



Promoting Interdisciplinary Conversations

## 2022 Western Research Day Schedule

May 4-5, 5:00-7:00pm

At the Science Building, Midtown Campus

### May 4th

[Keynote](#) speaker, SB 125, 4-5 PM

Student Presentations\*, SB, Room 219 5-7 PM

Gabrielle Johnson 5:20

Derek Kalish 5:40

Nicholas Quinones 6:00

### May 5th

[Alumni keynote](#) speaker, SB 125, 4-5 PM

Student presentations\*, SB, Room 263 5-6:30 PM

Ericka Griggs 5:20

Elizabeth Hines 5:40

Tyler Munroe 6:00

Michelle Rochniak 6:20

Awards ceremony /6:30-7 PM

\* Please plan for a 12 to 15 min presentation. You may have up to 5 min of questions. There'll be a WRD Committee moderator for each speaker, and as a professional courtesy, please remain in attendance for the entire presentation session.

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## 2022 Keynote Speaker



**Dr. Yanerys Leon** is a Research Assistant Professor in the Department of Psychology of the University of Miami (ABA Master's Program), co-director of the Intensive Behavior Intervention Services (IBIS) Clinic, and Director of Applied Research and Behavioral Training at UM-NSU CARD. Dr. Leon, a Florida native, began her training in behavior analysis as an undergraduate student at the

University of Florida. She earned her master's degree in Applied Behavior Analysis at the University of Maryland, Baltimore County (UMBC) while working in both clinical and research roles at Kennedy Krieger Institute's Neurobehavioral Unit. She completed her doctoral training in behavior analysis at the Florida Institute of Technology. Dr. Leon has spent the last decade training undergraduate and master's level practitioners in behavior analysis. In her current role as faculty in the ABA Master's Program at UM, Dr. Leon teaches advanced graduate courses in Applied Behavior Analysis and supervises graduate practicum students completing their fieldwork requirements and conducting their capstone research. Dr. Leon's current research interests can be broadly categorized into the following: a) refinements and extensions of functional analysis and function-based treatment, b) conditioned social and token reinforcement in application for individuals with ASD and IDD, and c) technological extensions of behavioral interventions. Dr. Leon was named the 2021 recipient of the BF Skinner Foundation Applied New Researcher award presented by Division 25 of the American Psychological Association and currently serves on the Board of Editors of the *Journal of Applied Behavior Analysis*. In her role as Division Director of Applied Research and Behavioral Consultation at UM-NSU CARD, Dr. Leon provides programmatic and consultative behavioral support to professionals (e.g., schools, hospitals) working with individuals with ASD and IDD.

The title of her presentation will be:

***Token Economies for Individuals with Neurodevelopmental Disorders: Bridging the Research to Practice Gap***

***Abstract:***

Reinforcement is a cornerstone of applied behavior analysis interventions. Despite the ubiquitous use of praise and tokens (i.e., conditioned reinforcers) in clinical and applied contexts (Graff and Karsten, 2012), there is a paucity of research examining best practice for arranging conditioned reinforcement systems for individuals with intellectual and developmental disabilities. In this presentation, I will discuss some considerations for establishing and arranging tokens as reinforcers in applied contexts based on basic research findings as well as applied research conducted in my lab. Furthermore, I will highlight some disconnects between basic and applied research and common applications of token systems. Finally, I will propose areas for future translational research on conditioned reinforcement and, more broadly, the need for further investigation of operant-respondent interactions.

## 2022 Alumni Keynote Speaker



**AmberJean Hansen, MPH** graduated from Western Connecticut State University in 2013 with a BA in biology and a minor in chemistry. She received a Master's in Public Health from the University of New England in 2016. Since 2015, AmberJean has been a research assistant at the Connecticut Emerging Infections Program at the Yale School of Public Health. At Yale, she works primarily on activities for the TickNET program, which is a collaboration among the CDC, state and local health departments, and academic institutions working to enhance and integrate surveillance for tickborne diseases (TBDs) to facilitate applied research projects that address key public health

questions. Her recent research projects have investigated TBD knowledge, attitudes, and behaviors, as well as acceptability of various TBD prevention methods. AmberJean's research activities also include working on a Group B Strep case-control study and a variety of COVID-19 response projects. In 2021, she was part of the team that received the Linda Lorimer Award for impactful response during the COVID-19 pandemic. AmberJean has participated in multiple infectious disease conferences and is the author and co-author of several papers and brief communications on emerging infectious diseases. She is thrilled to return to Western Research Day where she presented original research for the first time as an undergraduate student in 2013.

The title of her presentation will be:

***It started out with just ticks, how did it end up like this? Public health research in endemic and pandemic times.***

***Abstract:***

Public Health is rarely like a linear, measured 30-second tick drag. Often, we must amend the protocol as new information is gained. Experiences and skills acquired early on can help aide in our future adaptability when faced with sudden challenges. This presentation will provide an overview of a sampling of TickNET public health research projects including the Cost of Lyme Disease study, Tickborne Disease Knowledge, Attitudes and Beliefs Survey, and the recent Lyme disease Vaccine Acceptability Survey. However, what happens when a global pandemic halts your regular research? Discussion will also surround how amassed experiences in different project types allowed for a shift in gears to aide in a COVID-19 rapid public health call to action.

## Faculty Participants

Dr. Katherine Allocco  
Dr. Hasan Arslan  
Dr. Ethan Balk  
Dr. Neeta Connally  
Dr. Joshua Cordeira  
Dr. Bernard Gee  
Dr. Kristin Giamanco  
Dr. Robin Gustafson  
Dr. Alba Hawkins  
Dr. Carol Huang  
Dr. William Joel  
Dr. Rondall Khoo  
Dr. Rayda Krell  
Dr. Michelle Monette  
Dr. Theodora Pinou  
Dr. Jody Piro  
Dr. Judith Prieto  
Dr. Shouhua Qi  
Dr. Hannah Reynolds  
Dr. Forest Robertson  
Dr. Carlos Santibáñez-López  
Mr. Brian Stevens  
Dr. Edwin Wong

## Judges

<b>Name</b>	<b>Affiliation</b>
Rakhee Agarwal	Hospital
Mohsen Alizadeh	JLA
Katherine Allocco	History
Hasan Arslan	JLA
Galina Bakhtiarova	World Languages
Diane Bennett	Nursing
Keith Betts	VP Student Affairs
Kimberlee-Ann Bridges	Nursing
Kevin Burnard	Business
Eileen Campbell	Nursing
Stavros Christoffi	Math
Patricia Cumella	Nursing
Maureen Farrell	HPX
Jennifer Flynn	MIS
Kristin Giamanco	Biology
Maribeth Griffin	Housing
Robin Gustafson	Psychology
Alba Hawkins	World Languages
Krista Heybruck	HPX
William Joel	Computer Science
Rayda Krell	Biology
Rainer Kroll	JLA
Stephanie Kuhn	Education/Psychology
Bryan Lewis	Hospital
Amanda Lasicki	Financial Aid
Leslie Lindenhauer	History
Aura Lippincott	Instructional Designer
Rotua Lumbantobing	Social Sciences
Jeanette Lupinacci	Nursing
Kim Marino	JLA
Thomas Miller	JLA
Manoj Misra	Sociology
Jennifer OBrien	Library
Bozena Padykula	Nursing
Julie Perrelli	HPX
William Petkanas	Communication
Judith Prieto	Chemistry
Teresa Puckhaber	Nursing
Hannah Reynolds	Biology
Forest Robertson	Chemistry
Tricia Stewart	Education/Psychology
Jack Tom	Art
Maria Veilleux	WCSU Foundation
Mitch Wagener	Biology
Linda Warren	Nursing
Rob Weston	WCSU



