

4-16-2019

2019 Undergraduate Research Competition Program

Coastal Carolina University

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COASTAL CAROLINA UNIVERSITY



Undergraduate Research Competition

April 16-17, 2019

The Undergraduate Research Competition is a spring tradition at Coastal Carolina University. This year, students and faculty mentors from 28 different majors and all university colleges have worked to produce 116 presentations, including 63 oral presentations and 53 poster presentations. These are the results of months, and in some cases, years of effort on undergraduate research projects, and demonstrate the strength of experiential learning at CCU. Congratulations, presenters!

Program Overview

Tuesday, April 16, 2019

- 12:30 – 2:30 PM Poster Session I, Lib Jackson Student Union Atrium
- 3:00 – 7:30PM Oral Presentations, Brittain Hall (1st floor: rooms 101, 112, and 114)

Wednesday, April 17, 2019

- 12:50 – 4:30 PM Oral Presentations, Brittain Hall (1st floor: rooms 101, 112, and 114)
- 4:30 - 6:30 PM Poster Session II, Lib Jackson Student Union Atrium

Concurrent Event

Senior Exhibition (portfolios from graduating Graphic Design and Art Studio majors)

- **Portfolio 1: April 8-April 19, 2019**, Rebecca Randall Bryan Art Gallery
Reception: Wednesday, April 10, 4:30-6:30pm
- **Portfolio 2: April 29-May 10, 2019**, Rebecca Randall Bryan Art Gallery
Reception: Thursday, May 9, 4:30-6:30pm

Supreme Court of South Carolina in Session at CCU – Wheelwright Auditorium

- April 17, 2019 10:00am-noon, Oral arguments
- April 18, 2019 9:30am-noon, Oral arguments

2019 Undergraduate Research Competition Schedule

ORAL PRESENTATIONS Brittain Hall, First Floor

TUESDAY, APRIL 16, 2019

Time	BRITTAIN HALL RM 101	BRITTAIN HALL RM 112	BRITTAIN HALL RM 114
3:00 PM	<p>Savanna Ihrcke</p> <p>Mindfulness and Test Anxiety in College Students</p> <p><i>Faculty Research Mentor: Melissa Paiva-Salisbury, Psychology</i></p>	<p>Jeremy Evans and Hailey Wimmenauer</p> <p>Breaking Suicide and Depression (SAD) Initiative: Examining the Correlation between Screen Time and Mental Health</p> <p><i>Faculty Research Mentor: Sharon Thompson, Health Sciences</i></p>	<p>Fulbright Program Information Session</p>
3:20 PM		<p>Rachel Trudon and Amber Rahman</p> <p>Examining Levels of Food Security among College Students and Food Bank Participants: The Hunger Reduction in Vulnerable Environments Project (THRIVE)</p> <p><i>Faculty Research Mentor: Sharon Thompson, Health Sciences</i></p>	<p>Brandon Stone</p> <p>Prince Fellows 2018/2019 Research</p> <p><i>Faculty Research Mentor: Jack Roper, History</i></p>
3:40 PM	<p>Stacy Kersey</p> <p>Yoga, Working Memory, and Stress: Evaluating the Effects of a Singular Practice</p> <p><i>Faculty Research Mentor: Miranda Brenneman, Psychology</i></p>	<p>Tiffany Dantzer</p> <p>The Future of Sino-South African Relations: Analysis of the Sustainability of a Partnership</p> <p><i>Faculty Research Mentor: Joseph Fitsanakis, Politics</i></p>	<p>Sean Butler</p> <p>The Peristyle Courtyard of elite Roman Houses</p> <p><i>Faculty Research Mentor: Aneilya Barnes, History</i></p>

Time	BRITAIN HALL RM 101	BRITAIN HALL RM 112	BRITAIN HALL RM 114
4:00 PM	<p>Virginia Novak</p> <p>Does Gender Impact Impulsive and Risky Sexual Behaviors?</p> <p><i>Faculty Research Mentor: Melissa Paiva-Salisbury, Psychology</i></p>		<p>Brandon Adams</p> <p>Jewish Emigration and Restrictions to Migration prior to the Final Solution</p> <p><i>Faculty Research Mentors: Philip Whalen and Christopher Gunn, History</i></p>
4:20 PM	<p>Alyssa Molaro</p> <p>Political Orientations: Changing Narcissistic Opinions with Use of Moral Framing</p> <p><i>Faculty Research Mentor: Melisa Paiva-Salisbury, Psychology</i></p>	<p>Tyra Bjorlo</p> <p>Women in Militant Islamist Groups</p> <p><i>Faculty Research Mentor: Nora Onar, Politics</i></p>	<p>Morgan Condrey and Tiffany Strange</p> <p>The Lebanese Civil War and The Pursuit of Peace</p> <p><i>Faculty Research Mentor: Christopher Gunn, History</i></p>
4:40 PM	<p>Samuel Graham</p> <p>Godchildren, Soldiers Boys, and Casualties: Children in Early Modern Village Society and the Thirty Years' War</p> <p><i>Faculty Research Mentor: Shari Orisich and Brian Nance, History</i></p>	<p>Quentin Clark</p> <p>Photography vs. Sexual Assault: The Healing Power of the Camera</p> <p><i>Faculty Research Mentors: Howie Elizabeth, Visual Arts and Aneilya Barnes, History</i></p>	<p>Tiffany Strange and Morgan Condrey</p> <p>Lebanon and the Taif Agreement</p> <p><i>Faculty Research Mentor: Christopher Gunn, History</i></p>
5:00 PM	<p>Kallie Stephens</p> <p>The Impact of Narration on E-Learning Outcomes</p> <p><i>Faculty Research Mentor: Marlena Ryba, Psychology</i></p>	<p>Ramsey Diven</p> <p>The Portrayal of Self Through an Emotionally Charged Playlist</p> <p><i>Faculty Research Mentors: Charles Clary, Visual Arts and Aneilya Barnes, History</i></p>	<p>Elizabeth Vermont</p> <p>Impact of Nuremberg Laws on Jews</p> <p><i>Faculty Research Mentors: Christopher Gunn and Philip Whalen, History</i></p>
5:20 PM	<p>Lauren Tyndall</p> <p>Effects of Emotional Valence and Depth of Processing on Memory</p> <p><i>Faculty Research Mentor: Matthew Murphy, Psychology</i></p>	<p>Giovanna Leone</p> <p>Effects of Foam Rolling on Range of Motion and Vertical Jump Height</p> <p><i>Faculty Research Mentor: Jason Smith, Exercise and Sport Science</i></p>	

Time	BRITAIN HALL RM 101	BRITAIN HALL RM 112	BRITAIN HALL RM 114
5:40 PM	<p>Victoria Riley-Lomedico</p> <p>The Impact of Stress Ball Density on the Categorization of Sexual Orientation, Race, and the Level of Certainty in College Students</p> <p><i>Faculty Research Mentor: Terry Pettijohn, Psychology</i></p>	<p>Annie Boyd</p> <p>Demersal Fish use of Printed Oyster Shells as Nesting Habitat in North Inlet SC</p> <p><i>Faculty Research Mentor: Juliana Harding, Marine Science</i></p>	<p>Kristina Knudtson</p> <p>Life After the Wall: The East German's Struggle to Establish Identity in United Germany</p> <p><i>Faculty Research Mentors: Amanda Brian, History and Gary Schmidt, Languages and Intercultural</i></p>
6:00 PM	<p>Kenzie Nash</p> <p>Time Off and Turnover Intention Rates</p> <p><i>Faculty Research Mentor: Marlena Ryba, Psychology</i></p>		<p>James Lawler</p> <p>King James, Buckingham, and Their Lasting Effect on Great Britain</p> <p><i>Faculty Research Mentors: Brian Nance and Aneilya Barnes, History</i></p>
6:20 PM	<p>Maria Sparacino</p> <p>The Influence of Wearing a fitbit on Eating Behaviors While Stressed</p> <p><i>Faculty Research Mentor: Terry Pettijohn, Psychology</i></p>	<p>Katrina Hughes</p> <p>Exploring the Underwater Depths with an Autonomous Vehicle</p> <p><i>Faculty Research Mentor: Louis Rubbo, Physics and Engineering Science</i></p>	<p>Victoria Peck</p> <p>Reacting to the Past: Engagement and Experiential Learning through Games</p> <p><i>Faculty Research Mentor: Katie Clary, History</i></p>
6:40 PM	<p>Kassidee Hanshew</p> <p>Time Perspective, Personality, and Music Preferences</p> <p><i>Faculty Research Mentor: Terry Pettijohn, Psychology</i></p>	<p>Tanner Saussaman</p> <p>Assessing and Improving the Support for South Carolina FIRST LEGO League Coaches</p> <p><i>Faculty Research Mentor: Louis Rubbo, Physics and Engineering Science</i></p>	<p>Corryn Patterson</p> <p>Inclusion of Age in Undergraduate Curricula: A Study of Literature Professors Pedagogies</p> <p><i>Faculty Research Mentor: Cynthia Port, English</i></p>
7:00 PM	<p>Jarrod Worley</p> <p>Justification of Effort Effect for Mental and Physical Tasks</p> <p><i>Faculty Research Mentor: Matthew Murphy, Psychology</i></p>		<p>HAWLEY, RICHARD</p> <p>Density and Species Richness of Macrofaunal Benthic Bivalves in North Inlet, SC</p> <p><i>Faculty Research Mentor: Juliana Harding, Marine Sci</i></p>

WEDNESDAY, APRIL 17, 2019

Time	BRITAIN HALL RM 101	BRITAIN HALL RM 112	BRITAIN HALL RM 114
12:50 PM	<p>Fulbright Program Information Session</p>	<p>Alyssa Conner</p> <p>Two Makes a Couple: Fictions on Intimacy</p> <p><i>Faculty Research Mentor: Jessica Richardson, English</i></p>	<p>Alexa Jeacoma</p> <p>Applying the Jeopardy's Format to a Strategic Case Analysis</p> <p><i>Faculty Research Mentor: Janice Black, Management Decision Sciences</i></p>
1:10 PM	<p>Nicholas Coleman</p> <p>Association Behavior between Sand Tiger Sharks (<i>Carcharias taurus</i>) and Round Scad (<i>Decapterus punctatus</i>) may be Mutually Beneficial</p> <p><i>Faculty Research Mentor: Erin Burge, Marine Science</i></p>	<p>Dara Potts and Amelia Dobbs</p> <p>Popular Culture, Shakespeare, and Gender</p> <p><i>Faculty Research Mentors: Robin Russell and Gwendolyn Schwinkle, Theatre</i></p>	<p>Macy Moffatt</p> <p>Addiction, the Hardest Battle</p> <p><i>Faculty Research Mentors: Wendy Weinhold, Communication, Media, and Culture and Kyle Holody</i></p>
1:30 PM	<p>Bailey Harding</p> <p>Paired Ghost Crab Burrow Morphology: An Analysis of Shape, Angle and Seasonal Variation</p> <p><i>Faculty Research Mentor: Eric Rosch, Marine Science</i></p>	<p>Hannah Dahl</p> <p>Perceptions & Experiences of Racial Bias in College Theatre Programs</p> <p><i>Faculty Research Mentors: Gwendolyn Schwinke, Theatre, and Aneilya Barnes, History</i></p>	<p>Olivia Dimatteo</p> <p>Museum Semiotics</p> <p><i>Faculty Research Mentor: Kyle Holody, Communication, Media, and Culture</i></p>
1:50 PM	<p>Taylor Hayes</p> <p>Spatial Distribution and Behavioral Patterns in American Alligators (<i>Alligator mississippiensis</i>) at Huntington Beach State Park, SC</p> <p><i>Faculty Research Mentor: Eric Rosch, Marine Science</i></p>	<p>Billie Rogers</p> <p>Native American People and their Adaptation to Late Holocene Sea Level Rise</p> <p><i>Faculty Research Mentor: Carolyn Dillian, Anthropology & Geography</i></p>	<p>Alec Kozicki</p> <p>Semiotics in Interactive Film: Esthetical Analysis of Millennial Audience</p> <p><i>Faculty Research Mentor: Kyle Holody, Communication, Media, and Culture</i></p>

Time	BRITAIN HALL RM 101	BRITAIN HALL RM 112	BRITAIN HALL RM 114
2:10 PM	<p>Jacob Dietzel</p> <p>Using Half-Weight Association Index to Analyze Stock Boundaries of South Carolina Estuarine Bottlenose Dolphins, <i>Tursiops truncatus</i></p> <p><i>Faculty Research Mentor: Rob Young, Marine Science</i></p>	<p>Kevin Kinner</p> <p>Norse Influence from America to Eurasia</p> <p><i>Faculty Research Mentors: Carolyn Dillian and Christopher Bartlett, Anthropology & Geography</i></p>	<p>Krystina Millar</p> <p>Rewards and Resistance: The Importance of Teaching Women and Gender Studies at a Southern Liberal Arts Institution</p> <p><i>Faculty Research Mentor: Jaime McCauley, Sociology</i></p>
2:30 PM		<p>Samantha Layko</p> <p>Modeling the Hammer Throw</p> <p><i>Faculty Research Mentor: Scott Carr, Physics and Engineering Science</i></p>	<p>Krystina Millar</p> <p>Double Jeopardy: Minority Stress and the Influence of Transgender Identity and Race/Ethnicity</p> <p><i>Faculty Research Mentor: Jason Eastman, Sociology</i></p>
2:50 PM	<p>Tessa Liner</p> <p>Immunohistochemical Analysis of Tissue Hypoxia in Developing Gecko Brains</p> <p><i>Faculty Research Mentor: Scott Parker, Biology</i></p>	<p>Brenna Wiinanen</p> <p>The Continuation of a Composition of an Unfinished Mozart Flute Concerto</p> <p><i>Faculty Research Mentor: Donald Sloan, Music</i></p>	<p>Kenley Cribb</p> <p>Pre-service Teachers Conceptual Understandings and Reasoning for Curriculum Instruction, and Assessment Decisions (Revisited)</p> <p><i>Faculty Research Mentor: Edward Jadallah, Dean, Spadoni College of Education</i></p>
3:10 PM	<p>Allison Lavallee</p> <p>Campaign Contributions and Congressional Sponsorship of Climate Change Policy</p> <p><i>Faculty Research Mentors: Mikel Norris Mikel, Politics and Aneilya Barnes, History</i></p>	<p>Courtney Douglass</p> <p>Consent and Online Erotica</p> <p><i>Faculty Research Mentor: Emma Howes, Visual Art</i></p>	<p>Alexandria Steinmetz</p> <p>Taking Initiative in a 3rd Grade Classroom: Comparing Gifted and Talented and General Education Students</p> <p><i>Faculty Research Mentor: Richard Costner, Elementary Education</i></p>

Time	BRITAIN HALL RM 101	BRITAIN HALL RM 112	BRITAIN HALL RM 114
3:30 PM	<p>Ryan Lawrence</p> <p>The Current and Projected Status of the Jalisco New Generation Cartel</p> <p><i>Faculty Research Mentor: Joseph Fitsanakis, Politics</i></p>	<p>Allison Mitchell</p> <p>Formal or Free Verse? Work as Work</p> <p><i>Faculty Research Mentor: Dan Albergotti, English</i></p>	<p>Alex Foster</p> <p>Modeling Protection Strategies against Chikungunya Virus on Reunion Island</p> <p><i>Faculty Research Mentor: Igor Erovenko, UNC Greensboro</i></p>
3:50 PM	<p>Julie Emory</p> <p>Political Implications of the China-United States-Taiwanese Trilateral Weapons Trade</p> <p><i>Faculty Research Mentor: Joseph Fitsanakis, Politics</i></p>	<p>Corie White</p> <p>Familiar Changes</p> <p><i>Faculty Research Mentor: Kate Oestreich, English</i></p>	<p>Cannon McIntosh</p> <p>ChipKill: The Power of Finite Fields</p> <p><i>Faculty Research Mentors: Tom Hoffman and Ogul Arsian, Mathematics and Statistics</i></p>
4:10 PM	<p>Riley McCormick</p> <p>Technological Hubris in Intelligence Collection during the Cold War: A Critique of Professor Kristie Macrakis' Theories</p> <p><i>Faculty Research Mentors: Joseph Fitsanakis, Politics and Aneilya Barnes, History</i></p>		<p>Jeremiah Dunivin</p> <p>Extension of Nevanlinna-Pick Theorem Interpolation Theorem to Various Subalgebra</p> <p><i>Faculty Research Mentor: Debandra Benjade, Mathematics & Statistics</i></p>

