

# 2021 Spring Fiat Lux

A Celebration of Florida Southern College  
Student Scholarship and Research

Thursday, April 29, 2021  
2:00pm–7:30pm



Sponsored by the Florida Southern College Chapter of the Honor Society of Phi Kappa Phi

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# 2021 Spring Fiat Lux

A Celebration of Florida Southern College Student Scholarship and Research

April 29, 2021

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, our 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 and the Fall Academic Showcase is twofold: to provide students a platform for their ideas, and to provide the wider community a window into the creative and intellectual energy that pervades our campus. Especially during an academic year impacted by COVID-19, today's event provides a singular opportunity to publicly share the meaning and joy of scholarly inquiry.

Fiat Lux begins at 2:00 in the Fiat Lux Hub. Participants can access the Hub throughout the event by clicking the Fiat Lux Hub Zoom link (Meeting ID: aaa bbbb cccc). Presentations and poster presentations will be hosted in Zoom breakout rooms as indicated in the program. These rooms can be accessed once Fiat Lux begins. To move from room to room, simply return to the Hub and connect to another presentation.

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

## Schedule

2:00-2:20	Welcome	Dr. Brian Hamilton
	Preliminary Remarks	Provost Brad Hollingshead
	National Fellowships and Awards	Dr. Jennifer Leigh Moffitt
	Introduction of Emerge Scholars	Associate Provost Tracey Tedder
	Fiat Lux Hub, Click to Join	
2:20-7:00	Presentations	Breakout Rooms 1-6
	Click to Join Hub, then connect to Breakout Rooms	
7:00-7:20	Poster Presentations	Breakout Rooms 1-7
	Click to Join Hub, then connect to Breakout Rooms	
7:20	Closing Remarks	Dr. Carrie Ann Hall
	Fiat Lux Hub, Click to Join	

Fiat Lux at Florida Southern College

<https://www.flsouthern.edu/events-center/special/fiat-lux.aspx>

## 2021 Fiat Lux Presentation Schedule

	<b>Room 1</b>	<b>Room 2</b>	<b>Room 3</b>	<b>Room 4</b>	<b>Room 5</b>	<b>Room 6</b>
<b>2:20</b>		Lea Schiefele	Giselle Soto	Steven Badorf		Catherine Hall
<b>2:40</b>	Nathan Hallmark	Morgan McDermott	Isabel Arcusa	Linlee Franklin	Juliana Rossini	Dylan Oliver
<b>3:00</b>	Madeleine Schabes	Connor Bligh	Rachel Breitenbach	Breanna Curran	Lexi Nate	Drake Rekve
<b>3:20</b>	Alivia Baxmann	William Draper	Benjamin Marusko	Jack Wilkens	Rebecca Rodriguez	Catherine Stogner
<b>3:40</b>	Jack Trimble	Macey Tipton	Ryan Vassalotti	Kira Freijo	Kailey Buczek	Hannah Flemming
<b>4:00</b>	Korinne Mills	Jacqueline Carlton	Julia Legiec	Emily Giddens	Grace Stec	Morgan McDermott
<b>4:20</b>	Candace Metcalfe	Sophie Talbert	Meaghan Lake	Jessica Davis	Brooke Lowery	Christian Roston
<b>4:40</b>	Emily Rozen	John Lewis	Gabrielle Risko	Mary Elizabeth Craine	Mario Pineda	Natalia Schulz
<b>5:00</b>	Hunter Desilets	Madison Santore	Stephanie Burnette	Corinna Robinson	Kelley Breeden	Julia Simpson
<b>5:20</b>	Faez Hamcho	Felicia Coursen	Zoe Potter	Regina Sandberg	Samantha Brewer	Kaitlynn Swanbeck
<b>5:40</b>	Kayleigh Mazariegos	Sarah Bliss	Catherine Fox	Alayna Goll	Charissa Schwartz	Tyler Williams
<b>6:00</b>	Bailey Martin	Grace Newton	Amy Wieleba	Jadin Dewith	Benjamin Silva	Noelle Gascon
<b>6:20</b>	Nicholas Andriani	Rachel Hagan	Molly Cole	Erin Cagle	Amanda Cook	Bailey Bernard
<b>6:40</b>	Amber Winton	Tabatha Lehmann	Emalisse Fernandez	Grace Sill		Nicholas Solis De Ovando

Poster presentation question and answer sessions will begin at 7:00. See pages 54-57 for the full poster presentation schedule with links to pre-recorded presentations.

Posters will be presented by:

Ryan Diamond.....Room 1  
 Emily Eidenschink .....Room 2  
 Eva Francey, Rachel Henn, and Mallory Stiegler .....Room 3  
 Shea Horton, John Marshall, and John Lewis .....Room 4  
 Daniela Rincon-Garcia .....Room 5  
 Stephen Robinson, Ibraheem Cazalas, and Max Barlow .....Room 6  
 Rebecca Rodriguez.....Room 7

## 2021 Spring Fiat Lux Presenters – By Last Name

Room	Time	First Name	Last Name	Major	Title
Room 1	6:20-6:40	Nicholas	<b>Andriani</b>	Biology	Reliability of a Novel iPhone App on Testing Proprioception of the Lower Extremities
Room 3	2:40-3:00	Isabel	<b>Arcusa</b>	Biology	Behavioral Responses to Conspecific Urinary Cues in Socially Monogamous Owl Monkeys ( <i>Aotus nancymaae</i> )
Room 4	2:20-2:40	Steven	<b>Badorf</b>	Communication	Stereotypes in Advertising: The Misrepresentation of the Asian American Microculture
Room 1	3:20-3:40	Alivia	<b>Baxmann</b>	Chemistry	An Introduction to the Design and Construction of an Affordable Raman Spectrometer
Room 6	6:20-6:40	Bailey	<b>Bernard</b>	Political Science	Ending Child Abuse: Assessing Policies to Reduce the Rate of Child Abuse in the State of New York
Room 2	3:00-3:20	Connor	<b>Bligh</b>	Economics & Finance	The Economic Impact of COVID-19 on Different States
Room 2	5:40-6:00	Sarah	<b>Bliss</b>	English	Ideology and Femininity in <i>Jane Eyre</i> , <i>Wuthering Heights</i> , and <i>The Tenant of Wildfell Hall</i>
Room 5	5:00-5:20	Kelley	<b>Breeden</b>	Biochemistry & Molecular Biology	Investigating Nutrient Thresholds Needed to Induce an Algal Bloom in <i>Microcystis aeruginosa</i>
Room 3	3:00-3:20	Rachel	<b>Breitenbach</b>	Biology	The Importance of Olfactory, Visual, and Auditory Cues for Insect Foraging in Owl Monkeys ( <i>Aotus nancymaae</i> )
Room 5	5:20-5:40	Samantha	<b>Brewer</b>	Chemistry	Determining the Mobilization of Micronutrients in Huanglongbing Infected Sweet Orange Trees
Room 5	3:40-4:00	Kailey	<b>Buczek</b>	Exercise Science	The Correlation Between Oral Contraceptive Use and the Incidence of ACL Injuries Within Females
Room 3	5:00-5:20	Stephanie	<b>Burnette</b>	Marine Biology	Social Buffering in a Social Fish ( <i>Danio rerio</i> )
Room 4	6:20-6:40	Erin	<b>Cagle</b>	Exercise Science	Effectiveness of the FIFA 11+ in Improving Lower Extremity Biomechanics and Change of Direction Performance
Room 2	4:00-4:20	Jacqueline	<b>Carlton</b>	Applied Mathematics & Statistics	The Statistics of the Oscars: What Type of Nominee Will Win?
Room 3	6:20-6:40	Molly	<b>Cole</b>	Nursing	Impacts of Pediatric and Adolescent Chronic Non-Cancer Pain on Parents
Room 5	6:20-6:40	Amanda	<b>Cook</b>	English	“Richer and Fuller for Everyone”: Reimagining the American Dream in <i>Salome of the Tenements</i> , <i>The Great Gatsby</i> , and <i>Plum Bun</i>

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Room 2	5:20-5:40	Felicia	<b>Coursen</b>	English	Assessing the Vanishing Lesbian in Book-to-Film Adaptations: A Critical Study of <i>Rebecca</i> , <i>Fried Green Tomatoes</i> , and <i>Black Panther</i>
Room 4	4:40-5:00	Mary Elizabeth	<b>Craine</b>	English	Women’s Illnesses in Nineteenth Century Literature
Room 4	3:00-3:20	Breanna	<b>Curran</b>	Psychology	Knowledge of Eyewitness Reliability
Room 4	4:20-4:40	Jessica	<b>Davis</b>	Political Science	Politics in the Lone Star State: How Have They Changed, and Why?
Room 1	5:00-5:20	Hunter	<b>Desilets</b>	Chemistry	Green Synthesis of a Methylene Blue Selective Metal-Organic Material
Room 4	6:00-6:20	Jadin	<b>Dewith</b>	Exercise Science	What is the Relationship Between Pitch Count, Strength, and Pain for Division II Collegiate Softball Pitchers?
Room 2	3:20-3:40	William	<b>Draper</b>	Accounting	Environmental, Social, and Governance: How Sustainable is it?
Room 3	6:40-7:00	Emalisse	<b>Fernandez</b>	Nursing	Overlooked and Underdiagnosed: Paternal Postpartum Depression
Room 6	3:40-4:00	Hannah	<b>Flemming</b>	Political Science	Sickness in the Shadows: The Struggle of Undocumented Immigrants for COVID-19 Relief
Room 3	5:40-6:00	Catherine	<b>Fox</b>	Marine Biology	Identifying the Skin and Gut Microbiome of Three Shark Species in Tampa Bay, Florida
Room 4	2:40-3:00	Linlee	<b>Franklin</b>	Communication	Meghan Markle: Drama in the Kingdom
Room 4	3:40-4:00	Kira	<b>Freijo</b>	Psychology	Conceal, Don’t Reveal: The Effect of LGBTQ+ College Students Hiding Their Identity
Room 6	6:00-6:20	Noelle	<b>Gascon</b>	Political Science	Women are Crucial to Sustainability: Addressing Gender Inequality and Education in Developing Nations
Room 4	4:00-4:20	Emily	<b>Giddens</b>	Business Administration	Equal Representation in Politics and the Lack Thereof
Room 4	5:40-6:00	Alayna	<b>Goll</b>	Exercise Science	Exploring the Relationship Between Nutrition Knowledge and Dietary Quality in Female Collegiate Cross Country Runners
Room 2	6:20-6:40	Rachel	<b>Hagan</b>	Political Science	Hatred of the Hijab: Islamophobia and Muslim Women in America
Room 6	2:20-2:40	Catherine	<b>Hall</b>	Political Science	Addressing Overcrowding in California’s K-12 Schools
Room 1	2:40-3:00	Nathan	<b>Hallmark</b>	Chemistry	On the Difference of Two Numbers Raised to the Same Power
Room 1	5:20-5:40	Faez	<b>Hamcho</b>	Biochemistry & Molecular Biology	Characterization of the Mutant ProP Protein in <i>Salmonella enterica</i> serovar Typhimurium

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Room 3	4:20-4:40	Meaghan	<b>Lake</b>	Biology	Assessment of the Synergistic Effects of the Bacterial Pigments, Prodigiosin and Violacein, to Inhibit the Growth of Pathogenic Bacteria
Room 3	4:00-4:20	Julia	<b>Legiec</b>	Biology	Exploring the Affects Ureter Parasites ( <i>Allodero hylae</i> ) Have on Cuban Tree Frogs' Physical Development
Room 2	6:40-7:00	Tabatha	<b>Lehmann</b>	Psychology	Horror, Halloween, and Hegemony: A Character Psychoanalysis and Gender Study of Laurie Strode in the <i>Halloween</i> Franchise
Room 2	4:40-5:00	John	<b>Lewis</b>	Computer Science	What Can Hollywood Learn from YouTube?
Room 5	4:20-4:40	Brooke	<b>Lowery</b>	Exercise Science	Aerobic and Resistance Training: A Cornerstone of Care in the Treatment and Management of Cystic Fibrosis
Room 1	6:00-6:20	Bailey	<b>Martin</b>	Marine Biology	Shell of a Life: A Review of the Geographic Frequency of Amphipods, Cnidarians and Annelids as Loggerhead Sea Turtle ( <i>Caretta caretta</i> ) Epibionts
Room 3	3:20-3:40	Benjamin	<b>Marusko</b>	Biology	Biomedical Applications of Metal Organic Frameworks
Room 1	5:40-6:00	Kayleigh	<b>Mazariegos</b>	Marine Biology	Movement and Physiology of Invasion Front Cane Toads ( <i>Rhinella marina</i> ) in Central Florida
Room 2	2:40-3:00	Morgan	<b>McDermott</b>	Economics & Finance	The Economic, Political, and Environmental Implications of the Beijing 2022 Olympics
Room 6	4:00-4:20	Morgan	<b>McDermott</b>	Political Science	International Institutions on the Global Stage
Room 1	4:20-4:40	Candace	<b>Metcalfe</b>	Biochemistry & Molecular Biology	Evaluation of the Greener Synthesis of a Series of Electronically Modified Stilbene Analogues as Novel Anticancer Agents
Room 1	4:00-4:20	Korinne	<b>Mills</b>	Biochemistry & Molecular Biology	The Implementation of a Spartan Model's Effect on Students' Overall Understanding of Esterification Reactions
Room 5	3:00-3:20	Lexi	<b>Nate</b>	Exercise Science	The Effects of Vegan and Mediterranean Dietary Patterns on C-Reactive Protein Inflammatory Biomarkers
Room 2	6:00-6:20	Grace	<b>Newton</b>	English	The Reality of Dystopia in Politics and Media: A Critical Examination of <i>Nineteen Eighty-Four</i> , <i>Fahrenheit 451</i> , and <i>V for Vendetta</i>

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Room 6	2:40-3:00	Dylan	<b>Oliver</b>	Political Science	A New War on Extremism: How to Combat Far-right Ideology in the U.S. Military
Room 5	4:40-5:00	Mario	<b>Pineda</b>	Biochemistry & Molecular Biology	Synthesis of Chalcone Analogues
Room 3	5:20-5:40	Zoe	<b>Potter</b>	Marine Biology	The Use of Problem-Solving Enrichment to Increase Resiliency in Common Bottlenose Dolphins ( <i>Tursiops truncatus</i> )
Room 6	3:00-3:20	Drake	<b>Rekve</b>	Political Science	Hardened Criminals or Hopeless Addicts: Finding Alternatives to Locking Up Nonviolent Drug Offenders
Room 3	4:40-5:00	Gabrielle	<b>Risko</b>	Biology	Overmarking and the Possible Implications for Mate Guarding in Owl Monkeys ( <i>Aotus nancymae</i> )
Room 4	5:00-5:20	Corinna	<b>Robinson</b>	English	Representations of Orthodox Christianity and Hellenic Polytheism in Greek American Literature
Room 5	3:20-3:40	Rebecca	<b>Rodriguez</b>	Exercise Science	Athlete Motivation, Self-Efficacy, and Burnout
Room 5	2:40-3:00	Juliana	<b>Rossini</b>	Exercise Science	Effects of Platelet-rich Plasma Injections on Cartilage Regeneration in the Knee
Room 6	4:20-4:40	Christian	<b>Roston</b>	Political Science	Rural Flight: Examining Rural Depopulation and Its Consequences Within the State of Arkansas
Room 1	4:40-5:00	Emily	<b>Rozen</b>	Biochemistry & Molecular Biology	Development of Delayed Release Gelatin-NSAID Conjugates
Room 4	5:20-5:40	Regina	<b>Sandberg</b>	Exercise Science	Strength and Hypertrophy Adaptations to Blood Flow Restriction Training
Room 2	5:00-5:20	Madison	<b>Santore</b>	Criminology	The Effect of College Majors on Students' Perceptions of Sexual Offenders
Room 1	3:00-3:20	Madeleine	<b>Schabes</b>	Chemistry	Quantifying the “Golden Ratio” of Hyper-Palatable Foods: What Makes Junk Food So Addictive?
Room 2	2:20-2:40	Lea	<b>Schiefele</b>	Philosophy	Defining Disabilities
Room 6	4:40-5:00	Natalia	<b>Schulz</b>	Political Science	Moving Beyond Money: Examining the Need for Cash Bail Reform
Room 5	5:40-6:00	Charissa	<b>Schwartz</b>	Economics & Finance	Starting Strong, Now Finishing Strong: Analysis of Private, Southeastern United States Undergraduate Institutions' Degree Completion Rates Within Normal Time
Room 4	6:40-7:00	Grace	<b>Sill</b>	Religion	Are You My Mother: Redefining Adoptive Relationships Through a

