Spring 2017

Honors Research Symposium Program Spring 2017

University Honors Program, Georgia Southern University

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UNIVERSITY HONORS PROGRAM
GEORGIA SOUTHERN UNIVERSITY
APRIL 21, 2017

HONORS RESEARCH SYMPOSIUM
Thesis Presentations
Nessmith-Lane Classrooms
Session 1 11:00 am - 12:00 pm

Reception & Poster Presentations
Nessmith-Lane Ballroom 12:15 pm - 1:15 pm

Welcome
Nessmith-Lane Ballroom 12:30 pm

Thesis Presentations
Nessmith-Lane Classrooms
Session 2 1:30 pm - 2:30 pm
Session 3 2:45 pm - 3:45 pm
Session 4 4:00 pm - 5:00 pm
Welcome to the Tenth Annual Honors Research Symposium. This event is designed to showcase the research and creative activities of the honors students of Georgia Southern University. This year, over 125 honors students will present their work, bringing the total number of participants to over 700 since 2008. The symposium program falls into two main components: poster presentations and thesis presentations.

**Poster Presentations**
Poster presentations are designed for freshmen, sophomores, and juniors. These students are presenting works based on research carried out in the context of honors classes, research based on experiential learning projects, or the preliminary studies for their Honors Theses. In all cases, poster presenters are eager to engage attendees and receive comments on their work. This is particularly true for juniors, who are, in most cases, just launching their thesis research projects.

**Thesis Presentations**
Thesis presentations feature graduating seniors who are delivering oral presentations of the results of their Honors Thesis work. Every honors student, in order to graduate as an honors scholar, must complete an Honors Thesis or Capstone Project. As the titles and abstracts in this program indicate, these projects span the realms of inquiry and creativity available here at Georgia Southern University. Also listed in this program are the faculty mentors who have worked with each of these students, providing advice, support, and mentorship as the students have completed these projects.

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**Enjoy the Symposium**
Please silence cell phones and do not text during sessions in order to give full attention to all the presenters. Please refrain from leaving sessions early or arriving late if at all possible. If you do plan to leave early to see a different session, please wait until the speaker has finished his or her presentation. Presenters using electronic presentations should load their presentations on the computer prior to the beginning of the session. Moderators will be in each session to make sure presentations run the appropriate length and to moderate Q&A sessions.

**The University Honors Program**
The University Honors Program provides a small college atmosphere in the context of a large comprehensive university. The program is designed to foster the development of a critical sense of inquiry, a spirit of creativity, a global perspective, and an ethic of civic responsibility. A hallmark of the program is the emphasis on bringing ideas to life through undergraduate research, experiential learning, and service-learning opportunities.
Taylor Burns  
**Biology**  
**Time of Death: Using Insects to Develop a Postmortem Interval Estimate**  
**Dr. Edward Mondor**  
For a homicide investigation, a minimum postmortem interval (mPMI) estimate was developed. As insects are ectothermic, their development can be used as a biological clock for determining “time of death”. All specimens collected were consistent with the Scuttle Fly, *Megaselia scalaris*. The mPMI was estimated to be 8 days.

Mackenzie Payne  
**Biology**  
**Age Distributions Of White-Tailed Deer, Odocoileus virginianus, Killed in Motor Vehicle Collisions On Bulloch County Roadways**  
**Dr. Edward Mondor**  
White-tailed deer, *Odocoileus virginianus*, cause approximately 1 million motor vehicle accidents each year. White-tailed deer remains in Bulloch County, GA were aged by: 1) tooth eruption sequence and 2) cementum annuli aging. Deer killed were more likely to be young, on 2-lane roads, and on roads that were paved.

Oluwadamilola Oke  
**Biology**  
**Blow fly (Diptera: Calliphoridae) Responses to Different Colors of Baited Traps**  
**Dr. Edward Mondor**  
Blow flies (*Diptera: Calliphoridae*) are generally the first insects to colonize human remains. Little is known, however, about the cues they use to locate bodies. In a field experiment, three blow fly species preferred clear over green traps, indicating they use visual (as well as olfactory) cues to discover remains.
Dr. William Levernier

The major focus of this paper is determining the effect that demographic, educational, economic and transportation/geographic variables have on the poverty rate and what solutions exist to reduce it. We have found that attempts to reducing poverty should include increasing education, promoting the existence of commuter zones and infrastructure, and raising per capita net earnings.

Dr. Laura E. Agnich

This study examined the self-reported motives of twenty perpetrators of school shootings throughout the world by examining their manifestos and other writings. In particular, we looked at what motivations the perpetrators expressed in their writings and which motivations were the most common.

Dr. Laura E. Agnich

Annually colleges and universities spend countless hours updating their student codes of conduct, but is this added time worth the hassle if students continue to break the code? The purpose of this study was to examine the effects a student's knowledge of a university's code of conduct may have on the amount of code-breaking behaviors committed on campus.

