



# 2017 Fall Fiat Lux

A showcase of Florida Southern College  
student scholarship, creative works, and research.

Friday November 10th, 2017

3:00–4:30 pm

Christoverson Building

## Fiat Lux Presentation by Student Last Name

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Room	Time	First	Last	Major	Title of presentation
<b>ROOM 208</b>					
CH 208	3:00 to 3:15	Ashley	<b>Berniche</b>	Environmental Studies	Potential Colonization of Pine Flatwoods by Non-Native Plant Species
CH 208	3:20 to 3:35	Sabrina	<b>Chianese</b>	History	Crime, Childhood, and Poverty in Victorian England
CH 208	3:40 to 3:55	Nicola	<b>Horwood</b>	Biology	Concurrent Activation Potentiation and its Effect on Velocity during a Trap Bar Dead Lift
CH 208	4:00 to 4:15	Bailey	<b>Schreiner</b>	Business Administration	Business and the Church
CH 208	4:20 to 4:35	Caitlin	<b>James</b>	English Literature	Gender and Genre: Historical Fiction.
<b>ROOM 209</b>					
CH 209	3:40 to 3:55	Emily	<b>Santoli</b>	Biology	The epigenetic effects of a paternal high-sugar diet in <i>Drosophila melanogaster</i>
CH 209	3:20 to 3:35	Alexandra	<b>Stark</b>	Marine Biology	Potential impacts of the invasive giant apple snail ( <i>Pomacea maculata</i> ) on the distribution and foraging behavior of a native predator, the limpkin ( <i>Aramus guarana</i> ) in Central Florida
CH 209	3:00 to 3:15	Laura	<b>Vander-Starre</b>	Exercise Science	Measuring the Nutrition Knowledge of Division II Athletes
CH 209	4:00 to 4:15	Nicholas	<b>Trainer</b>	Chemistry	Greener Synthesis of Poly-(p-phenylene) derivatives

## Abstracts

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**Name:** Berniche, Ashley

**Major:** Environmental Studies

**Presentation Room:** CH 208

**Presentation Time:** 3:00 to 3:15

**Faculty Mentor:** Kjellmark, Eric

**Mentor's Academic Unit:** School of Arts and Science

**Title:** Potential Colonization of Pine Flatwoods by Non-Native Plant Species

**Abstract:** Pine flatwoods represent the largest terrestrial ecosystem in Florida. They are characterized by a mixture of longleaf pine and slash pine trees and sandy, poorly drained soils. Pine flatwoods are fire dependant, so they require frequent burning to prevent overgrowth of oak and palmetto species. Human disturbance and fire suppression has lead to a decrease in pine flatwoods ecosystems that are intact and the introduction of non-native species has resulted in a loss of the high biodiversity usually seen in pine flatwoods. Colt Creek State Park in Lakeland, Florida represents a pine flatwood that is relatively untouched by human activity. The objective of this study is to determine whether invasive species are colonizing the intact pine flatwoods ecosystems. It will also be determining whether native species are re-colonizing highly disturbed areas mostly occupied by non-native species This proposed study will provide a better understanding of how non-native and invasive plant species interact with native plant species in pine flatwoods ecosystems. Understanding how the pine flatwoods are affected by non-native species will give better insight into more effective conservation methods and aid in preventing the spread of invasive species. .

**Name:** Chianese, Sabrina

**Major:** History

**Presentation Room:** CH 208

**Presentation Time:** 3:20 to 3:35

**Faculty Mentor:** Vause, Erika

**Mentor's Academic Unit:** School of Arts and Science

**Title:** Crime, Childhood, and Poverty in Victorian England

**Abstract:** During the Victorian Era, Great Britain saw an alarming increase in crime and juvenile delinquency. Several arguments from the publications of the time period attributed this spike in crime to the effects of poverty. According to many writers, poverty led to alcoholism, inadequate schooling, and a poor understanding of proper morals, which made people turn to crime. They further argued in favor of establishing reformatory schools to rectify these effects. This presentation examines court cases of the time period from London's Old Bailey Criminal Court, alongside the Victorian-era works that present these poverty-based arguments, to look at how the defenses made by the accused criminals fit these arguments. I argue that while poverty cannot be discounted as a potential cause of crime because of the goods that were stolen and cases where stolen goods were sold, emphasizing a lack of moral understanding does not explain increased juvenile delinquency. Indisputably guilty defendants' attempts at feigning innocence and the existence of repeat offenders indicate that at least some knew what they were doing was wrong and that they would be punished, and that the turn to crime more likely happened because of poverty's more tangible effects.