## All Student Participants

Listed in alphabetical order by first author

Poster number		Title
20	Accuosti, Francine  Wednesday, May 4 Poster Presentation	<b>Christianity and Conversion in the Mayan World</b>
37	Anton, Steven  Thursday, May 5 Poster Presentation	<b>A Mixed Methods Study on the Impact of Utilizing Mixed Reality Simulations on Pre-Service Teachers' Coping and Anxiety</b>
27	Arnett, John  Thursday, May 5 Poster Presentation	<b>Effects of Urbanized Roadways on Northern Diamondback Terrapins (<i>Malaclemys terrapin terrapin</i>)</b>
22	Baillargeon, Owen  Thursday, May 5 Poster Presentation	<b>A Need for Updated Literature in the Education Curriculum Mark Twain's The Adventures of Huckleberry Finn and F. Scott Fitzgerald's The Great Gatsby</b>
16	Barbieri, Juliet  Wednesday, May 4 Poster Presentation	<b>Building the perineuronal net: Assessing the role of aggrecan in molecular assembly</b>
40	Bartush, Skylar  Thursday, May 5 Poster Presentation	<b>Perceived Stress, Coping, and Academic Success: Managing Stressors in College</b>
11	Burns, Samantha  Wednesday, May 4 Poster Presentation	<b>Cloning of Plasmodium Falciparum DHFR Gene and Mutant</b>

10	Carriero, Jade  Wednesday, May 4 Poster Presentation	<b>Undergraduate Student Perspectives on TAs</b>
4	Chiaia, Sophia  Wednesday, May 4 Poster Presentation	<b>Putting the puzzle pieces together: Assessing risk of human exposure to blacklegged ticks (<i>Ixodes scapularis</i>)</b>
8	DeCastro, Joao  Thursday, May 5 Poster Presentation	<b>Mount your Music</b>
9	deCola, Pilar I.  Wednesday, May 4 Poster Presentation	<b>The three pillars of translation: Linguistic, cultural, and research competence</b>
33	Geraghty, Meghan  Thursday, May 5 Poster Presentation	<b>The Prison Amongst Us: A History of Danbury's Federal Correctional Institution</b>
6	Griffith, Skye with: Sumairah Shareef, Tiffany Ticea  Wednesday, May 4 Poster Presentation	<b>Antibiotic Treatment Rescues Leptin Sensitivity in Obese Mice</b>

	<p>Griggs, Ericka with: Michelle Y. Monette (Western Connecticut State University, Danbury, CT), Lucas Savoy (Biodiversity Research Institute, Portland, ME), Christopher P. Persico (Biodiversity Research Institute, Portland, ME), Nina Schoch (Adirondack Center for Loon Conservat</p> <p>Thursday, May 5 Oral Presentation</p>	<p><b>An evaluation of blood heat shock proteins as biomarkers of stress in common loons</b></p>
26	<p>Guarna, Joseph</p> <p>Thursday, May 5 Poster Presentation</p>	<p><b>The End of the American Experiment? A Historical Comparison Between the Contemporary United States and Nations that Experienced a Transition to Totalitarianism</b></p>
7	<p>Guo, Wei with: Jalinette Abreu and Yesenia Castaneda</p> <p>Wednesday, May 4 Poster Presentation</p>	<p><b>Antibiotic treatment elevates blood-brain barrier permeability in obese mice</b></p>
1	<p>Gustafson, Derek</p> <p>Wednesday, May 4 Poster Presentation</p>	<p><b>Antibiotic Mediated Dysbiosis of the Gut Microbiota In Obese Mice</b></p>
18	<p>Hamel, Gabrielle</p> <p>Wednesday, May 4</p>	<p><b>The Plight of the Fallen Mother: Femininity and Motherhood in Nathaniel Hawthorne's "The Scarlet Letter" and Kate Chopin's "The Awakening"</b></p>
24	<p>Hilling, Thomas with: Dr. Hannah Reynolds (PI)</p> <p>Thursday, May 5 Poster Presentation</p>	<p><b>Microplastics and Aspergillus fumigatus in common loons (Gavia immer) collected and sampled in New England</b></p>

	Hinds, Elizabeth  Thursday, May 5 Oral Presentation	<b>From Christian to Constitution: Transforming Gender Roles of Early American Literature</b>
	Johnson, Gabrielle  Wednesday, May 4 Oral Presentation	<b>The Effect of Racism on Critical Consciousness</b>
	Kalish, Derek  Wednesday, May 4 Oral Presentation	<b>“Always a Knit of Identity”: Latent Liberal Internationalism in Emerson’s Self-Reliance and Whitman’s Leaves of Grass</b>
5	Keeler, Karen  Wednesday, May 4 Poster Presentation	<b>The Battle of Charcoal Run: Political Fractiousness in Northern Fairfield County at the start of the Civil War</b>
34	Khan, Ezaan with: Susana Almeida, Daniela Romero  Thursday, May 5 Poster Presentation	<b>Analysis of cyanobacterial toxin genes in Connecticut lakes</b>
32	Korin, Kristina  Thursday, May 5 Poster Presentation	<b>Relating Food Addiction to Substance Abuse: A Review of the Literature</b>
41	Liz, Rossi  Thursday, May 5 Poster Presentation	<b>Intervention strategies to combat iron deficiency in menstruating women: A review of the literature</b>
39	Madsen, Margaret  Thursday, May 5 Poster Presentation	<b>Constructing a Library of 2-Substituted Tetrahydrothiophenes</b>

25	Mathews, Christopher  Thursday, May 5 Poster Presentation	<b>Impact of Food/Nutrition Literacy Curriculums in Primary and Secondary Schools</b>
35	Mengler, Carly  Thursday, May 5 Poster Presentation	<b>Restoring Meadows: Ground-dwelling Beetle Diversity in relation to Native Plant Restoration</b>
2	Miller, Stephanie  Wednesday, May 4 Poster Presentation	<b>Pride &amp; Prejudice and Jane Eyre: Strong Women, Religion, and the Byronic Hero</b>
	Munroe, Tyler  Thursday, May 5 Oral Presentation	<b>Fitzgerald's Perspective of the American Dream in The Great Gatsby and Cinematic (Mis)interpretations</b>
17	Ohring, Rachel  Wednesday, May 4 Poster Presentation	<b>How Gender Roles and Social Norms are Presented in Charles Brockden Brown's Wieland and Catharine Maria Sedgwick's Hope Leslie</b>
19	Olson, Alysha  Wednesday, May 4 Poster Presentation	<b>The Patriot Game: Women in the Irish Republican Army</b>
3	Pais, Holly with: Cian Pennell, Lin Vitarbo  Wednesday, May 4 Poster Presentation	<b>Antibiotic treatment increases leptin action in obese mice</b>
28	Pennell, Cian  Thursday, May 5 Poster Presentation	<b>Transcriptomic analyses reveal shared venom components in three scorpion species in the superfamily Chactoidea (<i>Scorpiones: lurida</i>)</b>

	Quinones, Nicholas  Wednesday, May 4 Oral Presentation	<b>Daisy and the Hunt</b>
36	Ribeiro, Margaridha  Thursday, May 5 Poster Presentation	<b>Subtitles, Audio Speed, and their Sway over Attention</b>
	Rochniak, Michelle  Thursday, May 5 Oral Presentation	<b>Influence of Roman Culture and Mythology on the Writings of Veronica Franco</b>
30	Rodriguez, Anthony  Thursday, May 5 Poster Presentation	<b>Crypto-currencies as a profit maximizing tool in long term investment portfolios</b>
38	Rupar, Shannon  Thursday, May 5 Poster Presentation	<b>Chatter Crusades &amp; Connubial Pains: Female Gossip as Agency in Austen's Pride and Prejudice and Emma</b>
12	Salerno, Victoria  Wednesday, May 4 Poster Presentation	<b>HUMAN TRAFFICKING: FROM THE COURT CASES IN THE UNITED STATES</b>
23	Schoeni, Cecilia  Thursday, May 5 Poster Presentation	<b>Investigating the role of food moisture on food preference and reward</b>
13	Skrutskie, Brielle  Wednesday, May 4 Poster Presentation	<b>Study of Glutathione Reductase using Mass Spectrometry</b>

31	<p>Talati, Rachana</p> <p>Thursday, May 5 Poster Presentation</p>	<p><b>The Benefits of Breastfeeding with Mother's Milk and Donor Human Milk: A Review of the Literature</b></p>
14	<p>Westervelt, Ava</p> <p>Wednesday, May 4 Poster Presentation</p>	<p><b>Viewing the CCC through 1930s Magic Lantern Slides</b></p>
29	<p>Zavras, Christopher with: Sebastian Ojeda and Luisa Lu-Orlow (All authors contributed equally)</p> <p>Thursday, May 5 Poster Presentation</p>	<p><b>Manipulating Blood Brain Barrier Permeability and its Therapeutic Potential</b></p>