Dr. Ángela Pinilla-Herrera

The United States has been considered by linguists a “tomb” for immigrant languages. This study is the first to analyze Spanish maintenance in rural and semi-rural areas of Georgia and the factors that contribute to or impair such maintenance.

Dr. Horst Kurz

This study examines the underlying causes of and the subsequent reactions to the sudden closure of the flagship GM-Opel plant in Bochum in December 2014 after 52 years of continuous operation in the Ruhr-valley region of northwestern Germany.
Jacob Matthews  
Psychology  
The Relation of Race and Location with Substance Use in Bisexual Men and Women  
Dr. Bryant Smalley

Not much research has been done on substance use by bisexual men and women. This study looked into how substance use in bisexual men and women was affected by race and rural location. Results showed that race and location affected use of only certain substances.

Gina Pate  
Psychology  
An Examination of How Current Relationship Goals Determine Continuing Educational Goals  
Dr. Daniel Webster

This study is an examination of current goals and motivation of undergraduate students at Georgia Southern University. This study looks at how the ideal goals relate to the mate preferences of men and women.

J. Alex Schenk  
Psychology  
The Mobius Strip of Total Health: Manipulation of Thinking Prior to Exercise Activity  
Dr. Shauna W. Joye

We hypothesized that if there was a correlation between physical exercise and mental health and we could motivate individuals to exercise, then that motivation would lead to better mental health. We tested this idea using various external motivational messages sent to 320 students across four months of mandated physical exercise.

Rashida Otunba  
Journalism  
Use of Anonymity in College Media and Its Impact on the Believability of Print News Stories on College-Age Readers  
Dr. Jennifer Kowalewski

The purpose of this research is to determine whether the use of anonymous sources in news stories affects the believability of college media. For this experiment, college students were tested to see whether they believed news stories that used anonymous sources compared to news stories that did not use anonymous sources.

Chyna James  
Journalism  
Race and Gender in the Coverage of WNBA Protests in Newspapers and on Twitter  
Dr. Camille Broadway

This research examined newspaper and Twitter coverage of the WNBA protests, specifically looking at the ways in which black female athletes are covered in the context of a social protest. Research suggests that the WNBA did not receive much attention, and the stories strayed away from in-depth coverage, focusing on other sports protesters and athletes.

Christin Grulke  
Public Relations  
A Study of Chipotle Mexican Grill’s E. Coli Outbreak Through Social Media  
Dr. Michelle Groover

This thesis examines social media use during the Chipotle Mexican Grill E. coli crisis from October 19, 2015, to February 8, 2016, by the organization and public. Coombs’ Situational Crisis Communication Theory was applied to understand the reaction and reasoning behind Chipotle’s and the public’s portrayal of the E. coli outbreak.
Carolyln Nixon  
Political Science  
Helping Ourselves First: Conflict Management Strategies of Regional International Organizations  
Dr. Jamie Scalera

In this paper, I examine to what extent organizational structure influences how regional international organizations intervene in times of conflict. I argue that regional international organizations should be biased to intervene in ethnic conflict but that institutional design often constrains these organizations.

Auburn Bell  
Political Science and Spanish  
A Revolutionary Norm: Socialism in the United States vs. Europe  
Dr. Jamie Scalera

What causes socialism in the United States (U.S.) to be viewed as “radical” compared to Europe? The U.S.’s polarized two-party system causes socialism to be seen as “radical” compared to the European multi-party systems. I find that the media, familial ideology, and party representation determine America’s perceptions of socialism.

Tanner Perfect  
Political Science and Spanish  
Why do Latinos Vote Democratic in Presidential Elections?  
Dr. Joshua Kennedy

Why do Latinos vote Democratic in presidential elections? By conducting a survey and analyzing ANES time series data, I hope to show that stance on economic policies is the most important issue in determining which candidate the Latino and Hispanic community will vote for in presidential elections.
We investigated the effects that settled dust on HVAC return filters had on bioaerosol concentrations. Our studies showed a 192.7 CFU/m³ (±86.95 CFU/m³) increase in bacterial concentration inside of the chamber when filters were not maintained. This supports our hypothesis that settled dust can affect the presence of airborne bacteria.

The changing male voice presents a unique challenge for secondary choir teachers. Although most voices follow a predictable series of stages, no two individuals will have the same experience. This project surveys recent literature on adolescent male voices and attempts to delineate best practices for accommodating them in rehearsal settings.

Our research analyzes the economic role of the university in the community, with emphasis on the resulting opportunities for employment, increased commercialization, and the often conflicting economic motives of the students and the residential community. From a statistical standpoint, we compare several economic factors to understand the impact of Georgia Southern on Statesboro as a whole.

This presentation focuses on the government’s and Georgia Southern’s impact on the city of Statesboro. The lens this presentation is viewed through is primarily economic and developmental impact.

