences in terms of discrimination.

POSTER: PSY - 16

First-Generation College Students Experiences vs. Non-First-Generation College Students Entering a Four-Year Institution in Academics, Transitioning, Financial Aid, Physiological Stress, and Social Well-being

Araksy Naseif

Faculty Mentor: Professor Darryl Hill
Department of Psychology

Being a first-generation college student is often times tough and a confusing process. This research looks at different variables that tie in with the struggles of first-generation students as compared to those who are not first-generation. Ninety-eight interviews were conducted to assess first-generation students' and non-first-generation students' (NFGCS) academic struggles, financial issues, well-being/physiological stress, as well as their social networks and transition to college. Results show that academic struggles are consistent with both FGCS as well as with NFGCS with time management, and that both FGCS and NFGCS also struggle with transitioning into college from high school. Future research should focus on how to prepare FGCS from high school into transitioning to college by offering college now courses as well as information on the financial aid process. Most FGCS do not know that there are "College Now" courses offered and the majority of them find it difficult to transition to college because of the workload and the different environment.

POSTER: PSY - 17

Factors that Affect the Formation of Sexual Self-Schemas in Women

Samantha A. Silber

Faculty Mentor: Professor Darryl Hill
Department of Psychology

There have been studies conducted on how the sexual self-schema forms throughout people's lives and what factors impact and shape it. Yet, there has not been a plethora of research that focused on the formation of women's sexual self-schema. In order to determine whether age, gender, and presence of a romantic relationship have an effect on how women's sexual self-schema form, 264 female students, faculty, or staff from the College of Staten Island between the ages of 18 and 68 years old anonymously completed the Sexual Self-Schema Scale (SSSS), Gender Attitude Inventory (GAI), and a demographic survey. The collective results of the administered questionnaires indicated that there is no association between women's sexual self-schema and age, but a relationship between sexual self-schema and gender as well as sexual self-schema and presence of a romantic relationship were found. This indicates that women's sexual self-schema does not change as they age, but is effected by the presence or lack of a romantic relationship as well as their gender.

POSTER: PSY - 18

Evaluating Trans Representation and Biases in Introductory Psychology Textbooks

Annet C. Sokol

Faculty Mentor: Professor Darryl Hill
Department of Psychology

In 2008, the American Psychological Association released a “Resolution on Transgender, Gender Identity, and Gender Expression Non-Discrimination” which called for increased inclusivity of, and condemned discrimination against, gender identity. This project evaluates introductory psychology textbooks for trans representation from 1981 to 2019, looking for changes in bias and representation before and after the APA resolution. A convenience sample of textbooks was obtained from professor libraries, the CUNY library system, and digital Google Books. Textbooks were scanned for any mention of gender identity, transsexual, or transgender, and relevant passages were coded for whether they represented positive or negative portrayals, transphobia, genderism, cultural and racial diversity. This study found that positive reflections of trans individuals greatly increased following the APA resolution, whilst negative reflections decreased around the same period. The results of this study reflect the significant effects and importance of denouncing discrimination and setting a strict intolerance toward bias, particularly regarding gender identity.

POSTER: PSY - 19

The Effects of Arginine-Vasopressin V1A Antagonism on Social and Repetitive Behaviors in a Mouse Model of Autism Spectrum Disorder

Elizabeth DiLiberto

Faculty Mentor: Professor Dan McCloskey
Department of Psychology

There are no drugs that treat the core symptoms of autism spectrum disorder (ASD), a developmental disability characterized by deficits in social communication, and restricted, repetitive patterns of behaviors and/or interests. Pharmacological research is being conducted to find therapies to alleviate the core symptoms of ASD. Past studies have linked arginine-vasopressin and oxytocin to the regulation of social behavior. To examine the effects of blocking the arginine-vasopressin V1a receptor, SR-49059 (relcovaptan) is administered to a mouse model of ASD. While it is not yet approved for clinical usage, relcovaptan targets the same receptor as balovaptan, a drug that also blocks the V1a receptor and is in clinical trials to improve social behavior. The mouse model of ASD used in these studies is the BTBR T+Itpr3tf/J (BTBR) mice, as these mice exhibit high levels of repetitive behavior and reduced social behaviors. The effects of relcovaptan in BTBR mice are compared against C57BL/6J (B6) mice, an inbred mouse strain commonly used as a control as B6 mice exhibit fewer repetitive behaviors and more social behavior. In this study, male and female BTBR and B6 mice were administered either vehicle, 5, or 10 mg/kg relcovaptan 30 minutes prior to the social approach and marble burying tests. Relcovaptan had an effect of reducing marble burying in the B6 mice but no effect in the BTBR mice. Test results also showed that relcovaptan administration exhibited a decrease in sociability for BTBR mice and an increase in sociability for B6 mice. The results indicate a complicated set of effects in both the control and ASD-like mice that needs to be further studied.