**2019 Undergraduate Research Competition
POSTER PRESENTATIONS
Lib Jackson Student Union – Atrium**

**Session I: Tuesday, April 16, 2019, 12:30-2:30pm
Session II: Wednesday, April 17, 2019, 4:30pm-6:30pm**

POSTER SESSION I

Tuesday, April 16, 2019, 12:30-2:30pm

ALTMAN, KATHERINE

Optimization of Indole Additions to Aromatic Aldehydes for the Synthesis of Phidianidine Analogues
Faculty Research Mentor: Bryan Wakefield, Chemistry

BALLOU, VICTORIA, ROBERT MORDENTE, KENARD HOLMES, SHEBBENA McGREW AND DEVON CAREY

Analysis and Annotation of *Gordonia* Phage Mayweather
Faculty Research Mentor: Daniel Williams, Biology

BIALOUSOW, LUCAS

Alternative Methods in Synthesis of Phidianidine Analogues
Faculty Research Mentor: Bryan Wakefield, Chemistry

BYRD, BRIANNA

The Domino Effect of Masculinity
Faculty Research Mentor: David Weber, English

CARROLL, CAMERON

Design and Synthesis of Small Regulatory RNA Transcripts for the Streptolysin S Associated Gene of Group A Streptococcus
Faculty Research Mentors: Brian Lee, Chemistry and Gabriela Perez Alvarado

COX, ELISABETH

Two Synthetic Approaches to Phidianidine Analogues
Faculty Research Mentor: Bryan Wakefield, Chemistry

**CUTAIA, TYLER, JAMES DALENBURG, KRYSTAL BONACCORSO, OLIVIA SHIRLEY, SHIONNAH WALLACE,
ZAHRA SLIMANI, BROOKE BUSBY, AND TAKIAH ANDERSON**

The Discovery and Isolation of Seven New Bacteriophages
Faculty Research Mentor: Daniel Williams, Biology

DIECKMAN-MEYER, ELISABETH

3D Molecular Printing
Faculty Research Mentor: Kevin McWilliams, Chemistry

DUNN, MADISON

13 Reasons Why or Why Not: Depicting Teenage Suicide in Streaming Media

Faculty Research Mentor: Deborah Breede, Communication

FORBES, GABRIELLE, CALLISTA GLEICH AND KAYLA BROTEMARKLE

Microplastics in Fiddler Crabs

Faculty Research Mentor: Eric Rosch, Marine Science

GEMMELL, SYDNEY

Could Believing in Yourself and Listening to Music Improve Memory in College Students and Older Adults?

Faculty Research Mentor: Terry Pettijohn, Psychology

HINNERSCHITZ, CAITLYN, AINSLEY FOLMER AND SAVANNAH WATSON

Structured and Unstructured Movement in 5th Grade Classrooms: Effects on Students Performance

Faculty Research Mentor: Richard Costner, Elementary Education

HOLT, ESTHER

Indole Addition to Benzylic Alcohols to Synthesize Phenyl Phidianidine Analogs

Faculty Research Mentor: Bryan Wakefield, Chemistry

LEAKE, KADARIUS

Synthesis of Phenyl Analogues Replacing the Oxadiazole Ring of Phidianidines

Faculty Research Mentor: Bryan Wakefield, Chemistry

LINER, TESSA, AYSIA SMITH, DAWAYNE MEARES, ELMER RAMIREZ, PAIGE PIETRZAK, VIKTORIA BERKEY AND YMANI WRIGHT

Functional Analysis of *Gordonia* phage Kenosha

Faculty Research Mentor: Daniel Williams, Biology

MOLINA, JOSEPH, AMBER ELMADOLAR, JARED MILLER, STEPH THOMAS AND NICK WORKMAN

Consensus versus Independent Age Estimation of Muskellunge: an Analysis of Accuracy

Faculty Research Mentor: Derek Crane, Biology

PALEK, ZACHARY

Effect of Hurricane Florence on Winyah Bays Planktonic Population

Faculty Research Mentor: George Boneillo, Marine Science

POLLACK, JESSICA, FAITH SAUPE, NICHOLAS COLEMAN AND ERIN BURGE

A Diverse and Abundant Fish Assemblage Revealed using SharkCam Underwater Video off Cape Fear, North Carolina

Faculty Research Mentor: Erin Burge, Marine Science

POWELL, KYLA and HANNAH WOLF

Best Practices Outward Looking Communications of Student-run Agencies

Faculty Research Mentor: Jeffrey Ranta, Communication, Media, and Culture

SLIFKA, VICTORIA

Analysis of Horizontal Axis Wind Turbine with Nonlinear Leading Edge Blade

Faculty Research Mentor: Roi Gurka, Department of Coastal and Marine Systems Science

SLIMANI, ZAHRA

Testing Designs for the Most Efficient and Effective Mosquito Trap

Faculty Research Mentor: Paul Richardson, Chemistry

TRACEY, ROB

Exploratory Movements of Leopard Geckos in Visual and Non-Visual Environments

Faculty Research Mentors: Ryan Yoder, Psychology, and Scott Parker, Biology

WOLFE, MATTHEW AND JENNA THOMPSON

Effects of Moderate versus Variable High Intensity Cycling on Metabolic Responses during Recovery

Faculty Research Mentor: Justin Guilkey, Kinesiology

WORKMAN, NICHOLAS

Character and Water Quality of Sandpiper Pond: a Coastal Pond Assessment, Fifteen Years after Restoration

Faculty Research Mentor: Angelos Hannides, Marine Science

POSTER SESSION II

Wednesday, April 17, 2019, 4:30pm-6:30pm

AKERS, MARY AND ALYSSA LECLAIRE

Ecosystem Engineers or Engineered by the Ecosystem?

Faculty Research Mentors: Juli Harding, Marine Science and Louis Keiner, Director of Honors

ANDERSON, KURTIS

Optimization of the First Coupling in Phidianadine Furan Analog Synthesis

Faculty Research Mentor: Bryan Wakefield, Chemistry

BEISELL, ALLIYAH

Jobs are Here! Recreation and Sport Management Student Perceptions of Recreation Industry Jobs

Faculty Research Mentor: Nicholas Schlereth, Recreation and Sports Management

CORTESE, CHASE

Bacteriophage Detection in the Waterways and Runoffs of our Community

Faculty Research Mentor: Paul Richardson, Chemistry

DAVIS, WHITNEY

The Effects of Marine Natural Products on the Microenvironment of Pancreatic Cancer

Faculty Research Mentor: Michael Pierce, Biology

DURICA, JOHN

Response of the Fluvial Dynamics in the Lower Santee River to the Construction of the Santee Cooper dams

Faculty Research Mentors: Till Hanebuth, Burroughs & Chapin Center for Marine & Wetland Studies and Josh Long

FICKES, HAILEIGH

Machismo in Mexico

Faculty Research Mentor: Mauricio Castillo, Languages and Intercultural Studies

HARTENSTEIN, PEYTON

Dietary Analysis of Lionfish *Pterois volitans* from Discovery Bay, Jamaica

Faculty Research Mentor: Erin Burge, Marine Science

HATTON, JAMES

Optimization of the Bromination of the Bis-furan Intermediate in the Synthesis of Phidianidine Analogues

Faculty Research Mentor: Bryan Wakefield, Chemistry

HESS, NAKKARA, JULIE EMORY AND SHANI CHERNOFF

The Solar Impact: The Work of the Solar Ambassadors in Promoting Renewable Energy Sources

Faculty Research Mentor: Pamela Martin, Politics

KLINPETER, LOGAN

Heavy Metal Uptake in *Donax variabilis*
Faculty Research Mentor: Kevin McWilliams, Chemistry

LUSE, STEVEN AND KATLIN WOOD

Charcoal Wood Analysis of Brookgreen Gardens
Faculty Research Mentor: David Palmer, Anthropology and Geography

MUELLER, PEYTON

Effects of Perceived Audiences on Discrimination Learning in Pigeons (Columbia Livia)
Faculty Research Mentor: Matthew Murphy, Psychology

NELSON, SABRINA

Vaccination Attitudes and Science Literacy
Faculty Research Mentor: Marlena Ryba, Psychology

PASE, ANN-MARIE

An Analysis of Population Density and Body Condition in the Fiddler Crabs (*Genus: Uca*) Compared between Areas of High and Low Levels of Human Disturbance
Faculty Research Mentor: Eric Rosch, Marine Science

RAHMAN, AMBER

The Effect of a Warm-up and Foam Rolling on Hip Adduction Range of Motion
Faculty Research Mentors: Chad Smith, Kinesiology and Hugh Lamont

RENAUER, LOLA

Abundance Estimate of the Common Bottlenose Dolphin (*Tursiops truncatus*) in the Charleston Estuarine System Stock
Faculty Research Mentors: Robert Young, Dani Silva and Francesa Rosetti, Marine Science

RIOS-BRADY LILLIAN

Detection of Newly Synthesized Membrane Proteins in Isolated Squid Axoplasm from *Loligo pealeii*
Faculty Research Mentor: Miguel Holmgren, National Institutes of Health

SMITH, ALYSIA

Optimizing Illuminating Conditions of ROS in *Caenorhabditis elegans*
Faculty Research Mentor: Daniel Williams, Biology

STEIG, KATIE, RACHEL TRUDON and AMBER RAHMAN

Examining Food Insecurity among Undergraduates at Two- and Four-year Public Institutions of Higher Education in South Carolina
Faculty Research Mentor: Sharon Thompson Sharon, Health Sciences

TAYLOR, TESSA

College Freshmen Behaviors and Perceptions about E-Cigarettes
Faculty Research Mentors: Elizabeth Carter and Kyle Holody, Public Health

THOMPSON, JENNA AND MATTHEW WOLF

Exercise Intensity, Energy Expenditure and Enjoyment during Variable High Intensity Exercise in Healthy Adults

Faculty Research Mentor: Justin Guilkey, Kinesiology

WIMMENAUER, HAILEY

The Effect of Foam Rolling on Post-Activation Potentiation Responses

Faculty Research Mentor: Jason Smith, Kinesiology

WISE, IVY

Screening for *Pseudo-nitzschia* along the Grand Strand

Faculty Research Mentor: Megan Cevasco, Biology

WRIGHT, RUTH

Investigation of Pathogenic Marine Fungi Origin, Support and Growth in Sand and on Coastal Beaches

Faculty Research Mentor: Karen Aguirre, Biology

2019 Undergraduate Research Competition Abstracts (Alphabetical by Presenter)

Jewish Emigration and Restrictions to Migration prior to the Final Solution (Oral Presentation)

Brandon Adams (History)

Faculty Research Mentor: Philip Whalen, History

Jews in the Third Reich and in Europe prior to the final solution and mass concentration had the difficult choice of leaving or staying and dealing with a seemingly stronger version of anti-semitism than the one they were familiar with. For some there were opportunities to leave some took those chances, most did not. Looking at Nazi legislation there is paradoxical nature in that they wish to rid the population of Jews and open exit valves in some instances, but also make it extremely onerous for many to decide to leave. Jews were economically, socially, and physically attacked and yet still persisted until they were finally forced to camps. Examining personal relationships, Nazi legislation, and ideas about how things could get better up until and during the carrying out of the final solution, this paper will look at how and why Jews left when they did.

Ecosystem Engineers or Engineered by the Ecosystem? (Poster Presentation)

Mary Akers (Marine Science)

Faculty Research Mentor: Juliana Harding, Marine Science

Oyster shell is an important habitat resource for oysters (*Crassostrea virginica*) as well as resident epifauna and associated transient nekton that depend on heterogeneous reef habitat for shelter, food, or reproduction. Relationships between surficial shell and biological metrics on natural fringing reefs in North Inlet, SC were described using traditional methods and aerial photography. Oyster demographics and clump dimensions (length, displacement volume, weight) were quantified. Oysters ranged from 10-100 mm shell height at all reefs. Clump maximum length ranged from 37-280 mm with an average of 127.4 \pm 42.9 mm while clump displacement volume ranged from 0.003-0.510L. Relationships between measured shell weight (g/m²; 36-974) and shell cover estimated from high resolution photographs (% shell/m²; 0.046-0.082) on replicate reefs were used to evaluate the efficacy of alternative non-destructive methods to quantify surficial shell.

Optimization of Indole Additions to Aromatic Aldehydes for the Synthesis of Phidianidine Analogues (Poster Presentation)

Katherine Altman (Chemistry)

Faculty Research Mentor: Bryan Wakefield, Chemistry

Nature provides a plethora of substances that can be useful in battling diseases that afflict the human population. Phidianidine, which was isolated from a marine opisthobranch mollusk, is one such substance that has been found to have various biological activities. Analogues of this molecule have been shown to have protective effects on nerve cells that could be damaged by Alzheimer's and other neurodegenerative diseases. The molecule contains a 1,2,4-oxadiazole ring, which other groups have used to combine the two halves of the molecule to complete the synthesis. While this approach is well suited to the synthesis of phidianidine, it does not lend itself to the construction of diverse analogues. We have developed a synthetic approach where the indole moiety is added late-stage to an alcohol or aldehyde that allows the indole portion of the phidianidine molecule to be easily modified. This project is focused on finding the conditions needed to add indoles to phidianidine derived aromatic aldehydes in high yields.

Optimization of the First Coupling in Phidianidine Furan Analog Synthesis (Poster Presentation)

Kurtis Anderson (Biochemistry)

Faculty Research Mentor: Bryan Wakefield, Chemistry

Two compounds, phidianidine A and B, were recently found in the marine mollusk *Phidiana militaris*. These compounds have three key areas: indole, 1,2,4-oxadiazole, and the side chain. Analogues of these molecules that replace the alkyl side chain with a biaryl side chain have shown to protect nerve cells from oxidative damage. This type of damage has been correlated to the onset and progression of neurodegenerative diseases such as Alzheimer's. The goal of this project is to develop new a synthetic approach to these phidianidine analogues that allows for the indole region to be easily modified. This process installs the side chain first followed by addition of the desired

indole to complete the analog. The current approach relies on multiple Pd crosscoupling reactions which required optimization. The initial Suzuki reaction in the sequence was examined to determine the effect of changing the coupling partner, catalyst and other reaction conditions.

Analysis and Annotation of Gordonia Phage Mayweather (Poster Presentation)

Victoria Ballou (Biology)

Faculty Research Mentor: Daniel Williams, Biology

Viruses are infective agents that replicate in a living host and a bacteriophage is a type of virus that only infects bacteria. Recent research of bacteriophages has increased as they are a tool to fight bacterial infections. Our project started in the fall of 2018 with the discovery of a new phage named Mayweather, which was isolated from soil samples collected at Coastal Carolina University. We obtained Mayweather's sequence and are currently annotating its genome. We use bioinformatic tools that compare Mayweather with other annotated phages to infer the gene locations and functions. Through this process we found that the genome of Mayweather is diverse, and our work will contribute to the understanding of phage biology and evolution.

Temperature Responses of Microbial Extracellular Enzyme Activity Associated with Decaying Submerged Leaf Litter (Oral Presentation)

Nicholas Bautz (Biology)

Faculty Research Mentor: Vladislav Gulis, Biology

The decomposition of leaf litter in aquatic ecosystems is carried out mostly by microorganisms, including bacteria and fungi. They produce extracellular enzymes that aid in the sequestration of carbon and nutrients and lead to the breakdown of complex plant polymers. We evaluated the effects of temperature on extracellular enzyme activity within the framework of the Metabolic Theory of Ecology (MTE). The activity of β -1,4-glucosidase and β -1,4-xylosidase was estimated fluorometrically using artificial substrate analogs. Phenol oxidase activity was estimated spectrophotometrically from oxidation of L-DOPA (L-3,4-dihydroxyphenylalanine). We found that the activity of microbial enzymes involved in carbon sequestration is temperature dependent but does not follow simple monotonous response across experimental temperatures (4-20- ∞ C) predicted by the MTE. Instead, we observed greater temperature sensitivity of enzymatic activity at colder temperatures. This may have important implications for stream ecosystems under climate change scenarios since both peak leaf litter availability and microbial activity occur in autumn-winter.