We examined the effects of the Blue Mile on Statesboro socially and observed how it will affect both the students of Georgia Southern as well as the current long-term residents of Statesboro. We looked at buildings that tried to unite the university and downtown, and how they affect Statesboro overall.

With the slogan, G.A.T.A, and Paulson Stadium on fall Saturdays, it is no guess that athletics, and especially football, have a huge role at Georgia Southern University. This research focuses on three main aspects of impact athletics has pertaining to marketing, admissions, and student morale.
7. Bailey Kirk  
Mathematics Education Through College Algebra and Calculus  
Dr. Ha Nguyen

Georgia Southern University’s faculty conducted assessments on College Algebra and prerequisite skills for Calculus. This poster presents the further analysis of these data to show trends within the data that can be used to improve the teaching and learning of some concepts in College Algebra and prerequisite skills for Calculus.

8. Marina Michaud  
Synthesis of Multifunctional Polyacrylates and Binding to Hemoglobin  
Dr. Hans Schanz

Traumatic brain injuries coupled with severe hemorrhaging represent a leading cause of morbidity and mortality due to hypoxia in the injured brain tissue. Our research aims at a novel synthesis of Polynitroxyl Pegylated Hemoglobin, which exploits the oxygen transport mechanism of extracellular hemoglobin to restore oxygen flow in the body.

9. Conner Clark, Isabelle Lennon, Parker Intonato, & Christina Sartain  
Reintroduction into Society Using Animal Assisted Therapy  
Dr. Jerri Kropp and Dr. Trent Maurer

Our poster covers the use of therapy animals as a method to help reintegrate patients into society. The patients include a wide range of subjects including college students, drug addicts, teens, and people with emotional, physical, and psychological disorders from an array of different cultures.

10. Sarah Rogers, Shivani Patel, Caitlin Shelby, Ryann Heninger, & Ashlyn Smith  
Unforeseen Friends: The Effects of Animal-Assisted Therapy on Children with Atypical Behaviors  
Dr. Jerri Kropp and Dr. Trent Maurer

This study addresses the settings, populations, benefits, and locations of animal-assisted therapy on children exhibiting abnormal behavior with attention to global cases and studies. This can include children with autism spectrum disorder and special needs, children with cerebral palsy, hospitalized children, children with ADHD, and others.

11. Olivia Thompson, Emily Schroeder, Jordan Flemming, & Kaitlyn Bjork  
Animal Assisted Therapy and Mental Disabilities  
Dr. Jerri Kropp and Dr. Trent Maurer

Animal assisted therapy has gradually become a popular and normalized treatment for those with mental disabilities. The purpose of our presentation is to convey what these treatments are, how they better the lives of those who are treated, and where these treatments are taking place in the world.

12. Rachel Yu, Sierra Reese, & Kaitlyn Holcombe  
Animal Assisted Therapy with Trauma Victims  
Dr. Jerri Kropp and Dr. Trent Maurer

This project involves animal assisted therapy to help those who have faced some form of physical or emotional trauma in a global perspective.
13. Richard Steele
An Area Based Fan Beam Projection Model
Dr. Jiehua Zhu

Currently the area based fan beam projection model for computed tomography involves approximations in a rotation matrix Q when simulating the rotation of the emitter detector pair. We derive an exact formula for entries of Q that phases out approximations and minimizes error in the projection data for image reconstruction.

14. Sydney Wright
Primer Design for Amplification of Genes Encoded by a Chromosomal Insert in Rickettsia philipii
Dr. Marina Eremeeva

*Rickettsia philipii* is an emerging rickettsial pathogen and the nearest relative of *Rickettsia rickettsii*, the agent of Rocky Mountain spotted fever. Our goal is to use PCR for confirming the presence of 11 unique bioinformatically predicted genes in isolates of *R. philipii* and to examine their distribution in other *Rickettsia*.

15. David Moore
Utilizing Scalable Video to Optimize Video Playback on EPONs
Dr. Rami Haddad

Video compression decreases the bandwidth required to stream video but also creates high levels of delay jitter which is experienced by the end user as buffering. By selectively dropping packetized quality layers from a video stream, delay jitter is decreased and buffering can be effectively prevented.

16. Wesley O’Quinn
Video/Image Quality Enhancement Using High-Resolution Frame Equalization
Dr. Rami Haddad

This research proposes an image referencing technique that can take a low quality image and recreate it such that the resolution and quality can be improved. This will be accomplished by using a reference high quality image in addition to a combination of filtering methods.

17. Brittany Hollowell, Ben Kennerson, Hawk Cole, & David Vaughn
LinkedIn Alumni Tool and its Benefits
Dr. Thomas Case

Over time, the use of social media in networking has increased exponentially. This study researches the social media outlet, LinkedIn, and its effects on business and career networking between alumni and universities. Subsequently, it was found that the LinkedIn Alumni tool gave universities an advantage in networking with past students.