POSTER: PSY - 20

A Model of Fever-Induced Seizures in the African Naked Mole-Rat

Samantha Narvaez

Faculty Mentor: Professor Dan McCloskey
Department of Psychology

A common cause of childhood hospitalization is fever-induced (febrile) seizures. Children that experience a fever can demonstrate an epileptic seizure due to overexcitation of the brain. If the seizure persists, the chances of developing a lifelong epilepsy disorder increases significantly. There is no common treatment to prevent febrile seizures or their consequences, partially because there are no animal models that demonstrate seizure in response to fever.

Poly (I:C) is a synthetic RNA molecule that induces an immune response due to its similar pattern with a viral infection. We used Poly (I:C) to induce a fever in African naked mole-rats (NM-R) in order to produce a febrile

seizure. Following a dose of 10mg/kg Poly (I:C), NM-R go through a pattern of temperature spikes until they reach seizure. The temperature increase and evidence of seizure behavior were recorded.

Due to the unique brain chemistry of NM-R, these animals are very good models for epilepsy and seizure disorders. While other rodent models have been established for febrile seizures, NM-R pose two specific advantages: 1) their life-long alteration in GABA function that mimics GABA function in children, and 2) their mutation of the neuronal potassium chloride cotransporter 2 (KCC2), which is a risk factor for febrile seizures in humans.

Close monitoring of the NM-R post-seizure can determine patterns of seizure behavior not associated with a fever, and possibly offer insight into the development of epilepsy due to febrile seizures.

POSTER: PSY - 2 1

A Metabolic Switch for Colony Dispersal in the African Naked Mole-Rat

Corey Plate

Faculty Mentor: Professor Dan McCloskey
Department of Psychology

Naked mole-rats are a eusocial rodent that spend the vast majority of their time together in the close quarters of a subterranean nest. Here, they are exposed to carbon dioxide in excess of sixty-six times atmospheric levels. This environment is exceedingly well tolerated, and, moreover, naked mole-rats, if exposed to normoxic air, are prone to excessive brain excitation and seizures. They are, therefore, well adapted to their colonial environment, but heavily penalized for venturing from it. In return, they have derived many unique and adaptive traits, such as extreme longevity, cancer resistance, and propitious levels of cooperativity. The trade-off, however, is genetic diversity. Over time, inbreeding would prove deleterious, leaving the species vulnerable to disease, and selecting for undesirable recessive traits. To overcome this, naked mole-rats have evolved a caste of breeders who, rather than mating or competing with the nascent queen, leave to find another of their caste to establish a novel colony. This provides a quandary, however. In order to fulfill this role, these dispersers must leave the protective carbon dioxide of the nest, and assume a tolerance for normoxic air. This suggests that dispersers and nondispersers utilize oxygen differently. Indeed, nondispersers have been found to need oxygen less than any of their phylogenetic relatives. Moreover, evidence suggests that they rely on substrate level phosphorylation through the catabolism of fructose, rather than oxidative phosphorylation. This may explain their adaptation to hypoxic air, and their decreased metabolism, which in turn may help explain their longevity and lower risk of cancer. However, a switch must occur for naked mole-rats to transition from the nondisperser to disperser caste. We hypothesize that nondispersers rely upon substrate level phosphorylation, but that an epigenetic switch can reassign them to oxidative phosphorylation. We hypothesize that this switch is observable as an initially low concentration of GLUT4 in nondispersers, which will increase to expected values in dispersers. Initial ELISA results suggest that this is the case in hippocampal tissue, but a better target for this transporter is cardiac muscle, which we evaluate in this study via Western Blot.