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					Comparative Study of Western-Christian and Confucian Ethics
Room 5	6:00-6:20	Benjamin	<b>Silva</b>	Economics & Finance	School Funding and the Quality of Education: A Fresh Look at an Old Question
Room 6	5:00-5:20	Julia	<b>Simpson</b>	Political Science	Suspending Educational Inequity: A Policy Analysis of Achievement Gaps in the U.S.
Room 6	6:40-7:00	Nicholas	<b>Solis De Ovando</b>	Political Science	Analyzing the Impact of Covid-19 on Physical Fitness and Nutrition in Young Adults and Adolescents in the United States
Room 3	2:20-2:40	Giselle	<b>Soto</b>	Biology	Demonstrating the Antibacterial Properties of Essential Oils Against Antibiotic Resistant Bacteria
Room 5	4:00-4:20	Grace	<b>Stec</b>	Exercise Science	Rehabilitative Approach to Femoroacetabular Impingement Syndrome (FAI-S) Among Active Patients
Room 6	3:20-3:40	Catherine	<b>Stogner</b>	Political Science	A Currency By Any Other Name: Cryptocurrency and Regulations
Room 6	5:20-5:40	Kaitlynn	<b>Swanbeck</b>	Political Science	Irreversible Injustice: Addressing Wrongful Convictions on Death Row in Florida
Room 2	4:20-4:40	Sophie	<b>Talbert</b>	Communication	Promising Young Women: Contemporary Case Studies in the Rape Revenge Fantasy Subgenre of Feature Films
Room 2	3:40-4:00	Macey	<b>Tipton</b>	Accounting	A Detailed Analysis of Special Purpose Acquisition Companies
Room 1	3:40-4:00	Jack	<b>Trimble</b>	Chemistry	Development of a Field-Ready Colorimetric Test for the Identification of Synthetic Cathinones
Room 3	3:40-4:00	Ryan	<b>Vassalotti</b>	Biology	An Inquiry into the Synthesis of Zinc-based MOFs and Their Potential Use in the Prevention of Hernia Mesh Infections
Room 3	6:00-6:20	Amy	<b>Wieleba</b>	Nursing	Needs of Children During the Parental Death Experience
Room 4	3:20-3:40	Jack	<b>Wilkens</b>	Psychology	The Effects of Making a Sexual Harassment Accusation on One's Perceived Image
Room 6	5:40-6:00	Tyler	<b>Williams</b>	Political Science	Violent Guns: The Push for Gun Control to Combat Violent Crime
Room 1	6:40-7:00	Amber	<b>Winton</b>	Biology	Testing the Validity of the InjurySway App and Vibration's Effect on Shoulder Control

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### Room 1

2:40-3:00	Nathan	Hallmark	Chemistry	On the Difference of Two Numbers Raised to the Same Power
3:00-3:20	Madeleine	Schabes	Chemistry	Quantifying the “Golden Ratio” of Hyper-Palatable Foods: What Makes Junk Food So Addictive?
3:20-3:40	Alivia	Baxmann	Chemistry	An Introduction to the Design and Construction of an Affordable Raman Spectrometer
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### Room 2

2:20-2:40	Lea	Schiefele	Philosophy	Defining Disabilities
2:40-3:00	Morgan	McDermott	Economics & Finance	The Economic, Political, and Environmental Implications of the Beijing 2022 Olympics
3:00-3:20	Connor	Bligh	Economics & Finance	The Economic Impact of COVID-19 on Different States
3:20-3:40	William	Draper	Accounting	Environmental, Social, and Governance: How Sustainable is it?
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4:00-4:20	Jacqueline	Carlton	Applied Mathematics & Statistics	The Statistics of the Oscars: What Type of Nominee Will Win?
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4:40-5:00	John	Lewis	Computer Science	What Can Hollywood Learn from YouTube?
5:00-5:20	Madison	Santore	Criminology	The Effect of College Majors on Students' Perceptions of Sexual Offenders
5:20-5:40	Felicia	Coursen	English	Assessing the Vanishing Lesbian in Book-to-Film Adaptations: A Critical Study of <i>Rebecca</i> , <i>Fried Green Tomatoes</i> , and <i>Black Panther</i>
5:40-6:00	Sarah	Bliss	English	Ideology and Femininity in <i>Jane Eyre</i> , <i>Wuthering Heights</i> , and <i>The Tenant of Wildfell Hall</i>
6:00-6:20	Grace	Newton	English	The Reality of Dystopia in Politics and Media: A Critical Examination of <i>Nineteen Eighty-Four</i> , <i>Fahrenheit 451</i> , and <i>V for Vendetta</i>
6:20-6:40	Rachel	Hagan	Political Science	Hatred of the Hijab: Islamophobia and Muslim Women in America
6:40-7:00	Tabatha	Lehmann	Psychology	Horror, Halloween, and Hegemony: A Character Psychoanalysis and Gender Study of Laurie Strode in the <i>Halloween</i> Franchise

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### Room 3

2:20-2:40	Giselle	Soto	Biology	Demonstrating the Antibacterial Properties of Essential Oils Against Antibiotic Resistant Bacteria
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5:40-6:00	Catherine	Fox	Marine Biology	Identifying the Skin and Gut Microbiome of Three Shark Species in Tampa Bay, Florida
6:00-6:20	Amy	Wieleba	Nursing	Needs of Children During the Parental Death Experience
6:20-6:40	Molly	Cole	Nursing	Impacts of Pediatric and Adolescent Chronic Non-Cancer Pain on Parents
6:40-7:00	Emalisse	Fernandez	Nursing	Overlooked and Underdiagnosed: Paternal Postpartum Depression

## 2021 Fiat Lux Presentations – By Room

### Room 4

2:20-2:40	Steven	Badorf	Communication	Stereotypes in Advertising: The Misrepresentation of the Asian American Microculture
2:40-3:00	Linlee	Franklin	Communication	Meghan Markle: Drama in the Kingdom
3:00-3:20	Breanna	Curran	Psychology	Knowledge of Eyewitness Reliability
3:20-3:40	Jack	Wilkins	Psychology	The Effects of Making a Sexual Harassment Accusation on One's Perceived Image
3:40-4:00	Kira	Freijo	Psychology	Conceal, Don't Reveal: The Effect of LGBTQ+ College Students Hiding Their Identity
4:00-4:20	Emily	Giddens	Business Administration	Equal Representation in Politics and the Lack Thereof
4:20-4:40	Jessica	Davis	Political Science	Politics in the Lone Star State: How Have They Changed, and Why?
4:40-5:00	Mary Elizabeth	Craine	English	Women's Illnesses in Nineteenth Century Literature
5:00-5:20	Corinna	Robinson	English	Representations of Orthodox Christianity and Hellenic Polytheism in Greek American Literature
5:20-5:40	Regina	Sandberg	Exercise Science	Strength and Hypertrophy Adaptations to Blood Flow Restriction Training
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6:00-6:20	Jadin	Dewith	Exercise Science	What is the Relationship Between Pitch Count, Strength, and Pain for Division II Collegiate Softball Pitchers?
6:20-6:40	Erin	Cagle	Exercise Science	Effectiveness of the FIFA 11+ in Improving Lower Extremity Biomechanics and Change of Direction Performance
6:40-7:00	Grace	Sill	Religion	Are You My Mother: Redefining Adoptive Relationships Through a Comparative Study of Western-Christian and Confucian Ethics

## 2021 Fiat Lux Presentations – By Room

### Room 5

2:40-3:00	Juliana	Rossini	Exercise Science	Effects of Platelet-rich Plasma Injections on Cartilage Regeneration in the Knee
3:00-3:20	Lexi	Nate	Exercise Science	The Effects of Vegan and Mediterranean Dietary Patterns on C-Reactive Protein Inflammatory Biomarkers
3:20-3:40	Rebecca	Rodriguez	Exercise Science	Athlete Motivation, Self-Efficacy, and Burnout
3:40-4:00	Kailey	Buczek	Exercise Science	The Correlation Between Oral Contraceptive Use and the Incidence of ACL Injuries Within Females
4:00-4:20	Grace	Stec	Exercise Science	Rehabilitative Approach to Femoroacetabular Impingement Syndrome (FAI-S) Among Active Patients
4:20-4:40	Brooke	Lowery	Exercise Science	Aerobic and Resistance Training: A Cornerstone of Care in the Treatment and Management of Cystic Fibrosis
4:40-5:00	Mario	Pineda	Biochemistry & Molecular Biology	Synthesis of Chalcone Analogues
5:00-5:20	Kelley	Breeden	Biochemistry & Molecular Biology	Investigating Nutrient Thresholds Needed to Induce an Algal Bloom in <i>Microcystis aeruginosa</i>
5:20-5:40	Samantha	Brewer	Chemistry	Determining the Mobilization of Micronutrients in Huanglongbing Infected Sweet Orange Trees
5:40-6:00	Charissa	Schwartz	Economics & Finance	Starting Strong, Now Finishing Strong: Analysis of Private, Southeastern United States Undergraduate Institutions' Degree Completion Rates Within Normal Time
6:00-6:20	Benjamin	Silva	Economics & Finance	School Funding and the Quality of Education: A Fresh Look at an Old Question
6:20-6:40	Amanda	Cook	English	“Richer and Fuller for Everyone”: Reimagining the American Dream in <i>Salome of the Tenements</i> , <i>The Great Gatsby</i> , and <i>Plum Bun</i>

## 2021 Fiat Lux Presentations – By Room

### Room 6

2:20-2:40	Catherine	Hall	Political Science	Addressing Overcrowding in California's K-12 Schools
2:40-3:00	Dylan	Oliver	Political Science	A New War on Extremism: How to Combat Far-right Ideology in the U.S. Military
3:00-3:20	Drake	Rekve	Political Science	Hardened Criminals or Hopeless Addicts: Finding Alternatives to Locking Up Nonviolent Drug Offenders
3:20-3:40	Catherine	Stogner	Political Science	A Currency By Any Other Name: Cryptocurrency and Regulations
3:40-4:00	Hannah	Flemming	Political Science	Sickness in the Shadows: The Struggle of Undocumented Immigrants for COVID-19 Relief
4:00-4:20	Morgan	McDermott	Political Science	International Institutions on the Global Stage
4:20-4:40	Christian	Roston	Political Science	Rural Flight: Examining Rural Depopulation and Its Consequences Within the State of Arkansas
4:40-5:00	Natalia	Schulz	Political Science	Moving Beyond Money: Examining the Need for Cash Bail Reform
5:00-5:20	Julia	Simpson	Political Science	Suspending Educational Inequity: A Policy Analysis of Achievement Gaps in the U.S.
5:20-5:40	Kaitlynn	Swanbeck	Political Science	Irreversible Injustice: Addressing Wrongful Convictions on Death Row in Florida
5:40-6:00	Tyler	Williams	Political Science	Violent Guns: The Push for Gun Control to Combat Violent Crime
6:00-6:20	Noelle	Gascon	Political Science	Women are Crucial to Sustainability: Addressing Gender Inequality and Education in Developing Nations
6:20-6:40	Bailey	Bernard	Political Science	Ending Child Abuse: Assessing Policies to Reduce the Rate of Child Abuse in the State of New York
6:40-7:00	Nicholas	Solis De Ovando	Political Science	Analyzing the Impact of Covid-19 on Physical Fitness and Nutrition in Young Adults and Adolescents in the United States

## *Presentations*

In alphabetical order by presenter's last name.

## 2021 Spring Fiat Lux Presentations

**Student:** Andriani, Nicholas

**Major:** Biology

**Faculty Mentor:** James M. Lynch

**Presentation Time:** 6:20-6:40

**Presentation Type:** Senior Project

**Room:** Room 1

**Title:** Reliability of a Novel iPhone App on Testing Proprioception of the Lower Extremities

**Abstract:** The term “proprioception” has been used to describe a variety of different mechanisms and systems related to motor control and the sensorimotor system. Stability is an important consequence of proprioception and can be measured through a variety of balance tests. Through measuring stability, an individual’s relative proprioception can be determined. One common balance test is the Balance Error Scoring System (BESS). However, there are few studies that involve the use of a cellular device, such as an iPhone, to test balance and stability. iPhones are versatile machines with numerous components capable of measuring changes in movement. We aim to create an application that is easy to use, readily accessible, and more affordable for users through the App Store. This project will investigate the reliability of a student-designed iPhone app to measure balance on the mildly unstable platform of a rehabilitation device.

**Student:** Arcusa, Isabel

**Major:** Biology

**Faculty Mentor:** Christy Wolovich

**Presentation Time:** 2:40-3:00

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** Behavioral Responses to Conspecific Urinary Cues in Socially Monogamous Owl Monkeys (*Aotus nancymaae*)

**Abstract:** In socially monogamous animals, mate-guarding helps ensure mate security, paternal certainty, and parental care. Such a high-investment strategy requires that males and females communicate effectively in order to maintain close proximity between mates and to identify conspecific competitors. Socially monogamous nocturnal owl monkeys (*Aotus* spp.) may use olfactory cues (e.g., urine, scent gland secretions) to guard their mates and to identify whether unfamiliar conspecifics pose a threat to the stability of their established pair-bonds. This study will examine the mate-guarding behaviors exhibited by male-female pairs of captive owl monkeys ( $n = 10$  pairs, DuMond Conservancy) in response to urinary cues from sexually mature conspecifics. We will conduct a series of experimental trials in which monkeys will be presented with urine from unfamiliar mature male conspecifics, unfamiliar mature female conspecifics, as well as a series of control trials (saline,  $n = 4$  trials/pair). Observers will score behaviors associated with olfaction, arousal and mate-guarding during 30-min trials immediately following the presentation of the chemical cues. We expect owl monkeys to exhibit a greater response to the presence of male urine than to female urine. We will conclude that both males and females exhibit mate-guarding behavior if males maintain close proximity to their mates when male urine is present and if females maintain close proximity to their mates when female urine is present. Understanding how chemical signaling impacts mate-guarding behaviors could help explain the proximate mechanisms for the preservation of social monogamy in platyrrhine primates.

## 2021 Spring Fiat Lux Presentations

**Student:** Badorf, Steven

**Major:** Communication

**Faculty Mentor:** Alex Ortiz

**Presentation Time:** 2:20-2:40

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Stereotypes in Advertising: The Misrepresentation of the Asian American Microculture

**Abstract:** My research project is focused in the areas of advertising ethics and intercultural communication, as it is concerned with the portrayal of the Asian American microculture in modern media outlets. Asian Americans are the fastest growing microcultural group in the U.S., and are often noted as being the most affluent of all microcultural groups. As a result, advertisers continually target the microculture and are actively engaged with the demographic through advertising efforts. However, the vast majority of advertising depicting the Asian American microculture leans on a “model minority” stereotype that fails to account for many aspects of Asian American identity, which ultimately marginalizes the group into similar portrayals throughout all forms of media. In my research project, I aim to discuss the ways that Asian American advertising portrayals must be tweaked to best represent the microculture, which will ultimately lead to more favorable advertising ratings and improved sales/customer relations in the long-run.

**Student:** Baxmann, Alivia

**Major:** Chemistry

**Faculty Mentor:** An-Phong Le

**Presentation Time:** 3:20-3:40

**Presentation Type:** Honors Proposal

**Room:** Room 1

**Title:** An Introduction to the Design and Construction of an Affordable Raman Spectrometer

**Abstract:** Raman spectroscopy is capable of identifying unknown substances in a fast and non-destructive manner and has found a wide range of uses, such as identifying hydrogen peroxide-based explosives, characterizing chocolate, and verifying gemstone identity. Commercial Raman spectrometers can easily cost tens of thousands of dollars, cost on average \$20,000, and building a low cost version would enable more widespread adoption of this technique and make additional analytical applications feasible. Basic parts of the Raman spectrometer can be found online, for example the main light detector is a simple IR camera. The entire housing will be 3D printed to create an easily customizable design with interchangeable parts. A Raspberry Pi will take the data, analyze it, and then compare it to spectral libraries that can be downloaded. Once the instrument is finished, a guide on how to build and where to source the parts will be published along with an ever growing database of known samples for the spectral library.