Prediction of Offshore Wind Speeds (Oral Presentation)

James Bennett (Physics/PreEngineering)

Faculty Research Mentor: Siming Guo, Physics and Engineering Science

Offshore wind turbines are far more efficient than wind turbines on land. This makes offshore wind power very desirable. Before turbines are built the climate, wind shear and elevation are considered to determine the wind speeds at the build spot. These wind speeds directly correlate to how efficient a wind turbine will be. On land this can be an easy task with using past forecasts and wind speed extrapolation calculations but finding wind speeds over a body of water can be much more challenging. I will attempt to find a solution to predicting offshore wind speeds by taking measurements of onshore wind at the same time as offshore winds. This will lead me to finding a correlation to predict offshore wind speeds when only the neighboring onshore wind speeds can be found. Thus allowing a true determination of offshore wind power's cost effectiveness.

Alternative Methods in Synthesis of Phidianidine Analogues (Poster Presentation)

Lucas Bialousow (Chemistry)

Faculty Research Mentor: Bryan Wakefield, Chemistry

Phidianidine is a natural alkaloid that is unique to other alkaloids by containing a natural oxadiazole structure. This molecule was discovered in a marine species *Phidiana militaris* and has many pharmaceutical potentials including being an agonist towards the μ -opioid receptor and inhibiting the growth of cancer cell lines. These characteristics makes phidianidine a desirable molecule for synthesis. The lynchpin of previous methods was the construction of the central 1,2,4-oxadiazole ring which limited the types of analogues that could be constructed. The objective of

this research is to develop a synthetic method that enables the late-stage installation of a variety of moieties to create new analogues of this alkaloid for biological evaluation.

Women in Militant Islamist Groups (Oral Presentation)

Tyra BJORLO (Intelligence and National Security Studies)

Faculty Research Mentor: Nora Onar, Politics

What is the motivation for women who become radicalized within extremist groups, what roles do they play within the groups, and are their aspirations of empowerment being met? As the world continues to modernize through globalization, women are advancing their roles in hyper-patriarchal societies. A hyper-patriarchy is an extremely conservative society with constraints on women. Consequently, women are becoming more prevalent in extremist organizations as a way to either rebel or empower themselves. Displacement, social alienation, and self-emancipation are all potential reasons why women become radicalized. Experts on Islamism and Islamic feminism offer a diverse array of perspectives for the problem in question. To address this question, this paper will provide a schematic historical and theoretical overview of the emergence and variants of jihadist movements in order to understand how they convince women to participate. It will argue that social alienation is the leading factor for women who become radicalized.

Demersal Fish Use of Printed Oyster Shells as Nesting Habitat in North Inlet SC (Oral Presentation)

Annie Boyd (Marine Science)

Faculty Research Mentor: Juliana Harding, Marine Science

Demersal fishes including blennies use empty oyster shells as nesting sites. 3D printer technology was used to create standard nest substrates to describe relationships between blenny habitat use and nest site dimensions. Replicate printed shells of 2 gape widths (5, 7 mm) for each of 2 shell cavity volumes (22.1, 15 ml for Oysters A and B, respectively) were deployed and checked ~biweekly. The first nest substrate deployment (August-December 2018) tested whether or not blennies would use the printed shells. The second deployment (December 2018-present) is evaluating the hypothesis that larger fish select printed shells with larger cavity volume and/or gape width. Printed shells are occupied by blennies. Fish use increased with deployment time. Nesting fishes (average standard length = 48.7 mm, ± 7.1) occupy shells with larger (7 mm) gapes and larger (22.1 ml) volume more frequently. Relationships between shell dimensions and fish use and dimensions will be discussed.

The Peristyle Courtyard of Elite Roman Houses (Oral Presentation)

Sean Butler (History)

Faculty Research Mentor: Aneilya Barnes, History

This paper argues that in the first-century peristyle courtyards transformed the Roman house, because their integration offered the most variations for elite household members in this strictly hierarchical society of clientship and social dependence. A significant number of scholars have examined activities conducted in the household and, more specifically, those performed in the peristyle courtyard, such as salutations, theatrical performances, and other cultural spectacles. These activities enabled elites to show their political, economic, and social status. This research demonstrates how the Roman house and the spaces within it served as a platform for the blending of public and private from which elite aristocrats could promote their social superiority and displays of wealth and power over one another, while continuing to act as good Romans in the public eye.

The Domino Effect of Masculinity (Poster Presentation)

Brianna Byrd (Graphic Design)

Faculty Research Mentor: David Weber, Edwards College

This essay analyzes defects in the overall behavior of many heterosexual males in America and how it affects society, women specifically. Faults include, but are not limited to, hyper-masculinity, sexism, hyper-sexuality, desire for dominance, patriarchy in America, aggression and violence. Women are often talked to in a sexual manor, asked for inappropriate favors by men, etc. and experience backlash from our refusals. The topic is generalized to the behavior of many heterosexual men, however the qualities and behaviors are not displayed by every man. Assault and rape are extreme examples of what could occur as a result of some of the other behaviors. The purpose of discussing this topic is to educate and bring awareness to behaviors and phenomenons which lead to bigger issues. I hope to encourage men to become self aware of these behaviors as well as to keep themselves and others accountable for their speech and actions.

Design and Synthesis of Small Regulatory RNA Transcripts for the Streptolysin S Associated Gene of Group A Streptococcus (Poster Presentation)

Cameron Carroll (Biochemistry)

Faculty Research Mentor: Brian Lee, Chemistry

Group A Streptococcus (GAS) is a human pathogen that releases the cytotoxin, streptolysin S (SLS), which allows the bacteria to destroy soft tissues as part of necrotizing fasciitis. A nine-gene SLS-associated (*sag*) operon includes the protoxin gene (*sagA*) and other factors necessary for secretion of SLS, which tricks neurons into suppressing the immune response to GAS. The *sagA* RNA transcript, also known as Pel, regulates other virulence factors. We have designed DNA templates of various *sagA*/Pel constructs for in vitro transcription. The RNA transcript secondary structures were assayed by RNase T1 digestion and thermal melting studies to detect folding. The long-term goal of the project is to characterize the structural basis for the regulatory role of Pel/SagA, which is thought to depend on interactions with the CvfA protein and FasX, another small regulatory RNA. These results may guide the design of therapeutics that target the pathogen's ability to produce SLS.

Photography vs. Sexual Assault: The Healing Power of the Camera (Oral Presentation)

Quentin Clark (Art History)

Faculty Research Mentor: Elizabeth Howie, Visual Arts

When considering the lasting effects that sexual assault has on its victims, the use of photography as a form of therapy has become increasingly beneficial, especially with regards to the reconstruction of trust amongst sexual partners. Robert Tennent, a nineteen-year-old male living in New Zealand, has utilized his own photographs in order to cope with the trauma that was produced after he had been assaulted. Upon capturing images of the different sexual partners he had following his attack, Tennent compiled a book of photographs that depicts moments of happiness, trust, and control, where before there was only pain. Tennent's images, accompanied by various theories of art, offer a greater connection between photography and its relationship to psychology and healing. Not only are Tennent's photographs a testament to his artistic abilities, but they further exhibit the healing power of photography.

Association Behavior Between Sand Tiger Sharks (*Carcharias taurus*) and Round Scad (*Decapterus punctatus*) may be Mutually Beneficial (Oral Presentation)

Nicholas Coleman (Marine Science)

Faculty Research Mentor: Erin Burge, Marine Science

SharkCam is a publicly accessible underwater camera sited on the bottom in 15m of water and located on Frying Pan Tower, approximately 60 km off the coast of Wilmington, North Carolina. The camera is used to survey a diverse temperate and tropical fish assemblage associated with the underlying hard-bottom reef. The diversity of fishes associated with the hard bottom reef facilitates unique ecological interactions. Archived videos were used to investigate the potential mutually beneficial association of round scad around sand tiger sharks. Round scad have been observed aggregated around sand tiger sharks, and of the more than 150 video observations of sand tiger sharks, approximately 80% feature associated round scad. This relationship is hypothesized to be mutually

beneficial by decreasing vulnerability of round scad to their predators and may also increase the potential predation opportunities for sand tiger sharks.

The Lebanese Civil War and The Pursuit of Peace (Oral Presentation)

Morgan Condrey (History)

Faculty Research Mentor: Christopher Gunn, History

No Abstract

The Influence of Wearing a fitbit on Eating Behaviors While Stressed (Oral Presentation)

Alyssa Conner (English)

Faculty Research Mentor: Jessica Richardson

This portfolio of fictional stories was created through the inspiration from constraints drawn from various published short stories. Constraints are a literary technique in which the writer is bound to certain elements or inspires a pattern within a work of writing. Each short story takes place in modern society and within the pieces, intimate moments between two individuals are explored throughout. This portfolio examines symbols of love, identity, life, and relationships, whether it be between two romantic partners, platonic partners, or siblings.

Bacteriophage Detection in the Waterways and Runoffs of our Community (Poster Presentation)

Chase Cortese (Biology)

Faculty Research Mentor: Paul Richardson, Chemistry

Bacteria are an important component of our environment and play a pivotal role in nutrient recycling. One potentially controllable factor regulating environmental bacteria populations is the presence of bacteriophage (viruses that attack bacteria). The scope of this study has been to detect wild bacteriophage in the waterways and runoffs of the Coastal Carolina University campus, and to examine the environmental factors that affect their presence. Specifically, the study encompassed viruses (coliphages) that infect *Escherichia coli* strains B, C, and K12. Water samples were collected from different water features on campus, providing an array of environments that could potentially host the targeted phages. After recording water and ambient conditions, samples were tested for evidence of bacteriophage. When phage presence was established, further tests were performed to determine the strain of virus. All recorded data was then reviewed to ascertain what parameters influence proliferation of bacteriophage.

Two Synthetic Approaches to Phidianidine Analogues (Poster Presentation)

Elisabeth Cox (Biochemistry)

Faculty Research Mentor: Bryan Wakefield, Chemistry

Phidianidines A and B alkaloids, isolated from the marine opisthobranch mollusk, *Phidiana militaris*, were the first natural products known to contain a 1,2,4-oxadiazole ring. Analogs of these compounds demonstrate neuroprotective properties against reactive oxygen species (ROS), which in surplus can cause oxidative stress. The focus of this project is to determine the importance of the 1,2,4-oxadiazole ring of these phidianidine analogs on biological activity. Removing heteroatoms from the 1,2,4-oxadiazole ring will allow for the importance of each atom to be understood. Two approaches will be presented, the first uses a cyclodehydration to install the 1,2,4-oxadiazole ring and the second uses a flexible iterative cross-coupling strategy that could be used to install different aromatic groups, composed of different heteroatoms. The resulting analogs could then be tested to determine their different biological activity levels and therapeutic potential.

Pre-service Teachers' Conceptual Understandings and Reasoning for Curriculum Instruction, and Assessment Decisions (Revisited) (Oral Presentation)

Kenley Cribb (Early Child Education)

Faculty Research Mentor: Edward Jadallah, Spadoni College

This study investigates the conceptual understandings and reasoning of curriculum, instruction and assessment decisions made by pre-service teachers during varied times in their education programs. This is a continuation of an ongoing study. This research is grounded by a constructivist learning theory in which meaning is constructed

through the reflective analysis of experiences. The study involves pre-service teachers in a reflective analysis of the four pedagogical concepts of questioning, cognitive development, motivation, and classroom management. These concepts are deemed significant to curriculum, instruction and assessment educator decisions and practices that promote learning. The pre-service teacher participants' reflective analysis papers involved a process of identifying and explaining, reasoning, and justifying, and generalizing and applying their understandings of each pedagogical concept. Each pre-service teacher was interviewed to further explore their understandings and participated in focus groups to allow opportunity for clarification and justification of ideas.

The Discovery and Isolation of Seven New Bacteriophages (Poster Presentation)

Tyler Cutaia (Biology)

Faculty Research Mentor: Daniel Williams, Biology

Bacteriophages are viruses that infect and kill bacteria. Because they only affect bacteria cells, they are useful for phage therapy to cure certain bacteria-borne illnesses, without having negative effects on human patients. In the fall of 2018, Bio 121L students participated in SEA-PHAGES with the goal of discovering a new bacteriophage. Through the duration of this course, we discovered seven new bacteriophages, two of which (Mayweather and Kenosha) have been sequenced. With this information, we are now able to map, analyze, and assign functions to the genes present in these phage's DNA, learning more about their biology. Collectively, our work contributed to a larger project on increasing our understanding of phage diversity that may lead to potential phage therapeutics.

Perceptions and Experiences of Racial Bias in College Theatre Programs (Oral Presentation)

Hannah Dahl (Theatre Arts)

Faculty Research Mentor: Gwendolyn Schwinke, Theatre

This study will explore student and faculty perceptions and experiences of racial bias in college B.F.A theatre programs. This will be investigated by collecting primary and secondary sources, conducting personal interviews, and administering surveys to both students and faculty within these programs. The results of the research and data collected will be available for distribution to the surveys' participants. This will serve as an effort to bring recognition to potential racial biases minority students may face such as micro-aggressions, biases in casting, and concerns for entering the industry. The results may encourage theatre departments to examine their diversity and inclusion policies, allowing them to create an environment where all voices can be heard, has equal representation, and move to a place where there are more opportunities for people of color.

The Future of Sino-South African relations: Analysis of the Sustainability of a Partnership (Oral Presentation)

Tiffany Dantzler (Intelligence and National Security Studies)

Faculty Research Mentor: Joseph Fitsanakis, Politics

January 1st, 1998, marked the beginning of Chinese-South African (Sino-South African) relations. The two have maintained a relationship for the past twenty-one years: through trade agreements and economic development investments. This paper will be an analysis of Sino-South African relations. Due to China's investments in the region and South Africa's recent internal conflicts, it is imperative to determine whether their bilateral ties are symmetrical or asymmetrical. In this paper, relations are symmetrical if they are beneficial for both states, while asymmetrical is the determination that one state is dominating the relationship and benefiting more than the other.

The Current and Projected Status of the Jalisco New Generation Cartel (Poster Presentation)

Whitney Davis (Biology)

Faculty Research Mentor: Michael Pierce, Biology

Pancreatic cancer is the 4th leading cause of cancer deaths in the United States, with that number increasing each year. Two compounds from marine sponges HB-131 and HB-018 were tested for potential anti-cancer properties. Conditioned media from PANC-1 cells was used for testing. A western blot determined matrix metalloproteinase (MMP) expression, while a zymogram determined MMP activity. A sandwich enzyme-linked immunosorbent assay

(ELISA) array determined the effects of these compounds in 15 different cytokines. HB-131 did not inhibit any of the cytokines tested, which suggests that its inhibition of CCL-2 is specific and not caused by inhibiting protein synthesis. In addition to inhibiting degranulation, HB-018 appeared to downregulate the inflammatory cytokine IL-23, while upregulating the anti-inflammatory cytokine IL-10. HB-131 and HB-018 lowered MMP-2 activity, which might translate to lower metastatic activity. From these findings, HB-131 and HB-018 are one step closer to making it to clinical trials.

3D Molecular Printing (Poster Presentation)

Elisabeth Dieckman-Meyer (Chemistry)

Faculty Research Mentor: Kevin McWilliams, Chemistry

The use of hands-on 3D molecular models has become an ideal way to try and help general chemistry students learn about aspects of molecular topography. The use of these models allow students to look at physical aspects like bond angles and molecular geometries. In an effort to produce these models a 3D printer was set up and print files were either converted from crystallographic files online or produced using computer-aided drawing programs. Reported here is the process by which the 3D printer was set up as well as the process by which the files were converted into the proper format for the 3D printer and the initial prints that were produced. As the project develops, more complex molecules will be printed along with incorporation of different materials to try and demonstrate molecular polarity.