18. Devin Ferrell, Amanda Snyder, James Nguyen, & Jalen Womack
Improving Career Services Practices at Georgia Southern
Dr. Thomas Case

The LinkedIn Alumni Tool can be used to further improve Georgia Southern University Career Services Processes.

19. Stephanie Gomez Hernandez, Dylan Alvis, Katherine Fugett, Collin Williams, & Shelton Fowler
LinkedIn Alumni Tool and University Admissions
Dr. Thomas Case

The LinkedIn Alumni tool is currently utilized by many colleges, but it is not yet being used by Georgia Southern University’s Office of Admissions. LinkedIn can be used by potential students to connect with alumni in their field of interest. Universities can use this tool to advertise themselves to interested students.
20. Taylor Close & Kate Wood
#NiUnaMenos
Dra. Leticia McGrath

#NiUnaMenos is a movement that protests femicide in Latin America. Our poster will evaluate how the movement started, how it is currently spreading, and the impact of intervention strategies at both the local and global scale.

21. Benjamin Cosby & Matt Stier
El Día de los Muertos and Hispanic Culture’s View of Death
Dra. Leticia McGrath

Our poster focuses on the traditional death practices in Latin America, and talks about the widely known celebration of death El día de los muertos.

22. Camille Philips & Alexandria Lee
Let’s Shrink the Gap! Education and Inequality in Latin America
Dra. Leticia McGrath

Latin American countries receive little international donations and provide insufficient funding for their education programs. Latin American children are unable to reach the tertiary stage of education because of their poor schooling beforehand, a result of meager funding to primary institutions. This negatively affects their labor force and economic growth.

23. Adrianna Collins, Cameron Driskell, & Hailey Baker
What's Life Like Inside North Korea? Stories from North Korean Defectors
Dra. Leticia McGrath

This poster has quotes from two people who escaped North Korea describing what it was like living on the inside. The purpose of this poster is to raise awareness of the human rights violations happening in North Korea on a daily basis.
Harley Kitching  
**Biology**

**The Effects of Elevated CO2 Levels on *Vicia faba*, Broad Bean, Growth/Defense Tradeoffs**

Dr. Edward Mondor

Plant growth/defense tradeoffs may be altered by climate change. Broad bean, *Vicia faba* L., plants grown under ambient CO2 levels had heavier stem weights, while elevated CO2 plants produced more extrafloral nectaries and extrafloral nectar. Plants grown under elevated CO2 invested more in defense than growth.

Maggie Howard  
**Biology**

**Inbreeding Depression in the Introduced Spider *Latrodectus geometricus***

Dr. J. Scott Harrison

Introduced species are thought to have high inbreeding rates during introductions, which can eliminate recessive deleterious alleles. This project quantified inbreeding depression in introduced populations of the brown widow spider. The results indicate significant inbreeding depression suggesting little inbreeding occurred during the introduction.

Isabel Moran  
**Biology**

**Determining the reproductive patterns of the Titan Acorn Barnacle (*Megabalanus coccopoma*) in its introduced range**

Dr. J. Scott Harrison

*Megabalanus coccopoma* is a hermaphroditic barnacle introduced to the southeastern U.S. Genetic analysis was performed to determine if multiple paternity is common and if barnacles that are isolated from mates self-fertilize. Results indicate that multiple paternity is not common and isolated barnacles are able to reproduce but not by self-fertilization.

Sean Spurlin  
**Chemistry**

**Regioselective Electrolytic 5,8-Difluorination of Quinolines**

Dr. Abid Shaikh

The introduction of fluorine uniquely affects the biological properties of organic molecules. This work describes the development of a new methodology to incorporate fluorine into organic compounds involving a regioselective electrochemical 5,8-difluorination of quinolines using HF-pyridine as both the reagent and supporting electrolyte.

Olivia Perdue  
**Chemistry**

**Preventing Gene Expression through the Interruption of DNA Binding**

Dr. Amanda Stewart

The interruption of DNA binding is a gateway to the inhibition of unregulated expression of genes which leads to illnesses such as cancer. The goal of this research is to produce DNA-binding molecules which could displace the binding of natural transcription factor thus reducing the expression of various proteins.

Delanie Newbery  
**Chemistry**

**Photodynamic Cancer Therapy: A Study of the Photochemical Properties of meso-Tetra (2,3,4-trifluorophenyl) Porphyrin and meso-Tetra (2,3,5,6-tetrafluorophenyl) Porphyrin**

Dr. Jim LoBue

Porphyrins are light sensitive molecules that use absorbed energy to excite oxygen, which gives them candidacy for a type of cancer treatment called Photodynamic Therapy. Photolysis and Carbon-13 NMR experiments were performed on meso-Tetra (2,3,4-trifluorophenyl) and meso-Tetra (2,3,5,6-tetrafluorophenyl) porphyrin to determine the reaction order and percent decomposition of 9,10 diphenylanthracene.
Donald Roberts  
**History**  
Full Circle: The New Deal and the Great Recession  
Dr. Craig Roell  
A paper on the detrimental effects of intrusive government economic policies, this paper examines the neo-progressive movement that began during the Great Depression under President Franklin Roosevelt and was expanded under several future presidents, specifically Johnson, Nixon, and Clinton. This paper explains how these programs have negatively affected the American society and economy and contributed directly to the Great Recession of 2008.