Wednesday, May 4<sup>th</sup> Abstracts

20	<p><b>Christianity and Conversion in the Mayan World</b></p> <p><i>Francine Accuosti</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Katherine Allocco, History</i></p> <p>After the initial conquest and suppression of South America and the Caribbean by the Spanish and Portuguese, the Catholic Church moved in to convert the remaining indigenous people to their faith. This project attempts to shed light on the similarities between the Mayan religion and Christianity, thereby assisting the missionaries in their goal. By comparing primary religious sources such as the Christian Bible and the Mayan Popol Vuh, I make connections of similarity in basic themes such as creation and sin. I attempt to illustrate the connection between rituals of both faiths, and their similarities. These connections are used to illustrate the ease with which it would be for the Christian missionaries to convert the Maya to their faith.</p> <p>Interdisciplinary: No   Undergraduate</p> <p><b>Poster Presentation</b></p> <p>URL for poster:</p> <p><b><a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/accuosti.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/accuosti.pdf</a></b></p>
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16	<p><b>Building the perineuronal net: Assessing the role of aggrecan in molecular assembly</b> <i>Juliet Barbieri</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Kristin Giamanco, Biology</i></p> <p>The neural extracellular matrix (ECM) surrounds cells and is comprised of an array of molecules that modulate communication and provide structural support. One intriguing structure in the neural ECM is the perineuronal net (PNN) which envelops cell bodies and extensions. Based on their temporal appearance it is hypothesized that PNNs regulate neuronal plasticity. However, we do not fully understand how PNN components interact and assemble. Here we identified immortalized cell lines to recapitulate PNN formation by examining aggrecan expression. Aggrecan is a component of PNNs that is integral in attachment to the cell surface. This allowed us to probe the molecular composition and formation of PNNs to unravel how the constituents aggregate. Abnormal PNN structure is linked to diseases like Alzheimer's, schizophrenia, and addiction. Fully understanding how PNNs normally form and ultimately function could shed light onto the pathogenesis of these diseases, thereby leading to novel therapeutic interventions.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/barbieri.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/barbieri.pdf</a></p>
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11	<p><b>Cloning of Plasmodium Falciparum DHFR Gene and Mutant</b> <i>Samantha Burns</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Judith Prieto, Chemistry</i></p> <p>Dihydrofolate reductase is a protein enzyme that catalyzes the conversion of dihydrofolate to tetrahydrofolate, which is required for the production of nucleic acid. The lack of nucleic acid synthesis interferes with cell growth and proliferation, which would allow the malaria parasite to thrive. Historically, Sulfadoxine and Pyrimethamine were both drugs that targeted the folate pathway in malaria efficiently until resistance spread throughout the world. Once the drug pressure is relieved, the parasite favors the wild type protein instead of the mutant. With this project, we are in the process of cloning the DHFR gene into the pET21b vector in order to ultimately express and then purify both wild-type and mutant versions of the protein. It is then our goal to be able to compare and contrast the structure of both to understand functional differences in relation to drug pressure.</p> <p>Interdisciplinary: No   Undergraduate</p> <p><b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/burns.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/burns.pdf</a></p>
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10	<p><b>Undergraduate Student Perspectives on TAs</b> <i>Jade Carriero</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Bernard Gee, Psychology</i></p> <p>Previous research has found that having teaching assistants (TAs) in the college classroom is beneficial for student performance. Most research on this topic either used surveys or observed student interactions with the TAs, focusing primarily on graduate TAs. This research differs from the current literature as it is designed to gain insight into how students perceive and utilize their graduate and undergraduate TAs. Additionally, it examines TA responsibilities outside the classroom that previous research does not address. To conduct this study, undergraduate students were asked to complete an online survey on their experiences with a TA. We focused on the nature of the interactions with the TA and perceived effectiveness. Specific activities, such as exam reviews and individual help, were most attractive to students. These findings could provide insight into optimizing TA effectiveness.</p> <p>Interdisciplinary: No   Undergraduate</p> <p><b>Poster Presentation</b></p> <p>URL for poster:</p> <p><b><a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/carriero.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/carriero.pdf</a></b></p>
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4	<p><b>Putting the puzzle pieces together: Assessing risk of human exposure to blacklegged ticks (<i>Ixodes scapularis</i>)</b> <i>Sophia Chiaia</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Neeta Connally, Biology</i></p> <p>In the northeastern United States, blacklegged ticks (<i>Ixodes scapularis</i>) transmit several disease-causing agents to humans. To better understand tick bite risk, we examined 615 ticks submitted by Connecticut residents to the WCSU Tick Lab. Using a scutal index, the duration of tick attachment was determined and compared with human survey data. Of 166 blacklegged ticks found crawling on or attached to humans, 76% were likely encountered in the residential setting. Adult ticks were more likely to be detected within 0-24 hours than the smaller nymphal stage tick. The majority (88%) of nymphs were found after having attached to the human body, whereas more than one-third of adult ticks were detected while crawling. The primary activities associated with tick exposure were yardwork, gardening, and playing. Our findings reinforce previous studies indicating high risk for backyard tick exposure and emphasize the importance of residential preventative behaviors, particularly for nymphal stage ticks.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/chiaia.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/chiaia.pdf</a></p>
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9	<p><b>The three pillars of translation: Linguistic, cultural, and research competence</b> <i>Pilar I. deCola</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Alba Hawkins, World Language</i></p> <p>This project is a case study of the translation from Spanish to English of the biography of German-Mexican artist Herbert Hofmann-Ysenbourg (born 1907, Hesse, Germany-died 1973, Mexico City, Mexico). Hofmann-Ysenbourg was a sculptor with international prestige in Europe and in Mexico, immigrating to Mexico City in 1939 to produce most of his life's work. Although Western Connecticut State University owns four of his sculptures in the art department, little information was available about the artist prior to this translation. This project underscores multiple competencies for successful translation: linguistic, cultural, research competence and making visible the translator's role in creating knowledge. Lawrence Venuti's theories of translation in <i>The Translator's Invisibility: A History of Translation</i> (1995) provide the theoretical framework for this study of translation as a process of creation and translators as researchers, co-producers, and authors.</p> <p>Interdisciplinary: Yes   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/decola.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/decola.pdf</a></p>
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**6 Antibiotic Treatment Rescues Leptin Sensitivity in Obese Mice****Skye Griffith**

with: Sumairah Shareef, Tiffany Ticea

Day: Wednesday

**Advisor:** *Joshua Cordeira, Biology*

Leptin resistance from obesity is caused by impaired leptin transport across the blood-brain barrier (BBB). Antibiotics improve BBB permeability, but it is unknown if antibiotic treatment improves leptin transport and sensitivity. We hypothesized that antibiotic treatment alters sensitivity to leptin in obese mice. We fed mice a very-high fat diet (VHFD) for six weeks to induce obesity and treated half with antibiotics in the drinking water. We gave all mice peripheral injections of leptin and measured body weight and food intake for 48 hours. Mice fed a VHFD did not reduce food intake or body weight indicating leptin resistance. However, mice treated with antibiotics had a decrease in food intake and body weight, demonstrating an increase in leptin sensitivity. Leptin resistance is a barrier to weight loss for obese individuals. Our results are important because they highlight the potential for antibiotic treatment to improve weight loss outcomes for obese individuals.

Interdisciplinary: No | Undergraduate

**Poster Presentation**

URL for poster:

**<https://archives.library.wcsu.edu/relatedObjects/wrd/2022/griffith.pdf>**

7

**Antibiotic treatment elevates blood-brain barrier permeability in obese mice****Wei Guo**

with: Jalinette Abreu and Yesenia Castaneda

Day: Wednesday

**Advisor:** *Joshua Cordeira, Biology Department*

The blood-brain barrier (BBB) protects the brain from bloodstream pathogens with selective permeability. Leptin, a hormone released by adipocytes in the body, regulates satiety by permeating the BBB to act in the brain. In obesity, the BBB prevents leptin from accessing the brain to promote satiety. Recent studies show that antibiotics increase BBB permeability in lean mice. It is unknown whether antibiotics can increase BBB permeability in obese mice. To test this, we treated obese mice with antibiotics and tracked the transport of a fluorescent dye across the BBB by measuring fluorescence in the blood and brain. We found that obese mice treated with antibiotics had more fluorescent dye in the brain which indicates that BBB permeability increased. Our results are important because antibiotic treatment may increase leptin transport into the brain. Antibiotic administration may improve therapies for neurodegenerative diseases where drug delivery across the BBB is essential.