**Student:** Bernard, Bailey

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 6:20-6:40

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** Ending Child Abuse: Assessing Policies to Reduce the Rate of Child Abuse in the State of New York

## 2021 Spring Fiat Lux Presentations

**Abstract:** This paper will address the problem of child abuse in New York state. The national average is 9.1 per 1,000 kids whereas New York is 17.1 per 1,000 kids which is double the national rate. As such, I first investigate why the New York rate is so high relative to national average. Then, I provide solutions to reduce the rate of child abuse in New York. I identify four main schools thought for effectively reducing child abuse. These include home interventions (home visits, drop-in day care, increased welfare payments, mental health), to placing children in a safer environment through education and other needs served to children (schools, mental health programs, after school programs), training for professionals to help recognize signs of abuse and providing services for child welfare professionals (education, increased staffing), and increased legal avenues (stricter laws, increased avenues for child custody, mandatory child protective services [CPS] reporting).

**Student:** Bligh, Connor

**Major:** Economics & Finance

**Faculty Mentor:** Joseph Connors

**Presentation Time:** 3:00-3:20

**Presentation Type:** Honors Proposal

**Room:** Room 2

**Title:** The Economic Impact of COVID-19 on Different States

**Abstract:** As businesses open up and vaccines continue to be administered, this project sets out to find what economic impact the COVID-19 pandemic has had on different American states. Each state has been specifically selected for its varying level of lockdowns and health regulations, or lack thereof. The goal is to find out whether the lockdowns avoided any long-lasting economic damage for the sake of saving lives, and to potentially help shape future policy in the event of another pandemic. The project will be tackled from an unbiased approach, relying on public data to determine effectiveness and success.

**Student:** Bliss, Sarah

**Major:** English

**Faculty Mentors:** Keith Huneycutt, Jennifer Leigh Moffitt

**Presentation Time:** 5:40-6:00

**Presentation Type:** Senior Project

**Room:** Room 2

**Title:** Ideology and Femininity in *Jane Eyre*, *Wuthering Heights*, and *The Tenant of Wildfell Hall*

**Abstract:** Between 1847 and 1848, the literary market of Victorian England convulsed under the influence of three novels from previously unknown authors: Currer Bell's *Jane Eyre*, Ellis Bell's *Wuthering Heights*, and Acton Bell's *The Tenant of Wildfell Hall*. Despite the relative obscurity of the authors—who were, of course, Charlotte, Emily, and Anne Brontë, respectively—these novels quickly drew popular attention and incited controversy for their challenges to standard Victorian femininity. Through the work of Marxist theorist Louis Althusser, this paper combines historical and textual analyses to examine how social institutions in Victorian England define hegemonic femininity and how the Brontë sisters resist and redefine it. By isolating their heroines both physically and socially, the Brontës create space for each heroine to evaluate and define herself free from the smothering expectations of nineteenth-century England. The resulting portrayals of femininity the Brontës' heroines display are active, evolving, and varied, suggesting subversive and pluralistic iterations of womanhood.

## 2021 Spring Fiat Lux Presentations

**Student:** Breeden, Kelley

**Major:** Biochemistry & Molecular Biology

**Faculty Mentor:** An-Phong Le

**Presentation Time:** 5:00-5:20

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** Investigating Nutrient Thresholds Needed to Induce an Algal Bloom in *Microcystis aeruginosa*

**Abstract:** Harmful algal blooms are becoming an increasing concern in the world of environmental science because of their negative effects on the surrounding environment and economy. These blooms currently have no predicting factors. Eutrophication is the main contributor to these blooms and threshold levels of nutrients that could cause the algae to turn to a bloom would be extremely helpful in mitigating the negative effects of HABs. *Microcystis aeruginosa*, the most common cyanobacteria to cause freshwater algal blooms, was cultured under stable light and temperature conditions with various amounts of ammonia (NH<sub>3</sub>), nitrate (NO<sub>3</sub><sup>-</sup>), and phosphorus (P), and left to grow uninhibited. The growth of this *M. aeruginosa* was monitored and quantified by OD600 measurements. All spiked cultures resulted in greater cyanobacteria growth compared to controls. Statistical analysis of the growth of *M. aeruginosa* was performed to determine the significance of these specific nutrients on *M. aeruginosa* growth. In the future, this project should be reproducible and to determine threshold levels, differing levels of nutrients should be evaluated.

**Student:** Breitenbach, Rachel

**Major:** Biology

**Faculty Mentor:** Christy Wolovich

**Presentation Time:** 3:00-3:20

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** The Importance of Olfactory, Visual, and Auditory Cues for Insect Foraging in Owl Monkeys (*Aotus nancymaae*)

**Abstract:** The sensory basis of food detection in nocturnal primates has only been examined in a few species of strepsirrhini. Owl monkeys (*Aotus* spp.) are the only nocturnal platyrrhines, but unlike their strepsirrhini counterparts, they likely evolved from a diurnal ancestor. At night, they routinely forage for insects by capturing them from substrates or the air. We will examine sensory cues used by captive *Aotus nancymaae* (Dumond Conservancy, Miami, FL) to forage for insects at night. Twelve male-female monkey pairs will each be provided a series of choices between two sensory boxes. The 'stimulus' sensory box will provide either a visual, motion, olfactory, or auditory insect cue, whereas the 'control' sensory box will be modified to not emit that particular cue. We hypothesize that the monkeys will approach and exhibit more foraging-associated behaviors toward the 'stimulus' boxes. We predict that they will sniff, bite, and touch the boxes most often when visual and motion cues are present. This study's results will help better understand the unique sensory ecology of owl monkeys when foraging for insects under low-light conditions. Our findings will improve our understanding of the behavioral ecology and physiological constraints of owl monkeys given their relatively recent divergence from their diurnal ancestor.

## 2021 Spring Fiat Lux Presentations

**Student:** Brewer, Samantha

**Major:** Chemistry

**Faculty Mentor:** An-Phong Le

**Presentation Time:** 5:20-5:40

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** Determining the Mobilization of Micronutrients in Huanglongbing Infected Sweet Orange Trees

**Abstract:** Huanglongbing (HLB) is an incurable disease threatening citrus production around the world. HLB affects a plant's ability to uptake nutrients so the popular method to treat the disease's symptoms is the application of excess fertilizer. This overfertilization threatens environmental harm. The published nutrient threshold values and fertilization rates for citrus are based on healthy trees and do not account for decreased nutrient uptake in infected trees. The goal of this project is to determine the rates of mobilization of micronutrients in HLB infected sweet orange trees. A micronutrient fertilizer was applied to trees via a foliar spray, and those micronutrient concentrations values in the leaves were measured using atomic absorption spectroscopy. The changes in nutrient content over time and the mobilization rates determined from these values will be presented. The information collected in this project can be used by researchers in updating the current nutrient threshold values for citrus. It can also be used by citrus growers as they plan their fertilization schedules so that overfertilization is prevented while still providing sufficient nutrient content to the citrus trees to keep them growing fruit for years to come.

**Student:** Buczek, Kailey

**Major:** Exercise Science

**Faculty Mentor:** Sara Terrell

**Presentation Time:** 3:40-4:00

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** The Correlation Between Oral Contraceptive Use and the Incidence of ACL Injuries Within Females

**Abstract:** The Anterior cruciate ligament (ACL) is found inside the knee joint and prevents tibial translation and provides rotational stability. The ACL controls abnormal movements during cutting, pivoting, and turning, which are common movements often facilitating an ACL injury. ACL injury incidence is more common in women than in men. Hormonal differences, such as higher levels of estrogen and progesterone in women, may influence the gender disparity in ACL injury prevalence. However, women who take oral contraceptives may maintain lower and more consistent levels of estrogen and progesterone, hormones which can increase ligament laxity and instability. This may indicate oral contraceptives have a protective effect on ACL integrity and may potentially provide an avenue to reduce ACL injury risk in females. Therefore, the purpose of this presentation is to define the role of the ACL, explore the hormonal influences on the ligament's integrity, and discuss how oral contraceptives may reduce ACL injury risk in women.

## 2021 Spring Fiat Lux Presentations

**Student:** Burnette, Stephanie

**Major:** Marine Biology

**Faculty Mentors:** Ashley Bowers-Macrandner, Allison Durland Donahou

**Presentation Time:** 5:00-5:20

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** Social Buffering in a Social Fish (*Danio rerio*)

**Abstract:** Social buffering is a phenomenon observed in social animals where the presence of a member from the same species alleviates the stress response. The presence of conspecifics often lowers cortisol levels, which reduces the amount of stress an animal experiences and helps them to recover faster. Social buffering has been observed across vertebrate taxa, from primates, to birds, to fish. Zebrafish (*Danio rerio*) are a shoaling species—they are a group living fish that form social bonds with other members. Several studies have confirmed that zebrafish exhibit social buffering, and I would like to expand on these findings. I am going to expose 25-30 fish to a predator-related stressor in three trials. First, in a group of new companions, then individually, then in a group where the fish are familiar with each other. I will measure water-born cortisol levels in the tanks and compare them between the three trials to analyze how familiarity with a group plays a role in social buffering.

**Student:** Cagle, Erin

**Major:** Exercise Science

**Faculty Mentor:** Charles Allen

**Presentation Time:** 6:20-6:40

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Effectiveness of the FIFA 11+ in Improving Lower Extremity Biomechanics and Change of Direction Performance

**Abstract:** The prevention of anterior cruciate ligament (ACL) injury and the enhancement of sport performance are two common goals when working with athletes, and lower extremity biomechanics have been identified as modifiable factors for both. There is an abundance of research identifying the factors associated with ACL injury prevention and performance improvement, and there are various injury prevention programs (IPP) developed to correct faulty biomechanical movement patterns. While previous research has established the efficacy of these IPPs in reducing injury rates, it remains unclear if IPPs have positive effects on athletic performance. Specifically, there is little research that investigates the role of IPPs in improving ability to perform a change of direction (COD) task. Therefore, the purpose of this study is to determine if participation in an IPP can reduce the rate of injury and improve performance of a COD task. Fifteen Division II collegiate, female soccer players will participate in an IPP, with COD time and biomechanics, Landing Error Scoring System (LESS) assessment, and vertical jump ground reaction forces (GRFs) measured pre, mid, and post intervention. The LESS scores will be used to measure an athlete's injury risk, while COD times will be used to measure an athlete's performance. It is hypothesized that the IPP intervention will result in participants exhibiting lower injury risk, based on improved LESS scores, faster COD completion times, and improved COD biomechanics.

## 2021 Spring Fiat Lux Presentations

**Student:** Carlton, Jacqueline

**Major:** Applied Mathematics & Statistics

**Faculty Mentor:** Susan Serrano

**Presentation Time:** 4:00-4:20

**Presentation Type:** Senior Project

**Room:** Room 2

**Title:** The Statistics of the Oscars: What Type of Nominee Will Win?

**Abstract:** The trends and correlations in the Academy Awards have been in the public eye for years. These trends may lead to the ability to eventually predict winners out of a group of nominees in each category, if we can identify enough trends. This study will analyze the Oscars, and identify the type of nominee that is most likely to win in each category. This study strives to understand trends in the Oscars, and find correlations between a winning entity and different variables (examples include genre, gender, number of previous nominations, etc.). The study will be using statistical methods such as ANOVA analysis, and logistic regression along with other statistical tests to calculate the trends that will be the most effective in predicting the winners in each category. Its goal is to explain the different factors that go into an Oscar nominee becoming an Oscar winner, and be able to predict those winners given information about the nominees.

**Student:** Cole, Molly

**Major:** Nursing

**Faculty Mentors:** Judy Risko, Carrie Ann Hall

**Presentation Time:** 6:20-6:40

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** Impacts of Pediatric and Adolescent Chronic Non-Cancer Pain on Parents

**Abstract:** Background: Pediatric and adolescent chronic non-cancer pain (PCNCP) not only impacts the patient's own life, it may affect their family members' lives also. Parents face a variety of challenges in having a child dealing with chronic pain. These may include financial impacts, decreased personal time, and negative mental and physical health effects. Aims: This research is being conducted to identify commonly faced parental impairments in functioning and the most difficult aspects of parenting a child with PCNCP. Methods: This study is a retrospective data review design utilizing quantitative and qualitative analysis. Parental data has been and is currently being collected through electronic pre-appointment surveys at Johns Hopkins All Children's Hospital. Surveys are completed prior the child's initial appointment at the Pediatric Pain Clinic. Quantitative survey data will be analyzed for frequencies and descriptive statistics utilizing the Statistical Package for the Social Sciences (SPSS). Qualitative analysis of data obtained through open-ended survey questions will be conducted by a team of three researchers. Results: Results are currently pending. Conclusion: It is important to identify specific impacts PCNCP has on parents in order to inform treatment, educate clinicians to better support parents, and to improve patient and family care outcomes.

## 2021 Spring Fiat Lux Presentations

**Student:** Cook, Amanda

**Major:** English

**Faculty Mentor:** Jennifer Leigh Moffitt

**Presentation Time:** 6:20-6:40

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** “Richer and Fuller for Everyone”: Reimagining the American Dream in *Salome of the Tenements*, *The Great Gatsby*, and *Plum Bun*

**Abstract:** In his 1931 book *The Epic of America*, historian James Truslow Adams describes the American Dream as a “dream of a land where life should be better and richer and fuller for everyone, with opportunity for each according to ability or achievement” (373). Using James’s definition as the first person to coin the term, my paper closely examines how Anzia Yeziarska’s *Salome of the Tenements* (1923), F. Scott Fitzgerald’s *The Great Gatsby* (1925), and Jessie Redmon Fauset’s *Plum Bun* (1928) address the idea of the American Dream in relation to their protagonists. These three novels abolish the simplistic idea of the American Dream, challenging the abstract definition of what a “better and richer and fuller” life means for those living in the United States in the 1920s.

**Student:** Coursen, Felicia

**Major:** English

**Faculty Mentor:** Jennifer Leigh Moffitt

**Presentation Time:** 5:20-5:40

**Presentation Type:** Senior Project

**Room:** Room 2

**Title:** Assessing the Vanishing Lesbian in Book-to-Film Adaptations: A Critical Study of *Rebecca*, *Fried Green Tomatoes*, and *Black Panther*

**Abstract:** Popular media consistently disregards lesbian voices and identities. As literary critic and queer theorist Terry Castle argues, lesbian characters are “apparitional.” This thesis project seeks to return these spectral characters to corporeality by spotlighting lesbian erasure. To this end, it centers the experiences—both shared and obscured—of lesbian characters in the original book-to-film adaptations of *Rebecca* (1938) by Daphne du Maurier, *Fried Green Tomatoes at the Whistle-Stop Café* (1987) by Fanny Flagg, and the *Black Panther: World of Wakanda* series (2016-17) written by Roxane Gay, Yona Harvey, and Ta-Nehisi Coates (and others) and illustrated by Alitha E. Martinez and Roberto Poggi (and others). Through textual and filmic analysis of the primary works, this project interrogates the patterns of lesbian erasure—which include veiling, obstructing, and silencing lesbian voices—in book-to-film adaptations. It additionally critiques the inadequacies of subversive lesbian representation in film, redefining subversion as another means of erasure. Ultimately, it ties lesbian erasure to popular media’s inability to share queer stories if they do not center around the closet.

**Student:** Craine, Mary Elizabeth

**Major:** English

**Faculty Mentor:** Jennifer Leigh Moffitt

**Presentation Time:** 4:40-5:00

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Women’s Illnesses in Nineteenth Century Literature

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**Abstract:** During the nineteenth century, the figure of the “female invalid” was not just a literary trope, but also a cultural phenomenon. In many ways, illness, or the appearance of illness, became both fashionable and a way of fulfilling certain expectations of womanhood; this is reflected in the texts and visual elements of books and publications from the time period. My project will analyze gendered and racial representations of illness and disability in literature by women in the second half of the nineteenth century with an emphasis on illustrated texts and on texts originally published in periodicals. These texts include *Little Women* by Louisa May Alcott (1868), “The Yellow Wallpaper” by Charlotte Perkins Gilman (1892), “The Chinese Lily” by Sui Sin Far (1912), and essays and advertisements published in nineteenth century magazines.

**Student:** Curran, Breanna

**Major:** Psychology

**Faculty Mentor:** Deah Quinlivan

**Presentation Time:** 3:00-3:20

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Knowledge of Eyewitness Reliability

**Abstract:** Research has shown that there are contributing factors in the unfair outcomes of the justice system. One of these factors being mistaken eyewitness identification. The criminal justice system has proven to struggle with the reality of the inaccuracy of eyewitness testimony. Of the over 360 wrongful convictions in the US, 71 percent of these, were influenced by mistaken eyewitness identifications (“Eyewitness Identification Reform” 2020). What people need to understand is eyewitness evidence can be affected just like other evidence within a trial. My study will consist of a comprehensive survey on eyewitness reliability and will be sent out to FSC students. This survey will include various statements on factors that effect eyewitness reliability in which participants will have to respond whether they agree/neither/disagree or find to be generally true/false/unknown. The factors include effects of a minor details, attitudes/expectations, different lineup methods and elements, confidence, forgetting curve, and impact of stress. The survey also covers expected knowledge of attorneys, jurors, and whether jurors can distinguish between accurate/inaccurate eyewitnesses. This will test for the knowledge that the FSC student population has on this topic. The increased knowledge within this field can help to inspire change and education where it is needed.