Juliana Hafner  
**History**  
Dr. Johnathan O’Neill  
An analysis of two wartime eras based on the American federal government’s creation of the Sedition Acts of 1798 and 1918, through examinations of both period’s specific acts, political atmospheres, in-depth case analyses, government and public reaction to the acts, and their overall impact on the development of American Constitutionalism.

Cierra Tomaso  
**History**  
Jewish Resistance in World War II & Zionism: Making Aliyah in the Death Camps  
Dr. Brian K. Feltman  
This thesis shows that Zionism played a key role in the motivations of Jewish resistance fighters in World War II. It will examine how as Jews found that their home countries cut ties with them, they found refuge in their identity as Zionists.

Clinton Ford  
**Human Resource Management**  
Organizational Health: Researched Problem Analysis  
Dr. Robert Hoell  
Through the use of scholarly research, this project presents a recovery plan for the problems facing a professional organization. The topics discussed will tie heavily into increasing membership and retention.

Rebecca Burchette  
**Psychology**  
Narcissism and Short-Term Mating  
Dr. Nicholas Holtzman  
This study aimed to evaluate the correlation between narcissism and the active selection of short-term mating. I hypothesized that there would be a positive correlation. However, the results were nonsignificant.

Samaria Hamilton  
**Psychology**  
The Effects of Pointing Gestures on Visual Attention  
Dr. Ty W. Bayer  
Visual attention involves concentrating on features within the environment. The present study examines how pointing gestures and motion affect attention using a visual search task. The findings revealed an interaction, which suggests a complex effect of gestures and motion in capturing attention.
Exercise Science
An Examination of Goal Orientation between Genders – An Exploratory Study
Dr. Daniel Czech

Goal orientation is defined as the perceptual-cognitive frameworks that determine how an individual approaches, interprets, and responds to achievement situations. Results revealed significantly higher goal orientation in females than males.

Exercise Science
An Examination of Spasticity of the Lower Extremity among Young People with Cerebral Palsy
Dr. Gavin Colquitt

Spasticity is the most common symptom among individuals with cerebral palsy (CP). This study will present a new measure of spasticity using dynamometry, by calculating torque values during constant velocity. Significant differences in peak and mean resistive torque values of the quadriceps were observed between functional groups at varying velocities.

Mathematics
Network Modeling of Infectious Disease: Transmission, Control and Prevention
Dr. Hua Wang

In disease control and prevention, it is inevitable to consider the general population and the relationships between individuals, which calls for advanced mathematical modeling approaches. We use the concept of network flow and the modified Ford-Fulkerson algorithm to demonstrate the transmission of infectious diseases over a given period of time.

Writing & Linguistics
Lights Over Coney
Prof. Jared Yates Sexton

This thesis follows the family of Romanian Jewish immigrants through three generations as well as the evolution of Coney Island from the opening of Sea Lion Park to the closing of Steeplechase Park in 1964.

Writing & Linguistics
Andropomorphic: A Poetry Collection
Prof. Christina Olson

Andropomorphic follows the journey of a young adult through the obstacles and triumphs of maturity through a series of poems. The speaker explores challenges with mental illness, sexuality, and becoming independent.

Writing & Linguistics and English
Flannery O’Connor in Boxing Gloves and Other Stories
Prof. Jared Yates Sexton

Flannery O’Connor in Boxing Gloves and Other Stories is a collection of experimental short stories. By fictionalizing famous writers, these stories explore the cult of personality and what it means to be both a reader and a writer.
Kayleigh Hunter                    Early Childhood Education
Technology and Student Achievement in STEM Subjects: Perspectives from Teachers in Grades 3rd-5th
Dr. Meca Williams-Johnson

This qualitative investigation examined how technology is used and integrated into selected elementary classrooms in southeast Georgia. The influence of technology on student achievement was investigated, and more specifically the role of teachers’ perspectives on technology and devices they use most often was analyzed.

Anna Dowdell                      Early Childhood Education
Preferred Behavioral Management Strategies of 3rd - 5th Grade Teachers
Dr. Meca Williams-Johnson

The purpose of this study was to investigate the preferred behavioral management strategies among 3rd - 5th grade teachers. The study explored the main discipline problems that these teachers experience in their classrooms and how they handle them. It also explored the teachers’ opinions of the effectiveness of their preferred behavioral management strategies.