Museum Semiotics (Oral Presentation)

Olivia Dimatteo (Communication)

Faculty Research Mentor: Kyle Holody, Communication

This research explored the discipline of “Museum Semiotics” and the methodology through which curators determine what objects have cultural value. As museums are seen as having authority regarding cultural representation, it is important they properly produce exhibits that tell a certain history. A semiotic investigation of exhibits of different cultural representation within March 2018 British Museum displays helped identify patterns of sign functions and code interactors between curator, display results, and receivers of semantic codes. This leads to a deeper understanding of how ancient objects are defined and displayed as culturally significant, cultural accessibility versus cultural appreciation, and the “how and why” museum spaces deem some cultural representors as more valuable.

The Portrayal of Self Through an Emotionally Charged Playlist (Oral Presentation)

Ramsey Diven (Art Studio)

Faculty Research Mentor: Charles Clary, Visual Arts

When emotion controls how style and medium are applied to self-portraiture, a greater connection is formed between the external appearance of the portrait and the inner self. This body of work explores the complicated emotions that are evoked by seven of the artist’s favorite songs via the creation self-portraits. The medium chosen for each piece reflects the raw emotions triggered by each song. Inspiration regarding style and technique will be drawn from multiple artists, such as Jenny Saville, Henri Toulouse-Lautrec, Noel Badges Pugh, Kendall Kyra, and Agnes Cecile. By exploring self through emotionally charged portraiture, a space is created in which the essential elements of one’s being can manifest. Ultimately what arises from this body of work is an overwhelming underlying connection between the pieces that captures the complexities of self in a tangible form.

Popular Culture, Shakespeare, and Gender (Oral Presentation)

Amelia Dobbs (Musical Theatre)

Faculty Research Mentor: Robin Russell, Theatre

A gender role is the learned behavior of an individual considered acceptable by society in relation to their biological sex. We are examining the similarities and differences between the depictions of gender roles through theatre and film. We juxtapose two of Shakespeare’s plays to modern movie adaptations of the same stories to compare and contrast the gender roles of Elizabethan times and today. William Shakespeare’s Twelfth Night is the basis for the 2006 film She’s The Man, and The Taming of the Shrew is the basis for the 1999 film 10 Things I Hate About You. The female leads in the plays and films display behavior contradictory to conventional gender roles of their respective times. Shakespeare’s plays were popular entertainment during Elizabethan times and films are a key

component of popular culture today. Popular culture influences stereotypes, including overgeneralizing female gender roles. We examined the ways these plays and films overgeneralize female gender.

Consent and Online Erotica (Oral Presentation)

Courtney Douglass (English)

Faculty Research Mentor: Emma Howes, English

The purpose of this research is to understand the way in which online anonymously written erotic fiction depicts consent. Three to five pieces of this genre will be examined and analyzed to see if the characters are engaging in enthusiastic sexual consent, and how that changes each piece. Enthusiastic consent will be based off the Planned Parenthood FRIES acronym (freely-given, reversible, informed, enthusiastic, specific). Specifically, the fiction will be from the website literotica.com. Online erotica is something many people enjoy but that is largely understudied and ignored as a whole. As well, enthusiastic consent is rarely depicted as erotic in mainstream sexual media, which can make it difficult for others to view it as such. Hopefully, an understanding of how consent is depicted in erotica can make it easier to understand how consent works in the real world. This is a pilot for a much larger study into the genre.

13 Reasons Why or Why Not: Depicting Teenage Suicide in Streaming Media (Poster Presentation)

Madison Dunn (Communication)

Faculty Research Mentor: Deborah Breede, Communication

Researchers have found that television affects teenagers and the ways they think and act. One thing that they have not studied is how television depicting suicide affects the behavior of teenagers. This article examines, through rhetorical analysis, the messages in the popular streaming show 13 Reasons Why, and how the issues faced by the main characters Hannah Baker and Clay Jensen influence the young adults who watch the show. The show was introduced to provide awareness to teenage suicide by depicting the reasoning behind suicide as well as the aftermath. It is expected that the messages and interactions among these characters, as well as other main characters, will provide viewers with insight into how high school bullying affects the behavior of young teenagers. Overall, the ways that the characters handle the topics of suicide, bullying, and rape, are not cautionary, but damaging.

Response of the Fluvial Dynamics in the Lower Santee River to the Construction of the Santee Cooper Dams (Poster Presentation)

John Durica (Marine Science)

Faculty Research Mentor: Till Hanebuth, Marine Science

The Santee River Delta is located on the coastal plain of central South Carolina and drains the second largest catchment basin on the US east coast. The Santee system has remained widely void of modern infrastructure and development. In the 1940s, the Santee Cooper dams were constructed. These dams diverted the flow away from the lower Santee until the 1980s, and trap the sediment, assumedly reducing the natural sediment transport down to the delta and the coast.

This study attempts to document the changes in river bottom inventory through the acquisition of bathymetric data compared to a digitized bathymetric map from 1934-35, when the ICW was opened, artificially linking the natural river distributaries. For the systematic characterization and geographic distribution of sand bedforms, shallow seismo-acoustic surveys and sediment grain size analysis were performed, providing a detailed understanding of the hydrodynamic conditions and historic changes in the lower Santee.

Nevanlinna-Pick Interpolation Theorem on Some Certain Subalgebras of Bounded Analytic Functions (Oral Presentation)

Jeremiah Dunivin (Mathematics and Statistics)

Faculty Research Mentor: Debendra Banjade, Mathematics and Statistics

Let K be a subset of the set of positive integers and D be the open unit disk in the complex plane. Define, $H_\infty K(D) = \{f \in H_\infty(D) : f(k) = 0, \text{ for all } k \in K\}$. It is not necessary that all the subsets K form algebra $H_\infty K(D)$, for

example take the set $K = \{2\}$. We consider those set K for which $H^\infty K(D)$ is algebra under the usual product of functions. In this talk, we extend Nevanlinna-Pick interpolation theorem to $H^\infty K(D)$.

Effects of Seasonality and Sediment Permeability on Dissolved Inorganic Nitrogen in the South Carolina Grand Strand (Poster Presentation)

Alexus Echols (Marine Science)

Faculty Research Mentor: Angelos Hannides, Marine Science

A key component affecting the biogeochemistry of the sedimentary environment is pore water between grains of sediments. Sedimentary microorganisms are constantly modifying chemical compounds as part of their life functions which are then exchanged between the sediment column and the overlying water column. Dissolved inorganic nitrogen, a major element for life, takes on several forms including nitrate, nitrite, and ammonium which vary in concentration throughout the sediment and with respect to each other. The relative concentrations of these nitrogen species have been previously briefly explored in sandy columns, where redox gradients that control their relative concentrations can be fairly deep because of high permeability, the ability for fluid to flow through the sediment column. In this study, the dissolved inorganic nitrogen geochemistry is determined in swash zone sandy columns at four sites along the South Carolina Grand Strand, and variations are interpreted based on seasonality and sediment permeability.

Political Implications of the China-United States-Taiwanese Trilateral Weapons Trade (Oral Presentation)

Julie Emory (Intelligence and National Security)

Faculty Research Mentor: Joseph Fitsanakis, Politics

Relations between Taiwan and China have been characterized by conflict since the Republic of China (ROC) split from the Mainland Chinese government. The United States was instrumental in supporting the new government prior to normalization of relationships with Beijing in 1979. Increased weapons trade, particularly under current Trump and Tsai administrations, indicates the potential for revitalized conflict among China, the United States, and Taiwan. This research will consider implications for regional security in East Asia for a potential Strait Crisis. I assess, despite placing low likelihood on armed conflict, that Taiwanese firms will face increased pressure from the Mainland if trends of defensive articles trade between Taiwan and the United States continue.

Breaking Suicide and Depression (SAD) Initiative: Examining the Correlation between Screen Time and Mental Health (Oral Presentation)

Jeremy Evans and Hailey Wimmenauer (Public Health)

Faculty Research Mentor: Sharon Thompson, Public Health

Rates of mental health problems are rising with 6.7% of Americans adults experiencing at least one Major Depressive Episode in 2016 (SAMHSA, 2016). Roughly 1 out of 13 people aged 18-25 have serious suicidal thoughts (NSDUH, 2015). With South Carolina ranking 23rd in the nation for highest suicide rates (CDC, 2016), it is important to investigate potential causes. Advancements in technology have led to increases in screen time with the average American reporting 10.65 hours a day (NTAR, 2016). Researchers have reported that young adults who spend 5+ hours a day online are 71% more likely to experience a suicide risk factor (Clinical Psychological Science Review, 2018). Individuals may be unaware of the consequential negative effects of screen time, such as self-doubt and low self-esteem. In order to examine possible correlations between screen time, suicide, and depression, a survey was created and administered among undergraduate students. Results will be discussed. Doesn't seem to match title

Machismo in Mexico (Poster Presentation)

Haileigh Fickes (Communication)

Faculty Research Mentor: Mauricio Castillo, Languages and Intercultural Studies

Machismo is a concept in Latin America that leads to toxic masculinity. The result of this is that women are being negatively impacted. In lower classes machismo manifests itself through wife-beating, though this abuse is not limited to class. This custom ensures that gender-based violence, specifically against women, is not acknowledged in the law. Some laws even promote this violence. Machismo is deeply ingrained in Mexican society. When people don't express themselves with the implications of machismo, in relationships or when flirting, it is seen as "odd"

because using the system of machismo is the expectation. Several Latin American films play into the concept of machismo in one way or another, whether it is the forefront theme, or it is presented as an undertone. In my presentation I will discuss machismo, how it prevails in all the situations I just described, and its relevance to the Latin American films.

Microplastics in Fiddler Crabs (Poster Presentation)

Gabrielle Forbes (Marine Science)

Faculty Research Mentor: Eric Rosch, Marine Science

Microplastics, as defined by NOAA, are small plastic pieces less than five millimeters long, which cannot be seen with the naked eye. Plastic waste that has been thrown out by humans into the environment breaks down into microscopic pieces, causing harm to organisms that live there. The purpose of this study was to see if there were microplastics passing through fiddler crabs (genus *Uca*), collected from Waties Island, SC. Fecal samples from the crabs were teased apart and examined under a microscope to quantify number and types of microplastics present. Microplastics were found in almost every sample taken, indicating that microplastics are present in even in this relatively pristine environment. The effects of the intake of microplastics on fiddler crab survival and reproductive fitness will have profound impacts on other organisms through predation and other processes.

Modeling Protection Strategies Against Chikungunya Virus on Reunion Island (Oral Presentation)

Alex Foster (Applied Mathematics)

Faculty Research Mentor: Igor Erovenko, Mathematics

Chikungunya virus is a mosquito-borne virus that is often accompanied by chronic arthritis. The disease was relatively unstudied until an outbreak on Reunion Island in 2004 infected nearly a third of the population. This led to the creation of systems of differential equations to model transmission on this island. Here we look at preventing transmission with the use of mosquito repellent, and we construct a game-theoretic model where individuals choose how often they spray themselves with repellent. We find that as the cost of insect repellent decreases, compared to the cost of infection, the strategies of rational individuals results in a reduction of infectivity of the disease, but does not eliminate it.

Could Believing in Yourself and Listening to Music Improve Memory in College Students and Older Adults? (Poster Presentation)

Sydney Gemmell (Psychology)

Faculty Research Mentor: Terry Pettijohn, Psychology

Psychologists have been looking for ways to improve memory for countless years. The goal of this research is to add evidence to what can improve memory in college students and older adults. The hypothesis is that having higher confidence in your own memory abilities (self-efficacy) and listening to upbeat, classical music will improve memory recall in college student and older adults. In this study, 24 college students and 32 older adults were randomly assigned to one of the four experimental groups. The study is a 2x2x2 between-subjects design with three independent variables and three dependent variables. It was found that there was a significant main effect for sound and a significant interaction effect of self-efficacy x age group on the number of words remembered from the memory test. There was also a significant main effect for age group on the number of words the participants believed they could remember. It can be interpreted from these results that listening to classical music, as well as believing in your own memory abilities, can improve memory. In further research, experiments should focus on using several types of music and silence as a control group. Research could also focus on having a control group with no self-efficacy manipulation.

Godchildren, Soldiers' Boys, and Casualties: Children in Early Modern Village Society and the Thirty Years' War (Oral Presentation)

Samuel Graham (History)

Faculty Research Mentor: Shari Orisich, History

The Thirty Years' War which raged across Europe from 1618 to 1648 was the most deadly pre-modern war in terms of child deaths. This essay will examine the ties that bound children to village life in the regions of Hesse-Kassel and other regions of Germany, including Freiburg and Naumburg, and how the relationship between child and

village was torn apart by the Thirty Years' War. Through an examination of chronicles, account books and memoirs, this research will illustrate that children relied on ties of kinship, and demonstrate the danger that the fracture of these kinship bonds created for children who tried to survive this tumultuous period in European history.

Time Perspective, Personality, and Music Preferences (Oral Presentation)

Kassidee Hanshew (Psychology)

Faculty Research Mentor: Terry Pettijohn, Psychology

This research was conducted to establish a gap in the literature between Time Perspective and music preferences. The Zimbardo Time Perspective Inventory is a powerful tool used to establish a person's given time perspective. It is a set of 56 personality questions that yield five possible outcomes based on the results. This experiment predicted that a person's given time perspective, based on this inventory, would sway their preferences in music genres when asked to rate them on the STOMP-R. A supplemental test used during this study is the Consideration of Future Consequences Scale, which was used as an additional personality rating. Participants were given two samples of music to choose from, both were by Ed Sheeran, one which had 63 beats per minute whereas the other had 96 beats per minute. Research is currently being conducted to determine if the findings support the hypothesis.

Paired Ghost Crab Burrow Morphology: An Analysis of Shape, Angle and Seasonal Variation (Oral Presentation)

Bailey Harding (Marine Science)

Faculty Research Mentor: Eric Rosch, Marine Science

Ghost crab burrows are common sights on beaches year-round. However, paired burrows, or burrows with more than one opening are not as common and tend to show seasonal patterns in abundance, normally peaking during the warmest parts of the year. Previous work found sand compaction to correlate with single-entrance burrow morphology. The current project aims to apply these methods to paired burrows. Burrows were randomly chosen near the dunes at Huntington Beach State Park and casts were made using Plaster of Paris left to set for 45-60 minutes. After extraction, branch lengths and the angle between the two main branches were measured. Y-shaped burrows were the most common with branch angles varying between 34.9° to 82°. U-shaped burrows had the largest angle of 101°, and V-shaped burrows had 56° branch angles. Current analyses are focusing on beach characteristics and temporal patterns to elucidate any consistent trends in burrow morphology.

Dietary Analysis of Lionfish *Pterois volitans* from Discovery Bay, Jamaica (Poster Presentation)

Peyton Hartenstein (Marine Science)

Faculty Research Mentor: Erin Burge, Marine Science

Pterois volitans red lionfish are an invasive species in the Caribbean that originated from the Indo-Pacific region. Lionfish have a broad range of prey items they can consume, including small fishes and crustaceans. The objective of this study was to determine the dietary habits of lionfish in Discovery Bay, Jamaica, to examine correlations between the size of the prey and predator, and document feeding patterns of lionfish in Discovery Bay, Jamaica. It was found that common prey types in the stomachs of lionfish were unidentified teleosts and *Cinertorhynchus manningi*. There was a slightly positive correlation between the weight of prey found in lionfish and the actual length of the lionfish. This project provides a summary of the dietary habits of the lionfish present in Discovery Bay, Jamaica, while showing the relationship between prey size, and the size of the lionfish.

Grain Size Distribution of a Mesotidal Beach with Potential Implications for Ghost Crab Ecology (Poster Presentation)

Brittany Hartley (Marine Science)

Faculty Research Mentor: Bradley Craig, Marine Science

Geological depositional processes influence grain size, shape, and distribution. A preliminary study created a high-resolution surface sediment map of a beach environment at Waties Island. Dominant grain sizes were identified via sieving sediment samples from the backshore, foreshore, and nearshore beach zones. Nearshore and foreshore zones contained coarse-grained sand, but additionally had a substantial fine grain component. The sizes present in all three beach zones were on average fine-grained sand. Hurricane Florence may have brought fine grained surface sediment from the dune base through all three zones. An ongoing study is investigating the rebuilding of Waties Island's

shoreline and tracking changes to the sediment distribution, in addition to examining the relationship between grain size and ghost crab, *Ocypode quadrata*, burrow distribution and depth. Ghost crab burrows have been shown to be related to the health of the population and are a standard bioindicator of the beach ecosystem in general.