**Student:** Davis, Jessica

**Major:** Political Science

**Faculty Mentor:** R. Bruce Anderson

**Presentation Time:** 4:20-4:40

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Politics in the Lone Star State: How Have They Changed, and Why?

**Abstract:** The political spectrum, throughout American history, has always been fluid—never concrete; though most people in their respective parties share common core beliefs, they do not all entirely agree. Therefore, it is fair to say that the same goes for divisions between parties within the states. Both Democrats and Republicans have different beliefs once one crosses state borders. Not only this, but political issues are also changing with time and altered demographics. It can be seen within each individual state that not only are some people changing how they vote, but new voters are constantly

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entering the fray, sometimes upsetting what had been a relatively solid balance. There are also voters who may not have been regulars at the polls, who are attracted to vote on issues that affect them. Taking the 2020 election as an example, many states have changed the way that they have voted in recent years. One of the most prominent exemplars of this is the political alignment (or realignment) in Texas. Texas has typically been described as a solidly conservative—and therefore Republican state. Though Texas may have been won by the Republican party as was expected, it can also be seen through voting numbers that a solid right-wing vote may not always be the case. This analysis will be addressing the shifts in voting patterns of both existing and new voters, and the reasons for why this seemingly strong conservative state may be taking strides towards the left.

**Student:** Desilets, Hunter

**Major:** Chemistry

**Faculty Mentor:** Carmen Gauthier

**Presentation Time:** 5:00-5:20

**Presentation Type:** Senior Project

**Room:** Room 1

**Title:** Green Synthesis of a Methylene Blue Selective Metal-Organic Material

**Abstract:** Over the last two decades, metal-organic frameworks (MOFs) have gained enormous popularity due to their relatively simple synthesis and wide array of applications. However, synthesis of some classic MOFs, such as MIL-53-Al, involves the use of solvothermal techniques which introduce harsh solvents and energy-intensive methods. Only recently have several researchers developed “greener” synthetic approaches carried out at room temperature using water as a solvent. This has been achieved by reacting carboxylic acids, a common organic linker in the MOF, with strong bases such as sodium hydroxide or potassium hydroxide to form a salt which then is reacted with the metal salt. While this approach is moving towards a greener synthesis, it still uses caustic chemicals. In this work, we will present the synthesis of MIL-53-Al using water as a solvent and sodium bicarbonate as a base to deprotonate the carboxylic acid. The MIL-53-Al is filtered and characterized using x-ray powder diffractometer and infrared spectroscopy. This poster will also present the preliminary studies of the removal of methylene blue (MB) in water by MIL-53-Al.

**Student:** Dewith, Jadin

**Major:** Exercise Science

**Faculty Mentor:** Sara Terrell

**Presentation Time:** 6:00-6:20

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** What is the Relationship Between Pitch Count, Strength, and Pain for Division II Collegiate Softball Pitchers?

**Abstract:** Introduction: Fastpitch softball pitchers utilize an underhand pitching technique which creates high shoulder stress. Higher pitch counts may reduce strength, increase pain, inhibit proper mechanics, and contribute to higher injury risk. Purpose: To determine the relationship between pitch count, strength, and pain of pitchers. Methods: Participants’ strength and pain will be measured at three time points. Shoulder and hip isometric strength will be assessed via handheld dynamometer (microFET2). Shoulder dynamic strength, stability, and endurance will be evaluated through the Posterior Shoulder Endurance, Closed Kinetic Chain Upper Extremity, and the Y-Balance tests. Subjects will rate their pain

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using the Visual Analog Scale. Game pitch data will determine total pitch count. Data analysis techniques will include Pearson's Product-moment correlation to examine the relationship between pain and pitch count; strength and pitch count; and pain and strength. Descriptive statistics will be used to determine changes in strength and pain over time. The alpha value will be set a priori at  $\alpha < 0.05$ . Anticipated significance: The proposed study will explore the relationships between pitch count, strength, and pain of pitchers, and identify recommended strength values of musculature utilized during the pitch. Strength and pain monitoring may encourage prevention measures to reduce injury risk.

**Student:** Draper, William

**Major:** Accounting

**Faculty Mentor:** Celina Jozsi

**Presentation Time:** 3:20-3:40

**Presentation Type:** Honors Proposal

**Room:** Room 2

**Title:** Environmental, Social, and Governance: How Sustainable is it?

**Abstract:** ESG is the analysis of a company's environmental, social, and governance impact on itself, the surrounding community, its industry, and world. The analysis of environmental, social, and governance (ESG) factors in a company's financial statements has grown in importance to potential investors. These non-financial aspects, and standards of how to report them or account for them, are generating many questions for accounting regulators, like the Financial Accounting Standards Board (FASB) and the Security Exchange Commission (SEC). Questions include whether these ESG factors should be disclosed in any financial statements, should be required disclosures in all financial statements, and what kind, if any, audit procedures these non-financial factors should face. The examination of the sustainability of ESG will be accomplished by focusing on the cost/benefit analysis of auditing these factors, whether they should and can be measured, and whether the ESG factors should be included in the standard financial statements or be separately disclosed in an ancillary financial statement.

**Student:** Fernandez, Emalisse

**Major:** Nursing

**Faculty Mentor:** Christy Skelly

**Presentation Time:** 6:40-7:00

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** Overlooked and Underdiagnosed: Paternal Postpartum Depression

**Abstract:** Paternal Postpartum Depression (PPD) is a form of depression that may occur in fathers during their partner's pregnancy or after the birth of their child. This is more severe and intense than "baby blues," which may only last one to two weeks following birth. PPD can begin to interfere with daily life and the ability to care for the child. Symptoms vary per person, but may include depressed mood, sleep and appetite changes, anger, feelings of worthlessness, fatigue, difficulty bonding with the infant, severe anxiety, thoughts of harming the infant, and thoughts of suicide. Although PPD in mothers is a large focus of care in the medical field, to date, there are a limited number of findings and studies related to paternal PPD. Furthermore, there is no specific screening tool or set of criteria specifically targeted towards diagnosing paternal postpartum depression. This study aims to survey the education and beliefs of healthcare professionals in the realm of paternal PPD and what screening tools, if any,

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they utilize. The goal is to further emphasize the need for screening and treatment related to paternal PPD, while also assessing the rate at which fathers are currently screened in the United States.

**Student:** Flemming, Hannah

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 3:40-4:00

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** Sickness in the Shadows: The Struggle of Undocumented Immigrants for COVID-19 Relief

**Abstract:** The COVID-19 pandemic in the United States is disproportionately affecting immigrant communities, particularly those who are undocumented. Undocumented immigrants are functionally excluded from COVID-19 relief initiatives, specifically stimulus checks and COVID-19 testing and vaccinations, and they are discouraged from seeking out proper medical care for fear of potential retaliation or deportation. Many undocumented workers do not have the privilege of staying home, as many are essential workers in the service industry or work in the informal economy and cannot afford to go without pay. Since the aggressive anti-immigration policies of the Trump administration, the process of proper documentation has become far more difficult, and especially during this time of national crisis, the documentation process has only become more convoluted. As our current policies stand right now, undocumented immigrants are either being forced to work during a deadly pandemic or stay home with no income, wholly excluded from the social safety net. This paper aims to propose viable policy options that would both undo harmful anti-immigration policies and functionally include undocumented immigrants and their families in COVID-19 relief programs to bring an end to the economic crisis they are facing and lessen the expansion of the COVID-19 pandemic as a whole.

**Student:** Fox, Catherine

**Major:** Marine Biology

**Faculty Mentor:** Melanie Langford

**Presentation Time:** 5:40-6:00

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** Identifying the Skin and Gut Microbiome of Three Shark Species in Tampa Bay, Florida

**Abstract:** A microbiome is a microbial community occupying a defined habitat and includes the microbial structures, DNA, and other properties of the microorganisms. The shark microbiome is vastly understudied; only seven peer-reviewed research studies have been published on the topic. Shark microbiomes may hold the key to understanding some unique processes and abilities, such as the ability to digest large amounts of seagrass as observed in *Sphyrna tiburo*, and the capacity to recover quickly from skin injuries as documented in *Carcharhinus melanopterus*. Previous microbiome studies of sharks have been limited to a few specific anatomical locations including the skin, gills, teeth, and gut. In the past, gut microbiome studies have required dissection of dead sharks, but this study will be one of the first to identify microbial species from the gut of live, wild sharks using minimally invasive techniques. Similar noninvasive techniques will be used to collect microbial samples from the skin. Our objective is to use culture-independent techniques to identify microbial species present on the skin and in the cloaca of bonnetheads (*Sphyrna tiburo*), bull sharks (*Carcharhinus leucas*), and blacktip sharks (*Carcharhinus limbatus*) in Tampa Bay. We specifically aim to 1) collect microbial samples from *S. tiburo*, *C. leucas*,

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and *C. limbatus*, 2) perform DNA extraction in the lab, and 3) use metagenomic sequencing to identify microbial species present. This study will be the first to identify microbial communities collected via cloacal and skin swabs in these three species. Our results may provide a better understanding of how the microbiome affects processes unique to sharks, adding to the growing body of knowledge involving host-microbiome interactions.

**Student:** Franklin, Linlee

**Major:** Communication

**Faculty Mentor:** Katherine Loh

**Presentation Time:** 2:40-3:00

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Meghan Markle: Drama in the Kingdom

**Abstract:** In this study, the role of conflict and reframing in the media is examined, specifically in regards to race and ethnicity. This study looks specifically at Meghan Markle and Prince Harry's relationship with each other and with the royal family. It takes a deep dive into how Meghan Markle's mixed ethnicity has impacted her relationship with herself, her husband and family, and the royal family. Through analyzing headlines, themes of news articles, and interviews with Meghan, the relevance and impact of her race on her relationships will be viewed. Conflict is a concept that is prevalent in all areas of life in everyone's life; however, as a celebrity and strong political figure, the duchess' choices and conflict management skills are observed much more closely than the average human since her decisions influence her following. The choices that Meghan Markle and Prince Harry have made thus far have had quite an influence on not only England but also on the world and the world's view of England. There is no doubt that their impact has begun to change the world forever.

**Student:** Freijo, Kira

**Major:** Psychology

**Faculty Mentor:** Melanie Fowler

**Presentation Time:** 3:40-4:00

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Conceal, Don't Reveal: The Effect of LGBTQ+ College Students Hiding Their Identity

**Abstract:** A concealable stigmatized identity (CSI) is an identity that has been stigmatized historically, but is not immediately visible to others, and therefore can be concealed (Quinn & Earnshaw, 2013). Many people with CSIs are motivated to conceal their identity to avoid stigma, but this action is significantly associated with higher levels of depression and generalized anxiety, reduced positive affect, and increased negative affect (Feinstein et al., 2020; Mohr et al., 2019). College students are under a lot of stress in general (Saleh, Camart, & Romo, 2017) and college students with CSIs experience additional stressors which can negatively affect their college experiences. The proposed study intends to research the relationship between concealment factors of LGBTQ+ college students and their academic performance and college involvement. I plan to survey LGBTQ+ college students on their level of outness, experience with discrimination, amount of internalized stigma, academic performance, and involvement at their college. It is hypothesized that there will be a negative correlation between concealment factors and academic performance and college involvement, further providing support for

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the implementation of measures that will reduce stigma and provide campus support to LGBTQ+ college students.

**Student:** Gascon, Noelle

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 6:00-6:20

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** Women are Crucial to Sustainability: Addressing Gender Inequality and Education in Developing Nations

**Abstract:** The quality of an individual's education is a key determinant of their success in life. In many developing countries, however, gender inequality is prevalent. Specifically, many nations retain patriarchal societies, and only utilize women in stereotypical gender roles that do not afford them the ability to be educated. For example, in Northern Africa, sub-Saharan Africa, and Western Asia only 93 girls are enrolled in primary school to every 100 boys, with an even larger gap in secondary school. Aside from the moral wrong of this practice, it is also a clear hinderance to sustainable development, since women are effectively excluded from participation in economic activity. This severity of this problem has been recognized by the international community and promoting gender equality is one of the Sustainable Development Goals established by the United Nations in 2015. According to the United Nations 11% of young people are illiterate and lacking the means to live a sustainable life. This paper will propose three different policy options aimed at reducing the gender gap in education in the developing world. Overall, the goal is to work towards establishing greater equality in educational opportunities, ultimately aimed at addressing the broader problem of gender equality.

**Student:** Giddens, Emily

**Major:** Business Administration

**Faculty Mentor:** R. Bruce Anderson

**Presentation Time:** 4:00-4:20

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Equal Representation in Politics and the Lack Thereof

**Abstract:** The lack of female representation seen in U.S. politics is a disservice to the country and its citizenry. It will continue to hinder the success and potential of the nation until addressed. A multitude of factors have kept women out of public office, and for women to pursue a career in politics, these factors must be limited. With heightened female representation in political office, you activate the political interests of a large sector of the population: young women. While numerous scholars and scientists have analyzed why women do not run for and do not win political office, solutions have not yet arisen to reverse these outcomes. Finding this solution is the next step in effectively achieving equal political representation.

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**Student:** Goll, Alayna

**Major:** Exercise Science

**Faculty Mentor:** Sara Terrell

**Presentation Time:** 5:40-6:00

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Exploring the Relationship Between Nutrition Knowledge and Dietary Quality in Female Collegiate Cross Country Runners

**Abstract:** Introduction: High dietary quality is important for athletic populations because it may reduce nutritional deficiencies. Athletes' nutrition knowledge has been shown to influence their selection of higher quality foods. However, the relationship between nutrition knowledge and dietary practices in female collegiate runners remains unclear. Purpose: To explore whether there is a relationship between nutrition knowledge and dietary behavior in collegiate female runners. Proposed Methods: A sample of female collegiate cross country athletes from Florida Southern College will complete a 30-item sports nutrition knowledge questionnaire, testing their knowledge of the following concepts: energy intake, hydration, macronutrients, and micronutrients. Additionally, dietary quality will be assessed through a three-day dietary online tracker which will sort daily food intake into different nutrient categories. These nutrient categories will be assigned a score of 0-100 based on the Healthy Eating Index (HEI) 2015. Correlations between scores on the sports nutrition knowledge questionnaire and HEI scores will be examined. Anticipated Significance: If significant correlations are found, the proposed study may reveal nutritional deficits that can impair performance or exacerbate injury risk. It could also support the need for educational interventions that facilitate better dietary practices in athletes.

**Student:** Hagan, Rachel

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 6:20-6:40

**Presentation Type:** Senior Project

**Room:** Room 2

**Title:** Hatred of the Hijab: Islamophobia and Muslim Women in America

**Abstract:** In this paper, I investigate the phenomenon of Islamophobia in the United States, specifically how it affects Muslim women. Many scholars have researched Islamophobic speech using stereotypes of Muslim men, but research on stereotypes of Muslim women is lacking. Thus, I address the following question: Does a major terrorist attack cause a rise in Islamophobic rhetoric, and does this vary by perpetrator gender? I create a typology of Islamophobic rhetoric that outlines three different types: Muslim men are terrorists, Muslim women are oppressed, and Muslims cannot assimilate. I hypothesize that a major terrorist attack would cause an increase in Islamophobic rhetoric coming from elites. To investigate this, I chose five terrorist attacks to research in depth, then I used Congressional records to understand elite rhetoric after these attacks, taking into account perpetrator identity and using the three types of Islamophobia I outline. Muslim women are not often discussed or included in discussions, whereas Muslim men are discussed, albeit often in a negative light. I found that Muslim men are terrorists and Muslims cannot assimilate Islamophobia are evident in elite rhetoric after terrorist attacks, but Muslim women are oppressed Islamophobia is not often overtly present.

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**Student:** Hall, Catherine

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 2:20-2:40

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** Addressing Overcrowding in California's K-12 Schools

**Abstract:** The state of California's K-12 schools are among the most crowded in our nation. Each year, California's public enrollment increases between 160,000 and 190,000 students (U.S. Department of Education, 1997). Moreover, four of the nation's 26 most crowded schools are located in that state. Overcrowding in public schools causes clear harm, as studies show that it may limit students' ability to pay attention in class, result in lower achievement levels, and lead to higher rates of absenteeism. Overcrowding reduces students' ability to pay attention in school and high student-teacher ratios contribute to poor learning. Student GPA and national rank on reading, language, and math scores are affected by overcrowding. In light of the COVID-19 pandemic, the issue of overcrowding in schools has become more salient, since CDC guidelines place additional limits on class capacity. In sum, overcrowding is an issue that many California public schools face, and it prevents teachers from effectively reaching all of their students to meet their needs. In this paper, I will address the issue by analyzing the most common options to relieve overcrowding: busing students to distant schools with less enrollment, year-round education with the use of multi-track calendars, and building more facilities.