Interdisciplinary: No | Undergraduate

**Poster Presentation**

URL for poster:

**<https://archives.library.wcsu.edu/relatedObjects/wrd/2022/guo.pdf>**

1	<p><b>Antibiotic Mediated Dysbiosis of the Gut Microbiota In Obese Mice</b> <i>Derek Gustafson</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Joshua Cordeira, Biology</i></p> <p>Antibiotics and obesity induce dysbiosis by reducing the overall diversity of the gut microbiota. However, they alter the composition in separate ways which are not yet completely understood. The objective of this study was to examine gut microbial species in obese mice before and after antibiotic treatment. Mice were given unlimited access to high-fat food to induce obesity. Half were treated with non-absorbable antibiotics. Fecal samples were collected before and after antibiotic treatment and microbial composition was assessed through colonization on nutrient agar plates. After antibiotic treatment, overall bacterial abundance was significantly reduced (59% v. 11%). PCR-RFLP is still being conducted to better understand changes in abundance of certain types (diversity) of bacteria. Our data highlights the dramatic impact antibiotics can have on the gut microbiome of the obese.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/gustafson.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/gustafson.pdf</a></p>
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18

**The Plight of the Fallen Mother: Femininity and Motherhood in Nathaniel Hawthorne's "The Scarlet Letter" and Kate Chopin's "The Awakening"***Gabrielle Hamel*

Day: Wednesday

**Advisor:** *Shouhua Qi, English*

Motherhood is an experience which has united centuries of women. Historically, however, it is an issue that is quite divisive. This research project examines the implications of motherhood in Nathaniel Hawthorne's *The Scarlet Letter* (1850) and Kate Chopin's *The Awakening* (1899). There are intricate differences in the ways that motherhood impacts the female characters, especially considering the different gender experiences of the two authors being examined. Hawthorne writes from a male perspective, and it is clear that motherhood is not his main concern – rather, he uses motherhood as a catalyst for an examination of Puritanism and morality. Chopin, however, places motherhood front and center, flipping the narrative of a happy domestic life and using motherhood as a reason for her main character, Edna's, downfall. By comparing these two novels, this project dives into the complicated relationships between women, their children, and the societal expectations that descend upon them.

Interdisciplinary: No | Undergraduate

URL for poster:

<https://archives.library.wcsu.edu/relatedObjects/wrd/2022/hamel.pdf>

**The Effect of Racism on Critical Consciousness*****Gabrielle Johnson***

Day: Wednesday

**Advisor:** *Robin Gustafson, Psychology*

This study experimentally investigated if an experience with racism or racial discrimination affects critical consciousness in young adults. 50 psychology students were asked to complete a 12-item questionnaire assessing critical consciousness. Prior to starting the questionnaire, participants were asked if they have directly encountered an incident of racism or racial discrimination. I hypothesize that participants who have experienced racism or racial discrimination have a higher critical consciousness score than participants who have not. Youth who experience racism can be more likely to accurately identify instances of social injustice and are more inclined to actively combat it compared to those who have not had such an experience. This paper also explores critical consciousness as a theory, its development in marginalized youth, and implications for implementing the theory in academic settings.

Interdisciplinary: No | Undergraduate

**Oral Presentation**

URL for poster:

**<https://archives.library.wcsu.edu/relatedObjects/wrd/2022/johnson.pdf>**

**“Always a Knit of Identity”: Latent Liberal Internationalism in Emerson’s Self-Reliance and Whitman’s Leaves of Grass**

*Derek Kalish*

Day: Wednesday

**Advisor:** *Shohua Qi, English*

Before Liberal Internationalism was a ubiquitous concept it was embodied by people who sought to unite human beings by focusing on the common threads that unite them. Ralph Waldo Emerson (1803-1882) and Walt Whitman (1819-1892) were two early American authors who boasted a globalist mindset and expressed latent liberal internationalism in their work. Emerson’s Self-Reliance, first published in 1841, proposed adherence to natural law over obeying tyrants or religious creeds. This open-minded approach to humanity and philosophy catalyzed the full-throated globalism and latent liberal internationalism in Walt Whitman’s Leaves of Grass. Emerson’s concepts in Self-Reliance sparked ideas of transcendence, and Whitman advanced this celebration of democracy by creating Leaves of Grass as the blueprint for bridging the gap between the transcendentalists and the realists and uniting human beings under a global mindset achieved through liberal internationalism.

Interdisciplinary: | Undergraduate

**Oral Presentation**

URL for poster:

<https://archives.library.wcsu.edu/relatedObjects/wrd/2022/kalish.pdf>

5	<p><b>The Battle of Charcoal Run: Political Fractiousness in Northern Fairfield County at the start of the Civil War</b> <i>Karen Keeler</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Brian Stevens, Archive and Special Collections</i></p> <p>This research analyzes the fractious political atmosphere at the outbreak of the Civil War around Western Connecticut to help explain an August 24, 1861 riot in New Fairfield. Area Pro-Union men had just returned home at the end of their three-month enlistment, days after their humiliating defeat at Bull Run on July 21, 1861. Concurrently, area "Peace Democrats" organized peace demonstrations. At the end of August, the raising of a white flag (known as a peace flag) on the property of the New Fairfield Town Clerk, inspired pro-Union veterans in Danbury to attempt to forcibly remove the white banner. The resulting incident became known as the Battle of Charcoal Run. Focusing on primary sources, this research intends to identify available factual information and explain the political context of this local Civil War "battle".</p> <p>Interdisciplinary: Yes, Archives and Special Collections   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/keeler.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/keeler.pdf</a></p>
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2	<p><b>Pride &amp; Prejudice and Jane Eyre: Strong Women, Religion, and the Byronic Hero</b> <i>Stephanie Miller</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Shouhua Qi, English</i></p> <p>Jane Austen's <i>Pride &amp; Prejudice</i>, published in 1823, and Charlotte Brontë's <i>Jane Eyre</i>, published in 1847, are two novels that touch on important topics that were relevant in their period of their publication. Both women have been memorialized in the literary world for their memorable characters and lessons that they teach; both authors are largely admired for their forward thinking. Strong women leads, religion, and the Byronic hero are all aspects that each authoress touches on in one way or another. Strong women and religion were difficult and sometimes controversial subjects to discuss, while the Byronic hero (credited to Lord Byron) created a troublesome (and sometimes fantasy-like attraction) that was common for male characters in literary works of the period. The three topics mentioned above play a significant role in the novels and have contributed to their lasting fame and admiration. This paper looks at the role these three topics play in each of these books.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/miller.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/miller.pdf</a></p>
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17	<p><b>How Gender Roles and Social Norms are Presented in Charles Brockden Brown's <i>Wieland</i> and Catharine Maria Sedgwick's <i>Hope Leslie</i></b> <i>Rachel Ohring</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Shouhua Qi, English</i></p> <p>Charles Brockden Brown (1771-1810) and Catharine Maria Sedgwick (1789-1867) were two authors who wrote about gender roles in their times. Certain gender roles and social norms in their texts – such as marriage – are upheld, and certain gender roles and social norms – such as women's agency – are challenged. In their novels <i>Wieland</i> (1798) and <i>Hope Leslie</i> (1827), Brown and Sedgwick both have strong female protagonists – Clara <i>Wieland</i> and Hope Leslie. These women adhere to certain expectations of their sex while also breaking new ground and being exceptional role models for young women. There are similarities between the two women, but there are also differences in how they act in society.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/ohring.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/ohring.pdf</a></p>
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19	<p><b>The Patriot Game: Women in the Irish Republican Army</b> <i>Alysha Olson</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Katherine Allocco, History</i></p> <p>For my project, I am analyzing women's involvement in the Irish Republican Army (IRA) from the early nationalist movements in the 1700s until the disbanding in 2006. I will analyze the contributions of eleven prominent women activists and examine their experiences, family connections, self-sacrifice, politics and relationship with violence through a gendered lens. Women had always been prominent in the IRA because of the roots they held in shaping Irish nationalism, their willingness to engage in IRA street protests and to lead an uprising in Armagh prison. Eventually, it was women who called for the IRA to lay down their weapons and cease their violence as they sought new avenues for defining their nation and identity in the 21st century.</p> <p>Interdisciplinary:   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/olson.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/olson.pdf</a></p>
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3