POSTER: PSY - 2 2

The Effects of Relcovaptan/SR49059 Administration on ASD-like Behavior in BTBR T+Itpr3tf/J Mice

Aishwarya Udayan

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Department of Psychology

Autism spectrum disorder (ASD) is a developmental disability that is characterized by deficits in social communication and restricted, repetitive patterns of behaviors and/or interests. There are many associated symptoms that commonly occur in people with ASD including motor impairments, increased anxiety, and impairments in learning and memory. While there are some drugs known to reduce the irritability and aggression associated with ASD, there are no known treatments for the core and other symptoms associated with ASD. SR-49059 (relcovaptan), a selective non-peptide vasopressin V1a receptor antagonist, has been clinically tested as an effective aide for dysmenorrhea and Raynaud's disease, as well as suppression of premature labor. However, some recent studies have shown that relcovaptan alleviates anxiety-like behaviors. In this study, BTBR T+Itpr3tf/J (BTBR) mice are used as a model of ASD due to their exhibition of high levels of repetitive behavior and reduced social behaviors. These mice are compared against C57BL/6J (B6) mice, used as a control for these behaviors. Male and female BTBR and B6 mice were split into treatment groups and administered vehicle, 5 or 10 mg/kg relcovaptan

prior to open field and fear conditioning tests. Relcovaptan had little effect on open-field behavior except rearing behavior, where the C57BL/6J (B6), control group, mice showed an increase in rearing only at the 10mg/kg dose. Due to the current research on the implications of relcovaptan's efficacy, it should be studied further as a possible treatment in ASD symptoms.

POSTER: PSY-23

Selective Attention and Emotion Recognition in College Students Assessed with the AQ and RAADS-14

Arouje Shaikh, Adrienne Fitzer

Faculty Mentor: Professor Bertram O. Ploog

Department of Psychology

Emotion and facial recognition are crucial aspects of social interaction. The ability to comprehend one's facial features related to emotions is a crucial social skill that allows people to communicate upon a deeper meaning. The current research topic is the ability of individuals with ASD to accurately recognize emotions in facial expressions. Many individuals with ASD are known to have deficits in emotion recognition but these deficits are still only poorly understood. In the present study, a pre- and post-test and a training phase were implemented to show the effect of training on attention to compound stimuli, especially photos of emotional facial expression. Participants were expected to show longer response times with emotional stimuli than with non-emotional stimuli because of the increased complexity of emotional stimuli. It was further expected that participants who score low (i.e., less "autistic") on the AQ and RAADS-14 would be more accurate in responding to all stimuli than participants who score high especially with the emotional stimuli. Finally, we hope that this discrepancy is reduced (with evidence in the post-tests) due to training. These results are important because they suggest an effective intervention to increase emotion recognition in individuals with ASD with the subsequent improvements in social skills.

POSTER: PSY-24

Pupillary Light Reflex and Social-Communicative Behavior in Infants with and without Family History of Autism

Jacqueline P. Baudanza

Faculty Mentor: Professor Jennifer Wagner

Department of Psychology

Autism spectrum disorder (ASD) is a neurodevelopmental disorder that widely affects social behavior and other developmental aspects, and these behaviors are usually identified around 3 to 4 years old, which is the typical age of ASD diagnosis (Lai, Lombardo, & Baron-Cohen, 2014). Researchers have begun looking for biomarkers that could indicate ASD earlier in life before these diagnostic behaviors are commonly seen. One potential biomarker is the pupillary light reflex (PLR), as the PLR in children with ASD significantly differs from typically-developing children (e.g. Fan et al., 2009). Research has revealed that infants whose older siblings have ASD (who are therefore at higher risk of developing ASD) were found to have a hypersensitive PLR (e.g. larger pupil constriction, faster PLR latency) when compared to low-risk infants (Nyström et al., 2015), and a greater PLR in high-risk infants was predictive of later ASD outcome and symptom severity at 3 years old (e.g. Nyström et al., 2018). The present study will extend this research using a sample of infants with and without family history of ASD, looking at concurrent and predictive associations between the PLR and social-communicative measures.