**Student:** Hallmark, Nathan

**Major:** Chemistry

**Faculty Mentor:** Jason Elsinger

**Presentation Time:** 2:40-3:00

**Presentation Type:** Honors Proposal

**Room:** Room 1

**Title:** On the Difference of Two Numbers Raised to the Same Power

**Abstract:** In mathematics, systems are often complex, requiring great amounts of work to fully solve. To combat this, mathematicians often employ the strategy of imposing constraints on the system. This work uses this strategy in relation to the difference of two numbers raised to the same power. The two base numbers are given the constraint of only having a difference of one, leading to the formulas that describe the resulting patterns. One of the more popular topics that arise from this is the use of Pascal's Triangle to highlight patterns among appearing binomial coefficients. The formulas resulting from this work can be applied to several topics in number theory problems, including the sum of three cubes, congrua, and Pythagorean triples. In addition to preliminary applications, some of the pure mathematics, including mathematical induction, is presented that was needed to prove these formulas. In order to better visualize the work, Minecraft is used as a way to display the simplest cases. This research will continue to beg the question, "just how far down the rabbit hole can one dive when given an interesting topic?"

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**Student:** Hamcho, Faez

**Major:** Biochemistry & Molecular Biology

**Faculty Mentor:** Brittany Gasper

**Presentation Time:** 5:20-5:40

**Presentation Type:** Senior Project

**Room:** Room 1

**Title:** Characterization of the Mutant ProP Protein in *Salmonella enterica* serovar Typhimurium

**Abstract:** Of the 2,500 variants of *Salmonella*, around 100 are pathogenic. In a manner similar to the kidneys, *Salmonella* has mechanisms to adapt osmotically stressful environments. ProP is a transport protein on *Salmonella* that senses a hyperosmotic environment and transports proline and glycine betaine to maintain homeostasis. In current literature, scientists know that ProP undergoes post-translational modifications in osmotically stressful environments that allow for increased uptake of solutes. Researchers are not sure of what post-translational modifications occur. In a past study, six mutated strains of *Salmonella enterica* serovar Typhimurium with point mutations in ProP were generated. Mutants with increased ability to adapt to osmotically stressful environments may have phenotypes similar to the post-translationally modified ProP. Understanding the effect of these mutations and the location in which they occur provides insight into how ProP changes in response to osmotic stress. Using these mutants, growth charts that allow for visual verification of whether the mutations allow for greater growth in osmotically stressful environments have been generated, the amino acid sequences of the mutated regions have been compared to 20 other closely related bacteria to identify if the regions are conserved, and the predicted effects of the mutations on the 3-D structure of ProP have been created. Results will be further discussed in the presentation.

**Student:** Lake, Meaghan

**Major:** Biology

**Faculty Mentor:** Nancy Morvillo

**Presentation Time:** 4:20-4:40

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** Assessment of the Synergistic Effects of the Bacterial Pigments, Prodigiosin and Violacein, to Inhibit the Growth of Pathogenic Bacteria

**Abstract:** *Serratia marcescens* is a gram-negative opportunistic pathogenetic bacterium. It has been found to produce one or more antibiotic compounds that are effective against pathogenic bacterial strains, including the multi-drug resistant class known as ESKAPE pathogens. *S. marcescens* has a bright red color, due to the production of the secondary metabolite prodigiosin, which displays properties of being an antibiotic agent. *Chromobacterium violaceum* is another gram-negative opportunistic pathogen that displays antibiotic properties against ESKAPE pathogens. *C. violaceum* has a violet color resulting from the production of the secondary metabolite violacein, another known antibiotic agent. Prodigiosin and violacein are both effective in inhibiting a variety of different bacteria, and each has been shown to have synergistic effects when used in combination with commercially produced antibiotics. Little research has been done on whether the combination of both pigments, prodigiosin and violacein, would act synergistically against ESKAPE pathogens, and if they would be more effective than the individual pigments. In this project, the effect of prodigiosin alone, violacein alone, and the combination of the pigments will be tested. The pigments will be isolated from *S. marcescens* and *C. violaceum* and will be used alone or in combination against ESKAPE-safe relatives in different concentrations. The effectiveness of the pigments alone and in combination will also be

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tested with commonly used antibiotics. Effectiveness of the antibiotic compounds to inhibit the growth of bacteria will be determined by using a Two-Way ANOVA test to determine significance between fractional inhibitory concentrations (FIC) in each of the different trials.

**Student:** Legiec, Julia

**Major:** Biology

**Faculty Mentor:** Gabriel Langford

**Presentation Time:** 4:00-4:20

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** Exploring the Affects Ureter Parasites (*Allodero hylae*) Have on Cuban Tree Frogs' Physical Development

**Abstract:** Cuban Treefrogs (*Osteopailus septentrionalis*) are an invasive species that was introduced in Florida accidentally about 100 years ago from Cuba when some frogs were undetected stowaways transported via vegetable boats (Behler and King 1979). Since the initial introduction, Cuban treefrogs have spread out throughout Florida and into Georgia, Louisiana, and South Carolina. The CTF is classified as invasive because of its high fecundity, short metamorphosis cycles, broad diet, similar habitat niches, as native species as well as reproductive interference with native species (Rodder and Weinsheimer 2010, Kennedy and Johnson 2020). These frogs are also known to be threatening to Florida ecosystems due to their diet mainly consuming native indigenous species, both larval and adult frogs, and thus reducing native biodiversity. While many studies have been conducted on the distribution and life history of the CTF in Florida, few studies exist on the parasites that infect these frogs (Andrews et al. 2015, Ortega et al. 2015). We aim to explore the affects that a population ureter parasites, *Allodero hylae*, have on developing Cuban tree frogs, *Osteopilus septentrionalis*, through comparing the mass of major organs and overall size and weight of infected frogs to control frogs. We are also interested in the growth and asexual reproduction of the parasites in the infected hosts.

**Student:** Lehmann, Tabatha

**Major:** Psychology

**Faculty Mentor:** Patrick L. Smith

**Presentation Time:** 6:40-7:00

**Presentation Type:** Senior Project

**Room:** Room 2

**Title:** Horror, Halloween, and Hegemony: A Character Psychoanalysis and Gender Study of Laurie Strode in the *Halloween* Franchise

**Abstract:** The purpose of this study is to determine how the perceptions of femininity have changed throughout time. This can be made possible through psychoanalysis of the main character of *Halloween*, Laurie Strode, from the original *Halloween* film released in 1978 to the more recent sequel announced in 2018. Previous research has shown that horror films from the slasher genre in the 1970s and 1980s (like John Carpenter's classic slasher film *Halloween*) have historically depicted men and women as displaying behaviors that are largely indicative of their gender stereotypes. Men are typically the antagonists of these films, and display perceptible aggression, authority, and physical strength; on the contrary, women generally play the victims, and are usually portrayed as weaker, more subordinate, and often in a role that perpetuates the classic stereotypes of women as submissive to males and more emotionally stricken during perceived traumatic events. Research has also shown that the "Final Girl" in

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horror films—the last girl left alive at the end of the movie—has been depicted as conventionally less feminine compared to other female characters featured in these films. My study will examine the evolution of the “Final Girl” Laurie Strode in John Carpenter's 1978 *Halloween*, Laurie Strode in the more recent 2018 sequel, and her granddaughter, Allyson Nelson, in the 2018 *Halloween* using film stills of different facial expressions (fear vs. non-fear) that can be rated on a gender role scale, which can therefore help determine how gender stereotypes have changed within the forty-year time span between the *Halloween* films as a function of time and age.

**Student:** Lewis, John

**Major:** Computer Science

**Faculty Mentor:** Matthew Eicholtz

**Presentation Time:** 4:40-5:00

**Presentation Type:** Senior Project

**Room:** Room 2

**Title:** What Can Hollywood Learn from YouTube?

**Abstract:** Though most of a film's marketing budget is directed toward television advertisements, the rise in video-sharing platforms provides an additional outlet for promotion. Arguably, the most notable of these video-sharing platforms is YouTube. This paper addresses how the data of a film trailer released on YouTube—like view-, comment-, like- and dislike-count—help predict the generated revenue for a film, additionally exploring how these features expand on the effect of other features in the film making process. The data used to evaluate these features is generated based on data from films released in the 2010s in The Movie Database (TMDb) and video trailer statistics from the YouTube Data API. Specifically, these features are used to train machine learning models to evaluate which features are significant and which models are most successful to reveal connections between these features and revenue. This work closely examines the impact of the statistics of a film trailer from YouTube to help producers better understand the impact of their investments.

**Student:** Lowery, Brooke

**Major:** Exercise Science

**Faculty Mentor:** Sara Terrell

**Presentation Time:** 4:20-4:40

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** Aerobic and Resistance Training: A Cornerstone of Care in the Treatment and Management of Cystic Fibrosis

**Abstract:** Cystic fibrosis (CF) is an inherited progressive chronic disease, predominantly diagnosed by the age of two, and is caused by a mutation in a protein called cystic fibrosis transmembrane regulator (CFTR). The mutation creates a thick and sticky mucus inside the lungs, pancreas, and intestines. Consequently, those affected may present lung infections, breathing problems, poor growth, and malnutrition. The disease affects multiple systems; however, the main complications exist in the respiratory system. There are non-surgical treatment options available to improve quality of life, extend one's lifespan, and decrease the need for a lung transplant: medications, airway clearance techniques, high frequency chest oscillation vests, nebulizers, pancreatic enzyme supplements, and exercise interventions. Exercise interventions consisting of aerobic and/or resistance training modalities have demonstrated significant improvements in parameters of aerobic capacity, lung function, and muscular

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strength. Improvements in posture, body composition, and glycemic control have also been observed. Therefore, the purpose of this presentation will be to describe CF and common treatment options, explore resistance and aerobic training intervention outcomes, and to provide an example exercise prescription.

**Student:** Martin, Bailey

**Major:** Marine Biology

**Faculty Mentor:** Melanie Langford

**Presentation Time:** 6:00-6:20

**Presentation Type:** Senior Project

**Room:** Room 1

**Title:** Shell of a Life: A Review of the Geographic Frequency of Amphipods, Cnidarians and Annelids as Loggerhead Sea Turtle (*Caretta caretta*) Epibionts

**Abstract:** Loggerhead sea turtles carry diverse communities of organisms including many invertebrate species on their carapace as epibionts. Investigating the frequency of amphipods, cnidarians and annelids from several epibiont studies in different hemispheres reveals geographic information such as migratory behavior about these three groups and their relationships with loggerhead sea turtles. Frequency data from 383 loggerheads in seven epibiont identification studies was extrapolated and analyzed. A total of 82 invertebrate species were described among these studies. Seven percent of the total species (six) were cosmopolitan, or found in both hemispheres. The eastern hemisphere displayed the highest overall number of species (47), followed by the western hemisphere with 29 species. The only group found in greater frequency in the western hemisphere was the cnidarians, and this study suggests that cnidarians reside primarily in one hemisphere or the other, therefore sea turtles may lose them from the carapace when migrating. Annelida species were found in low frequencies in both geographic locations but should be expected on loggerhead carapaces globally. Overall, many invertebrates, including ones described in this review, could be deemed novel obligate commensals of loggerheads and their relationship with migrating species provides insight to movement patterns and the life stages of sea turtles.

**Student:** Marusko, Benjamin

**Major:** Biology

**Faculty Mentor:** Jarrod F. Eubank

**Presentation Time:** 3:20-3:40

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** Biomedical Applications of Metal Organic Frameworks

**Abstract:** Under the guidance of Dr. Eubank, I have been exploring the biomedical applications of metal organic frameworks. These frameworks have been found to have antimicrobial properties, and we hypothesized that they may be used on dental implants to inhibit the growth of different bacteria responsible of periimplantitis. This project has consisted of the development and structural analysis of several different frameworks, and preliminary inhibition testing has shown that our developed frameworks have high potential for microbial inhibition. Several novel framework structures have been produced and structural changes under varying environmental conditions have been recorded. In order to further explore the potentiality of the frameworks use in organic settings, we have also been analyzing the conformational changes in structure due to humidity or surrounding moisture. In order to improve

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the frameworks' antimicrobial properties we have also begun to incorporate specialized drugs while trying to maintain a stable structure. Through my senior year honors research, I hope to continue working on this study and produce conclusive results through further development and organic testing.

**Student:** Mazariegos, Kayleigh

**Major:** Marine Biology

**Faculty Mentor:** Gabriel Langford

**Presentation Time:** 5:40-6:00

**Presentation Type:** Senior Project

**Room:** Room 1

**Title:** Movement and Physiology of Invasion Front Cane Toads (*Rhinella marina*) in Central Florida

**Abstract:** In Australia and Florida, cane toads (*Rhinella marina*) are an invasive species that have wreaked havoc on local ecosystems. Native to South America, these toads secrete a toxin harmful to both native fauna and humans. Previous studies in Australia have established that actively invading toads change morphologically to have longer limbs, greater speed, and greater endurance compared to those that remain established in a single population. However, our research in central Florida suggests that the opposite may be occurring. Experimental studies on toads suggest that those at Florida invasion fronts have shorter limbs, less mass, and less endurance. In addition, surveys evaluating the movement of the invasion itself were taken over six years to follow the path of travel and establish mean migration across the state. Contrary to the rapid expansion in all directions seen in Australia, the Florida invasion appears to follow human development such as roadways eastward from Tampa, Florida. Additional research is required to establish a mechanism creating the discrepancies between the two populations of invasion and established toads in both Florida and Australia. Establishing the differences between the two groups can give key insight into the management strategy of this invasive species and help preserve the health of Florida's ecosystem.

**Student:** McDermott, Morgan

**Major:** Economics & Finance

**Faculty Mentor:** Joseph Connors

**Presentation Time:** 2:40-3:00

**Presentation Type:** Honors Proposal

**Room:** Room 2

**Title:** The Economic, Political, and Environmental Implications of the Beijing 2022 Olympics

**Abstract:** At the 128th International Olympic Committee (IOC) session in 2015, Beijing and Zhangjiakou were awarded the 2022 Winter Olympics, making Beijing the first city to host both the Summer and Winter Olympics. However, with COVID-19, environmental concerns, and calls for boycotts, China's Winter Olympic bid has seen much controversy. With a burgeoning Chinese snow industry and international sponsor revenue hinging on the success of the Games, countries around the world stand to lose a lot. This paper will look into the positive and negative economic impacts on the Chinese economy, consider the potential benefits and costs of a boycott, and address the environmental issues that may arise from hosting the Games in a warmer climate.

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**Student:** McDermott, Morgan  
**Faculty Mentor:** Kelly McHugh  
**Presentation Time:** 4:00-4:20  
**Room:** Room 6

**Major:** Political Science  
**Presentation Type:** Oral Presentation

**Title:** International Institutions on the Global Stage

**Abstract:** The average poor person in a rich country makes three times more than the average rich person in a poor country (Rodrik, 2012). This demonstrates the fact that countries have not seen convergence through globalization, but divergence. Mismatched institutional foundations between countries and markets lead to trade deals that fail to address these income disparities. Potential policy options include prioritizing either national or international law. Following this, two different trade philosophies emerge: maximizing international welfare programs or encouraging states to focus on national sovereignty. In this paper, I will evaluate how trade institutions and assumptions can mitigate the negative effects of globalization.

**Student:** Metcalfe, Candace  
**Faculty Mentors:** Deborah Bromfield-Lee, Shameka Shelby  
**Presentation Time:** 4:20-4:40  
**Room:** Room 1

**Major:** Biochemistry & Molecular Biology  
**Presentation Type:** Senior Project

**Title:** Evaluation of the Greener Synthesis of a Series of Electronically Modified Stilbene Analogues as Novel Anticancer Agents

**Abstract:** Cancer is the uncontrolled proliferation of abnormal cells that affects millions of people. Due to the important role microtubules play in cell division, drugs-targeting microtubules initiate apoptosis, preventing further proliferation of cancer, and thus, are often used in chemotherapy. While extensive research has been done to develop anti-cancer drugs targeting taxane and vinca alkaloid microtubule binding sites, there are currently no Food and Drug Administration approved colchicine-binding site inhibitors (CBSIs) for cancer treatment. Furthermore, natural products and their derivatives show promise in overcoming resistance and toxicity concerns. Due to natural compounds containing stilbene exhibiting anticancer activity preliminarily and targeting multiple intracellular pathways, a series of electronically varied stilbene analogues acting as CBSIs were synthesized using green chemistry principles. These analogues were purified and identity confirmed through NMR and GC-MS. Their cytotoxicity in HEK293 cells was evaluated, and their binding affinity for cancerous pancreatic cells was determined via computational docking studies, which indicated the substituents that enhanced the scaffold's effectiveness. Analogues with low HEK293 cell cytotoxicity, but a high binding affinity for cancerous cells will correspond to electron donating or withdrawing groups that enhance stilbene's anticancer properties.