Optimization of the Bromination of the Bis-Furan Intermediate in the Synthesis of Phidianidine Analogues
(Poster Presentation)

James Hatton (Biochemistry)

Faculty Research Mentor: Bryan Wakefield, Chemistry

Alzheimer's Disease onset is characterized by memory loss due to extracellular deposits of amyloid B and plaque formation, often causing diminishing neurological synaptic functioning and neurodegeneration. Oxidative stressors, caused by radical oxidative species such as H₂O₂, have shown to enhance and/or initiate Alzheimer's disease through lipid peroxidation, DNA damage, and apoptosis. Phidianidine A analogues derived from *Phidiana militaris* have exhibited neuroprotective effects in neuroblastoma cell lines. Guo's group, through substituting the linker region of phidianidine A with a biaryl linker, showed the greatest of antioxidant activity against H₂O₂. The addition of aromatic compounds, 4-ethoxy benzene bound to furan, has shown potential in reducing H₂O₂-induced damage along with prevention towards oxygen-glucose deprived neurotoxicity. Development of further phidianidine analogues, such as replacing the 1,2,4-oxadiazole ring with a furan ring or substitution on the indole ring with additional aromatic substituents, may help to produce more potent ROS inhibitors. New phidianidine analogues will be synthesized through a cross-coupling approach that will enable the late stage installation of different aromatic groups and substituted indoles. A necessary step in this approach is the selective introduction of bromine to the 5-position of a substituted furan. A variety of conditions have been studied to identify the most effective procedure.

Density and Species Richness of Macrofaunal Benthic Bivalves in North Inlet, South Carolina (Poster Presentation)

Richard Hawley (Marine Science)

Faculty Research Mentor: Juliana Harding, Marine Science

Marine benthic bivalves are consumed by higher trophic levels. Bivalve species richness and density depend on temperature, salinity, and location. Biweekly core samples were collected from Bly Creek from 12/2017 to 12/2018. Benthic macrofaunal bivalves were counted and identified to describe density and species richness. Bivalves were also photographed for species identification. Bivalves composed 0% to 17% of the total macrofauna. The maximum bivalve density (14,281 bivalves/m²) was recorded on April 26, 2018. The fewest bivalves were observed from January through March 2018 and during November 2018. Four bivalve species were recorded during 2018; two species were present year-round. Peak Bly Creek bivalve densities in 2018 were 2-3 months offset from the historic (1981,1983) pattern of maximum annual bivalve density in January and February. Bivalve trends in 2018 were similar to those observed in 1985. Potential relationships between annual patterns of bivalve density and climate will be discussed.

Spatial Distribution and Behavioral Patterns in American Alligators (*Alligator mississippiensis*) at Huntington Beach State Park, SC (Oral Presentation)

Taylor Hayes (Marine Science)

Faculty Research Mentor: Eric Rosch, Marine Science

American alligators (*Alligator mississippiensis*) have essential roles in the healthy functioning of an ecosystem. Through predation, they help maintain a sustainable trophic balance. Recognizing the biotic and abiotic factors that govern where and when these animals reside in an environment is therefore crucial to understanding the dynamics of an ecosystem. The alligators residing at Huntington Beach State Park have a relatively stable ecosystem that allows them to interact with multiple species. The presence and behavior of other animals can have profound effects on the distribution of these large, apex predators. Here, alligators were observed through multiple seasons using a continuous sampling technique to discern any patterns in their distribution and behavior and what factors drive these patterns. Season, ambient temperature, breeding status, and presence of birds were all found to be correlated with the spatial distribution and behavior of the alligators at Huntington Beach State Park.

The Solar Impact: The Work of the Solar Ambassadors in Promoting Renewable Energy Sources (Poster Presentation)

Nakkara Hess (Interdisciplinary Studies)
Faculty Research Mentor: Pamela Martin, Politics

Our poster aims to share the work of the Solar Ambassadors with the wider community at Coastal Carolina University and future prospects for solar energy in South Carolina. Solar Ambassadors work with nonprofit organizations to install solar panels and educate the community about long-term benefits of solar. This research will integrate economic projections for energy markets, comparative policy analysis, and environmental concerns while simultaneously highlighting past projects.

Structured and Unstructured Movement in 5th Grade Classrooms: Effects on Students' Performance (Poster Presentation)

Caitlyn Hinnerschitz (Elementary Education)
Faculty Research Mentor: Richard Costner, Spadoni College

Research shows students need to experience integrated movement in the classroom every fifteen to twenty minutes (Jensen, 2000; Buskist, Gross, & Reilly, 2012). In this study, three Elementary candidates, each in a 5th-grade classroom, taught four identical content-area lessons. One candidate taught four lessons with no opportunity for student movement. A second candidate taught four lessons but implemented unstructured, free-form movement opportunities. Students were provided with opportunities to move throughout the instructional activities but were not required to do so. A third candidate taught four lessons but deliberately incorporated more structured movement into each learning activity. The students in this classroom executed a series of yoga-like calisthenics and orchestrated movements led by the candidate, who specifically required students to participate. Candidates used identical exit slips to assess the students after each lesson; analysis of the scores provides insight about students' movement and their academic performance.

Indole Addition to Benzylic Alcohols to Synthesize Phenyl Phidianidine Analogs (Poster Presentation)

Esther Holt (Biochemistry)
Faculty Research Mentor: Bryan Wakefield, Chemistry

Alzheimer's disease impacts people around the world and reactive oxygen species (ROS) may accelerate the onset and progression of the condition. The phidianidines are natural products that have neurological activity with analogs of these compounds being able to protect nerve cells from ROS damage. Our goal is to synthesize new analogs that can be tested to determine how specific structural changes impact the biological activity of these molecules. In particular, an analog that replaces the central 1,2,4-oxadiazole ring with a simple phenyl ring was examined and two methods for addition of substituted indole rings were evaluated. First, a two-step process that replaced the alcohol with a halide or sulfonate leaving group followed by displacement with indole was attempted but provided low yields. Currently, direct addition of the indole to the benzylic alcohol using transition metal catalysts is being attempted. Once completed, these new analogs will be tested to determine their ability to prevent ROS damage.

Changes in Teleost Fish eDNA Concentration Over the Tidal Cycle (Poster Presentation)

Brooke Horist (Marine Science)
Faculty Research Mentor: Robert Young, Marine Science

Environmental DNA (eDNA) is an effective tool for genetic monitoring of species in aquatic environments, based simply from water samples and without having access to the species themselves. Marine environments experience changes over the course of the tidal cycle, such that the concentration of marine life changes as water levels fluctuate. This study focuses on changes in the concentration of teleost fish eDNA in an estuarine system over the course of a tidal cycle. Triplicate 1L water samples were collected every two hours over three complete tidal cycles in Murrells Inlet, SC. Samples were filtered, DNA extracted, and DNA concentration was determined using PCR amplification, and gel electrophoresis. During the winter months, when fish movements in and out of the marsh are minimal, we suggest that changes in eDNA concentration reflect a dilution effect from changes in the volume of the marsh over a tidal cycle.

Exploring the Underwater Depths with an Autonomous Vehicle (Oral Presentation)

Katrina Hughes (Engineering Science)

Faculty Research Mentor: Louis Rubbo, Physics and Engineering Science

SeaGlide is an underwater, autonomous vehicle that moves forward by changing its buoyancy and pitch, causing it to glide up and down through the water without the use of a propeller. SeaGlide come as a do-it-yourself kit which includes instructions for assembling and programming a base vehicle. This project builds on the construction of one such SeaGlide by making modifications by adding pressure and temperature sensors, which are housed in an originally designed nose cone. The addition of a waterproof GoPro also allow a visual exploration of the underwater ecosystem. Together these modifications allow passive measurements in marine environments.

Mindfulness and Test Anxiety in College Students (Oral Presentation)

Savanna Ihrcke (Psychology)

Faculty Research Mentor: Melissa Paiva-Salisbury, Psychology

Anxiety levels among the United States population has been steadily increasing over the last decade. It is estimated that about 40 million people are currently diagnosed with severe anxiety disorders which accounts for 18% of the US population. One of the main focuses of someone who suffers from anxiety are ways to manage and/or control it. The main objective of this study is to examine the potential effects mindfulness practice has on test-anxiety in college students while also looking at rumination levels. In this independent sample study, 100 undergraduate students from Coastal Carolina University will voluntarily complete the State-Trait Anxiety Inventory, Test Anxiety Inventory, and a Post-Test Rumination measure. After conducting the study, results may show that with mindfulness practice, test anxiety and rumination levels may decrease however, future research is suggested in order to benefit society.

Applying the Jeopardy's format to a Strategic Case Analysis (Oral Presentation)

Alexa Jeacoma (Marketing)

Faculty Research Mentor: Janice Black, Management

A comprehensive strategic analysis on Revlon, Inc. was updated and the resulting pages include developed inferences of employment context on the firm and suggested solutions to them. The inferences are set up in a teachable, Jeopardy-style format, with a question and answer layout. The deliverables include a written report, public presentation of the results and an oral defense within the department.

Yoga, Working Memory, and Stress; Evaluating the Effects of a Singular Practice (Oral Presentation)

Stacy Kersey (Psychology)

Faculty Research Mentor: Miranda Brenneman, Psychology

Yoga has been revered in India for thousands of years for its beneficence to physical, mental, and emotional growth, and only over the last couple of decades have researchers begun to describe and explain the mechanisms by which yoga may make this growth possible. Previous studies have associated practicing yoga with improved measures of cognitive performance and decreased stress/anxiety. Most research on yoga has involved longitudinal designs, but very few studies have evaluated performance related to a single yoga session. Participants will be drawn through purposive convenience sampling; students who participate in yoga classes at Coastal will be asked if they would like to participate for ten minutes before and after a regularly scheduled yoga class. This study will use a quasi-experimental, test-retest, within subjects design to measure working memory and stress via forward and backward digit span tasks, and blood pressure respectively.

Norse Influence from America to Eurasia (Oral Presentation)

Kevin Kinneer (Anthropology)

Faculty Research Mentor: Carolyn Dillian, Anthropology

During the Viking Age, the Norse were able to leave a lasting influence around the world by spreading goods and knowledge. Trade goods such as furs, honey, and amber along with the knowledge of their shipbuilding and navigational techniques were able to be dispersed thanks to the maritime capabilities of the Vikings. Archaeological evidence of ports in locations as far east as modern-day Ukraine and as far west as North America lead to the beginning of Norse settlements. Some of these settlements contained luxury goods that were available along the Silk

Road which had been traded for the new resources the Norse could provide. In order for these goods to be traded there needed to be reliable methods of travel to explore to these faraway lands. Knowledge of shipbuilding methods can be seen from the excavations of Norse ships in Denmark and down the Atlantic coast.

Heavy Metal Uptake in *Donax variabilis* (Poster Presentation)

Logan Klinepeter (Marine Science)

Faculty Research Mentor: Kevin McWilliams, Chemistry

Donax variabilis, or the coquina clam, is a filter feeding invertebrate that is commonly found on the eastern coast of the United States, ranging from Texas in the Gulf of Mexico, to Virginia in the Atlantic. These organisms filter feed in order to obtain their food, and as a result, accumulate elements found in the water column. Some of these elements include the heavy metals, such as Cr, Ni, Pb, Al, and others. These heavy metals, while necessary in small amounts, can become toxic in higher concentrations. This project works with these coquina clams in order to determine the concentrations of these trace metals in the Grand Strand coastal areas in South Carolina, and provide evidence on the biomagnification of these elements in organisms in higher trophic levels. The determination of these concentrations were determined using a Shimadzu flame spectrometer.

Life After the Wall: The East German's Struggle to Establish Identity in United Germany (Oral Presentation)

Kristina Knudtson (History)

Faculty Research Mentor: Amanda Brian, History

In 1989, when the two Germanys reunited, it left East Germans in a country that they did not resemble the home they had known. This led to problems acclimating for East Germans that to this day are not fully resolved. I am using secondary sources about themes of identity post-Wende. I am using newspaper articles from 1989 and the anniversary issues that followed. It is clear not everyone was excited about this new life. Writers went in several different directions, some enjoying their new freedom to write what they choose. Many used satire to make their opinions known in their literature, using their stories as an escape, because the transition had been traumatic for them. Polls in 2010 showed that under half of Germany considered them a united people. I am currently looking for more recent interviews to see what the opinion is today, coming up on the thirty-year anniversary.

Semiotics in Interactive Film: Esthetical Analysis of Millennial Audience (Oral Presentation)

Maria Kozicki (Communication)

Faculty Research Mentor: Kyle Holody, Communication

This research will investigate Millennial's interpretation of the choices given during an interactive film. Using Peirce's esthetical approach in what he considers apart of normative science, I can focus on what feelings, thoughts, and prior experiences the viewer relied on during their sign-selecting interaction. The research will analyze the viewer's quality of the representative aspect in interactive film choices, and then will be compared to the viewer's interpretation on whether the choices taken were suitable for the film's objectivity.

Campaign Contributions and Congressional Sponsorship of Climate Change Policy (Oral Presentation)

Allison Lavalley (Political Science)

Faculty Research Mentor: Mikel Norris, Politics

Campaign contributions are made by political action committees and can often influence whether members of Congress will sponsor bills related to environmental policy. Previous research in this field has discovered a link between the mechanisms of funding and the influence of these contributors on congressional bill sponsorship. This includes a distinct funding method that can be used by a group to strategically channel its own interest into congressional legislature.

This research will attempt to measure the relationship between environmental PAC contributions and climate change bill sponsorship in the U.S. House of Representatives. This will be done using a sample from the last twenty years of

representatives, as well as public records of campaign contributions. If this link is discovered, it will discern the relationship between the influence of funding on climate change bill sponsorship or if bill sponsorship by a representative influences funding from action committees.

King James, Buckingham, and Their Lasting Effect on Great Britain (Oral Presentation)

James Lawler (History)

Faculty Research Mentor: Brian Nance, History

George Villiers was a favorite of King James, and the two enjoyed a deep, personal relationship. This presentation will argue that it was because of this relationship, that Villiers was raised to the title of Duke of Buckingham, and able to maintain political power he was not fit for. Villiers proved to be incompetent in his role as royal favorite, and his performance ignited feverish tensions throughout the social classes of Britain. This research will examine the heightened corruption of the Jacobian Court, especially at the hands of Villiers, as well as the unilateral legislation and taxation that turned Parliament and the general public against the Stuart monarchy. Villiers was also a major catalyst for religious unrest between the Catholic and Protestant populations. The results will show that the relationship between Villiers and King James devastated British society, ultimately culminating in the end of absolute monarchy in Britain.

Political Implications of the China-United States-Taiwanese Trilateral Weapons Trade (Oral Presentation)

Ryan Lawrence (Intel)

Faculty Research Mentor: Joseph Fitsanakis, Intelligence and National Security

Emerging in 2010, the Jalisco New Generation Cartel (CJNG) is one of Mexico's newest and most dangerous drug cartels. Its high degree of organization and sophistication has prompted the United States Department of Justice to describe it as one of the five most dangerous transnational criminal organizations in the world. This paper will focus on the current status and future trajectory of CJNG as it faces unprecedented levels of pressure from Mexican and United States federal authorities. Research will focus on the internal cohesion of the cartel, the status of its territorial control, as well as the ongoing development of its smuggling and distribution networks. The central question guiding this research is whether CJNG can survive and even consolidate its status as Mexico's most powerful drug cartel.

Modeling the Hammer Throw (Poster Presentation)

Samantha Layko (Applied Physics)

Faculty Research Mentor: Scott Carr, Physics and Engineering Science

The form of hammer has changed throughout its history, with different techniques implemented by different nations until a uniformly accepted style was adopted by Russia. This style of hammer throw was represented by the hula hoop model using an energy pumping mechanism to drive it. Improvements on the model will include the linear motion through the ring taken by the thrower, restricting the single support phase, and the upward lift during release. An attempted throw considers angular velocity and acceleration through an optimized angle for the farthest result. The resulting model should be able to have input values that determine the final velocity, acceleration, and distance the hammer travels.