Participants include infants between 6 and 18 months old. Based on the paradigm from Nyström et al. (2015), PLR was recorded via eye-tracking technology as infants viewed 6-second stimulus videos for 9 trials. Stimulus videos began with a black screen containing a small fixation point at its center presented for several seconds, followed by a 120ms white screen that flashed after 1.5 to 2.5 seconds (varying to prevent anticipation), followed by another black screen for the remainder of the trial. Interstimulus intervals included short videos of a moving shape to allow infants' pupils to return to their baseline state. Participants then completed behavioral assessments of social interaction (Autism Observation Scale for Infants Bryson et al., 2008) and cognitive development (Mullen Scales of Early Learning Mullen, 1995). Parents of participants also completed questionnaires about their infants' social and communicative development. Analyses will examine how PLR changes with age and risk group, and how PLR relates to social, communicative, and cognitive ability.

POSTER: PSY - 2 5

Correlations between Autistic Traits, the Pupil Light Reflex, and Sensory Sensitivities in School-Age Children

Sandy Mettry

Faculty Mentor: Professor Jennifer Wagner
Department of Psychology

Autism spectrum disorder (ASD) is a psychological and neurological disorder that is often characterized by speech and communication difficulties, social skills impairments, and disruptive emotional functions (Losh et al., 2009). Atypical sensory sensitivities (SS) have been found in ASD, often reflecting either a heightened or flattened amount of sensory information from the surrounding environment being received by the individual. For example, Ben-Sasson et al. (2007) looked at SS frequencies in typically-developing children and children with ASD using caregiver questionnaires and found a high percentage of the ASD group reported hyposensitivity and behaviors to limit sensory sensations. Atypical autonomic nervous system (ANS) activity is one factor that could relate to SS in ASD, as might be seen through imbalanced sympathetic and parasympathetic nervous system activities (e.g., Joseph et al., 2008; Vaughan Van Hecke et al., 2009). One form of sensory processing that is mediated by the ANS is the pupil light reflex (PLR), which is the process of adjusting pupil size in response to light. In children with ASD, atypical PLR (e.g., Fan et al., 2009) and associations between PLR atypicality and SS (Daluwatte et al., 2015) have been observed, and in a group of children with and without ASD, a correlation between PLR atypicality and ASD traits has been found as well (DiCriscio & Troiani, 2017).

The current study will extend previous work and examine the correlations between PLR, ASD traits, and SS in 4- to 11-year-olds. Participants viewed 9 PLR trials, and pupil responses were captured using an eye-tracker. The PLR paradigm was based on Nyström et al. (2015) and began with the presentation of a black screen followed by a 120-ms white flash to induce the pupil reflex. Later in the session, caregivers completed questionnaires about their child's ASD-related characteristics and sensory difficulties. Based on past work, we hypothesize that 1) children with more ASD traits will report higher SS (e.g., Ben-Sasson et al., 2007), 2) children with more ASD traits will have atypical PLR (e.g., DiCriscio & Troiani, 2017), and 3) among children high on ASD traits, SS will correlate with PLR (e.g., Daluwatte et al., 2015).

POSTER: PSY - 2 6

Dopamine Neuron Release Sites in the Corpus Callosum: Implications for White Matter Plasticity