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**Student:** Mills, Korinne

**Major:** Biochemistry & Molecular Biology

**Faculty Mentor:** Deborah Bromfield-Lee

**Presentation Time:** 4:00-4:20

**Presentation Type:** Senior Project

**Room:** Room 1

**Title:** The Implementation of a Spartan Model's Effect on Students' Overall Understanding of Esterification Reactions

**Abstract:** Organic Chemistry students often struggle with using information provided to them to extend to new situations. Inquiry-based labs and assignments have shown to improve students' ability to extend their knowledge to new situations. This may help students rationalizing how substituents may impact a reaction. Students at Florida Southern College have an inquiry-based lab on greener esterification that explore the effect of substituents on greener esterification reactions, which requires students understand and apply many different conceptual phenomenon. Though students can recognize there is a pattern in the data, they struggle with explaining it. An activity using Spartan, a computational software that produces calculated visualizations and numerical values for molecules and reactions, was introduced prior to the students completing the inquiry-based lab and writing their lab report. Its effect on students' understanding of the lab was then determined through comparing students' lab reports from this year to students' lab reports from previous semesters who did not complete the model-based activity. Students' learning progression throughout Organic Chemistry I and II was followed to determine the effect of the model-based activity on students' understanding as students' foundational understanding of electron density was determined at the beginning Organic Chemistry I and followed as students learned about electrophilicity and the reactivity of benzene ring derivatives via questions on in class quizzes. From the analysis of the open-ended questions on the in-class quizzes emerging misconceptions were also determined.

**Student:** Nate, Lexi

**Major:** Exercise Science

**Faculty Mentor:** Charles Allen

**Presentation Time:** 3:00-3:20

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** The Effects of Vegan and Mediterranean Dietary Patterns on C-Reactive Protein Inflammatory Biomarkers

**Abstract:** Chronic inflammation, as measured by inflammatory biomarkers such as C-reactive protein (CRP), and its association with cardiovascular disease (CVD) and many chronic illnesses has become a trending topic in recent years. CRP levels are influenced by multiple factors, including dietary patterns. Research demonstrates that both a Mediterranean diet (MD) and a vegan diet (VD) can lead to reductions in both CRP inflammation and CVD risk factors. The VD eliminates all meats, dairy, and eggs while placing an emphasis on fresh produce, whole grains, legumes, nuts, and seeds. The traditional MD is characterized by a high consumption of fresh produce, whole grains, unsaturated fats such as olive oil and nuts, legumes, and quality sourced, low-fat animal products. Future studies should seek to determine whether CRP inflammation and reductions in CVD risk factors is more related to animal product consumption or the emphasis on higher-quality food choices.

## 2021 Spring Fiat Lux Presentations

**Student:** Newton, Grace

**Major:** English

**Faculty Mentor:** Louis Di Leo

**Presentation Time:** 6:00-6:20

**Presentation Type:** Senior Project

**Room:** Room 2

**Title:** The Reality of Dystopia in Politics and Media: A Critical Examination of *Nineteen Eighty-Four*, *Fahrenheit 451*, and *V for Vendetta*

**Abstract:** The direction of Western, capitalist governments—particularly in the United States and the United Kingdom—has begun to worry certain legal intellectuals, who fear that dystopian characteristics are being normalized. Indeed, the popularity of dystopian fiction in recent years may suggest that Western readers have grown desensitized to many ideas that were once branded authoritarian. While this genre has become a permanent fixture in popular culture through young adult novels and films, its major works have sustained prominence, both in financial success and cultural impact. *V for Vendetta*, *Fahrenheit 451*, and *Nineteen Eighty-Four* illustrate dystopian futures where censorship is dictated by the government and mass media is manipulated for political purposes. This thesis is a societal criticism comparing modern-day governments and mass media to their dystopian counterparts through four common themes: deterioration of language, censorship, manipulation of information, and surveillance. First, I discuss each theme as it relates to both fictional texts and modern-day governments. Then, I bring the themes together in a general analysis of current society. Finally, I consider the implications of this real-life dystopian progression and argue that behind these subtle shifts in language, censorship, and surveillance are political aims that undermine democracy and republicanism.

**Student:** Oliver, Dylan

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 2:40-3:00

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** A New War on Extremism: How to Combat Far-right Ideology in the U.S. Military

**Abstract:** Far-right extremism undermines the foundations of liberal democracy in pursuit of a real or imagined past “golden age” in a nation’s history. This particular brand of political extremism is on the rise in the ranks of the U.S. military and must be more effectively prevented and managed. Active duty and veterans make up just seven percent of the U.S. population, and so far about one-fifth of the targets of the Capital riot investigation arrested and charged have served or are currently serving in the armed forces. If that number were higher, as it has been in many insurrections throughout history, democracy itself could have been subverted. These far-right extremist groups intentionally recruit service members or join the military themselves to learn valuable skills and expertise. Military personnel act as force multipliers in these groups and give legitimacy to their causes. The problem is nothing new, Germany and Australia have addressed the issue increasingly since the end of the Second World War each taking their own unique approaches. This paper will examine the German and Australian models of countering far-right extremism in their militaries in order to determine the best policy response for the United States.

## 2021 Spring Fiat Lux Presentations

**Student:** Pineda, Mario

**Major:** Biochemistry & Molecular Biology

**Faculty Mentor:** Deborah Bromfield-Lee

**Presentation Time:** 4:40-5:00

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** Synthesis of Chalcone Analogues

**Abstract:** The synthesis of chalcone analogues was explored based off literature that supported their role as an anticancer agent. The series of chalcone analogues were chosen based off of trends from previous literature that had the most effective functional groups, intended to be tested for inhibition against lung cancer cell line A549. Chalcones were initially synthesized with mechanochemistry and purified via recrystallization and column chromatography, however were later then synthesized by monowave heating to test the relative amounts of product synthesize for each reaction at varying temperatures. While research has not been concluded, the compounds most likely to yield the highest amounts of products relative to starting reactants should be those carried out at the highest temperature, determined by TLC and GC-MS. Next steps of the project would be focusing on the purification of synthesized chalcones within acceptable yields and then an MTT assay performed against cell line A549 to determine efficiency of each compound as an anticancer agent.

**Student:** Potter, Zoe

**Major:** Marine Biology

**Faculty Mentor:** Christy Wolovich

**Presentation Time:** 5:20-5:40

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** The Use of Problem-Solving Enrichment to Increase Resiliency in Common Bottlenose Dolphins (*Tursiops truncatus*)

**Abstract:** Resilience is a necessary component for animals' survival which allows them to return to their normal state after a negative experience. Captive animals may endure negative experiences and stress from a lack of choice and an unchanging environment, leading to physiological stress (e.g., increased respiration and heart rate) and the expression of stereotypical behaviors. Environmental enrichment and stimulation help decrease these stereotypies and increase the well-being of captive animals. Enrichment that is physically or mentally challenging (e.g., requires problem-solving) can build resilience and results in positive rewards for their effort. Increasing resilience is especially important to prevent excessive stress when animals experience dramatic life events. The dolphins at the National Aquarium (Baltimore, MD) ( $n = 6$  dolphins) will soon transfer to a natural warm water facility, which will ultimately improve their quality of life, but the translocation process will be stressful. To improve the dolphin's resilience and decrease potential future stress, I will present a series of enrichment devices that have increasing levels of difficulty ( $n = 12$  trials/dolphin). I hypothesize that the dolphins will exhibit fewer stereotypies immediately after interacting with the enrichment. I also expect that their overall respiration rate and frequency of stereotypies will significantly decrease after six weeks of enrichment trials. If positive behavioral changes occur in these dolphins, then this type of enrichment schedule with increasing levels of difficulty could be applied to cetaceans at other facilities to help improve their well-being and increase their resilience.

## 2021 Spring Fiat Lux Presentations

**Student:** Rekve, Drake

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 3:00-3:20

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** Hardened Criminals or Hopeless Addicts: Finding Alternatives to Locking Up Nonviolent Drug Offenders

**Abstract:** Ever since the United States crack epidemic and the subsequent “War on Drugs” announced shortly afterward by President Reagan, nonviolent drug offenders have been subjected to strict sentencing and crippling criminal records. This is a problem because too often, such offenders are unable to gain employment due to their criminal record. Additionally, according to the Prison Policy Initiative, incarcerating nonviolent drug offenders has not been shown to decrease recidivism rates, deter drug use, or decrease drug overdose deaths. This research will give an overview of the problem, and will also analyze prior research that has attempted to address this issue. In the end, three potential policy options will be proposed involving use of the drug courts, an experimental approach called “Second Chance,” and a law enacted in California that effectively reduced penalties for drug possession. The estimated cost, potential benefit, and estimated risk will be assessed for each policy, and by the end of the research a final selection of the most appropriate policy option will be made.

**Student:** Risko, Gabrielle

**Major:** Biology

**Faculty Mentor:** Christy Wolovich

**Presentation Time:** 4:40-5:00

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** Overmarking and the Possible Implications for Mate Guarding in Owl Monkeys (*Aotus nancymaae*)

**Abstract:** Many animals use chemical signals to communicate. Scent-related cues are especially important for nocturnal species because volatile chemicals tend to be more salient than visual cues in a dark environment. Overmarking is a distinct form of scent marking that occurs when one animal deposits scent on top of another animal’s mark. In socially monogamous species, overmarking may be a form of mate guarding as it may deter same-sex conspecifics. Owl monkeys (*Aotus nancymaae*) are socially monogamous, nocturnal primates that regularly scent mark with their subcaudal glands. It remains unknown if they use their scent marks in mate attraction and/or defense or if overmarking occurs. If owl monkeys overmark, it would be expected to occur when unfamiliar sexually mature conspecifics are present. We will observe 10 captive male-female pairs of owl monkeys (*Aotus nancymaae*) at Dumond Conservancy during summer 2021 and assess their behavioral responses to unfamiliar conspecific urine (mature male and mature female). For each trial, we will dispense 1 mL of urine (or saline for control trials) onto an absorbent material inside of the monkeys’ enclosure. During the subsequent 30 minutes, two observers will score a series of behaviors that relate to arousal, scent marking, and mate guarding. We will score whether or not the monkeys mark or urinate in the area in which the stimulus urine was deposited (i.e., overmarks) and use non-parametric statistics to determine if behaviors indicative of mate-guarding vary across treatments. Our findings will shed light onto the potential proximate mechanisms of maintaining paired status in socially monogamous primates.

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**Student:** Robinson, Corinna

**Major:** English

**Faculty Mentor:** Jennifer Leigh Moffitt

**Presentation Time:** 5:00-5:20

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Representations of Orthodox Christianity and Hellenic Polytheism in Greek American Literature

**Abstract:** Greek American literature, while extensive, has been almost universally excluded from the U.S. literary canon. My thesis proposal examines potential reasons for this exclusion and historicizes Greek immigration to the United States. In my proposal, I also address themes common among Greek American authors, including the strength of Greek Americans' connections to their ethnic heritage and attitudes toward religion, since involvement in the Greek Orthodox Church acts as one of the most significant ways that Greek culture has been preserved in Greek American communities. However, while representations of Orthodoxy are unsurprisingly prolific in each of my primary texts (*The Octagonal Heart*, *Greece by Prejudice*, *The Feasts of Memory*, *The Priest Fainted*, and *Middlesex*), remnants of Hellenic polytheism (i.e., Greek mythology and pagan religious traditions) are also present in each story. My thesis will examine the complex, multifaceted ways in which religion is represented in Greek American literature and how Greek Orthodoxy and Hellenic polytheism interact with one another and affect the stories discussed.

**Student:** Rodriguez, Rebecca

**Major:** Exercise Science

**Faculty Mentor:** Patrick L. Smith

**Presentation Time:** 3:20-3:40

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** Athlete Motivation, Self-Efficacy, and Burnout

**Abstract:** Sports psychology is used when having psychological knowledge and skills to address the optimal performance and well-being of athletes. Sports psychology includes the developmental and social aspects of sports participation, as well as systemic issues that are associated within sport settings and organizations. In this presentation, I talk about addressing and researching athlete motivation, self-efficacy, and burnout which can help further understand athlete behavior as a result of their environment, in addition to addressing performance issues/set-backs.

**Student:** Rossini, Juliana

**Major:** Exercise Science

**Faculty Mentor:** Charles Allen

**Presentation Time:** 2:40-3:00

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** Effects of Platelet-rich Plasma Injections on Cartilage Regeneration in the Knee

**Abstract:** Osteoarthritis (OA) is a disease in which the hyaline cartilage at certain joints degenerates over time. Limited treatment options are available and they are all palliative with no demonstrated ability to alter disease progression. A novel treatment called platelet-rich plasma injections (PRP) shows strong evidence in reducing pain and increasing functionality. There is limited research indicating the most beneficial PRP injection methods, and demonstrating cartilage regeneration. Future research

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should seek to determine if PRP is effective at cartilage regenerate in the knee, and determine the most effective treatment method for lasting benefits.

**Student:** Roston, Christian

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 4:20-4:40

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** Rural Flight: Examining Rural Depopulation and Its Consequences Within the State of Arkansas

**Abstract:** Rural Arkansas is dying. Since the year 2010, over 73 Arkansas cities and towns have experienced population declines of approximately ten percent. In addition, 92 Arkansas localities rank in the bottom 1,000 US Cities and towns, which measures population growth and decline, according to the US Census Bureau. While extreme, Arkansas is an example of a broader trend identified by experts in demographics: rural areas are depopulating, while urban areas are gaining population every year. As a rural areas' population declines, it also ages, as more and more working age people and families pack up their bags and head for America's population centers. Leaving thousands across the Natural State under the poverty line, with their local economies in ruin. In this paper, we will look at some of the causes to this migration as well as solutions for the future.

**Student:** Rozen, Emily

**Major:** Biochemistry & Molecular Biology

**Faculty Mentor:** Shameka Shelby

**Presentation Time:** 4:40-5:00

**Presentation Type:** Senior Project

**Room:** Room 1

**Title:** Development of Delayed Release Gelatin-NSAID Conjugates

**Abstract:** Nonsteroidal anti-inflammatory drugs (NSAIDs) are often prescribed after surgery to reduce inflammation and aid in pain management. NSAIDs, such as Advil, Motrin, and Aleve, are typically taken orally as over-the-counter medication. While these drugs are typically safe in small doses, sustained intake of high doses can have adverse side effects. The goal of this project was to design a product that would allow for direct application of NSAIDs to the surgical site, avoiding systemic circulation. By conjugating the NSAID to a gelatin hemostatic agent, the product can be applied to the open site and provide a subcutaneous delayed release. Type B gelatin was conjugated to the NSAID diclofenac using 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide (EDC) as the cross-linking agent. UV-Vis spectrometry confirmed concentrations eluted across different time frames to confirm the presence of a delayed release system. Use of this new technology in post-operative scenarios may help to lower NSAID intake, efficiently aid in patient pain management, and improve surgical protocols.

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**Student:** Sandberg, Regina

**Major:** Exercise Science

**Faculty Mentor:** Erica M. Marshall

**Presentation Time:** 5:20-5:40

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Strength and Hypertrophy Adaptations to Blood Flow Restriction Training

**Abstract:** The main goal for injured athletes is to return to sport promptly, however, they are often restricted from high-load training, the primary method to increase muscular strength. Low-load blood flow restriction training (LL-BFRT) requires a lighter load on the injured area while stimulating the metabolic stress necessary to drive muscular adaptations. To date, the research on BFRT in upper-extremity injuries is limited. However, the influence of BFRT on strength and hypertrophy adaptations in collegiate athletes with upper-extremity injuries remains unclear. Purpose: To investigate how LL-BFRT influences muscular strength and hypertrophy in collegiate athletes with upper-extremity injuries. Purported methods: A sample of collegiate athletes with upper-extremity injuries will be divided into two groups for a six-week intervention: traditional injury rehabilitation with supplemental LL-BFRT and without BFRT. The LL-BFRT group will perform an Isometric hand-grip exercise for four sets of 30, 15, 15, 15 repetitions with a 30-second rest period, three times a week in conjunction with traditional rehabilitation. Anticipated significance: The proposed study aims to demonstrate how LL-BFRT mediates athlete recovery from upper-extremity injuries. Further, it may provide the strength and conditioning field with practical applications in order to increase the implementation of BFRT in athletic rehabilitation settings.