Synthesis of Phenyl Analogues Replacing the Oxadiazole Ring of Phidianidines (Poster Presentation)

Kadarius Leake (Chemistry)

Faculty Research Mentor: Bryan Wakefield, Chemistry

Phidianidine analogues have been found to provide protection from nerve damage caused by reactive oxygen species (ROS) which can contribute to Alzheimer's disease. The synthesis of phidianidine analogues could lead to more effective compounds to prevent oxidative nerve damage and provide a better understanding of the mode of action. In previous syntheses have relied on constructing the central 1,2,4-oxadiazole ring to combine the indole and biaryl side chain which limits the types of analogues that can be constructed. However, the synthetic approach we are employing relies on Pd cross-coupling which will enable the 1,2,4-oxadiazole ring to be replaced and the importance of each individual atom on the ring to be determined. And this approach will also enable substituted indoles to be added in the final step so new derivatives can be constructed quickly. The synthesis of analogues that replace the oxadiazole with a phenyl ring is ongoing. The synthesis consists of two cross-coupling reactions, a selective

bromination, and reduction to provide an alcohol. This alcohol is the key intermediate needed for the introduction of indole rings and the completion of the synthesis.

Effects of Foam Rolling on Range of Motion and Vertical Jump Height (Oral Presentation)

Giovanna Leone (Exercise and Sports Science)

Faculty Research Mentor: Jason Smith, Kinesiology

Static stretching has been shown to elicit an acute improvement in range of motion (ROM) in both the contralateral and ipsilateral limb. However, static stretching has also been shown to impair performance. Foam rolling has been used in clinical settings as well as by the general population to increase ROM without impairing performance. To date, there is limited research evaluating the effect of foam rolling on the contralateral limb. Therefore, the purpose of this study was to explore the effect of foam rolling on ROM and single-leg drop jump performance in the foam rolled and non-foam rolled legs. The results of this study may help to understand the mechanism through which foam rolling can improve ROM.

Immunohistochemical Analysis of Tissue Hypoxia in Developing Gecko Brains (Oral Presentation)

Tessa Liner (Biology)

Faculty Research Mentor: Scott Parker, Biology

Reptile eggs can experience unpredictable shifts in O₂ availability during development. Decrease in O₂ may occur due to nest flooding, close packing of eggs, and nest microenvironment. We investigated effects of hypoxia on brains of *Chondrodactylus turneri*, and *Correlophus ciliatus* geckos using immunohistochemistry and light microscopy. Hypoxia treatments were applied after 75% of embryonic development was completed. Regional hypoxia was induced by covering 80% of egg surface area with paraffin wax and atmospheric hypoxia was induced by incubating eggs at 8% O₂. Eggs were sampled 24 h, 5 d, or 9 d after application of hypoxia treatments. Hypoxic regions of immunohistochemically-labeled brains were imaged using light microscopy. Embryo mass and developmental stage were quantified to assess effects of hypoxia on development. Immunohistochemical staining of gecko brains from both regional and atmospheric hypoxia treatments showed defined areas of O₂ depletion. Developmental hypoxia also reduced rate of development and growth in mass.

Functional analysis of Gordonia phage Kenosha (Poster Presentation)

Tessa Liner (Biology)

Faculty Research Mentor: Daniel Williams, Biology

Phages have become medically important as alternative therapies for the treatment of antibiotic resistant bacterial infections. In the fall of 2018, the Gordonia infecting bacteriophage Kenosha was discovered and isolated by Coastal Carolina University students. Bioinformatics tools such as DNAMaster, BLAST, and Phamerator can be used to annotate phage genomes and perform comparative analysis. We are currently analyzing Kenosha's 92 genes and determining the best supported functional predictions. Bacteriophages have been used as models for viral transfection and for understanding viral integration into host cells. By analyzing the genome of Kenosha, we introduce and begin to understand a newly discovered bacteriophage and how it may potentially be therapeutic.

Charcoal Wood Analysis of Brookgreen Gardens (Poster Presentation)

Steven Luse and Kaitlin Wood (History)

Faculty Research Mentor: David Palmer, Anthropology

Brookgreen Gardens is located on the former estates of four, 19th century South Carolina rice plantations. Between 2012 and 2018, Brookgreen was investigated by volunteers and CCU archaeology field schools. Most of the sites contained charcoal. The charcoal were remnants of fires or controlled burns on the plantation. In order to determine the wood type and species of the charcoal samples, microscopic analysis of pore type, vessel pattern, and ray arrangement were used. Most of the samples were softwoods, containing resin canals and tracheids. Using wood identification databases, it was concluded that most of the samples originated from yellow pine, specifically native longleaf pine. This indicates a predominance of longleaf pine on the Brookgreen plantation. Other tree species have

been identified. This was the first study of its kind done on the plantation, with it a shift in the ecology was identified, and it added to the historical record.

Personal Identity and Persistence through Time (Oral Presentation)

James Martin (Philosophy)

Faculty Research Mentor: Dennis Earl, Philosophy and Religious Studies

No abstract

Technological Hubris in Intelligence Collection During the Cold War: A Critique of Professor Kristie Macrakis' Theories (Oral Presentation)

Riley McCormick (Intelligence and National Security Studies)

Faculty Research Mentor: Joseph Fitsanakis, Politics

This research consists of a critique of Professor Kristie Macrakis' theory of technological hubris in intelligence communication during the Cold War era. Kristie Macrakis is a historian of science who specializes in technology in societies. She is the author of *Prisoners, Lovers, and Spies: The Story of Invisible Ink from Herodotus to Al-Qaeda and Surviving the Swastika*, among other books. Throughout much of her research, Professor Macrakis uses the term hubris, a Greek word that can be defined as extreme self-confidence or arrogance. Dr. Macrakis posits that the United States was arrogant and assumed the technology its intelligence agencies utilized made them better than the USSR's. However, she argues that technology actually prevents the development of the intelligence community. This research will provide a critique of Dr. Macrakis' theory on technology and intelligence.

ChipKill: The Power of Finite Fields (Oral Presentation)

Cannon McIntosh (Matha-Pre Engineering)

Faculty Research Mentor: Tom Hoffman, Mathematics

In coding theory, SECDED codes are commonly used. These codes are single error correcting and double error detecting. We will display the superior error correction capabilities of ChipKill error correction by analyzing the clever use of finite fields.

Rewards and Resistance: The Importance of Teaching Women's and Gender Studies at a Southern Liberal Arts Institution (Oral Presentation)

Krystina Millar (Sociology)

Faculty Research Mentor: Jaime McCauley, Sociology

Despite the criticism often directed towards women's and gender studies [WGS] due to the controversial course content and focus on feminist analysis, there are very few recent empirical studies on the experiences of faculty who teach WGS courses, particularly professors teaching in conservative areas. For this research, I conducted 30 interviews with faculty who teach courses related to WGS across disciplines at a medium-sized, Southern, liberal arts institution. Participants spoke about the importance of, and rewards associated with, teaching about gender. However, only half of participants reported that they integrate gender into their non-gender-focused courses. I argue that professors who teach WGS have positive experiences because many of them only teach gender in "special topics" courses into which students typically self-select based on title or course description. My findings suggest that professors' fear of student backlash, criticism from colleagues, and institutional sanctions may outweigh the positive aspects of teaching gender.

Double Jeopardy: Minority Stress and the Influence of Transgender Identity and Race/Ethnicity (Oral Poster)

Krystina Millar (Sociology)

Faculty Research Mentor: Jason Eastman, Sociology

This study assessed gender and racial/ethnic differences in gender-related discrimination and psychological distress within a sample of transgender and gender nonconforming individuals. Prior research suggests transgender individuals with multiple minority statuses experience higher psychological stress than their singly disadvantaged counterparts, and both minority race/ethnicity and transgender minorities experience more frequent and severe forms of discrimination than white and cisgender individuals. Using data from a convenience sample of 101 self-identified

transgender and gender nonconforming adults recruited through LGBTQ+ organizations from across North America, I analyzed the relationship between race/ethnicity, gender-related minority stress, and psychological distress. Gender-related discrimination and gender-related victimization did not significantly differ by gender identity or race/ethnicity. However, racial/ethnic minorities reported significantly higher psychological distress than white participants. While being a racial/ethnic minority may not directly worsen one's experiences with gender-related discrimination and victimization, other factors, such as experiences with race-related discrimination, may contribute to disparities in mental health.

Formal or Free?: Work as Work (Oral Presentation)

Allison Mitchell (English)

Faculty Research Mentor: Dan Albergotti, English

In the early decades of the 20th century, in practice and in self-reflection, American poets developed a variation to formal poetry, namely free verse. This variation was defined by what it was not. That is, it defied structured patterns of meter and/or rhyme. As free verse became the most common mode of poetry in the mid-1900s, it risked losing part of its identity that was once reliant on its deviation from formal practice. The question arises: What does free verse mean to a generation not steeped in formal tradition? How can you rebel against what you don't know? The focus of my research is to determine how much free verse has become untethered from formal verse and to what degree formal verse is still relevant in contemporary practice.

Addiction, the Hardest Battle (Oral Presentation)

Macy Moffatt (Communication)

Faculty Research Mentor: Wendy Weinhold, Communication

Sixteen days before my twenty-third birthday I had the shock of a lifetime, I called my father's phone.... only to have the other line answered by an unknown woman. The unknown woman on the other line was an investigator from the Philadelphia police department informing me that my father, who was only forty-five years old, had been found deceased in a motel room. I began hyperventilating, my whole body became hot and I can honestly say I have never felt so weak in my life. The horror of this news all came to its peak when I realized what had killed him, his addiction. For a large portion of my life my father had battled the hardest fight one could go through, his opponent was heroin. I have spent the past two years of my life educating anyone that would listen about the dangers of drugs, I plan to continue.

Changing Narcissistic Opinions with Use of Moral Framing (Oral Presentation)

Alyssa Molaro (Psychology)

Faculty Research Mentor: Melisa Paiva-Salisbury, Psychology

The purpose of this study is to test whether moral framing of a message has power to alter conservatives or liberals' sentiments on pre-existing political attitudes. More specifically, if people with narcissistic traits are more susceptible to a message if the overall tone is rooted within their personal beliefs. Politicians have been awarded the power of influence and in the age of technology, their values are plastered publicly, effecting people's opinions. Due to the authority politicians exert, it is pertinent to find what factors are motivating their political viewpoints. This study will aim to seek the value of camouflaging a message in flattered tones and the ability to change attitudes. By framing the nature of a message with the participant's ideal political morals, it can be inferred that conservatives will most likely be attracted to the pro-illegal immigration viewpoint while liberals will favor a more conservative-like attraction to illegal immigration.

Consensus Versus Independent Age Estimation of Muskellunge: an Analysis of Accuracy (Poster Presentation)

Joseph Molina (Marine Science)

Faculty Research Mentor: Derek Crane, Biology

Estimating the age of fishes is a key component of fisheries management and therefore understanding the validity of estimation methods is essential to appropriate management. A common method of age estimation requires the counting of annual growth rings, or annuli, found in cross sections of hard structures such as fin rays. Typically, as a measure of quality control, a consensus estimate is reached between two individual readers. In this study, we use the

fin rays of Muskellunge anal fins to determine if there is a difference in accuracy between independent age estimates and estimates reached by consensus.

Effects of Perceived Audiences on Discrimination Learning in Pigeons (Columbia Livia) (Poster Presentation)

Peyton Mueller (Psychology)

Faculty Research Mentor: Matthew Murphy, Psychology

This study aims to observe differences in the rates of learning a simple discrimination task in pigeons when presented with a video of a pigeon, a puppet, or no video. The audience effect has long been a topic of dispute among social psychologists, namely in why differential performance outcomes arise as a result of exposure to an audience or observer. There have been some studies on the social facilitation effect on nonhuman animals, most measured in terms of increased or decreased feeding habits; however, there are relatively few studies that attempt to measure the effect of an observer on a learning task, and fewer still that use perceived (i.e. nonphysical) audiences or observers. As such, the current study attempts to see what effects, if any, may arise as a result of the type of video presented with a discrimination task. Results and implications will be discussed.

Time Off and Turnover Intention Rates (Oral Presentation)

Kenzie Nash (Psychology)

Faculty Research Mentor: Marlena Ryba, Psychology

Previous research has identified a negative correlation between job satisfaction and turnover rates in organizations (Aydogdu and Asikgil, 2011; Bryant & Allen, 2013). As turnover can be extremely costly, understanding this relationship is imperative. The present study seeks to understand the relationship between time off and turnover intentions as well as the relationship between time off and job satisfaction, in an effort to contribute to the existing literature on reducing employee turnover rates through manageable organizational aspects. Participants in this study will be asked to report time off, then complete surveys measuring job satisfaction, using the Job in General and their turnover intentions, using the Turnover Intentions Scale-6. I hypothesize that this study will find a negative correlation between time off and turnover intention rates as well as a negative correlation between job satisfaction and turnover intentions. This study will provide insight for organizations concerned with turnover rates.

Vaccination Attitudes, Science Literacy, and Internet Use (Poster Presentation)

Sabrina Nelson (Psychology)

Faculty Research Mentor: Marlena Ryba, Psychology

In spite of the palpable effectiveness of vaccines in decreasing the fatality and anguish of infectious diseases, vaccination rates are diminishing worldwide. (Martin & Petrie, 2017). The aim of the proposed study is to assess the relationship between vaccination attitudes, science literacy, and internet use. Apprehension about vaccines facilitates the spread of contagious diseases that could otherwise be prevented and/or eradicated. This relationship will be assessed using three measures: the Science Literacy Questionnaire, (Impey, Buxner, Antonellis, Johnson, & King, 2011) a 12-question VAX Likert Scale to measure vaccination attitudes, (Martin & Petrie, 2017), and a Health-Related Internet Use Questionnaire (Jiang & Beaudoin, 2016). It is hypothesized that 1.) Vaccination attitudes will be negatively correlated with Science Literacy. 2.) Vaccination attitudes will be positively correlated with health-related internet use.

Does Gender Impact Impulsive and Risky Sexual Behaviors? (Oral Presentation)

Virginia Novak (Psychology)

Faculty Research Mentor: Melisa Paiva-Salisbury, Psychology

In past psychological studies researching impulsive and risky sexual behaviors were typically only studied in men (Derefinko et al., 2014). The purpose of this study is to further the research in men and to compare those traits between men and women. The study consists of two surveys and a demographic form; the study will be available to Coastal Carolina students via Coastal's SONA system. The two surveys being used are the Barratt Impulsiveness Scale (BIS-15) and the Sexual Risk Survey (SRS); the demographics page asks the participant their age, gender, and sexual preference. Participants will anonymously fill out the surveys and demographics page. This study will examine whether or not gender has an impact on impulsive and risky sexual behaviors. Possible implications of this study include intervention programs, updated sexual education, and using this research to further the study.

Effect of Hurricane Florence on Winyah Bay's Planktonic Population (Poster Presentation)

Zachary Palek (Marine Science)

Faculty Research Mentor: George Boneillo, Marine Science

Due to the increase of severe storms hitting the Atlantic coast over the years, it has been increasingly more vital to look into how these severe storms affect coastal estuaries ecosystems and watersheds across the eastern seaboard. Over a 12-week time period (8/26/2018-11/11/2018), we collected data on temperature, salinity, turbidity, secchi, dissolved oxygen (O₂), chlorophyll, phytoplankton, and zooplankton in the upper, middle, and lower bay of Winyah Bay. Three weeks after Hurricane Florence, the large input of freshwater caused salinity and temperature to decrease at all stations. Bottom O₂ had also decreased to 1.15mg/L in the upper bay, making parts of the bay hypoxic. The river runoff decrease chlorophyll concentrations and caused the demise of a long-standing *Skeletonema* bloom, which had started during the summer. The storm also affected zooplankton composition as the population, which was originally dominated by copepods and larvae, became dominated by freshwater ostracods.