Elizabeth Fiore

Faculty Mentor: Professor Leora Yetnikoff
Department of Psychology

White matter plasticity refers to neural activity dependent regulation of myelination, a phenomenon that may be as important as synaptic plasticity in brain health and disease. Studies show that environmental factors, via neural activity, produce changes in myelination of white matter tracts such as the corpus callosum. While glutamate and GABA neurotransmission have been identified as key regulators of white matter plasticity, there is evidence to suggest that dopamine neurons may also play a role. First, individuals with dopamine-related neuropsychiatric disorders, such as schizophrenia and addiction, exhibit dysregulated myelination of the corpus callosum. Second, dopamine receptor antagonists are able to enhance myelin repair following demyelination. Third, oligodendrocyte precursor cells and mature oligodendrocytes express dopamine receptors. If it is indeed the case that dopamine neuron activity regulates white matter plasticity of the corpus callosum, dopamine neuron release sites should be present within this white matter tract. This study examined the occurrence of dopamine neuron release sites, as visualized by proximity ligation assay, in the corpus callosum of adult DAT-IRES-creAi32/Ai32 mice. Proximity (< 20 nm) between plasmalemma Chr2-EYFP and the vesicular protein VMAT2 indicate sites of dopamine release while proximity between plasmalemma CHR2-EYFP and VGLUT2 indicate sites of glutamate release. Our preliminary analyses demonstrate an abundance of both dopamine- and glutamate- dopamine neuron release sites in the corpus callosum, with the highest density of release sites observed in the medial aspect of the corpus callosum. These findings hold important implications for understanding the dynamic interplay between neural and glial cellular networks and identify a potential new function for dopamine neurotransmission in brain health and disease.

WORLD LANGUAGES AND LITERATURES

POSTER: WL&L - 01

The Effects of Short-Term Study-Abroad Programs in the Development of Willingness to Communicate in Spanish amongst High School Students Sojourning in Spain for Two Weeks

Evelyn Salazar

Faculty Mentor: Professor Francisco Salgado-Robles
Department of World Languages and Literatures

Despite the great number of students in Spanish courses and the great number of those who participate in overseas programs, little research has dealt with the linguistic gains of students as a result of the short-term study-abroad experience. Additionally, while there are many variables and factors that contribute to a student's willingness to communicate, few studies have been conducted regarding the willingness of high school students to communicate in Spanish.

Poster Presentations - Student Scholars

STUDENT	FACULTY MENTOR	DEPARTMENT	PRESENTATION ID
Baraa Abdelrahman	Zaghloul Ahmed	Physical Therapy	PHT-01
Fadekemi Adesina	Regina Gonzalez-Lama	Nursing	NRS-01
Tristiana Adragna	Florette Cohen	Psychology	PSY-04
Mayra E. Aguilar	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-02
Momtahina Akter	Alejandra Alonso	Biology	BIO-01
Lilian Al-keswani	Zaghloul Ahmed	Physical Therapy	PHT-01
Yousef F. Albasir	Stephen G. Morris	Philosophy	PHL-01
Amanda L. Alexis	Regina Gonzalez-Lama	Nursing	NRS-01
Maher Alsawaf	Regina Gonzalez-Lama	Nursing	NRS-01
Michelle Andolfo	Regina Gonzalez-Lama	Nursing	NRS-05
Anesa Andrade	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-03
Emmanuel Appiah	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-04
Thomas Aquino	Isidore Ramkissoon	Performing and Creative Arts	PCA-01
Tarik H. Arabi	Zaghloul Ahmed	Physical Therapy	PHT-01
Lauren Armada	Regina Gonzalez-Lama	Nursing	NRS-04
Yasmin Bahloul	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-05
Alberto Ballesteros	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-06
Gil Barahman	Alan Lyons	Chemistry	CHM-03
Jacqueline P. Baudanza	Jennifer Wagner	Psychology	PSY-24
Stephen N. Biazio	William Wallace	Biology	BIO-12
Jessica Borowski	Darryl Hill	Psychology	PSY-15
William J. Brady	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-07
Hannah Bruschi	Leah Cohen, Fred Naider	Chemistry	CHM-01
Adele Buccigrossi	Barbara Schiano	Nursing	NRS-07
Ting Ting Chen	Jane Alexander	Engineering and Environmental Science	ENS/ESC-01
Kira Chen	Ellen-ge Denton	Psychology	PSY-09
Chinnu A. Cheriyan	Kristen Gillespie-Lynch	Psychology	PSY-12
Eun Jung Choi	Chang-Hui Shen	Biology	BIO-11
Gianna Cialino	Regina Gonzalez-Lama	Nursing	NRS-05
Gabrielle M. Colucci	Barbara Schiano	Nursing	NRS-08
Karen S. Correa	Jason Bishop	English/Linguistics	ENG/LING-01
Rebecca E. D'Aloia	Sarah Berger	Psychology	PSY-01
Matthew Damiani	Jessica Jiang	Engineering and Environmental Science	ENS/ESC-04
Manikkuwadura N. De Silva	Carol Hartman, Alan Lyons	Biology Chemistry	BIO-07
Resha Dehiwala	Alan Zimmerman	Marketing	MKT-01
Krissy Dellecave	Jason Bishop	English/Linguistics	ENG/LING-02
Hrisula Dervishi	Alejandra Alonso	Biology	BIO-02
Alexandra Diaz	Jason Bishop	English/Linguistics	ENG/LING-02