## Abstracts

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**Name:** Horwood, Nicola

**Major:** Biology

**Presentation Room:** CH 208

**Presentation Time:** 3:40 to 3:55

**Faculty Mentor:** Allen, Charles

**Mentor's Academic Unit:** School of Arts and Science

**Title:** Concurrent Activation Potentiation and its Effect on Velocity during a Trap Bar Dead Lift

**Abstract:** Concurrent activation potentiation (CAP) is a method of performance enhancement that involves remote voluntary contractions (RVC). Examples of RVCs include jaw clenching and opening, the Valsalva maneuver, and hand gripping. There are two possible explanations for CAP: motor cortex overflow and pre-synaptic inhibition. These theories explain how more muscles fibers are activated, and how they are activated quicker compared to normal. CAP has been previously shown to increase the rate of force development and muscle activity in dynamic and isometric movements. My proposed research is to test if velocity is increased with CAP during a sub-maximal dynamic movement. This will be tested using the trap bar dead lift exercise while the subject is standing on a force plate and with a velocity measuring device on the bar. Three trials will be completed: the control, jaw clenched, and jaw opened.

Electromyography (EMG) will also be used to analyze the electrical activity of the prime movers and the jaw. If the research shows an increase in velocity, CAP can be further implicated in sports settings.

**Name:** James, Caitlin

**Major:** English Literature

**Presentation Room:** CH 208

**Presentation Time:** 4:20 to 4:35

**Faculty Mentor:** Eskin, Cat

**Mentor's Academic Unit:** School of Arts and Science

**Title:** Gender and Genre: Historical Fiction

**Abstract:** Women writers have changed how we view history. Historical fiction was at first a male-dominated genre which told tales of monarchs and war. Thanks to the work of feminists, who have reinvented the genre, historical fiction has grown in popularity and subject matter. First and foremost, historical fiction has changed how history is presented to and consumed by popular audiences. Readers have demanded and received new approaches to historical topics and writers have jumped in to fill the gaps in the topics the genre includes. Those who have not seen themselves represented in academic literature (women and minorities, e.g.) have helped to change the literary culture. The "feminization" of the genre has been positive, though popularity has not always been good for academic authors, who struggle to have their work accepted. My research, which interrogates three novels, will explore twentieth-century popular historical fiction written by women and how the genre plays a role in how our society engages in learning about history.

## Abstracts

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**Name:** Santoli, Emily

**Major:** Biology

**Presentation Room:** CH 209

**Presentation Time:** 3:40 to 3:55

**Faculty Mentor:** Morvillo, Nancy

**Mentor's Academic Unit:** School of Arts and Science

**Title:** The epigenetic effects of a paternal high-sugar diet in *Drosophila melanogaster*

**Abstract:** As the rate of type 2 diabetes mellitus steadily increases in the United States and the adverse health effects of insulin resistance in humans are examined, developing a greater understanding of the epigenetic mechanisms that contribute to this disease has become a major priority in the medical community. It is known that genetics is a factor in susceptibility to the development of type 2 diabetes, but the epigenetic factors that also contribute to this disease have yet to be studied in detail. *Drosophila melanogaster* is a widely utilized model organism because of the prominent genetic similarities to mammalian pathologies and metabolism. *Drosophila* insulin-like peptides (DILPs) share sequence, structural and functional similarities with insulin in vertebrates. The insulin/insulin-like signaling pathway (IIS) in *Drosophila* is propagated by DILPs, regulated by nutrition, and analogous to the insulin pathway in humans. This study examines the DNA methylation of the DILP genes when the first generation of male flies are fed varying levels of sugar in their diets.

## Abstracts

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**Name:** Schreiner, Bailey

**Major:** Business Administration

**Presentation Room:** CH 208

**Presentation Time:** 4:00 to 4:150

**Faculty Mentor:** Hamilton, Brian

**Mentor's Academic Unit:** School of Arts and Science

**Title:** Business and the Church

**Abstract:** The purpose of my research is to attempt to define the relationship between business and the church. I commence by studying and articulating both practical and theoretical definitions of what I mean by "business" and "the church", while leaving room for the complexities of each to be dwelled upon. My primary assertion is that the relationship between business and the church, with some work, can be mutually beneficial. I contend that business can inform and transform the way Christians act in the church, and vice versa. I come to my conclusions by way of and in conversation with such works as Max Weber's *The Protestant Ethic and the Spirit of Capitalism*, Kathryn Tanner's *Economy of Grace*, and Stephen Bush's *Visions of Religion*. Another component of my research is attempting to convert common business tools, such as marketing plans, into church-friendly forms. I am seeking to identify the needs of church leaders via surveys and personal interviews while studying what these business tools can offer them. My intent is to aggregate these converted tools into a website I have developed to display my research, which is housed at [thebusinessofthechurch.org](http://thebusinessofthechurch.org). My hope is that this research, in the long-run, may be used to help church leaders become more efficient and effective in their ministries, to help business leaders find value in religious beliefs and influences, and to create more dialogue between these two parties.