Nneka Dean                        Early Childhood Education
Women’s Education: An International Perspective
Dr. Meca Williams-Johnson

The purpose of this study is to dissect a topic that is heavily discussed around the world: women’s education, and the many diverse ways in which it is practiced. This presentation will discuss the similarities and differences among women’s education in the United States and in other countries around the world.
**Monique Kellman**  
**Biology**  
The Biological Stress Response in Bluegill Sunfish (*Lepomis macrochirus*) to Variations in Environmental Temperature and Dissolved Oxygen Content  
Dr. Johanne Lewis

Understanding the impact of a warming environment, with coinciding decreases in oxygen, on aquatic organisms, is becoming increasingly important due to the reality of climate change. This study investigated the effect of increased water temperature and decreased oxygen on the aerobic scope of a local, freshwater fish species, bluegill sunfish.

**Eudiah Ochieng**  
**Biology**  
The Effect of Acute Thermal Stress on Gene Expression Levels of Hsp70 in the Antarctic Nototenoid, *Notothenia coriceps*  
Dr. Johanne Lewis

Antarctic fish are well adapted for life in the Southern Ocean. Recent climate changes are posing a threat to this stable, cold environment. This study investigated the capacity of *Notothenia coriceps* to mount a heat-stress response by measuring gene expression changes of erythrocyte Hsp70 in response to acute thermal stress.

**James Long**  
**Biology**  
Comparative Floristic Studies of Georgian Sandhill Ecosystems Reveals a Dynamic Composition of Endemics and Generalists  
Dr. John Schenk

Sandhills are a unique habitat and home to multiple rare and endangered species, however, increased human population growth and development fragment and destroy these habitats. To gain a more comprehensive understanding of these ecosystems, we sampled four Georgian Coastal Plain sandhills and compared species occurrences and life history patterns.

**Megan Mears**  
**Biology**  
Application of RNA Probes for Detection and Identification of the p120 Ortholog of *Ehrlichia ewingii*  
Dr. Marina E. Eremeeva

*Ehrlichia chaffeensis* and *E. ewingii* are tick-borne obligate intracellular bacteria. *E. chaffeensis* is well-characterized, but little is known about genes and antigens of *E. ewingii* because of its uncultivable status. This project applies molecular methods to identify and characterize the *E. ewingii* gene(s) encoding protein antigens cross-reactive with *E. chaffeensis*.

**Laina Latzsch**  
**Biology**  
The Surfactant Alkylpolyglucoside Affects Phytoplankton Communities Differently Alone than in a Commercial Mixture in Artificial Streams  
Dr. Risa Cohen

Alkylpolyglucoside (APG), commonly found in cleaning products, may have different effects on aquatic organisms alone vs. in commercial mixture. Microalgae were exposed to APG or an APG-containing product in two seasons. Microalgal responses to APG-containing product differed by season and species, suggesting complex interactions with other chemicals in the mixture.

**Stacey Zeestraten**  
**Chemistry**  
Product Optimization of Tire Pyrolysis for Oil Well Rehabilitation  
Dr. Don McLemore

A catalyst, Zeolite, and a stainless steel filter have been added to a pyrolysis reaction to optimize Tire Pyrolysis Oil (TPO) for use in oil well rehabilitation. Past studies indicate that catalytic cracking can decrease the amount of heavy weight hydrocarbons and increase the amount of light weight hydrocarbons within a sample of TPO. The study looked at the effects of a filter on the decomposition of crumbed tire rubber, and the study looked at the effects of a filter and a catalyst on the distillation of TPO.
Caleb Still
**History**
Lost Boys and Girls: Navigating Experience and Identity during Operation Pedro Pan
Dr. Christina Abreu

Over 14,000 unaccompanied children came from Cuba to the United States during Operation Pedro Pan. Once they arrived, they faced an entirely new living situation and were forced to adapt. The Catholic Church played a significant role in shaping these children’s fluid concept of their ethnic, national, and religious identities.

Malik Raymond
**History**
Gloria Anzaldúa’s El Mundo Zurdo: The Necessity of a Historical Assessment
Dr. Christina Abreu

Gloria Anzaldúa, a Chicana feminist lesbian theorist is known for her landmark book, *Borderlands/La Frontera: The New Mestiza* and her theories. However, none have been assessed historically. I contend that one of her lesser known theories, El Mundo Zurdo, is best understood biographically.

Nancy Balczunias
**History**
The Music and Politics of Willy Chirino
Dr. Christina Abreu

Cuban musician and singer Willy Chirino, who came to the United States as a child of Operation Pedro Pan, has used his long career in music to spread a political agenda in a variety of ways.

Andrew Perry
**Computer Science**
Development of the Fast Fourier Transform Algorithm in the Go Language
Dr. Juan Vargas

In 2009, Google released its flagship programming language: Go. This capstone thesis translated the Fast Fourier Transform (FFT) into an algorithm in the Go language. By successfully developing the FFT algorithm, Go will have the potential to replace older and less efficient languages used with older machinery utilizing the FFT.