Poster Presentations - Student Scholars

STUDENT	FACULTY MENTOR	DEPARTMENT	PRESENTATION ID
Elizabeth DiLiberto	Dan McCloskey	Psychology	PSY-19
Denis Eder	Florette Cohen	Psychology	PSY-07
Jordan Eidlisz	Alan Lyons	Chemistry	CHM-04
Nadeen El-Nasharty	Florette Cohen	Psychology	PSY-05
Adnan Elcharfa	Zaghloul Ahmed	Physical Therapy	PHT-01
Marven Fam	Alejandra Alonso	Biology	BIO-01
Imran Fazal	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-08
Alex M. Fiero	Jane Alexander	Engineering and Environmental Science	ENS/ESC-02
Elizabeth Fiore	Leora Yetnikoff	Psychology	PSY-26
Adrienne Fitzer	Bertram O. Ploog	Psychology	PSY-23
Margaret Gasparik	Jennifer Guinta	Psychology	PSY-14
Jeanine Gentile	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-03
Edmond P. George	Alan Lyons	Chemistry	CHM-05
Katelyn R. Goetten	Catherine Lavender	History	HST-02
Reem Gouda	Abdeslem El Idrissi	Biology	BIO-03
Matthew J. Griffin	Jonathan Peters	Accounting and Finance	ACC/FNC-01
Benjamin Gulino	Chang-Hui Shen	Biology	BIO-10
Jonathan F. Gutama	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-09
Nicole Gutic	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-03
Christopher M. Hancock	Jacob Collins	History	HST-01
Christopher Harris	Natacha Gueorguieva	Computer Science	CSC-01
Mahmoud M. Hassan	Leah Cohen, Fred Naider	Chemistry	CHM-01
Abdonnie R. Holder	Carol Hartman, Alan Lyons	Biology Chemistry	BIO-07
Rinor Jani	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-10
Haaziq Jawed	Chang-Hui Shen	Biology	BIO-11
Karl Jiang	Alfred Levine	Engineering and Environmental Science	ENS/ESC-05
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Daniel Kallini	Florette Cohen	Psychology	PSY-05
Kassim Keita	Alfred Levine	Engineering and Environmental Science	ENS/ESC-06
Mehnoor Khan	Alan Lyons	Chemistry	CHM-06
Mustapha Kobeyssi	Abdeslem El Idrissi	Biology	BIO-04
Bella Kofner	Kristen Gillespie-Lynch	Psychology	PSY-13
Miriah Kokkinos	Regina Gonzalez-Lama	Nursing	NRS-06
Samuel Krichavets	Alan Lyons	Chemistry	CHM-06
Dennis Krupitsky	Natacha Gueorguieva	Computer Science	CSC-02
Eva Kuperman	Regina Gonzalez-Lama	Nursing	NRS-02
Jillian La Fata	Regina Gonzalez-Lama	Nursing	NRS-03
Alex Lam	Jessica Jiang	Engineering and Environmental Science	ENS/ESC-04