## Abstracts

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**Name:** Stark, Alexandra

**Major:** Marine Biology

**Presentation Room:** CH 209

**Presentation Time:** 3:20 to 3:35

**Faculty Mentor:** Wolovich, Christy

**Mentor's Academic Unit:** School of Arts and Science

**Title:** Potential impacts of the invasive giant apple snail (*Pomacea maculata*) on the distribution and foraging behavior of a native predator, the limpkin (*Aramus guarana*) in Central Florida

**Abstract:** The introduced giant apple snail (*Pomacea maculata*) has invaded central Florida and is likely to threaten wetland communities. Invasive apple snails outcompete native apple snails, decrease water quality and negatively impact food webs. Some native predators, however, may gain benefits from the giant apple snail invasion. Anecdotal evidence suggests that there are more limpkins (*Aramus guarana*) in central Florida since the onset of the giant apple snail invasion. I will survey populations of giant apple snails throughout Polk County, FL using mark-recapture techniques. Limpkins will be censused using transects and behavioral observations will be used to examine foraging behavior. A positive correlation is expected between the apple snail and limpkin populations across the lake communities within Polk County. I hypothesize that limpkins (*Aramus guarana*) will have greater foraging efficiency in areas with giant apple snails than in non-invaded areas. I will generate maps of the current distributions of both the giant apple snails and the limpkins in Polk County using GIS software to determine the percentage of their ranges that overlap. These data can be used in the future to determine if the additional spread of the giant apple snail precedes an increase in the range of the limpkins.

**Name:** Trainer, Nicholas

**Major:** Chemistry

**Presentation Room:** CH 209

**Presentation Time:** 4:00 to 4:15

**Faculty Mentor:** Bromfield-Lee, Deborah

**Mentor's Academic Unit:** School of Nursing and Health Science

**Title:** Greener Synthesis of Poly-(p-phenylene) derivatives

**Abstract:** Semiconductors are an important part of the electronics we use in our everyday lives, but they can be both expensive and harmful for the environment. Organic semiconductors offer an alternative that is both green and efficient to manufacture. In my research, I have been working on a greener synthesis of poly-(p-phenylene) derivatives containing electron withdrawing side chains. Thus far, I have been working on the first step of the synthesis which involves a Diels-Alder with 1,4-diphenyl-1,3-butadiene as a diene and various electron withdrawing molecules as dienophiles. For this reaction, I have found a method with mild acidic catalysts that results in excellent yield. To conclude, I have been working towards synthesizing organic semiconductors as an environmentally friendly alternative to the widely used inorganic semiconductors. For this, I have found working reaction methods for the first step of synthesis towards these materials. When finished, these materials could have possible applications in organic light emitting diodes (OLEDs), organic photovoltaic cells (solar panels), and more.

## Abstracts

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**Name:** VanderStarre, Laura

**Major:** Exercise Science

**Presentation Room:** CH 209

**Presentation Time:** 3:00 to 3:15

**Faculty Mentor:** Terrell, Sara

**Mentor's Academic Unit:** School of Nursing and Health Science

**Title:** Measuring the Nutrition Knowledge of Division II Athletes

**Abstract:** This presentation will illustrate the current status of research on this topic and identify gaps of knowledge in the current understanding. Additionally, proposed research methodology will be discussed. The purpose of this research is to identify the general nutrition and sports nutrition knowledge of NCAA Division II athletes. Previous research has shown a lack of nutrition knowledge among Division I collegiate athletes, but to my knowledge, no study has investigated the nutrition knowledge of the Division II athletic population. Survey research will be conducted to measure the general nutrition and sports nutrition knowledge of Division II athletes at Florida Southern College. A research questionnaire adapted from the General and Sport Nutrition Knowledge Questionnaire (GeSNK) will be distributed to all Florida Southern sports teams via email and results will be analyzed to determine the levels of nutrition knowledge of the athletes. The findings of this research will provide information that can form the basis for any nutrition education program that might be necessary to address inadequacies found among Division II collegiate athletes.