Charles Arvey
**Computer Science**
Expanding the Availability of the Distributed Data Protocol: A Python Implementation
Dr. Juan Vargas

This paper covers an implementation of a DDP Server in Python 3.5. The Python ecosystem boasts an eclectic set of libraries that few other languages can compete with. Notably, Python provides libraries that provide immense support for scientific computation that are even more useful when used in conjunction with DDP.

Caleb Orban
**Computer Science**
Analyzing Sorting Algorithms Across Various Languages and Operating Systems
Dr. Juan Vargas

When sorting mass amounts of data, there are many algorithms with different approaches to sorting. This thesis seeks to compare the time efficiency of the execution times of several basic sorting algorithms across several operating systems.
Lacey Dennis  
**Athletic Training**

**The Effects of Static Stretching on Pennation Angle and Muscle Power Production in the Triceps Surae Complex**  
Dr. Li Li

The purpose of this study is to see how pennation angle and muscle power production is affected by a static stretching protocol. We hypothesize that an increase in pennation angle between pre and post testing will be accompanied with less muscle power production after static stretching is completed.

Kolyse Wagstaff  
**Exercise Science**

**The Effect of Stretching the Gastrocnemius on Electromechanical Delay and Decreased Muscle Power Production**  
Dr. Daniel Czech

Studies in biomechanics show that statically stretching muscles before explosive athletic events decreases muscle power production. Current research does not explain why power production is lessened due to static stretching. Electromechanical delay is the delay between muscle stimulation and force, and EMD was examined during jumping and decreased power production.

Eva Blais  
**Exercise Science**

**Effects of Static Stretching on Proprioception and Decreased Muscle Power Production**  
Dr. Li Li

The purpose of this study was to explore how stretching affects proprioception, which in turn affects power production. Using the Biodex, repositioning was used to determine each participant’s proprioception in the ankle joint.

Tony Hudson, Jr.  
**International Studies**

**Individual Domestic Terrorism: An Analysis of the Motivations and Radicalization of Terrorism in the United States**  
Dr. Srobana Bhattacharya

Individual terrorism has increased in the United States. What are the motivations behind these attacks, and what has led these individuals to participate in this form of political violence? I combine rational choice, sociological, and psychological theories in order suggest a similar path towards radicalization by such individuals.

Maria Alejandra Amiel  
**International Studies and French**

**Exploring the Role of Corporate Social Responsibility (CSR): European French Corporations’ Compliance and Future with CSR**  
Dr. Matthew Flynn

This research seeks to analyze how corporate social responsibility (CSR) provides tools and skills for corporations in effort to improve their initiatives with the goal of creating better outcomes. Additionally, this study aims to discover if the implementation of CSR policies result in positive observable outcomes European region, namely France.

Kellie O’Boyle  
**International Studies and Writing & Linguistics**

**The Dragon’s Flight to the Tropics: China’s Involvement in the Caribbean**  
Dr. Christopher M. Brown

The 2008 economic downturn in the United States caused it to withdraw from certain regions. Their absence in the Caribbean created a vacuum, which China swiftly filled with investments and trade agreements. This use of soft power lead me to analyze: could this indicate a change in Chinese foreign policy?
Serenah Tyson
Multimedia Film & Production
The Process of Directing for Screen: (Sincerely,)
Prof. Tyson Davis

This project seeks to embody the sentiments and realities that people of the LGBTQ community experienced around the country during the time of the Stonewall Inn Riots in New York City in the late 1960s through a short fiction, narrative film.

Mikalah Guyton
Multimedia Film & Production
Gangsta Rap and the Trapped Mentality
Prof. Shana Bridges

This research provides a historical background of the evolution of Hip Hop culture and its subcultures, Gangsta Rap and Trap music. Through the unfolding of events, explanation is further given to confirm rap as a creative form of communication, as it reflects the stories and lifestyles of its emcees.
Microbial communities found in soil organic matter have for so long been recognized in aiding the recycling and decomposition of nutrients in the ecosystem. Both biotic factors, such as plant species, and abiotic factors, such as soil physical and chemical properties, affect the diversity and functional genes of the soil microbial community.

While many specimens have been discovered and described, the tail morphology and locomotive pattern of *Tylosaurus proriger*, a Late Cretaceous mosasaur (*Reptilia: Squamata*), is somewhat unclear. Using morphometric and comparative analyses on various specimens, this study shows that *T. proriger* exhibits posterior propulsion methods driven by a hypocercal caudal fluke.

A MALÅ ground-penetrating radar is used to determine where salt water is intruding into shallow wells on St. Catherines Island. We also use this data to create a more complete stratigraphical picture of the island. We found structural conduits in the shallow aquifer that may permit salt water intrusion.

The location and specific types of water and ion transporters in the elasmobranch nephron are still elusive. In the current study, we used immunohistochemistry to visualize co-localize ion and water transporters along the nephron of dogfish sharks.