An Analysis of Population Density and Body Condition in the Fiddler Crabs (Genus: *Uca*) Compared Between Areas of High and Low Levels of Human Disturbance (Poster Presentation)

Ann-Marie Pase (Marine Science)

Faculty Research Mentor: Eric Rosch, Marine Science

Human activities have detrimental effects on the growth and reproductive rates of marine organisms. A useful measure of animal health is body mass index, where is the mass of an organism compared to its size. Animals in areas of lower food quality and higher levels of stress tend to have lower BMI and fitness. Fiddler crab burrow densities and body density (body mass divided by body volume) were measured from disturbed and near-pristine environments to ascertain the effects of anthropogenic impact on the health of fiddler crabs. Because fiddler crabs serve vital ecological roles in marsh ecosystems, impacts on their fitness will have far-reaching effects on the rest of the marsh community. Burrow densities were nearly double in the disturbed site and body densities were consistently higher in the undisturbed site. These findings imply that stress from human activities may have substantial effects on their ability to grow and reproduce.

Inclusion of Age in Undergraduate Curricula: A Study of Literature Professors' Pedagogies (Oral Presentation)

Corryn Patterson (Philosophy)

Faculty Research Mentor: Cynthia Port, English

Omitting age studies from college curricula leaves stereotypes of aging unchallenged, perpetuating prejudice and lack of consideration for age among traditional undergraduate students. Research demonstrates that such stereotypes have health consequences for older adults. This evidence of a cultural idea that age is synonymous with deterioration and death significantly decreases older adults' will to live. Meanwhile, those aged 60 and over are expected to increase to two billion (21 percent) of the world population by 2050. The problem of leaving age out, then, is crucial to acknowledge. The college classroom is one place to address this, especially by using feminist strategies as a foundation for teaching age studies. However, awareness of and care for the issue are prerequisites for change. In this study, interviews are conducted with literature professors in the English department at Coastal Carolina University to survey importance of inclusion in curricula, through the particular lens of age.

Reacting to the Past: Engagement and Experiential Learning through Games (Oral Presentation)

Victoria Peck (History)

Faculty Research Mentor: Katie Clary, History

Reacting to the Past or RTTP games are becoming more popular in and out of the classroom. In RTTP students take on the persona of historical figures to debate and explore the major events and themes of historical events. This paper will demonstrate how these games can be used within a variety of different disciplines and how participation in the games enhance the students overall experience in the class. Through game play students gain valuable skills they can use in many aspects of their lives. The paper will take into account the experience from students with a variety of backgrounds to show how the reacting games benefited them as a student compared to traditional methods of education. This will result in demonstrating the use of Reacting games as a tool for education and engagement.

A Diverse and Abundant Fish Assemblage Revealed Using SharkCam Underwater Video Off Cape Fear, North Carolina (Poster Presentation)

Jessica Pollack (Marine Science)

Faculty Research Mentor: Erin Burge, Marine Science

SharkCam is a publicly accessible, underwater streaming webcam installed on the base of Frying Pan Tower, 60 km off the coast of Cape Fear, North Carolina. The camera is attached near the bottom in 15 m of water and surveys an expansive area of natural hard-bottom reef and anthropogenic debris rich in marine biodiversity. We have so far identified 113 species of fish that frequent the area, including 8 species of sharks. From over 800 video segments of 20 minutes each we have compiled approximately 12,000 occurrence records for 91 species of fishes. These records are being used to characterize the fish assemblage in terms of frequency of occurrence, seasonality, relative abundance (for 59 species), and environmental correlates. These observations will help describe fish community structure at Frying Pan Tower within the larger ecosystem and contribute to knowledge of diversity and abundance within the wider biogeographic region.

Popular Culture, Shakespeare, and Gender (Oral Presentation)

Dara Potts (Theatre)

Faculty Research Mentor: Robin Russell, Theatre

A gender role is the learned behavior of an individual considered acceptable by society in relation to their biological sex. We are examining the similarities and differences between the depictions of gender roles through theatre and film. We juxtapose two of Shakespeare's plays to modern movie adaptations of the same stories to compare and contrast the gender roles of Elizabethan times and today. William Shakespeare's Twelfth Night is the basis for the 2006 film She's The Man, and The Taming of the Shrew is the basis for the 1999 film 10 Things I Hate About You. The female leads in the plays and films display behavior contradictory to conventional gender roles of their respective times. Shakespeare's plays were popular entertainment during Elizabethan times and films are a key component of popular culture today. Popular culture influences stereotypes, including overgeneralizing female gender roles. We examined the ways these plays and films overgeneralize female gender.

Best Practices Outward Looking Communications of Student-run Agencies (Poster Presentation)

Kyla Powell and Hannah Wolf (Communication)

Faculty Research Mentor: Jeffrey Ranta, Kinesiology

Current integrative learning opportunities in communication include establishing and managing student-run agencies (SRA)s performing "real work for real clients." Designed to create an atmosphere of credibility which mimics professional advertising, public relations and full-service consulting agencies, the (SRA) assumes habits and practices found in the agency business model including outward looking branded communications: web sites, blogs and social media. This content analysis of SRA websites explores best practices to include displaying of student-produced client work, recruiting new clients, recruiting new students, building community between the agency and host university and showcasing student members. Key implications of this study include SRA pedagogy, skills development, branding, and establishment of student professional identity in the student-run agency practice.

The Effect of a Warm-up and Foam Rolling on Hip Adduction Range of Motion (Poster Presentation)

Amber Rahman (Exercise and Sport Science)

Faculty Research Mentor: Chad Smith, Kinesiology

It is a generally accepted practice that a warm-up be completed prior to an athletic event with the intention of improving performance. An active warm-up can increase muscle temperature, which can have several benefits including reduced muscle and joint stiffness. Furthermore, there is some evidence to suggest that a warm-up could improve range of motion (ROM). Foam rolling has gained popularity with the general population recently in an effort to treat muscle soreness, improve recovery, and improve ROM. In addition, foam rolling can improve blood flow to the tissues. Most studies evaluating the effect of foam rolling on ROM have utilized a warm-up in addition to the foam rolling. Therefore, the purpose of this study is to determine the contribution of a warm-up and foam rolling, separately and combined, to improving ROM. The results of this study will increase our knowledge about appropriate foam rolling guidelines to effectively improve ROM.

Abundance Estimate of the Common Bottlenose Dolphin (*Tursiops truncatus*) in the Charleston Estuarine System Stock (Poster Presentation)

Lola Renauer (Marine Science)

Faculty Research Mentor: Robert Young, Marine Science

An abundance estimate for the Charleston Estuarine System Stock (CESS) of common bottlenose dolphins (*Tursiops truncatus*) was last determined based on abundance surveys conducted between 2004 and 2006. Estimates greater than eight years old are not accepted for the stock assessment reports, required under the amended 1994 Marine Mammal Protection Act. The goal of this study was to generate an updated abundance estimate for the CESS. Photo-identification surveys were conducted from May to early October 2017, spanning from Price Inlet, SC to the North Edisto River, SC. Dorsal fin photographs and survey data were managed using the program FinBase and closed-population stock abundance was estimated using program R's package Rcapture, using only dorsal fin photographs meeting criteria for fin distinctiveness and photographic quality. A preliminary estimate based on analysis of three of the six surveys yielded an abundance estimate of 738 dolphins (95% C.I. 519-1049, CV=0.18).

The Impact of Stress Ball Density on the Categorization of Sexual Orientation, Race and the Level of Certainty in College Students (Poster Presentation)

Lillian Rios-Brady (Psychology)

Faculty Research Mentor: Miguel Holmgren, National Institutes of Health

Participants (N=67) were asked to squeeze a hard (N=34) or soft (N=33) stress ball in their non-dominant while completing an online demographic and categorization survey. It was found that Caucasian participants in the soft stress ball condition were more likely to label the androgynous face as gay than the Caucasian participants in the hard stress ball condition. It was also found that there was an own-race preference for the biracial female face. Both African American and Caucasian participants were more likely to label the biracial male face as Black, but African American participants felt more certain in this decision than Caucasian participants. Participant sex was also found to influence categorization. Male participants were more likely to label the androgynous face as straight and the biracial male as White, and females were more likely to label the androgynous face as gay and the biracial male as Black. Implications will be discussed.

Native American People and their Adaptation to Late Holocene Sea Level Rise (Oral Presentation)

Billie Rogers (Anthropology)

Faculty Research Mentor: Carolyn Dillian, Anthropology

Beginning 4,000 years ago, sea levels stabilized after years of rising due to melting ice and glacial forebulge subsidence from the Ice Age. The rising sea created new saltwater marshes that took many years for organisms such as shellfish and saltwater plants to colonize. The stabilization of these marshlands most likely increased the value of their resources to the Native Americans who lived around these areas. Shell middens and rings have been found along the southern east and gulf coast of the United States. However, the exact use and reason for the locations of these rings are still being theorized. Using shell midden sites at Hobcaw Barony, South Carolina as a case study, this project will examine how people adapted to the changing sea levels in the Late Holocene.

Assessing and Improving the Support for South Carolina FIRST LEGO League Coaches (Oral Presentation)

Tanner Saussaman (Applied Physics)

Faculty Research Mentor: Louis Rubbo, Physics and Engineering Science

The FIRST LEGO League is a robotics program for children ages 9 to 14, which encompasses late elementary to middle school kids. The main goal of FIRST is to inspire young children to participate in STEM (science, technology, engineering, and math), but also to teach the values of hard work and cooperation. In South Carolina there over 2,250 children divided into teams of up to ten kids. With this, one hurdle FIRST faces is in the aspect of coaching. Some coaches have a vested interest in STEM and robotics, while others are chosen by their school or administration. Because of this, many coaches do not feel they are well equipped to coach such teams. Through the use of a post-season coach survey, we identified and developed new policies and materials to aid coaches in fostering an interest in STEM in young children.

Two Makes a Couple: Fictions on Intimacy (Poster Presentation)

Brittany Shaughnessy (Communication)

Faculty Research Mentor: Andrea Bergstrom, Communication

Fought for nearly twenty years, the Vietnam War divided America. Americans knew that their country was at war but did not see one battle coming: the invasion of Vietnam into their living rooms. Americans felt as if they were meeting the soldiers that were fighting and watching battles unfold in real-time. Many broadcasts showed the parts of war that were not typically discussed at that time, such as dead and injured soldiers and American marines burning homes of the elderly Vietnamese. In response, part of the nation garnered a negative view of the war. This research uses a textual analysis to analyze how five CBS broadcasts were put on air, and how word choice, natural sound, and setting changed the way a country sees a war. It was found that the war was often broadcast with a hostile point of view and was not supportive of the American strategy.

Gilmore Girls: A Year in the Life: A Critical Analysis (Poster Presentation)

Brittany Shaughnessy (Communication)

Faculty Research Mentor: Deborah Breede, Communication

This research focuses on *Gilmore Girls: A Year in the Life*, a Netflix-original revival spin-off of the popular drama-comedy series of the early 2000s, *Gilmore Girls*. Women and minorities remain underrepresented in U.S. media, and when they are represented, such portrayals are often in stereotypical and regressive (Bindig & Bergstrom, 2014). This project highlights the production and character choices within the show and considers potential audience interpretations, as aspects of the show both reinforce and challenge many existing representations of gender (Hall, 1999). The research at hand explores themes surrounding the representations of women: striving to be unlike their mothers, and being a “good” woman versus a “bad” woman (Wood, 2007, p. 261). Finally, the project speaks to the utopian society depicted within the *Gilmore Girls* and how this may play a role in the series’ appeal. It was found that stereotypes remain prevalent, 16 years after the premiere.

Age and Self-Serving Bias in the Classroom (Oral Presentation)

Alexandra Shifflett (Psychology)

Faculty Research Mentor: JongHan Kim, Psychology

Who do we blame for the bad grades we receive? The answer tends to be professors. Who we choose to blame for the grades we earn is up to us. Yet it is common for us to take responsibility for our high grades and blame external sources for our low grades. This is known as self-serving bias. Eliminating self-serving bias in the classroom could improve the learning environment. To eliminate self-serving bias in the classroom we must be aware of the various aspects that cause it. One of these aspects would be age. To determine whether age effects self-serving bias in the classroom we must look closer at the student and professor relationship. The focus of this study is to determine if the amount of self-serving bias in a classroom increases when a significant age gap is introduced between the professor and student.

Analysis of Horizontal Axis Wind Turbine with Nonlinear Leading Edge Blade (Poster Presentation)

Victoria Slifka (Marine Science)

Faculty Research Mentor: Roi Gurka, Coastal and Marine Science Systems Science

Wind energy is an attractive source for electricity because it generates minimal greenhouse gases and no pollution when in operation. Harvesting energy from wind turbines and their mechanical efficiency depends on its blades geometry. The common blades are configured using classical airfoil theory. We investigate the potential utilization of nonlinear swept blade geometry as a mean to increase efficiency. The nonlinear swept blade is inspired by the swift bird who can fly continuously for 10 months nonstop. In this study, a new wind turbine blade, inspired by the nonlinear swept configuration of the swift bird wings, is tested and compared to a linear swept blade. The turbines wake region were measured using Particle Image Velocimetry (PIV) in a flume. PIV provides the spatial distribution of instantaneous velocity fields at the wake. The wake flow dynamics were analyzed and compared providing a benchmark to evaluate the performance of nonlinear swept blades.

Testing Designs for the More Efficient and Effective Mosquito Trap (Poster Presentation)

Zahra Slimani (Interdisciplinary Studies)

Faculty Research Mentor: Paul Richardson, Chemistry

Mosquitoes are known to spread diseases throughout communities, including viruses, referred to as arboviruses. In 2017, DHEC reported 158 incidents of arboviruses in South Carolina, including Eastern Equine Encephalitis, West Nile, Dengue Fever, and Zika virus. The infections rate was up from the year before, when 124 incidents of arboviruses were reported. Monitoring of these infected mosquitoes can be a valuable asset for proper health protection in a community. The project objective is to collect mosquitoes and test them for the presence of infectious viruses. Before finding the viruses, an effective and efficient way to catch these mosquitoes must be found. Several mosquito trap designs were tested during the spring, summer, and fall of 2018. The number of mosquitoes caught was the sole factor that differentiated each trap. Based on data collected, it was determined that one mosquito trap design was more effective and efficient than the other designs.

Optimizing illuminating conditions of ROS in *Caenorhabditis elegans* (Poster Presentation)

Alysia Smith (Biology)

Faculty Research Mentor: Daniel Williams, Biology

Reactive oxygen species (ROS) are implicated in neurodegeneration that relates to several human health conditions such as Alzheimer's and Parkinson's disease. *Caenorhabditis elegans* is a type of nematode that is used as a genetic model organism because of their well-established nervous system. Our lab uses a transgenic strain of *C. elegans* that expresses KillerRed in the GABA neuron. Illumination of these animals activates KillerRed and produces ROS, causing degeneration of GABA neurons and results in the loss of motor function. Our goal is to optimize illuminating conditions on populations of worms as a possible model of testing therapeutics.

13 Reasons Why or Why Not: Depicting Teenage Suicide in Streaming Media (Oral Presentation)

Maria Sparacino (Psychology)

Faculty Research Mentor: Terry Pettijohn, Psychology

Recent research has shown that a visual prime can serve to remind people of their health goals and result in better regulation of eating behavior in tempting situations (Papies & Hamstra, 2010). Given the recent popularity of fitbits, the present study sought to determine if a fitbit would prime healthy eating behaviors in stressful situations. Forty-one participants were randomly assigned to a high or low stress condition, which was manipulated through the use of the Stroop Test. Participants were also randomly assigned to wear a fitbit or not. Participant's food preferences for high carbohydrate, high fat, and low energy foods were assessed through the Macronutrient Preference Checklist- Modified for use in North America following the stress manipulation. Contrary to the researcher's hypothesis participants with a fitbit were more likely to make unhealthy eating choices. Reasons for this unexpected trend, as well as considerations for future studies are discussed.

Examining Food Insecurity Among Undergraduates at Two- and Four-Year Public Institutions of Higher Education in South Carolina (Poster Presentation)

Katie Steig (Public Health)

Faculty Research Mentor: Sharon Thompson, Health Science

Food insecurity, a major health crisis, is defined by the USDA as a lack of consistent access to enough food for an active, healthy life. At the low to very low levels of food insecurity there may be anxiety about food shortages and consistent reduced food intake. This problem is especially detrimental for college students as it is associated with increased numbers of missed classes, increased course drops rates, and the inability to afford textbooks. Researching and learning more about the issue of food insecurity is crucial to promote student's academic success and to promote, educate, and expand on resources for students to access nutritious food. This study examined rates and perceptions of food insecurity among undergraduates at South Carolina 2- and 4-year higher education public institutions. Results will be discussed.