**Antibiotic treatment increases leptin action in obese mice****Holly Pais**

with: Cian Pennell, Lin Vitarbo

Day: Wednesday

**Advisor:** *Joshua Cordeira, Biology*

Leptin, a hormone produced by adipose tissue in the body, reduces food intake and body weight when acting in the brain. In obesity, leptin transport across the blood-brain barrier (BBB) is hindered and leptin ceases to reduce food intake and body weight. We examined whether antibiotic treatment, which has been shown to increase BBB permeability, could improve leptin action in obese mice. We used 2 groups of obese mice; one group received antibiotic treatment and the other served as control. We tracked changes in food intake and body weight after leptin injections. We found that leptin reduced food intake and body weight only in the antibiotic group. This supports the hypothesis that antibiotics increase leptin's action on the brain. This work is important in creating a foundation for future work in leptin resistance treatments.

Interdisciplinary: No | Undergraduate

**Poster Presentation**

URL for poster:

**<https://archives.library.wcsu.edu/relatedObjects/wrd/2022/pais.pdf>**



**Daisy and the Hunt***Nicholas Quinones*

Day: Wednesday

**Advisor:** *Shouhua Qi, English Department*

This research project explores the romantic pursuits portrayed in *Daisy Miller* by Henry James (1878) and *The Great Gatsby* by F. Scott Fitzgerald (1925). By focusing on the pursuers and the pursued and how their actions shape the thematic development of each novel, this paper argues that the tragic outcomes of each pursuit are inevitable and are overdetermined by the character traits of the protagonists and the other main players and by the sociocultural and historical milieus these people find themselves inextricably entrapped in.

Interdisciplinary: No | Undergraduate

**Oral Presentation**

URL for poster:

**<https://archives.library.wcsu.edu/relatedObjects/wrd/2022/quinones.pdf>**

12	<p><b>HUMAN TRAFFICKING: FROM THE COURT CASES IN THE UNITED STATES</b> <i>Victoria Salerno</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Hasan Arslan, 203-837-8463</i></p> <p>Human trafficking is happening throughout the United States; the severity of the problem goes without recognition. Once a person is trapped in human trafficking, the victim will be exploited in two forms: Sex and Labor worker. Informing the general public of the emerging modus operandi of the traffickers, like the use of particular language, behaviors, and tactics can enable potential victims to identify a threat before it can occur. Therefore, this study examines the following research question: What do the court transcripts tell us about the modus operandi of the human traffickers in the United States? Utilizing the data gathered from the United Nations Human Trafficking Portal (UNHTP), this study explores the particular tactics, techniques, and methods of human traffickers to target vulnerable victims in the United States.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <b><a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/salerno.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/salerno.pdf</a></b></p>
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13	<p><b>Study of Glutathione Reductase using Mass Spectrometry</b></p> <p><i>Brielle Skrutskie</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Judith Prieto, Chemistry</i></p> <p>Plasmodium falciparum is a human malaria causing parasite with known drug resistance. The drug of interest in this project is methylene blue (MB) which is theorized to selectively inhibit Plasmodium falciparum glutathione reductase (PfGR). PfGR is a key drug target since it has importance within the antioxidant pathway where, when inhibited, the parasite cannot repair cell damage caused by radical oxygen species (ROS) and does not survive. The binding site of methylene blue to glutathione reductase is not currently known, so this project utilizes mass spectrometry to map the structure of PfGR. Our goal is to utilize hydrogen deuterium exchange mass spectrometry to locate where MB binds by mapping the protein with and without the presence of MB in solution. We will report on conditions we have developed to digest the protein using pepsin, a protease, and detect the peptides on the mass spectrometer following peptide separation using reverse chromatography.</p> <p>Interdisciplinary: No   Undergraduate</p> <p><b>Poster Presentation</b></p> <p>URL for poster:</p> <p><b><a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/skrutskie.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/skrutskie.pdf</a></b></p>
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14	<p><b>Viewing the CCC through 1930s Magic Lantern Slides</b> <i>Ava Westervelt</i></p> <p>Day: Wednesday</p> <p><b>Advisor:</b> <i>Katherine Allocco, History</i></p> <p>The purpose of this Janick Fellowship project was to preserve and contextualize ~450 Connecticut Civilian Conservation Corps (CCC) magic lantern slides and discuss the role the slides played in promoting this pivotal New Deal program with an online exhibit hosted by the WCSU Archives. The CCC is known for providing jobs and education to unemployed men, but beyond these benefits, according to current scholarship, the CCC also allayed public fears of transience, rebellion, communism, homosexuality, and crime associated with idle men. Over the course of the semester, we will finish digitizing and cataloging the slides in adherence to national standards in preparation for transfer to the Connecticut State Archives. The exhibit will show slides, current images of CT CCC locations, nature conservation efforts, and how glass slides were made. This work will ensure that this important documentation of the CCC will be openly accessible in perpetuity.</p> <p>Interdisciplinary: Yes, WCSU Archives History and Art departments   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/westervelt.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/westervelt.pdf</a></p>
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Thursday, May 5<sup>th</sup> Abstracts

