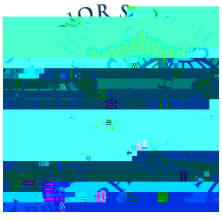

FLORIDA

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Fall 2024 Fiat Lux

A Celebration of Florida Southern College Student Scholarship and Research

November 20, 2024

Welcome!

Florida Southern College fosters an environment where students actively transition from being consumers of knowledge to becoming scholars who create new knowledge, insights, connections, and understanding. For over 20 years, students have gathered at the end of each semester to present and discuss the scholarly work they have been doing in and beyond their courses.

The goal of Fiat Lux is twofold: to provide students with a platform for their ideas, and to provide the wider community a window into the creative and intellectual energy that pervades our campus. Today's event provides a singular opportunity to publicly share the meaning and joy of scholarly inquiry.

We encourage you to take part in as many sessions as you can! Enjoy the conversation.

Schedule

11:00am-11:15am	Welcome	Dr. Carrie Ann Hall
	Opening Remarks	Provost Tracey D. Tedder
	Schedule Overview	Dr. Kristen Carter
		Becker Business Building Lobby
11:20am-12:20pm	Presentations	Becker 111, 115, 116, 205, 209, 210

Fall 2024 Fiat Lux Presenters - By Last Name

Room	Time	First Name	Last Name	Major	Title
115	11:20-11:40	Sofia	Aras	Marine Biology	Eastern Oyster Habitat Suitability Model
111	11:40-12:00	Luci	Bermudez	Integrative Biology	Digenean Parasites of Bats from Panama and their Associations with Bacterial Endosymbionts in the Genus Neorickettsia
205	11:20-11:40	Isabelle	Bieber	Biology	Intergenerational Learning in Conservation Biology: Using Collaboration Between Generations in Environmental Education
209	11:20-11:40	Aiden	Coffey	Computer Science	Digital Pathology: The Study of AI on the Cellular Level
210	12:00-12:20	Joseph	Giannone	Art History and Museum Studies	Pigment Identification Using Multispectral Imaging Method
210	11:40-12:00	Delaney	Harris	Marine Biology	It's Raining Sharks and Rays: Investigating Spatial Ecology of Elasmobranchs in Tampa Bay
210	11:20-11:40	Molly	Kennedy	Marine Biology	Kennedy
				Marine Biology	You Are What You Eat: Using Molecular Tools to Study Tapeworm Life Cycles in Young-of-the-Year Bull Sharks Carcharhinus leucas
111	11:20-11:40	Olivia	Migliorato	English	Exclusive Shakespeare: The Intersection of Race and Gender in Shakespeare's "Antony and Cleopatra" and "Titus Andronicus"
205	11:40-				

Fall 2024 Fiat Lux Presentations - By Room

Room 111

11:20-11:40 Olivia

Room 210

11:20

Presentations

In alphabetical order by presenter’s last name.

Student: Aras, Sofia
Major: Marine Biology
Faculty Mentor: Lauren Griffiths
Presentation Time: 11:20-11:40
Presentation Type: Oral Presentation
Room: 115

Title: Eastern Oyster Habitat Suitability Model

Abstract: Eastern oysters are a keystone species that offer numerous ecological advantages, including providing habitat for estuarine animals like fish, crabs, and shrimp. As filter feeders, they improve the water quality by consuming algae, removing it and other pollutants such as nitrogen from the waterway. Consequently, this improves seagrass health and support additional aquatic species. Oysters also preven the erosion of nearby shorelines and decrease wave energy. Unfortunately, oyster habitat has bee decline in recent decades due to human activity. To help aid restoration efforts, we created a habitat suitability model for eastern oysters in Sarasota County that incorporated current seagrass habitat, boat channels, and water depth in order to predict areas that would be most suitable for oyster habitat. This provides information to land managers who can use the information to inform restoration decisions to help the eastern oyster population thrive before they go extinct and changes are irreversibl An interactive map was created that allows individuals to identify areas that are most and least optimal to support oyster habitat. This project is important to show how various factors affect eastern oysters and provide a framework to aid in restoration which will help us understand how other species that are dependent on them will be affected.

Student: Bermudez, Luci
Major: Integrative Biology
Faculty Mentor: Christopher Brandon
Presentation Time: 11:40-12:00
Presentation Type: Oral Presentation
Room: 111

Title: Digenean Parasites of Bats from Panama and their Associations with Bacterial Endosymbionts in the Genus Neoricke1 1 Td-e[(oc)4 (i)-2 (a2 (s)-1 Bd9 0 Tw 2.61 0 Td ( )Tj EMC /P <<3MCID 10 >>BDC /T

Student: Bieber, Isabelle
Major: Biology
Faculty Mentor: Ashley Bowers Macrander
Presentation Time: 11:20-11:40
Presentation Type: Honors Presentation
Room: 205

Title: Intergenerational Learning in Conservation Biology: Using Collaboration Between Generations in Environmental Education