**Student:** Santore, Madison

**Major:** Criminology

**Faculty Mentors:** Lisa Carter, Chastity Blankenship

**Presentation Time:** 5:00-5:20

**Presentation Type:** Senior Project

**Room:** Room 2

**Title:** The Effect of College Majors on Students' Perceptions of Sexual Offenders

**Abstract:** The purpose of my honors thesis is to determine whether or not students' opinions and assumptions about sex offenders differ according to their college major. Do their academic disciplines shape their opinions or assumptions on these criminals in any way, and does it affect their perspectives on criminal sanctions and policies related to these crimes? I conducted this study by surveying a diverse population of students at Florida Southern College. Data from these surveys was then entered into SPSS, a statistical analysis software. I used this software to conduct different tests on the data in order to find relationships between variables. As the criminal justice system evolves over time, it is important to be able to gain insight from various backgrounds and professions. Such research can shine a light on what young adults understand about this type of crime and the prevention methods and sanctions that go along with it. This information can be useful in shaping new policies against sex crimes.

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**Student:** Schabes, Madeleine  
**Faculty Mentor:** An-Phong Le  
**Presentation Time:** 3:00-3:20  
**Room:** Room 1

**Major:** Chemistry  
**Presentation Type:** Honors Proposal

**Title:** Quantifying the “Golden Ratio” of Hyper-Palatable Foods: What Makes Junk Food So Addictive?

**Abstract:** The rising popularity of hyper-palatable foods is motivating research on what makes a food addictive. The current research focuses on neurological or psychological explanations, not on the foods’ physical makeup. It is suggested that food companies strategize the ratio of salts, sugars, and fats to overcome a person’s natural eating regulation, or sensory-specific satiety (SSS.) This strategy is referred to as the “golden ratio” or “bliss point” but has never been quantified. For this investigation, chemical methods will measure nutrient levels in hyper-palatable foods, and statistical analysis will find if common ratios exist amongst similar foods. If a common ratio is found, two taste test studies will be run on newly optimized recipes from the determined ratios. Tomato soup and chocolate recipes will be used for savory and sweet ratios, respectively. The first study will examine if poorly rated recipes can be improved with the ratios, and the second will examine if highly rated recipes can reduce any nutrients and be equally desirable. The implications of the latter study could mean making recipes healthier for people with conditions such as diabetes and hypertension. Ingredient reduction, without affecting palatability, can also be a major cost-saving measure for the food industry.

**Student:** Schiefele, Lea  
**Faculty Mentor:** H. A. Nethery  
**Presentation Time:** 2:20-2:40  
**Room:** Room 2

**Major:** Philosophy  
**Presentation Type:** Honors Proposal

**Title:** Defining Disabilities

**Abstract:** Both Germany and the United States have laws protecting people with disabilities from discrimination. This paper examines how the laws in both countries define the words “person” and “disability,” and the effects these definitions have on disability rights in both nations as well as how they differ. According to the CDC, in 2020, more than 61 million Americans or 26% of the adult population in the United States had a disability. This number has only risen, as in 2010, the United States Census Bureau reported that 56 million Americans, or 19% of the adult population had a disability. Furthermore, this paper explores how these definitions affect policy decisions concerning disability rights and how those decisions then affect people with disabilities both on paper and in their everyday lives. As the percentage of Americans with disabilities grows, it becomes more important to understand disability rights both here in the United States and abroad.

**Student:** Schulz, Natalia  
**Faculty Mentor:** Kelly McHugh  
**Presentation Time:** 4:40-5:00  
**Room:** Room 6

**Major:** Political Science  
**Presentation Type:** Oral Presentation

**Title:** Moving Beyond Money: Examining the Need for Cash Bail Reform

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**Abstract:** On any given day in 2015, 700,000 people were put into local jails; however, most of them had yet to be convicted of a crime (ACLU). There are a slew of issues with the cash bail system, and it must change. Approximately 34 million people live below the poverty line, and would likely not be able to pay the bail set for their release (Census Bureau). This leads to an onslaught of serious consequences for these individuals: losing their job(s), housing, families, and more. Moreover, while judges must follow a code of conduct, bias is implicit and public opinion plays a role in their decision making. Specifically, cash bail hurts people of color most due to implicit biases. For example, Black and Latino men assessed higher bail amounts than white men for similar crimes by 35 and 19 percent on average, respectively (Onyekwere, 2019). I conducted a policy analysis, and concluded that implementing a pretrial service agency is the best option. A Pretrial service agency is the best option because it reduces bias by removing race from the factors for release, and does not provide financial release conditions.

**Student:** Schwartz, Charissa

**Major:** Economics & Finance

**Faculty Mentor:** Joshua D. Hall

**Presentation Time:** 5:40-6:00

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** Starting Strong, Now Finishing Strong: Analysis of Private, Southeastern United States Undergraduate Institutions' Degree Completion Rates Within Normal Time

**Abstract:** Undergraduate degree completion rates in the United States have continued to climb year after year, but far less advertised is the fact that these rates have always been notably low: in 2018 only 40 percent of U.S. undergraduate students completed the four-year degree that they were pursuing on time, or within four years. (Editorial Board, 2018) The four-year undergraduate completion standard has actually become so progressively unmet that educators are transitioning towards using six years as the new measure for completing an undergraduate degree; even so, the numbers are still dismal: in 2018 only 59 percent of U.S. undergraduate students completed their traditionally four-year degree in six years (National Center for Education Statistics, 2020; Editorial Board, 2018). Drawing data from the National Center for Education Statistics and the U.S. Department of Education: Campus Safety and Security while utilizing the coding language R within the statistical computing platform RStudio, this study analyzes how campus characteristics, safety measures, financial statistics, and crime rates contribute to, inhibit, or interestingly have little to no impact on degree-completion rates—aiming to make actionable recommendations to higher institutions on improving respective degree completion rates.

**Student:** Sill, Grace

**Major:** Religion

**Faculty Mentor:** Brian Hamilton

**Presentation Time:** 6:40-7:00

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** Are You My Mother: Redefining Adoptive Relationships Through a Comparative Study of Western-Christian and Confucian Ethics

**Abstract:** According to Adoption Network, a U.S. adoption agency, nearly 1.5 million Americans are adopted, and 100 million Americans have an immediate family member who is adopted. Despite

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adoption's overwhelming presence, research and discussion of Christian doctrine on adoption as a social practice is lacking. The few published works in existence analyze adoption in light of God's divine adoption of humanity, adoption compared to the Trinitarian relationship, and adoption as a desirable choice because of Jesus' social ethics. To redefine current perspectives of adoptive relationships in the West, my research will integrate Confucian ethics with the Christian tradition to analyze parent-child relationships and how these relationships function in society. While adoption in the West is overly focused on biological relationships, Confucianism and Chinese culture does not limit family units to biological relationships. By looking to Confucianism's conceptions of filial piety and parent-child relationships, my research aims to craft an adoptee-centered ethics of adoption and uphold the value of adoptive relationships in the West. Modern families have diverse compositions, and a Christian ethics embedded in God's love must recognize the inherent value of these relationships.

**Student:** Silva, Benjamin

**Major:** Economics & Finance

**Faculty Mentor:** Joshua D. Hall

**Presentation Time:** 6:00-6:20

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** School Funding and the Quality of Education: A Fresh Look at an Old Question

**Abstract:** In this paper, we examine the factors that contribute to improving the quality of education in United States. Recently, with increasing attention to public education spending, the conversation shifted to the impact of increased spending on quality of education. For this study, we examine recent work done on this topic and do our own data analysis based on state-by-state data. While the previous literature shows mixed results, our data analytics found a significant positive associate with spending and higher quality of learning. However, spending in certain areas such as instruction have a stronger relationship with quality of learning compared to others. All things considered, we find a significant positive relationship likely exists between spending and quality of education. This effect also likely varies between states or countries and depending on where the money is spent, meaning decisions about funding changes should be made by individual states or schools.

**Student:** Simpson, Julia

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 5:00-5:20

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** Suspending Educational Inequity: A Policy Analysis of Achievement Gaps in the U.S.

**Abstract:** Among the 50 states in the United States, the success among grade school students varies substantially, creating achievement gaps. An achievement gap is a "disparity in academic performance between groups of students" (Ansell, 2004). Most notably, it is used to describe performance gaps between students of color, primarily Black and Hispanic students, and non-Hispanic white students, as well as "the disparity between students from low-income families and those who are better off" (Ansell, 2004). Based on national test scores, we can see a few patterns and trends. States with lower median incomes (especially those in the Southeast and Southwest) tend to have lower performance rates among grade school test scores (The Nation's Report Card). Higher performance states include some from the

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Northeast, Northern Midwest, and Northwest (The Nation's Report Card). By observing and analyzing policy options used by states that proved to successfully minimize achievement gaps, as well as educational policies that positively impacted the achievement outcomes in different countries, we can find solutions that can be instated by states to better their educational outcomes.

**Student:** Solis De Ovando, Nicholas

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 6:40-7:00

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** Analyzing the Impact of Covid-19 on Physical Fitness and Nutrition in Young Adults and Adolescents in the United States

**Abstract:** The Covid-19 Pandemic has had detrimental effects on the physical fitness and nutrition of young adults and adolescents in the United States. Pre-Covid-19, the United States was already battling elevated levels of obesity. The elevated levels of obesity have created higher risks of cardiovascular disease and diabetes. The Covid-19 lockdown restrictions, limiting of social areas, restricting fitness oriented businesses, and online remote learning have contributed to the rising levels of obesity. This research paper will analyze scholarly articles and statistics to determine the best possible course of action to mitigate the rising levels of obesity that have been exacerbated by the Covid-19 Pandemic.

**Student:** Soto, Giselle

**Major:** Biology

**Faculty Mentor:** Brittany Gasper

**Presentation Time:** 2:20-2:40

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** Demonstrating the Antibacterial Properties of Essential Oils Against Antibiotic Resistant Bacteria

**Abstract:** Antibiotic resistance has been a growing issue in the field of medicine and science due to the overreliance and improper use of these medications. As a result, alternative options have been researched in order to replace the heavy dependence on existing antibiotics. Essential oils are volatile compounds that are widely used in the food, cosmetic, and pharmaceutical industry. Essential oils contain functional groups, including terpenes and aromatic constituents, that aid in antibacterial activity. Peppermint oil has been a main focus in many research papers and has been demonstrated to have antibacterial properties against bacteria such as *Staphylococcus aureus*. In this research, broth microdilution methods along with 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl-2H-tetrazolium bromide (MTT) assay on microtiter plates will be used to determine bacteria cell viability against peppermint, clove, and lemongrass oil. Clove and lemongrass oil are suspected to have antibacterial properties but have not been studied as extensively as peppermint oil. MTT assay will be used to measure the essential oil inhibitory effects as well as bactericidal effects against Gram-negative and Gram-positive bacteria. The bacteria being tested against include *S. aureus*, *Pseudomonas aeruginosa*, and *Escherichia coli*. Future implications of this research are expected to aid in developing essential oils as a possible alternative or addition to antibiotics, thus decreasing bacteria susceptibility to antibiotic resistance.

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**Student:** Stec, Grace

**Major:** Exercise Science

**Faculty Mentor:** Sara Terrell

**Presentation Time:** 4:00-4:20

**Presentation Type:** Oral Presentation

**Room:** Room 5

**Title:** Rehabilitative Approach to Femoroacetabular Impingement Syndrome (FAI-S) Among Active Patients

**Abstract:** Femoroacetabular Impingement Syndrome (FAI-S) occurs in active patients who experience hip pain during repetitive hip flexion, adduction, and internal rotation. Three variations of FAI-S exist: aspherical femoral deformity (cam femoroacetabular impingement), overcoverage (pincer femoroacetabular impingement), or both. This pathological contact often leads to a decreased quality of life and reduction in athletic performance. Many patients explore a non-operative solution, but surgical intervention has gained popularity in the past twenty years. Post-operative rehabilitative goals focus on the following patient outcomes: increasing postural control, range of motion, and proprioceptive activation while also strengthening the lower body and trunk. Each of these rehabilitative goals occur at different phases which prioritize patients achieving established benchmarks before the next therapeutic progression. Thus, the purpose of this presentation will be to describe FAI-S and identify common causes. Post-operative rehabilitative phases and benchmarks often used to facilitate optimal patient return to play outcomes will also be explored.

**Student:** Stogner, Catherine

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 3:20-3:40

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** A Currency By Any Other Name: Cryptocurrency and Regulations

**Abstract:** Before 2009 and the arrival of bitcoin, cryptocurrency, more specifically blockchain technology, was theoretical. Now, 13 years later in 2021, cryptocurrency is widespread, well-known, and constantly evolving and expanding. For most who use or invest in cryptocurrency, the allure of the burgeoning industry is the decentralized nature of crypto. This is important to note when considering the problems that are posed by the rapid growth of cryptocurrency, especially in reference to regulation. How can something that is decentralized by nature be regulated by a government that is centralized in turn? Or does it even need to be regulated at all? As it currently stands, there are countries on both ends of this spectrum as well as countries on opposite ends of even allowing cryptocurrency to be used, like Bolivia. In the United States, cryptocurrency regulation is suffering from outdatedness and misunderstanding of crypto itself. Cryptocurrency demands a form of decentralized regulation, to respect the industry and to allow for investor and user protection.

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**Student:** Swanbeck, Kaitlynn

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 5:20-5:40

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** Irreversible Injustice: Addressing Wrongful Convictions on Death Row in Florida

**Abstract:** The rate of wrongful convictions in the state of Florida is unsettling; especially as it regards exonerations and likely innocent people on death row. According to the Florida Department of Corrections, Florida holds the record for the most exonerations from death row and the state also ranks second in the size of its death row. These conditions demonstrate that despite a pattern of clear errors in sentencing, the state continues to sentence an alarming amount of people to death hastily. There must be reform, through some avenue, on this matter. In this paper, I will confront this matter by exploring policy options. Each policy option will focus on a different school of thought among criminal justice scholars, varying from expansion of resources to complete abolition of the death penalty.

**Student:** Talbert, Sophie

**Major:** Communication

**Faculty Mentor:** William Allen

**Presentation Time:** 4:20-4:40

**Presentation Type:** Senior Project

**Room:** Room 2

**Title:** Promising Young Women: Contemporary Case Studies in the Rape Revenge Fantasy Subgenre of Feature Films

**Abstract:** The rape-revenge fantasy has progressed since its exploitive origins in the 1970s, but the feature film industry still inadequately tells the stories of sexual assault survivors through this subgenre. While the rape-revenge fantasy incites conversation surrounding sexual assault, it provides no concrete solutions for survivors seeking justice. This thesis project aims to provide a narrative analysis of rape-revenge fantasy films from the past five years to highlight these short-comings in order to argue that there is a lack of necessity for the existence of this genre in contemporary. Through case studies of *M.F.A.* (2017) directed by Natalia Leite, *Revenge* (2017) directed by Coralie Fargeat, *The Nightingale* (2018) directed by Jennifer Kent, and *Promising Young Woman* (2020) directed by Emerald Fennell, it will demonstrate the subgenre's shortcomings despite its depiction of female agency. Additionally, it will articulate my suggested methods for improvement in creating a more socially responsible and beneficial narrative surrounding the aftermath of sexual assault.

**Student:** Tipton, Macey

**Major:** Accounting

**Faculty Mentor:** Collin Clark

**Presentation Time:** 3:40-4:00

**Presentation Type:** Honors Proposal

**Room:** Room 2

**Title:** A Detailed Analysis of Special Purpose Acquisition Companies

**Abstract:** Special Purpose Acquisition Companies (SPACs) are shell corporations that are listed on the stock exchange with the intent of raising money to acquire a private company. The company is then listed on the public market without having to go through the traditional offering process. SPACs were

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initially created in 1993 by David Nussbaum, but have recently become a big topic of conversation. While there have been over 500 SPACs listed since their creation, around 200 of them have in the last year alone. With the chaos and uncertainty surrounding the stock market this year, it brings up the question of whether or not SPACs should be federally regulated. This proposal will give an overview of SPACs and set up a foundation for the research that will be conducted over the next year to answer this question.