37	<p><b>A Mixed Methods Study on the Impact of Utilizing Mixed Reality Simulations on Pre-Service Teachers' Coping and Anxiety</b> <i>Steven Anton</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Jody Piro, Education</i></p> <p>The purpose of this convergent parallel mixed-methods study was to investigate the impact of time in Mixed Reality Simulations on anxiety levels and coping for preservice teachers. All participants completed two inventories, the Zung Anxiety Self-Assessment Scale (ZSAS) and the Personal Functioning Inventory (PFI) with the scores being compared within groups. Statistical significance was not found for any of the Paired Sign Tests for the ZSAS but was found for one of the Paired Sign Tests for the PFI. The qualitative data included an observational protocol, a demographic questionnaire, and an exit survey. Analysis of the qualitative data resulted in two primary findings. Finding one: mixed reality simulations can introduce pre-service teachers to anxiety-inducing situations. Finding two: mixed reality simulations can provide pre-service teachers the opportunity to improve their adaptability and their coping skills. The mixed methods findings were revealed by comparing the quantitative and qualitative findings.</p> <p>Interdisciplinary: No   Graduate <b>Poster Presentation</b></p> <p>URL for poster: <b><a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/anton.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/anton.pdf</a></b></p>
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27	<p><b>Effects of Urbanized Roadways on Northern Diamondback Terrapins (<i>Malaclemys terrapin terrapin</i>)</b> <i>John Arnett</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Theodora Pinou, Biology</i></p> <p>The diamondback terrapin is the only species of turtle in North America that primarily occupies brackish habitat. Roads are considered ecological traps for turtles, suggesting that the long-term effects of this artificial source of mortality can compromise their life history structure. If consistent female terrapin road mortality occurs, this could lead to a skewed sex ratio, leading to long term population declines. I will be analyzing the sex ratio and age structure of <i>M. terrapin</i> in multiple locations over a gradient of expected road mortality. I hypothesize that road mortality impacts population structure of <i>M. terrapin</i> significantly within their sex ratio and age structure. I anticipate that the high road mortality sites will result in biased sex ratios with more males, lower numbers of mature females and varying age classes for males. Alternatively, low road mortality sites will have a more even distribution of sexes and age classes.</p> <p>Interdisciplinary: No   Graduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/arnett.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/arnett.pdf</a></p>
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22	<p><b>A Need for Updated Literature in the Education Curriculum Mark Twain's The Adventures of Huckleberry Finn and F. Scott Fitzgerald's The Great Gatsby</b> <i>Owen Baillargeon</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Shouhua Qi, English</i></p> <p>Mark Twain, a world-renowned American realist writer, wrote <i>The Adventures of Huckleberry Finn</i> with the intention of depicting characters and a setting from the 1830s. Similarly, F. Scott Fitzgerald, a prominent writer from the 20th century, wrote <i>The Great Gatsby</i> intending to portray the American dream in 1925. With both novels being published in 1884 and 1925 respectively, why is it that they are still taught across the country frequently to students in middle and high school? As Bell Hooks and Paulo Freire have explained, prevalent ideologies of society shape the education they receive. This is an always evolving, always changing concept that requires educators to change what is taught to students. Above all, its foremost educators fulfill students' needs. A classic filled with derogatory slurs or includes characters that teach students to be the exact opposite of, are novels that should be replaced in an education curriculum.</p> <p>Interdisciplinary: No   Undergraduate</p> <p><b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/baillargeon.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/baillargeon.pdf</a></p>
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40	<p><b>Perceived Stress, Coping, and Academic Success: Managing Stressors in College</b> <i>Skylar Bartush</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Rondall Khoo, Psychology</i></p> <p>This study examined whether an individual's perceived stress and ability to cope had an impact on academic success. Individuals who have a greater susceptibility to experiencing stress find certain scenarios to be unpredictable and they feel that they lack control over the outcome. Individuals who do not have the means to cope with such stressors are more likely to be overwhelmed by stress. Negative effects of stress impact many areas of life, especially academics for college students. An online survey was distributed to undergraduate students to which they responded to prompts on three different scales: Perceived Stress Scale, Coping Ability Scale, and Academic Success Scale. The results of this study supported the hypothesis that individuals who had higher perceived stress scores and lower coping ability scores would score lower on academic success, suggesting that perceived stress and coping ability are predictors of academic success.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <b><a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/bartush.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/bartush.pdf</a></b></p>
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8	<p><b>Mount your Music</b> <i>Joao DeCastro</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>William Joel, computer science</i></p> <p>Learning music is not an easy task specially for kids, and the methods used today can be very confusing and become boring rapidly. My project is focused on the learning process of music notation for kids from 6 – 9 years old. It consists of a reality-based-interaction device, which can assist students in understanding the concept of duration and the position of each note on the staff. To accomplish this, I developed this device using 3D printer interacting with a microcontroller through sensors, magnets and shift register to send data to the microcontroller. The device can be assembled from scratch and each note can be placed on the lines of the staff. The device then will interpret this data using shift register and binary operation to determine the frequency and the duration of that note. Using some algorithms, after translating this data the integrated speaker will play the note.</p> <p>Interdisciplinary: No   Undergraduate</p> <p><b>Poster Presentation</b></p> <p>URL for poster: <b><a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/decastro.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/decastro.pdf</a></b></p>
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33	<p><b>The Prison Amongst Us: A History of Danbury's Federal Correctional Institution</b> <i>Meghan Geraghty</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Brian Stevens, Library</i></p> <p>As part of my Janick Fellowship, I created an online exhibit that documents the creation and significance of the Federal Correctional Institution in Danbury. I used evidence from newspapers, photographs, land deeds, maps, and oral histories. The exhibit charts the initiatives taken by the Town of Danbury, the Danbury community, and the federal government to choose, build, and participate in the construction of the penal institution. I also track the people who were important in the creation and history of FCI including Homer Cummings (US AG), Edgar Gerlach (FCI's first warden), Albert Ruffles (prominent landowner), and Martin Cunningham (Danbury's mayor), among others. Interactive maps from before and after the prison's construction highlight differences of the Pembroke District. Oral histories provide an inside look at the relations between FCI and WCSU through different periods of the prison's history and the importance the institution has and continues to have on Danbury.</p> <p>Interdisciplinary: YesHistory and Education   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/geraghty.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/geraghty.pdf</a></p>
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## **An evaluation of blood heat shock proteins as biomarkers of stress in common loons**

***Ericka Griggs***

with: Michelle Y. Monette (Western Connecticut State University, Danbury, CT), Lucas Savoy (Biodiversity Research Institute, Portland, ME), Christopher P. Persico (Biodiversity Research Institute, Portland, ME), Nina Schoch (Adirondack Center for Loon Conservation, Ray Brook, NY), and David C. Evers (Biodiversity Research Institute, Portland, ME),

Day: Thursday

**Advisor:** *Michelle Monette, Biology*

Heat shock proteins (HSPs) are chaperone proteins that are detectable in wild avian red blood cells (RBCs). Among HSPs, HSP70 can be used as a biomarker of cellular stress, which is of particular interest in wild species as HSP70 levels do not appear to fluctuate as rapidly as hormone levels during capture events. Previous research has been done to evaluate biomarkers to specific physical and chemical stressors; however, little is known about cellular stress in these birds. In this study, we tested the hypotheses that HSP70 is detectable in Common Loon RBCs, is correlated with other blood biomarkers of stress previously identified in this species, and is correlated to circulating heavy metal concentrations. Together, our results show that HSP70 is present in the red blood cells of Common Loons, and that its abundance may be correlated with other blood parameters.

Interdisciplinary: No | Graduate

**Oral Presentation**

URL for poster:

<https://archives.library.wcsu.edu/relatedObjects/wrd/2022/griggs.pdf>

26	<p><b>The End of the American Experiment? A Historical Comparison Between the Contemporary United States and Nations that Experienced a Transition to Totalitarianism</b> <i>Joseph Guarna</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Katherine Allocco, History</i></p> <p>This is an exploration of historical examples of governments transitioning to totalitarianism. In explanations of how their accounts may apply to contemporary American politics, using information gathered from a variety of sources, including Plutarch and Appian's accounts of the Roman civil wars, the Nazi Party Program, and an account on Hitler's rise to power, by German journalist Paul Scheffer, along with contemporary American journalism including "Witnessing the United States' own Beer Hall Putsch" by Benjamin Carter Hett, I connect the many totalitarian tendencies of those affiliated with the American far-right today with the rise of Nazism in the Weimar republic, and other totalitarian trends dating back thousands of years to Rome and their period of civil wars. Through this project, I concluded that the United States is on the similar path of failed governments like the Roman Republic and Weimar Germany.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/guarna.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/guarna.pdf</a></p>
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24	<p><b>Microplastics and Aspergillus fumigatus in common loons (<i>Gavia immer</i>) collected and sampled in New England</b> <b><i>Thomas Hilling</i></b> with: Dr. Hannah Reynolds (PI)</p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Hannah Reynolds, Biology</i></p> <p>Analysis of environmental threats to <i>Gavia immer</i> (Common Loon) in New England, with a focus on microplastics (Gastrointestinal tract (GIT), anthropogenic threat) and <i>Aspergillus fumigatus</i> (respiratory system, natural threat). This preliminary set consists of 120 carcasses collected across New England in 2021 and 2022 that were sampled for microplastics in the GIT and <i>A. fumigatus</i> in the respiratory system (air sacs, lungs, trachea). Concurrently, sampling of nest substrate and live loons for <i>A. fumigatus</i> will also occur during the summer of 2022. We hypothesize that both environmental threats will be widespread in <i>G. immer</i>. Furthermore, as <i>A. fumigatus</i> is known to be associated with immune stress, and microplastics may act as a source of physiological stress, we hypothesize that cases of severe aspergillosis will be associated with high microplastic quantities.</p> <p>Interdisciplinary: No   Graduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/hilling.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/hilling.pdf</a></p>
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## **From Christian to Constitution: Transforming Gender Roles of Early American Literature**

*Elizabeth Hinds*

Day: Thursday

**Advisor:** *Shouhua Qi, English*

From the early seventeenth century to the adoption of the Constitution in the eighteenth, Puritan gender roles dominated early American literature. Despite this domination, such roles underwent significant transformation across the pages of several authors. Under the control of ministers John Winthrop and Jonathan Edwards, Puritan ideology was devoutly defended. Winthrop's "A Model of Christian Charity" (1630) and Edwards' "Sinners in the Hands of an Angry God" (1741) detailed these societal structures. However, poet Anne Bradstreet challenged these ideals through poems such as "The Author to Her Book" (1650) and her role as a successful female professional. Her work moved the lens of gender roles from Puritan to political. Following this movement, the United States Constitution outlined both the progress made, and the progress yet to come. This nonlinear, lengthy transformation of gender roles spans over an entire century, with each shift printed on the pages of American literary history.