Abstract: As the human population continues to grow and deplete natural resources, modern society has significantly, and negatively, impacted the environment, both in terms of supply and demand for limited resources and how ecosystems function. In order to protect and conserve Earth's biodiversity, educational outreach plays a pivotal role. Traditional conservation measures in educational programming have lacked effectiveness and community participation. Intergenerational learning (IGL) is an alternative approach to help address the challenges and deficiencies in other conservation education methods. IGL represents a potential bridge between generational gaps by promoting educational interactions between younger and older individuals. IGL highlights the vital role of children in conservation initiatives. Children have creative minds and unique perspectives, which have the potential to teach and influence their parents and/or guardians. When considering that environmental issues are often divisive, this approach could be a key pathway in spreading awareness about conservation. To examine the effectiveness of IGL in conservation and environmental education, I will examine knowledge and learning in a middle school science class. Data is collected through three surveys: pre-activity and post-activity surveys to gauge the effectiveness of instruction, and a survey sent home to the parents to analyze the efficacy of IGL.

Student: Coffey, Aiden
Major: Computer Science
Collaborators: Mindy Cook, Joseph DeMarco, and Brendan Whitmire
Faculty Mentor: Hoan Ngo
Presentation Time: 209
Presentation Type: Oral Presentation
Room: 11:20-11:40

Title: Digital Pathology

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in the Alafia River Estuary from Tampa Bay, Florida. It is hypothesized that these sharks are primarily preying upon Hardhead Catfish Ariopsis felis and Striped Mullet Mugil cephalus; and we have collected larval tapeworms from these potential intermediate hosts that we will attempt to molecularly match to our adult worms from the Bull Shark.

Student: Kennedy, Molly Major: Marine Biology
Faculty Mentors: Melanie Langford, Gabriel Langford, and Allison Durland Donahou
Presentation Time: 11:20-11:40 Presentation Type: Oral Presentation
Room: 210

Title: Isolation and Assessment of Antibacterial Properties of Microbes Sampled from the Epidermis of Juvenile Bull Sharks, Carcharhinus leucas, and Cownose Rays, Rhinoptera bonasus, in Tampa Bay

Abstract: Antibiotic resistance of pathogenic bacteria has become increasingly problematic as more strains of resistant bacteria, which presents new issues to treating bacterial infections. With antibiotic resistance rising and antibiotic options becoming more limited, there is great interest in the development or discovery of new antibiotics. Shark and ray (elasmobranch) skin is composed of epidermal scales, known as dermal denticles, which allow sharks to reduce drag in the water and swim more efficiently. Elasmobranch skin is well known for its antimicrobial properties, however, its microbiome is very understudied. Therefore, we sought to study the microbial communities that are present on the epidermis of juvenile bull sharks, Carcharhinus leucas, and Cownose Rays, Rhinoptera bonasus, and their properties. During the summer of 2024, we obtained swab samples from juvenile bull sharks Bull Sharks, Carcharhinus leucas, and Cownose Rays, Rhinoptera bonasus, from Tampa Bay, FL. In the lab, we cultured bacteria from swab samples, and isolated them into pure cultures. Finally, we tested the bacterial isolates for antibiotic resistance and antibiotic production.

Student: Migliorato, Olivia Major: English
Faculty Mentors: Catherine Eskin and Jennifer Leigh Moffitt
Presentation Time: 11:20-11:40 Presentation Type: Honors Presentation
Room: 111

Title: Exclusive Shakespeare: The Intersection of Race and Gender in Shakespeare's "Antony and Cleopatra" and "Titus Andronicus"

Abstract: Until the past decade, the discussion of the intersectionality of race and gender in Shakespeare has been avoided by scholars. Race itself has been especially controversial, with most scholars agreeing that viewing Shakespeare's works through the lens of racism was anachronistic and

performances, and scholarly texts, I will examine the long-term effects of whitewashed casting, binary representation, and exclusive marketing geared toward cis-gendered, older, and White audience. My study will be presented in three sections: theoretical contexts, application of theory to the plays, and the embodiment (professional and existential) of characters' intersectional identities.

Further analysis will use generalized linear mixed models (GLMMs) to provide a better understanding of the data collected. Changes in behavioral responses to images of modified facial markings indicate owl monkeys are sensitive to visual cues and may use these cues in intraspecific communication.

Student: Sarte, Catherine
Major: Computer Science
Faculty Mentor: Hoan Ngo
Presentation Time: 11:40-12:00
Presentation Type: Honors Proposal
Room: 209

Title: Integrating Artificial Intelligence into Psoriasis Severity Diagnosis and Management

Abstract: Psoriasis, a chronic autoimmune skin disorder affecting approximately 3% of the western population (Schaap et al., 2022), requires prompt identification and accurate assessment to ensure effective management and prevent complications (Zhao et al., 2020). However, current clinical diagnostic methods often suffer from delays and inaccuracies, complicating the assessment process. To address these challenges, I propose the development of a mobile application that automates psoriasis severity indexing, physician global assessment, and body surface area tracking, utilizing an artificial intelligence (AI) model inspired by Hung et al.'s SkinTeller application (2023). This application will incorporate an image analysis module using a vision transformer (ViT) for processing and analyzing skin images, in comparison to a convolutional neural network (CNN) model. The transformer can identify

Notes:

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