**Student:** Trimble, Jack

**Major:** Chemistry

**Faculty Mentor:** An-Phong Le

**Presentation Time:** 3:40-4:00

**Presentation Type:** Senior Project

**Room:** Room 1

**Title:** Development of a Field-Ready Colorimetric Test for the Identification of Synthetic Cathinones

**Abstract:** Synthetic cathinones are a class of new psychoactive drugs that have become increasingly popular around the world. There is no current method capable of identifying all cathinone derivatives due to their rapid proliferation and modification in clandestine labs. To better understand their physiological effects and to determine the proper course of action, medical professionals and law enforcement need a quick test to identify the exact compound present. Colorimetric tests are most promising, as they are cheap, rapid, and have proven useful in the detection of other illegal substances. This project focuses on the development of a novel colorimetric test capable of identifying synthetic cathinone derivatives through exploitation of the ketone functionality present on all cathinone molecules.

**Student:** Vassalotti, Ryan

**Major:** Biology

**Faculty Mentors:** Jarrod F. Eubank, Brittany Gasper

**Presentation Time:** 3:40-4:00

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** An Inquiry into the Synthesis of Zinc-based MOFs and Their Potential Use in the Prevention of Hernia Mesh Infections

**Abstract:** One of the major post-operative complications of hernia repair surgery is infection of the implanted hernia mesh. These infections are often caused by bacteria such as *S. aureus*, *E. coli*, Enterococci, and some Staphylococcus species. To prevent these infections, this study aims to synthesize a metal-organic framework (MOF) with antimicrobial properties. A MOF is a crystalline material consisting of metals and organic linkers, or ligands. These MOFs can be designed to have 2D or even 3D structures depending on the reaction conditions. In this study, consistent reaction conditions will first be determined for the synthesis of a zinc-based MOF. Alterations to the reaction conditions will be made in attempt to alter the shapes of the MOF crystals without changing the molecular structure. After both shape and structure can be controlled, the MOF will be tested against various strains of bacteria to determine the presence of antimicrobial properties. Preliminary results suggest that consistent synthesis of a particular MOF structure is possible and that control of shape without altering the structure is possible as well. Future studies will investigate the ability of the MOFs to be grown onto hernia meshes.

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**Student:** Wieleba, Amy

**Major:** Nursing

**Faculty Mentors:** Carrie Ann Hall, Judy Risko

**Presentation Time:** 6:00-6:20

**Presentation Type:** Honors Proposal

**Room:** Room 3

**Title:** Needs of Children During the Parental Death Experience

**Abstract:** An essential and often overlooked aspect of end-of-life care is the support of a client's family members, specifically children. Children face profound struggles before and after experiencing the death of a parent. There is limited research available surrounding this adverse childhood experience and the support needs of this population. A descriptive phenomenological study exploring the needs of children during the parental death experience will be conducted. The study will include a demographic survey via Survey Monkey and a semi-structured interview via ZOOM. Participants will be recruited through social media platforms using a snowballing technique. Recruitment will continue until data saturation has occurred. The sample will include around 10-12 participants who experienced the death of a parent during late middle childhood (9-11 years old) or young teens (12-14). Interviews will be transcribed, and the research team will complete a thematic analysis. Results will be shared with participants to ensure trustworthiness. It is anticipated that the results will identify the unmet support needs of children who experienced the death of a parent as a child. This study will explore the needs of children during the parental death experience.

**Student:** Wilkens, Jack

**Major:** Psychology

**Faculty Mentor:** Leilani Goodmon

**Presentation Time:** 3:20-3:40

**Presentation Type:** Honors Proposal

**Room:** Room 4

**Title:** The Effects of Making a Sexual Harassment Accusation on One's Perceived Image

**Abstract:** I will be proposing my research project on how making an accusation of sexual harassment affects how one is perceived, specifically when crossed with the accuser's gender and attractiveness. In other words (for example), are more attractive individuals considered more trustworthy than less attractive individuals after making a sexual harassment accusation? The independent variables being studied are gender, attractiveness, and the presence of a sexual harassment accusation. The dependent variables being measured will be trustworthiness, hireability, workplace competence, and likeability.

**Student:** Williams, Tyler

**Major:** Political Science

**Faculty Mentor:** Kelly McHugh

**Presentation Time:** 5:40-6:00

**Presentation Type:** Oral Presentation

**Room:** Room 6

**Title:** Violent Guns: The Push for Gun Control to Combat Violent Crime

**Abstract:** Violent crime is a serious issue in America; the FBI states that violent crime "is composed of four offenses: murder and non negligent manslaughter, rape, robbery, and aggravated assault". Over the past five years, violent crime rates have overall decreased, but politicians are calling for more restrictions. Policies such as background checks ran by the FBI on all purchases. Many people see the

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widespread use of firearms in violent crimes and mass shootings as a reason to increase restrictions and regulations on who can own types of firearms are already enacted. However, sometimes politicians propose restrictions that either already exist, do nothing to help, or serve as a public relations piece for parties to argue about. That is why I believe that federal gun legislation is ineffective in solving the violent crime problem in America. In this paper, I will examine data on the effectiveness of specific types of regulations both proposed and existing, including the current HR127 on the federal level, a Missouri bill that is being passed, and the Constitutional amendment which the argument is based on. From this I will formulate a policy that balances the costs, benefits, and risks associated with the issue.

**Student:** Winton, Amber

**Major:** Biology

**Faculty Mentor:** James M. Lynch

**Presentation Time:** 6:40-7:00

**Presentation Type:** Senior Project

**Room:** Room 1

**Title:** Testing the Validity of the InjurySway App and Vibration's Effect on Shoulder Control

**Abstract:** Upper extremity stability is critical for injury prevention. Vibration may improve proprioception, reducing injury risk. Mobile applications are accessible reliable tools to measure recovery in athletes. One research purpose investigated whether the InjurySway iPhone app is a valid measure of upper extremity proprioception. The other was whether an acute bout of shoulder exercise performed with an inexpensive vibration toy improves shoulder position sense. Each session, the subject held the phone on the palm, arm forward for 20 seconds both arms. Each subject then completed a Full Can exercise set with the randomly assigned BumbleBall state (vibration/no vibration) and repeated the app stability measure. Subjects completed a session with the Closed Kinetic Chain Upper Extremity Stability Test (CKCUEST). Subjects assumed a pushup position and alternated touching two pieces of tape, 36 inches apart for 15 seconds. Thirty subjects (age 18-22) completed three trials. There was no correlation between path lengths of the conditions and CKCUEST touches. There was a significant decrease in sway over time for both conditions, but no significant difference between the two. Therefore, the Full Can exercise bout decreased sway, but vibration did not contribute to a significant difference. The InjurySway app is not a valid proprioception measure.

## *Poster Presentations*

In alphabetical order by presenter's last name.

Each poster presentation features a three to four minute pre-recorded video presentation, which you are invited to watch prior to Fiat Lux. Video links are on the following pages, as are links to the posters in Florida Southern College's Digital Repository.

Poster presenters will host individual question and answer sessions from 7:00-7:20.

## 2021 Spring Fiat Lux Poster Presentations

**Student:** Diamond, Ryan

**Major:** Exercise Science

**Faculty Mentor:** Erica M. Marshall

**Pre-recorded Presentation:** [Click to View](#)

**Poster:** [Click to View](#)

**Question & Answer Session:** Room 1

**Title:** Using the Post-exercise Muscle Ischemia Test to Predict Hypertension

**Abstract:** Hypertension increases risk cardiovascular disease and mortality and is defined as a systolic blood pressure (SBP)  $\geq 130$ mmHg and/or a diastolic blood pressure (DBP)  $\geq 80$ mmHg. Early detection and prevention are essential. The American College of Sports Medicine suggests that hypertension may be predicted by an exaggerated blood pressure (BP) response. Further, this abnormal BP response may be mediated by a heightened metaboreflex. The post-exercise muscle ischemia (PEMI) test can be used to assess BP reactivity due to actions of the metaboreflex. During the PEMI test, the subject performs two minutes of isometric hand grip exercise. Then, in the final seconds of exercise a BP cuff on the upper arm is inflated to suprasystolic levels for three minutes. BP reactivity is calculated as the difference between the highest and lowest BP during the test and rest. If the individual has an increase in BP  $\geq 22$  mmHg they are considered a hyperreactor. Therefore, the PEMI test may be used by exercise and health professionals to identify hyperreactors, or those at risk for developing hypertension. Following this test, an intervention can then be initiated, such as exercise training, to improve BP reactivity and hypertensive risk.

**Student:** Eidenschink, Emily

**Major:** Exercise Science

**Faculty Mentor:** Erica M. Marshall

**Pre-recorded Presentation:** [Click to View](#)

**Poster:** [Click to View](#)

**Question & Answer Session:** Room 2

**Title:** Using the Isometric Handgrip to Diagnose and Treat Future Hypertension

**Abstract:** Hypertension (HTN) is defined as a systolic blood pressure (SBP)  $\geq 130$ mmHg and/or a diastolic blood pressure (DBP)  $\geq 80$ mmHg. HTN is a known risk factor of cardiovascular disease (CVD), which is the leading cause of death in Americans. According to the American College of Sports Medicine, HTN may be predictable and is associated with an exaggerated blood pressure (BP) response. The isometric hand grip (IHG) test can be used to assess BP reactivity. During the IHG test, the subject performs a 30% maximal voluntary isometric contraction of the forearm muscles with a hand grip dynamometer for two minutes. BP reactivity is calculated as the difference between the highest BP during the IHG test and BP at rest. Although a universal standard is not defined, generally a rise in BP  $\geq 22$  mmHg is abnormal and the individual is considered a hyperreactor. Thus, the IHG test may be used to identify those at risk for developing HTN. In the literature, exercise training using the IHG has been demonstrated as an intervention to improve BP reactivity on the IHG test. In summary, the IHG is multipurpose tool that can be used by exercise professionals for potential diagnoses and treatment of future HTN.

## 2021 Spring Fiat Lux Poster Presentations

**Student:** Francey, Eva

**Major:** Psychology

**Co-presenters:** Rachel Henn, Mallory Stiegler

**Faculty Mentor:** Leilani Goodmon

**Pre-recorded Presentation:** [Click to View](#)

**Poster:** [Click to View](#)

**Question & Answer Session:** Room 3

**Title:** Consumer Attitudes: Effect of the “Gender” of the Occupation and the Sales Associate’s Sex and Gender Expression on Attitudes Towards the Sales Associate

**Abstract:** Current literature suggests that learned stereotypes may contribute to the development of certain attitudes and preferences toward gender nonconformity and, the more accepted, gender conformity (Boyce & Herd, 2003; Brescoll et al, 2010; Dozier, 2017; Embry et al, 2008; Heilman, 2012; McDowell, 2015; Ritter & Yoder, 2004; Swim et al, 2019). The current gap in research is the lack of crossing sex, gender expression, and employment to see how attitudes vary depending on gender conformity and nonconformity. The purpose of the current study was to determine how participants view retail associates who are gender congruent and incongruent at gendered retail stores to determine if the sex of the employee, the gender expression of the employee, and how masculine or feminine the workplace is stereotypically viewed impacts perceptions of the sales associate. Participants (N=121) were given depictions of the retail associates then completed the “Attitudes Towards Retail Associate Questionnaire” to assess perceptions of the sales associate’s authority, credibility, competency, comfortability. Our results contradicted most prior literature by not completely supporting Social Role Theory. For example, feminine females rated highest in the sports store with a score of 6.50. Continuing research in this field is important due to the pertinence it has on businesses and the economy. Businesses can utilize this information to better themselves and better understand how to reach more diverse target demographics who do not hold traditional gender views.

**Student:** Horton, Shea

**Major:** Computer Science

**Co-presenters:** John Marshall, John Lewis

**Faculty Mentor:** Jonathan Cazalas

**Pre-recorded Presentation:** [Click to View](#)

**Poster:** [Click to View](#)

**Question & Answer Session:** Room 4

**Title:** Traveling Salesman Heuristics

**Abstract:** The traveling salesman problem (TSP) involves trying to find the optimal path to tour a collection of cities, or vertices of a graph, based on their weights. This would seem simple enough with just a few cities, but when a tour needs to be calculated for hundreds or thousands of cities, the run time becomes completely unmanageable. It is for this reason that there are not any perfectly accurate algorithms to find the optimal path in sufficient polynomial time, but rather heuristics that can find near-optimal paths and weights. Our research revolved around finding the differences between the top heuristics for this problem and determining which would be the best for us to implement. We ended up picking Christofide’s heuristic with a 2-opt algorithm on top of that, guaranteeing us, at worst, to be at 1.5x the length of the optimal path.

## 2021 Spring Fiat Lux Poster Presentations

**Student:** Rincon-Garcia, Daniela

**Major:** Exercise Science

**Faculty Mentor:** Erica M. Marshall

**Pre-recorded Presentation:** [Click to View](#)

**Poster:** [Click to View](#)

**Question & Answer Session:** Room 5

**Title:** Using the Head Up Tilt Test to Diagnose Orthostatic Intolerance

**Abstract:** Approximately 500,000 individuals have orthostatic intolerance (OI). OI is defined as a reduction in systolic blood pressure (SBP), or diastolic blood pressure (DBP) by at least 20 and 10 mmHg, respectively within three minutes of standing. During standing, reductions in vasoconstriction contribute to venous pooling and then fainting. OI is a primary symptom in postural orthostatic tachycardia syndrome (POTS). In addition to OI, persons with POTS have reduced exercise capacity. POTS can be diagnosed using various autonomic tests, such as the head up tilt (HUT). The HUT is comprised of a 15-30 min rest in the supine position on a tilt table, followed by tilt to 60 degrees for 30-45 min. During this time, HR, SBP, DBP, and electrocardiogram measures are assessed. Collectively, diagnosis is crucial in order to improve symptoms, exercise tolerance and quality of life. Following diagnosis, appropriate interventions can be made. According to the literature, one of the most effective interventions for improving POTS is a progressive exercise program, which has been reported to be superior to use of pharmacologic agents. In summary, this presentation seeks to address OI in POTS patients, explore a modality for its' diagnoses, and report exercise interventions to improve POTS.

**Student:** Robinson, Stephen

**Major:** Computer Science

**Co-presenters:** Ibraheem Cazalas, Max Barlow

**Faculty Mentors:** Jonathan Cazalas

**Pre-recorded Presentation:** [Click to View](#)

**Poster:** [Click to View](#)

**Question & Answer Session:** Room 6

**Title:** Collaborative Programming Towards Student Engagement

**Abstract:** Our first goal was to get experience working as a full stack developer on websites, including facets of the development of web-based applications. We learned about the front-end experience, which is what the users interact with and see, the backend which handles security and storage, and the communication between the two. The research involved in this project was ultimately ground up—the students had no prior knowledge, on how to implement, design, or build this research project, resulting in the students gaining this knowledge firsthand through their own solo research processes. This is applicable to the CS industry in general, as this process of research and development is required for most companies during the development of new software. The second goal of this project was to apply this research to implement an in-house solution for student collaborative coding and program auto grading, using an integrated development environment. Students will be able to write code into their browser to solve a programming problem given by the professor, and receive a grade and feedback immediately, replacing manual grading. This method of grading provides students the ability to refine solutions without academic penalty, providing an environment which is more conducive to student learning.

## 2021 Spring Fiat Lux Poster Presentations

**Student:** Rodriguez, Rebecca

**Major:** Exercise Science

**Faculty Mentor:** Erica M. Marshall

**Pre-recorded Presentation:** [Click to View](#)

**Poster:** [Click to View](#)

**Question & Answer Session:** Room 7

**Title:** Cold Water Facial Immersion to Reduce Orthostatic Intolerance

**Abstract:** During standing, passive effects of gravity result in venous pooling in the lower extremities. In healthy individuals, these effects are largely offset by actions of the baroreflex and subsequent sympathetic induced vasoconstriction. However, in those who experience orthostatic intolerance (OI), this response may be attenuated and lead to reductions in blood pressure (BP) and presyncope. Interestingly, highly trained aerobic athletes may be at risk of developing OI due to training induced reductions in sensitivity of the baroreflex. Interventions are necessary to mitigate symptoms of OI, but not interfere with exercise training in this population. In the literature, cold-water facial immersion is one intervention that may combat this paradox. Specifically, facial immersion in 0°C cold water, or an ice pack applied to the forehead and cheeks has been shown to increase vasoconstriction in the lower extremities, thus preventing large reductions in BP and symptoms of OI. Collectively, exercise professionals may use cold water facial immersion or ice pack application as part of the exercise prescription for highly trained aerobic individuals who experienced OI.

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