Interdisciplinary: No | Undergraduate

**Oral Presentation**

URL for poster:

<https://archives.library.wcsu.edu/relatedObjects/wrd/2022/hinds.pdf>

34

**Analysis of cyanobacterial toxin genes in Connecticut lakes*****Ezaan Khan***

with: Susana Almeida, Daniela Romero

Day: Thursday

**Advisor:** *Edwin Wong, Biology*

Cyanobacteria, commonly known as blue-green algae, have increased in abundance over the past decade in Connecticut lakes. Cyanobacteria can release neurotoxins such as Saxitoxin (SXT) and hepatotoxins such Microcystin (MCY). Using quantitative PCR, we have measured the number of copies of Saxitoxin (SXT) and Microcystin (MCY) genes in samples from Lake Zoar, Beseck Lake, Ball Pond, and Lake Lillinonah. Measurement of Phycocyanin (PC) gene copies provides estimates of total cyanobacteria cell number in samples. Our studies detected varying amounts of MCY and SXT gene copies in the different samples. Currently, only microcystin toxin is being screened for in local lakes. Detection of the SXT gene may lead to future screening for saxitoxin in CT lakes.

Interdisciplinary: No | Undergraduate

**Poster Presentation**

URL for poster:

<https://archives.library.wcsu.edu/relatedObjects/wrd/2022/khan.pdf>

32	<p><b>Relating Food Addiction to Substance Abuse: A Review of the Literature</b> <i>Kristina Korin</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Ethan Balk, HPX</i></p> <p>Over 40% of the United States adult population is obese. Obesity can contribute to diseases such as heart disease, stroke, type 2 diabetes, and cancer. The increase of accessible processed foods continues to contribute to this rapid increase in obesity. Excess food consumption can lead to similar behavioral traits of substance abuse addiction including bingeing, withdrawal, and cravings along with changes in the neurochemical effects of dopamine and opioid receptor binding. Although food addiction has been closely studied within the DSM-5 criteria for substance abuse addiction, a review of the current literature suggests a lack of intervention-based research targeting food addiction treatment through a substance abuse lens. The aim of this review was to analyze the treatment of food addiction through substance abuse-like cognitive interventions. Findings indicate further exploration into strategies to combat food addiction grounded in substance abuse addiction treatment is warranted.</p> <p>Interdisciplinary: No   Graduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/korin.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/korin.pdf</a></p>
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41	<p><b>Intervention strategies to combat iron deficiency in menstruating women: A review of the literature</b> <i>Rossi Liz</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Ethan Balk, HPX</i></p> <p>Iron deficiency is one of the most common causes of anemia in women in their reproductive years. It is described as a group of conditions resulting from an inability of erythropoietin tissues to maintain normal hemoglobin concentration from inadequate supply of one or more nutrients leading to a reduction in the total circulating hemoglobin. Serum ferritin is the most preferred diagnostic test used to detect iron deficiency anemia. This poster addresses the adverse effects of anemia including low birth-weight, poor cognitive development, behavioral complications, reduced work capacity and maternal mortality. Based on the literature review, this poster identifies effective strategies to combat iron deficiency, including dietary balance, supplementation, fortification of staple foods and nutrition education; particularly focusing on a combined-intervention strategy approach. The results of the review suggest further research in combining intervention strategies to improve patient outcomes.</p> <p>Interdisciplinary: No   Graduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/liz.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/liz.pdf</a></p>
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39	<p><b>Constructing a Library of 2-Substituted Tetrahydrothiophenes</b> <i>Margaret Madsen</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Forest Robertson, Chemistry and Biochemistry</i></p> <p>Methods of forming C-S bonds have been developed, but primarily require that the substrates be activated prior to achieving reactivity. Recently, Robertson et al. described a facile two-step process for the formation of C-S bonds starting from two alcohols, which was then applied to an intramolecular process for the formation of chiral tetrahydrothiophenes (THTs). Herein, we explore this intramolecular C-S bond formation to access THTs from an epoxide functional group, which will be an effective alternative to the ketone functional group that was utilized in the previous work. A four-step synthesis of 2-substituted-THTs has previously been optimized by the Robertson group. In this work, the versatility of the common intermediate of this synthetic methodology is explored with the addition of substituted anilines, and their subsequent cyclizations to synthesize their corresponding 2-substituted-THTs.</p> <p>Interdisciplinary: No   Undergraduate</p> <p><b>Poster Presentation</b></p> <p>URL for poster: <b><a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/madsen.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/madsen.pdf</a></b></p>
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25	<p><b>Impact of Food/Nutrition Literacy Curriculums in Primary and Secondary Schools</b> <i>Christopher Mathews</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Ethan Balk, Health Promotion &amp; Exercise Sciences</i></p> <p>Health literacy is the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others. Nutrition literacy is the degree to which individuals have the capacity to obtain, process, and understand nutrition information and skills needed in order to make appropriate nutrition decisions. A strong predictor of health in later life is an increased level of nutrition literacy. The purpose of this literature review is to summarize the research on nutrition and food literacy curriculums within elementary and secondary schools. The studies evaluated the effects of nutrition-based curriculum and opportunities to improve nutrition literacy outcomes. This poster defines the effective strategies to bridge gaps in nutrition literacy outcomes in educational settings and promotes the need for more experimental studies to examine the effectiveness of early nutrition literacy programming in schools.</p> <p>Interdisciplinary: No   Graduate</p> <p><b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/mathews.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/mathews.pdf</a></p>
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35	<p><b>Restoring Meadows: Ground-dwelling Beetle Diversity in relation to Native Plant Restoration</b> <i>Carly Mengler</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Rayda Krell, pinout@wcsu.edu</i></p> <p>Beetles comprise 25% of all known species on Earth. There are several factors, such as plant diversity, that can impact beetle diversity. We evaluated ground-dwelling beetle diversity in three stages of meadow restoration in 2-acre plots: year-one, year-two with native plantings, and an unrestored control meadow with native and invasive plants. We counted and identified beetles from six pitfall samples in each meadow type collected on July 29, 2021. Although the mature meadow had the highest beetle diversity (<math>H=1.43</math>), beetles in the year-two meadow were the most abundant (<math>n=145</math>) and had the highest species richness (<math>S=10</math>) as compared to the year-one (<math>n=29</math>, <math>S=7</math>) and unrestored meadow (<math>n=26</math>, <math>S=5</math>). Our initial results suggest that plant diversity may influence beetle diversity. As the meadow continues to change, this study will evaluate insect diversity to further understand how habitat restoration impacts insect populations.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/mengler.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/mengler.pdf</a></p>
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## **Fitzgerald's Perspective of the American Dream in The Great Gatsby and Cinematic (Mis)interpretations**

*Tyler Munroe*

Day: Thursday

**Advisor:** *Shouhua Qi, Department of English*

F. Scott Fitzgerald's *The Great Gatsby* (1925) has long been remembered as one of the great American novels. At its core, *Gatsby* is a story about the unattainability of the American Dream rather than the glamorous lives of the wealthy. While various interpretations are inevitable for any piece of media, the directors' visions and actors' influences have distorted the messages of Fitzgerald's novel. The 1974 film adaptation of the novel fell short because it failed to show the love between Daisy and Gatsby, and Gatsby's immoral accumulation of wealth was completely disregarded. The 2013 film adaptation overflowed with luxurious imagery so the American Dream feels attainable, despite the novel's themes declaring the opposite. This essay will focus on the 1974 and 2013 adaptations of *The Great Gatsby*, and explore how their deviances from the novel have shown that it is practically impossible to capture the nuance with which Fitzgerald wrote.