Poster Presentations - Student Scholars

STUDENT	FACULTY MENTOR	DEPARTMENT	PRESENTATION ID
Sunna Lee	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-05
Joshua Li	Regina Gonzalez-Lama	Nursing	NRS-01
Kelly Liang	Abdeslem El Idrissi	Biology	BIO-05
Vladislava Lisina	Alan Lyons	Chemistry	CHM-07
Arshia K. Lodhi	Patricia J. Brooks, Jessica Brodsky	Psychology	PSY-02
	Patricia J. Brooks Jessica Brodsky	Psychology	PSY-03
Alexis LoFaro	Regina Gonzalez-Lama	Nursing	NRS-04
James Loui	Sarah Zelikovitz	Computer Science	CSC-05
Sorayina Louis	Regina Gonzalez-Lama	Nursing	NRS-06
Kyle G. Macdonald	Ellen-ge Denton	Psychology	PSY-10
Sandra Mach	Regina Gonzalez-Lama	Nursing	NRS-04
Daniel Makinde	Alfred Levine	Engineering and Environmental Science	ENS/ESC-05
Gurpreet S. Malhi	Grozdena Yilmaz	Biology	BIO-14
Danette Mancenido	Regina Gonzalez-Lama	Nursing	NRS-04
Tiffany E. Mansour	Michael Chiacchiero	Physical Therapy	PHT-02
Rommel Martin	Regina Gonzalez-Lama	Nursing	NRS-04
Taylor Mavaro	Regina Gonzalez-Lama	Nursing	NRS-05
Anastasia Maximenko	Alan Lyons	Chemistry	CHM-08
Brittany L. McCarthy	Carol Hartman, Alan Lyons	Biology Chemistry	BIO-07
Amanda Mendez	Regina Gonzalez-Lama	Nursing	NRS-05
Sandy Mettry	Jennifer Wagner	Psychology	PSY-25
Marina Michail	Florette Cohen	Psychology	PSY-05
Christine Millad	Judit Kerekes	Educational Studies	C&I-01
Victoria Mollo	Ellen-ge Denton	Psychology	PSY-11
Katherine Morris	Regina Gonzalez-Lama	Nursing	NRS-06
Akram S. Munassar	Alan Zimmerman	Marketing	MKT-02
Omar Musa	Leah Cohen, Fred Naider	Chemistry	CHM-01
Samantha Narvaez	Dan McCloskey	Psychology	PSY-20
Araksy Naseif	Darryl Hill	Psychology	PSY-16
Karina Nava	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-14
Konstantin Novichenko	Deborah Sturm	Computer Science	CSC-03, CSC-04
Danielle Ohana	Alan Lyons	Chemistry	CHM-06
Chinazam Okeiche	Regina Gonzalez-Lama	Nursing	NRS-01
Oluwatomisin A. Oredipe	Kristen Gillespie-Lynch	Psychology	PSY-13
Alison Ortiz	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-05
Michele Palermo	Nancy Liu-Sullivan	Biology	BIO-08

Poster Presentations - Student Scholars

STUDENT	FACULTY MENTOR	DEPARTMENT	PRESENTATION ID
Tiffany T. Perry	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-12
Robert Persaud	Carol Hartman, Alan Lyons	Biology Chemistry	BIO-07
Michael J. Pinto	Reece Peck	Media Culture	MC-01
Corey R. Plate	Dan McCloskey	Psychology	PSY-21
Michelle E. Puma	Sreyashi Samaddar	Physical Therapy	PHT-03
Zahra A. Raja	Carol Hartman, Alan Lyons	Biology Chemistry	BIO-07
Tania Rajpersaud	Sharon Loverde	Chemistry	CHM-02
Marcus Ramirez	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-13
Samantha Randazzo	Jason Bishop	English/Linguistics	ENG/LING-02
Lidya Rizkalla	Florette Cohen	Psychology	PSY-06
Idelsy Rodriguez	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-11
Alejandra Romero	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-04
Evelyn Salazar	Francisco Salgado-Robles	World Languages and Literatures	WL&L-01
Tanya Salazar	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-14
Bishoy Salem	Florette Cohen	Psychology	PSY-05
Dan Jabez Sales	Alan Benimoff	Engineering and Environmental Science	ENS/ESC-03
Arouje Shaikh	Bertram O. Ploog	Psychology	PSY-23
Kirollos Shenouda	Florette Cohen	Psychology	PSY-05
Sergey Shevchuk	Kristen Gillespie-Lynch	Psychology	PSY-12
Muhammad Siddique	Alfred Levine	Engineering and Environmental Science	ENS/ESC-06
Samantha A. Silber	Darryl Hill	Psychology	PSY-17
Cynthia A. Sinodinos	Beatrix Reinhardt	Performing and Creative Arts	PCA-02
Annet C. Sokol	Darryl Hill	Psychology	PSY-18
Briana A. Soto	Nancy Liu-Sullivan	Biology	BIO-9
Drew S. Stillman	Nerve V. Macaspac	Political Science and Global Affairs	PSGA-01
Sarthak Taneja	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-15
Nada S. Tantawi	Patricia J. Brooks, Jessica Brodsky	Psychology	PSY-03
Victoria Tanzi	Regina Gonzalez-Lama	Nursing	NRS-05
Joyce Ann Taverner	Regina Gonzalez-Lama	Nursing	NRS-06
Jannette Tenantitla	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-02
Sade Thomas	Kathleen Cumiskey	Psychology	PSY-08
Olaya A. Torres	Abdeslem El Idrissi	Biology	BIO-06
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Aishwarya Udayan	Dan McCloskey	Psychology	PSY-22
Christina M. Viso	Krishnaswami Raja	Chemistry	CHM-09
Kailey R. Volpetti	Florette Cohen	Psychology	PSY-07
Nadya Widjaja	Chang-Hui Shen	Biology	BIO-11
Blake M. Zavadsky	Jane Marcus-Delgado	Political Science and Global Affairs	PSGA-16
Corey Zhong	William Wallace	Biology	BIO-13