The purpose of this study is to test the visual acuity of *Sepia bandensis* using an optomotor response mechanism that allows for interpretation of behavioral responses. There has been increasing interest in cuttlefish vision due to the organisms’ camouflage abilities, but *S. bandensis* has never been experimentally tested or compared to other species.

Human gene Top3b encodes the enzyme Topoisomerase 3B which has been indicated as a contributor to the phenotypic defects in Autism Spectrum Disorders. The current study aims to better understand the specific roles top3b plays in early neurological development through an in-vivo study using zebrafish embryos as a vertebrate model system.
Cassandra Villers  
**Middle Grades Education**  
**Characteristics of a Motivating and Engaging Middle Grades Classroom**  
Dr. Meca Williams-Johnson  
This study explored students’ thoughts on what keeps them motivated, and what they want from their teachers for engagement. It also investigated how teachers encourage pupils and suggestions for motivation and engagement. In a mixed methods study, pupils were selected from six classrooms and surveyed. Then, six teachers were interviewed.

Elizabeth Boyd  
**Middle Grades Education**  
**Motivating Students with Different Needs**  
Dr. Meca Williams-Johnson, Dr. Yasar Bodur, Dr. Michelle Reidel  
The study conducted focused on the similarities and differences in the way teachers of gifted students, teachers of students with special needs, and teachers who teach on-level students, motivate their students. The gap that this research filled are ways that can be used to motivate students across multiple ability levels.

Haydon Cass Lynch  
**Electrical Engineering**  
**S.H.A.D.O.W: The Stimulus Hunting Animatronic Dog of Wonder**  
Dr. Rocio Alba-Flores  
S.H.A.D.O.W is an animatronic black lab who searches for outside stimulus to react to. This comes in the form of movement, noise, touch, and body position. S.H.A.D.O.W is going to be used to research robotic movement and to study the fields of human-machine interaction and lifelike robotics development.

Jennifer Shaffer  
**Mechanical Engineering and German**  
**Investigation of the Thermal Performance of Small Sierpinski Carpet Fractal Fins in a Natural Convection Environment**  
Dr. David Calamas  
This experimental investigation evaluates the thermal performance of the first four iterations of the Sierpinski carpet fractal pattern in a natural convection environment by assessing efficiency, effectiveness, and effectiveness per unit mass. The Sierpinski carpet fractal fin design has been found to be more effective than traditional rectangular fins.

Elizabeth Ashwood  
**Physics**  
**Developing Tools for a Precision Measurement of Newton’s Gravitational Constant**  
Dr. Mark Edwards  
I propose new atom-interferometric schemes to measure gravitational fields in micro-gravity environments on the International Space Station. The interferometer splits harmonically confined Bose-Einstein condensates into pieces which accumulate different phases, producing interference patterns. I have derived equations to simulate these schemes using Lagrangian variational approximation of the Gross–Pitaevskii equation.
Ashlee Charles  Health Education and Promotions
Not so Affordable Healthcare
Dr. Ashley Walker
Rising healthcare cost in the United States is creating a need to understand how a lack of healthcare coverage is decreasing women’s quality of life and leading to negative health outcomes. Through a focus group, factors impeding the quality of life for medically uninsured women were identified.

Christian Martinez  Nursing
Perceptions and Knowledge of Influenza Vaccination Amongst University Students
Dr. Margaret Mossholder
Commonly known as “the flu,” influenza is a contagious respiratory infection that causes mild to severe illness. The CDC recommends influenza vaccination as the best method for prevention of the illness. This study was conducted to analyze university students’ perceptions and knowledge of influenza as well as influenza vaccination.

Rachel Siclare  Nursing
Reported Self-Care Practices and Perceptions of Well-Being in Caregivers of Children with Cancer
Dr. Sheri Carey
Thousands of American children are diagnosed with cancer annually. Cancer does not only affect these children, but also those that care for them. This study examined quality of life issues facing caregivers of children with cancer as a beginning effort in the investigation of this ongoing problem.

Ray Pettit  2D Studio Art
How Perception Compromises Identity
Prof. Jessica Burke
From intra, inter, and exospective views, each lens describes and distorts a person in different ways based on the knowledge provided, each creating its own operating “truth.” This visual essay examines individual identity by its most immediate aspect, gender, on these three levels.

Jesse Powell  Philosophy
Hail Mary, Full of Haze: Physicalism and the Knowledge Argument
Dr. Joseph Pellegrino
A synthesis of the many different forms of Frank Jackson’s Mary’s Room thought experiment is given, followed by a refutation of the underlying argument against Physicalism present in every form of the thought experiment.

Rebecca Murphy  Writing & Linguistics and Music
The Burning of Khandava
Prof. Amanda Schumacher
This science fiction work follows Elliot, an intern on a terraforming mission, as she attempts to interact with alien lifeforms found on planet Khandava. Conflict arises when she wants to work with the aliens, while the Captain wants to use them as free labor in the terraforming process.