Taking Initiative in a 3rd Grade Classroom: Comparing Gifted and Talented and General Education Students (Oral Presentation)

Alexandria Steinmetz (Elementary Education)

Faculty Research Mentor: Richard Costner, Elementary Education

Many gifted students may be so far ahead of their same-age peers that they know more than half of the grade-level curriculum before the school year begins (NAGC, 2009). However, when presented with the option of additional practice materials in the classroom, both groups of students desire the opportunity to improve their skills. In this study, one Elementary candidate placed a sample of practice materials at the front of a classroom occupied by Gifted and Talented students and at the front of a classroom occupied by General Education students. The students in both classes were made aware of the optional practice materials available to them. Completed practice materials were collected from the students, counted, and documented. The comparison of the number of practice materials completed by Gifted and Talented students and General Education students provides insight on how the two groups differ in initiative.

The Impact of Narration on E-Learning Outcomes (Oral Presentation)

Kallie Stephens (Psychology)

Faculty Research Mentor: Marlena Ryba, Psychology

Multiple factors have shown to be related to e-learning outcomes (Jung & Rah, 2000). The aim of the current study is to determine if retention of material delivered via an online learning module will differ based on the gender and skill level of the module narrator. Participants will be randomly assigned to complete one of four modules which vary in the gender and type of narration (i.e. untrained versus trained). Participants will then complete a quiz on the material delivered through the module, as well as an exit survey assessing their satisfaction with the narrator. It is hypothesized that retention of the material within the module, measured by percentage of correct answers on the quiz, will differ based on the gender and type of narration, such that retention will be higher among those in the trained condition. Identifying relevant factors in e-learning settings ensures that learning outcomes are met.

Prince Fellows 2018/2019 Research

Brandon Stone (History)

Faculty Research Mentor: Jack Roper, History

In Horry and Georgetown counties during the early to mid-1950s (so called Jim Crow Era of segregation) schools were created to educate white and black students on different levels. Since Jim Crow was the organizing principle for such exclusionary public educational policy, the study inevitably becomes political and involves some concept of agency, or struggle to avoid victimhood and be as autonomous as possible. Many of these schools dedicated to the black community were one room or very small. These schools were not given the same resources as regular state-funded institutions. Nevertheless, teachers and students created a sense of “agency” for the entire community. We have researched in local museums, interviewed students of schools, and graduates of all black schools. Our goal is to preserve their history before it is forgotten and provide these alumni with a tribute to their education.

Lebanon and the Taif Agreement (Oral Presentation)

Tiffany Strange (Oral Presentation)

Faculty Research Mentor: Christopher Gunn, History

This paper explores Lebanon and its state following the Lebanese Civil War in 1975, specifically after the incorporation of the Taif Agreement in 1989. Beginning with the current state of Lebanon and its fragility that began long before the Lebanese Civil War and working towards the integration of the Taif Agreement, we see both the accomplishments and the shortcomings of the Taif Agreement regarding political instability and power, decisions to prevent future war and destruction, and correcting mistakes of the past. Looking at Lebanon’s current state, and what has and has not been accomplished since the shift; we are faced with the question of whether or not the Taif Agreement was successful, as the “saving grace” of the Lebanese people. Is it possible for there to be a brighter outcome/future for Lebanon, or is it more likely that there will be little to no change?

College Freshmen Behaviors and Perceptions about E-Cigarettes (Poster Presentation)

Tessa Taylor (Public Health)

Faculty Research Mentor: Elizabeth Carter

In recent years, an emerging trend of increased e-cigarette usage has raised concerns about potential negative health outcomes that may be associated. Specifically, from 2011 to 2013, there was a 30.04% increase in e-cigarette usage among middle and high school students, and a 30.2% increase by college students. Observed increases in e-cigarette

use and the potential associated health problems has sparked an interest in individuals' behaviors and perceptions regarding the issue. Because of this trend, Coastal Carolina University's social norms campaign created a survey in the spring of 2018 to study the prevalence and perceptions about e-cigarette usage that exist on CCU's campus. The purpose of this study is to discover differences between the perceptions and behaviors of CCU freshmen and upperclassmen regarding e-cigarette usage by analyzing the data collected by the Wally Social Norms Campaign

Exercise Intensity, Energy Expenditure and Enjoyment During Variable High Intensity Exercise in Healthy Adults (Poster Presentation)

Jenna Thompson (Exercise and Sports Science)

Faculty Research Mentor: Justin Guilkey, Kinesiology

Examine exercise intensity, energy expenditure (EE), and perceptual responses to work-matched moderate-intensity exercise (MIE) and variable-intensity exercise (VIE). On separate days, the exercise bouts were performed in a counterbalanced order. Oxygen consumption (VO₂) and heart rate (HR) were averaged over the bout. OMNI ratings of perceived exertion (RPE) and affect, via Feelings Scale, were measured in-exercise and enjoyment was measured post-exercise using the physical activity enjoyment scale. During VIE and MIE, HR and percent of maximal HR were significantly different. Absolute VO₂ during VIE and MIE were 1.42±0.22 L·min⁻¹ and 1.27±0.24 L·min⁻¹, respectively (p=0.13). The intensities relative to VO₂max were similar between bouts. Total EE of VIE and MIE were 212.5±32.3 kcals and 189.4±36.3 kcals, respectively (p=0.12). In-exercise affect and post-exercise enjoyment were greater in VIE than MIE, but RPE was similar. VIE was perceived as more enjoyable, while eliciting a greater HR response and similar energy expenditure as MIE.

Exploratory Movements of Leopard Geckos in Visual and Non-visual Environments (Poster Presentation)

Rob Tracey (Biology)

Faculty Research Mentor: Ryan Yoder, Psychology

Most animals rely on familiar visual landmarks to guide navigation, but non-visual cues can guide navigation in darkness or in unfamiliar environments. Visual and non-visual navigation in mammals has been the focus of numerous studies, and this research demonstrates that mammals establish "home bases" to which they frequently return during exploration of a novel environment. This organization of movement suggests the animals are forming a cognitive representation of the environment, but no studies have tested whether reptiles navigate in this manner. To gain insight into the cognitive similarities between species, we evaluated the organization of open-field exploration in leopard geckos in darkness and in light. Measures include the number and locations of stops and progressions, distance traveled, and speed of movement. A similar organization of exploratory behavior between reptiles and mammals suggests that this behavior may have been established before the evolutionary split of mammals and reptiles ~200mya.

Examining Levels of Food Security Among College Students and Food Bank Participants: The Hunger Reduction in Vulnerable Environments Project (THRIVE) (Oral Presentation)

Rachael Trudon (Sociology)

Faculty Research Mentor: Sharron Thompson, Health Science

Food insecurity is defined as "household-level economic and social condition of limited or uncertain access to adequate food" (USDA). Nationally, 12% of households are estimated to be food insecure while the rates in South Carolina and Horry county are 18% and 14%, respectively. Food insecurity also affects 25% of two-year and 20% of four-year college students. To examine food insecurity an online and paper-pencil survey using the USDA's Household Food Security Survey Module was developed. Most survey participants (n=1,299) were 4-year college students (68.3%) followed by 2-year college students (15.5%), food bank participants (7.3%), and community members (4.7%). Most food bank participants identified themselves as low/very low food secure (50.5%) whereas 16.9% and 11.1% of 2-year and 4-year undergraduates identified themselves as having low/very low food security. Further outreach via educational efforts, policy changes, and awareness are needed to find solutions to prevent hunger.

Effects of Emotional Valence and Depth of Processing on Memory (Oral Presentation)

Lauren Tyndall (Psychology)

Faculty Research Mentor: Matthew Murphy, Psychology

This study looks at the relationship between emotionally charged words and the depth at which information is processed and how this relationship affects memory. It is predicted that emotional stimuli make the depth of processing process easier, resulting in the negatively charged, deeply processed words being recalled most frequently. Participants will be presented with stimuli using a word task and then take a memory test. Responses to the memory test will be measured via Qualtrics. Results and implications will be discussed.

Impact of Nuremberg Laws on Jews (Oral Presentation)

Elizabeth Vermont (History)

Faculty Research Mentor: Christopher Gunn, Psychology

Before the Holocaust was fully happening the treatment of Jews in Germany began deteriorating in the late 1920's early 1930's. As the German government attempted to sway the population against Jews various propaganda pieces were put out, some directly influencing children such as children's books, and laws were put into place preventing Jews from truly being German citizens. The treatment of Jews was a slow decline as the Aryans slowly had to form the ideas that the Jews, and other atypical people, were truly second-class citizens to the Aryans. By creating a feeling of disdain towards the Jews, the German government was able to begin implementing the Nuremberg Laws which economically, politically, and socially ruined and ostracized the Jewish population. These laws and lack of intervention provided a stepping stone in which the Germans could eventually begin the Final Solution and begin exterminating the Jews, people they saw as inferior.

Familiar Changes (Oral Presentation)

Corie White (Communication)

Faculty Research Mentor: Kate Oestreich, English

The purpose of this project was to investigate the validity of Marshall McLuhan's signature phrase, "the medium is the message." In the exploration of film, new media, and culture, the importance of the means by which a message is communicated is considered just as salient as the message itself. This collection of treated pages was inspired by Tom Phillip's work in *A Humument*. Phillips utilized the existing structure in the original novel, *A Human Document* by W. H. Mallock, and transform it into an artist's book. Similarly, I altered a few pages from *The Woman In White* by Wilkie Collins. The intent was to create a symbiotic relationship between the individual pages and the collection as a whole.

The Continuation of a Composition of an Unfinished Mozart Flute Concerto (Oral Presentation)

Brenna Wiinanen (Music)

Faculty Research Mentor: Donald Sloan, Music

Wolfgang Amadeus Mozart wrote many works, but only a few for the flute, including an unfinished concerto containing only the second movement (*Andante in C for Flute, K315*). This project is the continuation of the composition of a third movement, situated in the theoretical analysis of Mozart's concerti for piano, wind instruments, and violin. The length and number of phrases within the refrain will be studied as well as the transition from the tonic to the dominant. This research will allow for the heightened understanding of the formal and stylistic approaches to the third movements of his concerti and thus provide the means to a refrain for the third movement to Mozart's *Andante in C* as well as provide a new interpretation of Mozart's concerti. A presentation of this research will include a short discussion followed by a performance of the newly composed refrain to the third movement.

The Effect of Foam Rolling on Post-Activation Potentiation Responses (Poster Presentation)

Hailey Wimmenauer (Exercise and Sports Science)

Faculty Research Mentor: Jason Smith, Kinesiology

Post-activation potentiation (PAP) refers to an acute increase in performance as a result of a conditioning stimulus such as heavy back squat. Previous research has documented improvement in several athletic parameters, including jump performance, as a result of PAP. However, the conditioning stimulus can also induce fatigue, thereby, impairing the effect of PAP induced increase in performance. Recent research has shown that foam rolling can enhance recovery from exercise. The purpose of this study was to investigate the effects of foam rolling and heavy back squats on vertical jump performance. Therefore, it was hypothesized that foam rolling immediately following

the PAP stimulus may lead to a quicker recovery from fatigue effects while allowing the individual to capitalize on the PAP induced increase in jump performance. The results of this study may inform strength and conditioning coaches about the necessary program design variables in order to capitalize on PAP effects.

Screening for Pseudo-nitzschia along the Grand Strand (Poster Presentation)

Ivy Wise (Biology)

Faculty Research Mentor: Megan Cevalco, Biology

The widespread diatom genus *Pseudo-nitzschia* is a human health concern as many species within the genus produce the neurotoxin domoic acid. When populations of *Pseudo-nitzschia* are present, the domoic acid they produce can accumulate in the tissue of filter feeding organisms (e.g. crustaceans and shellfish) and the concentrated neurotoxin is passed on to consumers of these filter feeders. Multiple species of *Pseudo-nitzschia* were identified using DNA sequence data recovered from the waters of oyster harvest areas in Huntington Beach State Park, SC in the summer of 2018. Based on these data, additional water samples were collected from Grand Strand locations representing varied levels of human impact. The presence of *Pseudo-nitzschia* in collected waters was determined using both culture and molecular (PCR) techniques.

Effects of Moderate versus Variable High Intensity Cycling on Metabolic Responses during Recovery (Poster Presentation)

Matthew Wolfe (Exercise and Sports Science)

Faculty Research Mentor: Justin Guilkey, Kinesiology

Examine oxygen consumption (VO₂), energy expenditure and respiratory exchange ratio (RER) during recovery following moderate-intensity exercise (MIE) and variable high intensity exercise (VIE) in healthy adults. METHODS: Two experimental conditions (MIE/VIE) were randomized/performed on separate days fasted. Total duration and total work were matched. NetVO₂ was calculated as the VO₂ above resting VO₂. Energy expenditure (EE) and fat oxidation rate (FatOx) were calculated. VO₂ and RER responses were compared. RESULTS: During recovery, net VO₂ decreased in both conditions. No differences in net VO₂ between conditions during recovery. During VIE/MIE, RER was 1.02 ± 0.4 and 0.96 ± 0.06, (P=0.06). During recovery, RER was lower in VIE compared to MIE at 30 and 45 minutes. FatOx near end of recovery was significantly greater in VIE than MIE. CONCLUSION: NetVO₂ and EE were similar during recovery, VIE appears to alter fuel utilization patterns during recovery to lower RER and greater fat oxidation.

Nutrient Cycling in Sandpiper Pond: A Local Estuarine Assessment (Poster Presentation)

Nicholas Workman (Marine Science)

Faculty Research Mentor: Angelos Hannides, Marine Science

Sandpiper Pond is a coastal pond at Huntington Beach State Park, South Carolina. Originally a tidal inlet surrounded by marshland, it was isolated in 1989 and rechanneled in 2004-2005 under a community-based wetland restoration project. The project was designed to restore the pond to a tidal inlet to improve water quality and biodiversity. Since then, the tidal connection with the ocean has been severed once more and the main influx of seawater occurs from the marsh during spring high tides. In this three-month study, the current state of Sandpiper Pond is evaluated using fundamental biogeochemical indicators that are indicative of the character (marine vs fresh water) and water quality (eutrophic status) of the pond. Biweekly sampling events are used to investigate and compare the conditions in the pond, ocean and marsh, and indicate whether the intentions of the 2004-2005 restoration project are still satisfied to this day.

Justification of Effort Effect for Mental and Physical Tasks (Oral Presentation)

Jarrold Worley (Psychology)

Faculty Research Mentor: Matthew Murphy, Psychology

Effort of justification studies have shown people would value the outcome of a difficult physical task more than an easy physical task when given the same reinforcement. Effort of justification studies have not often been done with mental tasks. We tested whether Justification of Effort would apply to cognitively difficult and easy tasks by giving participants hard and easy word searches. The participant was then given a colored reward token with a positive picture and phrase, such as a cartoon frog with the phrase "good job" on it. We compared preferences for these

tokens with preference for similar tokens after difficult and easy manual tasks. Results and implications will be discussed.

Breaking Suicide and Depression (SAD) Initiative: Examining the Correlation between Screen Time and Mental Health (Poster Presentation)

Ruth Wright (Biology)

Faculty Research Mentor: Karen Aguirre, Biology

Pathogenic fungi have been suggested to inhabit sand, especially yeast. Sand was collected and sterilized from commercial, residential and private beaches to examine ability to support pathogenic yeast growth. Three species of pathogenic yeast identified in a previous study by this lab grew at similar rates on all three types of sand, despite differences in sand particle size and composition. These results argued against an abiotic cause of differential growth rates that was seen in the previous study. Sand from a high-census, high recreational use beach was collected according to a scheme designed to test several hypotheses as to how organisms are introduced, now assuming biological origin. The collection was made from areas adjacent to the swash, as well as following the ingress of people. Data suggests that organism deposition arose primarily from recreational beach goers themselves.