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	Abdeslem El Idrissi	BIO-03, BIO-04, BIO-05, BIO-06
	Carol Hartman	BIO-07
	Nancy Liu-Sullivan	BIO-08, BIO-09
	Chang-Hui Shen	BIO-10, BIO-11
	William Wallace	BIO-12, BIO-13
	Grozdena Yilmaz	BIO-14
Chemistry	Leah Cohen	CHM-01
	Sharon Loverde	CHM-02
	Alan Lyons	BIO-07, CHM-03, CHM-04, CHM-05, CHM-06, CHM-07, CHM-08
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	Krishnaswami Raja	CHM-09
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	Sarah Zelikovitz	CSC-05
Educational Studies	Judit Kerekes	C&I-01
Engineering and	Jane Alexander	ENS/ESC-01, ENS/ESC-02
Environmental Science	Alan Benimoff	ENS/ESC-03
	Jessica Jiang	ENS/ESC-04
	Alfred Levine	ENS/ESC-05, ENS/ESC-06
English /Linguistics	Jason Bishop	ENG/LING-01, ENG/LING-02
History	Jacob Collins	HST-01
	Catherine Lavender	HST-02
Marketing	Alan Zimmerman	MKT-01, MKT-02
Media Culture	Reece Peck	MC-01
Nursing	Regina Gonzalez-Lama	NRS-01, NRS-02, NRS-03, NRS-04, NRS-05, NRS-06
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Performing and Creative Arts	Isidore Ramkissoon	PCA-01
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Physical Therapy	Zaghloul Ahmed	PHT-01
	Michael Chiacchiero	PHT-02
	Sreyashi Samaddar	PHT-03
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	Jane Marcus-Delgado	PSGA-02, PSGA-03, PSGA-04, PSGA-05, PSGA-06, PSGA-07, PSGA-08, PSGA-09, PSGA-10, PSGA-11, PSGA-12, PSGA-13, PSGA-14, PSGA-15, PSGA-16

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Faculty Mentors

DEPARTMENT	FACULTY NAME	PRESENTATION ID
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	Jessica Brodsky	PSY-02, PSY-03
	Patricia J. Brooks	PSY-02, PSY-03
	Florette Cohen	PSY-04, PSY-05, PSY-06, PSY-07
	Kathleen Cumiskey	PSY-08
	Ellen-ge Denton	PSY-09, PSY-10, PSY-11
	Kristen Gillespie-Lynch	PSY-12, PSY-13
	Jennifer Guinta	PSY-14
	Darryl Hill	PSY-15, PSY-16, PSY-17, PSY-18
	Dan McCloskey	PSY-19, PSY-20, PSY-21, PSY-22
	Bertram O. Ploog	PSY-23
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	Leora Yetnikoff	PSY-26
	Francisco Salgado-Robles	WL&L-01

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