Interdisciplinary: No | Undergraduate

**Oral Presentation**

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28	<p><b>Transcriptomic analyses reveal shared venom components in three scorpion species in the superfamily Chactoidea</b> <b>(<i>Scorpiones: lurida</i>)</b> <i>Cian Pennell</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Carlos Santibáñez-López, Department of Biological and Environmental Sciences</i></p> <p>In the last decade, the study of scorpion venom component diversity has benefited from Next-Generation Sequencing. Despite these advances, not all scorpion families have been studied. The family Chactidae is a poorly studied scorpion family with unknown venom components. Here, venom transcriptome analyses were performed to investigate the venom components of a chactid species. Additionally, comparative analyses, including the transcriptomes of two phylogenetically related species were conducted to further elucidate the evolutionary relationships within this family. This study provides genomic data for a poorly studied scorpion species for the first time.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <b><a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/pennell.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/pennell.pdf</a></b></p>
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36	<p><b>Subtitles, Audio Speed, and their Sway over Attention</b> <i>Margaridha Ribeiro</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Rondall Khoo, Psychology</i></p> <p>Videotaped lectures and supplementary videos are becoming more commonplace in college courses. Students may choose to utilize subtitles and modify audio speed when watching a video, yet there is little research on the effect that these modifications may have on attention to the material. This study examined whether factors of a) no subtitles vs subtitles and b) regular audio vs faster audio speed affect attention. To examine these factors, participants were randomly assigned one of four cells: no subtitles-regular audio, no subtitles-faster audio, subtitles-regular audio, subtitles-faster audio. Participants then answered 15 multiple choice questions about the contents of the video. Videos with subtitles and faster audio speed are predicted to cause higher levels of attention than videos with no subtitles and regular audio speed. The results will contribute to the understanding of how video settings can best be used in relation to attention.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/ribeiro.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/ribeiro.pdf</a></p>
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## **Influence of Roman Culture and Mythology on the Writings of Veronica Franco**

*Michelle Rochniak*

Day: Thursday

**Advisor:** *Katherine Allocco, History*

Veronica Franco (1546-1591) was a Venetian poet and prostitute whose writings contain elements of feminism. My paper investigates her poetry included in Ann Rosalind Jones and Margaret F. Rosenthal's *Veronica Franco: Poems and Selected Letters* and specifically looks at how Roman culture and mythology informed Franco's writing. Franco mainly wrote in response to the insults of male poets and in praise of her home city, Venice. In both situations, I dissect how Franco finds comfort in the goddess Venus, both a patron of her city and a deity with whom she aligns herself as a woman. These references to Venus, as well as others based on Roman mythology, stem from Franco's interest in Ovid's *Metamorphoses*, one of the many resources to which she had access as a woman of moderate status.

Interdisciplinary: No | Undergraduate

**Oral Presentation**

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30	<p><b>Crypto-currencies as a profit maximizing tool in long term investment portfolios</b> <i>Anthony Rodriguez</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Carol Huang, Finance</i></p> <p>Blockchain technology in the form of crypto currencies, specifically the application recognized as Bitcoin, emerged in response to the 2008 financial crisis. This study aims to determine crypto's impact on long term investment strategies by analyzing Crypto-currencies impact on the returns generated by long-term portfolios. First, by determining the correlation of cryptocurrencies to the pre-established portfolios. Second, by calculating total returns of each portfolio independently and with the inclusion of crypto-currencies. Third, the Kelly criterion will be applied to determine profit maximizing weighting strategies for each of the four portfolios. The portfolios will consist of a set of assets with high <math>\beta</math> and a set of assets with stable growth or low <math>\beta</math> value. The data analyzed consisted of daily closing prices beginning in January 2019 and ending in December 2021 for all assets. The results provide insight into crypto-currencies potential application as a profit-maximizing tool.</p> <p>Interdisciplinary: No   Graduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/rodriguez.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/rodriguez.pdf</a></p>
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38	<p><b>Chatter Crusades &amp; Connubial Pains: Female Gossip as Agency in Austen's <i>Pride and Prejudice</i> and <i>Emma</i></b> <i>Shannon Rupar</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Shouhua Qi, English</i></p> <p>Jane Austen imbued her female characters with agency unusual for the Victorian era. Women in <i>Pride and Prejudice</i> (1813) and <i>Emma</i> (1815) fight back against their lack of control in the marital sphere, typically dominated by male guardians and future husbands, through the strategic use of gossip to chose their own partners, a critical ability as their lives revolved around the home. These two novels reflect the modern understanding of gossip which contests it is a communally feminine action that allows for the shaping of society to meet a desired standard. Through the spread of information through gossip networks, allowing characters to best maximize their limited interactions with a desired partner, and the use of narrative propagation to manipulate men into having initially non-existent affections, Austen's women recognize the power in gossip and weaponize it to make their own matches in a society that largely deprived them of any control.</p> <p>Interdisciplinary:   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/rupar.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/rupar.pdf</a></p>
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23	<p><b>Investigating the role of food moisture on food preference and reward</b> <i>Cecilia Schoeni</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Joshua Cordeira, Biology</i></p> <p>Mice prefer to eat “fresh” very high-fat diet (VHFD) thawed from the freezer rather than “stale” VHFD which has been left at room temperature for a day or more. Factors driving this food preference and the neurological pathways involved are unknown. We hypothesized that food moisture and dopamine signaling in the nucleus accumbens, the brain reward center, contribute to food preference behavior. To test this, we measured mass lost by VHFD as it dehydrated over time and compared it with “fresh” VHFD food preference. We also fed mice “fresh” or “stale” VHFD and dissected the nucleus accumbens, to measure dopamine levels using HPLC with electrochemical detection. We observed a positive correlation between dehydration of the VHFD and preference for “fresh” VHFD. Moisture content of food may contribute to the reward associated with VHFD consumption. Our work emphasizes the importance of monitoring food quality during experimentation with mice.</p> <p>Interdisciplinary: No   Undergraduate <b>Poster Presentation</b></p> <p>URL for poster: <b><a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/schoeni.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/schoeni.pdf</a></b></p>
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31	<p><b>The Benefits of Breastfeeding with Mother's Milk and Donor Human Milk: A Review of the Literature</b> <i>Rachana Talati</i></p> <p>Day: Thursday</p> <p><b>Advisor:</b> <i>Ethan Balk, HPX</i></p> <p>Human breast milk is considered the golden standard of infant nutrition. Breastfeeding is associated with nutritional, environmental, socioeconomic, and psychological health outcomes for both the infant and mother. The Dietary Guidelines for Americans 2020-2025 recommends breastfeeding for the first six months to provide the nutritional needs of the infant. A review of the literature shows in the United States, 84% of infants are fed human milk, 25% of those infants are exclusively fed human milk through the age of six months, 35% continue being fed human milk at the age of 12 months, 25% are fed human milk beyond the age of 12 months. This poster examines the current literature on the impact of breastfeeding interventions and effect on rates and longevity of breastfeeding. The relatively low rates of breastfeeding indicate a need for increased intervention studies to support and promote breastfeeding.</p> <p>Interdisciplinary: No   Graduate <b>Poster Presentation</b></p> <p>URL for poster: <a href="https://archives.library.wcsu.edu/relatedObjects/wrd/2022/talati.pdf">https://archives.library.wcsu.edu/relatedObjects/wrd/2022/talati.pdf</a></p>
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29

## **Manipulating Blood Brain Barrier Permeability and its Therapeutic Potential**

***Christopher Zavras***

with: Sebastian Ojeda and Luisa Lu-Orlow

(All authors contributed equally)

Day: Thursday

**Advisor:** *Joshua Cordeira, Biology*

The blood-brain barrier (BBB) is a highly selective, permeable membrane that controls what crosses from the bloodstream into the extracellular space of the brain. Although antibiotic treatment has been shown to increase BBB permeability in lean mice, it is unknown if BBB permeability can be manipulated in obese mice. We hypothesized that antibiotic treatment influences BBB permeability in obese mice. To test this hypothesis, we injected a fluorescent dye intraperitoneally, and compared the ratio of fluorescence from brain to blood between two groups of mice; one fed a very high fat diet (VHFD) and another fed VHFD with antibiotic treatment in drinking water. The brain to blood fluorescence ratio was significantly greater in the group of mice that received antibiotics. These findings indicate that BBB permeability can be manipulated in obese mice which could revolutionize treatment of neurodegenerative diseases that necessitate the transport of medication across the BBB.

Interdisciplinary: No | Undergraduate

**Poster Presentation**

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