



*The OFFICE of UNDERGRADUATE
RESEARCH presents the 2nd annual*

2021
**Undergraduate
Research
Conference**

MARCH 26 2021

**MISSISSIPPI UNIVERSITY
for WOMEN**



WELCOME

Welcome to the 2nd annual campus-wide (1st time virtual) Undergraduate Research Conference. There aren't enough quite words or space to describe all of the emotional labor that has gone into this year. We have endured so much, and in spite of this, I am proud of the work that MUW students, faculty, and staff have accomplished, and I am excited to showcase it. What's more, with a virtual conference, we are able to house and host student work in our institutional repository, AthenaCommons, for the first year. I hope this year's group of presenters will take advantage of this and share their work widely and proudly.

The difficulties of this past year and a half have forced me to focus on what I'm grateful for, and I am lucky to have a lot of people to thank. Thank you to the nine faculty members and three student representatives of the Undergraduate Research Advisory Committee, who have helped me shape this year's conference and enabled the mission of the OUR to support and empower all of our students through research and creative inquiry. Thank you to the Fant Memorial Library staff and faculty, and to Dean Amanda Clay Powers, who have helped me market, prepare for, and design this year's conference. I am continually grateful for the generosity of my colleagues. Thank you to the financial support of Dr. Scott Tollison and the Office of Academic Affairs, and to President Nora Miller for her involvement. A very special thank you to Olivia Sagely, the OUR student assistant, whose creative energy and enthusiasm have fueled much of the communications of the OUR. Thank you to the faculty who have volunteered to participate as evaluators, and lastly and most importantly, thank you to all the students who, despite an extremely challenging year, have elected to share their discoveries and insights with the world. I look forward to when we can gather in person, but for now, I'm excited to see what new affordances we can adopt in the coming years.

Hillary A. H. Richardson

Coordinator of Undergraduate Research and
Information Literacy



The mission of The W's Office of Undergraduate Research is to promote and celebrate undergraduate research, empower students to engage in original intellectual or creative work across the curriculum, and collaborate with faculty, staff, and community partners to create and sustain research opportunities.

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Undergraduate Research Conference March 26, 2021

March 23	STUDENT PRESENTATIONS AVAILABLE FOR VIEWING	AthenaCommons
March 26	OPENING REMARKS	Zoom
10:00 am	Hillary Richardson - Welcome and Notes	AthenaCommons
	Dr. Ross Whitwam - Importance of Participating in Undergraduate Research	
	Q&A SESSIONS WITH STUDENT PRESENTERS	Zoom
		AthenaCommons
11:00 am	HEALTH SCIENCES	
	Emma Gousset - Racial Disparities Among Individuals with Parkinson's Disease	
1:00 pm	STEM	
	Zithlaly Amezquita and Justin Taylor Labonte - Endogenous CFTR Expression in Human Pancreatic Cell Lines	
	Sara Lynn Sligh - Effects of Chloride Ion Channel Activators on CFTR Expression	
	Cayla Skinner - The Correlation between Rheumatoid Arthritis and Periodontal Disease	
2:00 pm	PERFORMANCES	
	Max Hartleroad - An Audible Representation of Plato's Republic	
	Hannah Heaton - What is "Around Me" in 2021?	



Undergraduate Research Conference March 26, 2021

3:00 pm

HUMANITIES

Zoom
AthenaCommons

Victoria Choate - Dr. Claudia Limbert's Declaration of War: MUWAA V.
Claudia Limbert

Faith Langford - Reading The Nun's Priest's Tale through the Dream Vision
Genre

John McGee - "Yes, Separation! No, Integration!" A Historical Analysis of
Black Nationalist Groups Across the Decades: From the Civil Rights Era to the
Contemporary Era

4:30 - 5:00 pm

CLOSING REMARKS AND AWARDS ANNOUNCEMENT

Zoom -
AthenaCommons

Hillary Richardson - Closing remarks

President Nora Miller - Award Announcements

Common Reading Initiative Essay Winners

Best Oral Presentation

Best Proposal

Best Long-term Research

Best Short-term Research

Best Proposal

Best Performance

Best Overall Presentation



STUDENT ABSTRACTS

Zithlaly Amezquita and Justin Taylor Labonte

Endogenous CFTR Expression in Human Pancreatic Cell Lines

CFTR (cystic fibrosis transmembrane conductance regulator) is a plasma membrane protein that function as a chloride ion channel in epithelial cells. Mutation in this protein affects its function targeting many organs and result in cystic fibrosis (CF). CF is a genetic disease that is most common among Caucasians of northern European origin. Detection of CFTR at the endogenous levels is cumbersome. The goal of this project therefore is to detect the expression of CFTR in cell lines that are not transfected. Cell lines expressing mutated CFTR (CFPAC) and wild-type (Capan-1) were treated with 5mM SB for 60 hrs to upregulate the CFTR expression. Exogenous CFTR expressing cell line (CFBE-wt) and its parental cell line (CFBE410) were include as a positive and negative controls. Endogenous CFTR protein expression in these cell lines can be visualized by western blotting and quantitated. CFTR mRNA expression was also detected by a qPCR analysis and compared with their expression levels with the exogenous CFTR expression. This is a first report of detection of endogenous CFTR protein expression and was possible by using a newly formulated blocking buffer [Heda et al, BioTechniques, 68(6), 319-325, 2020].

Victoria Choate

Dr. Claudia Limbert's Declaration of War: MUWAA V. Claudia Limbert

In 2006, Mississippi University for Women's president, Dr. Claudia Limbert, made a decision to temporarily dismiss the alumni relations staff, seized their office records, and placed both alumni relations director and assistant director on administrative leave for a week. This conflict sparked what is now known as the Alumni Wars, a three-year period pivotal to the W's history. During this time, the 117-year-old alumnae association was divorced from the university and a new association was formed, further enflaming the battle. These events highlight the significance of alumni networks to the overall health of an institution.



Emma Gousset

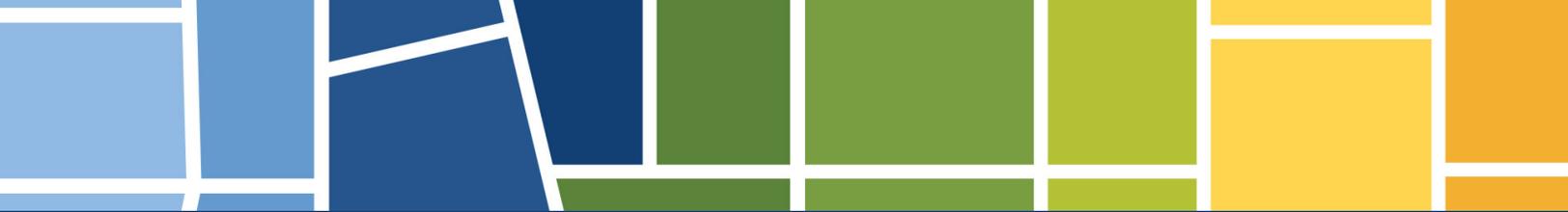
Racial Disparities Among Individuals with Parkinson's Disease

Research in Parkinson's Disease has failed to consider diverse populations and the unique trials these populations face in terms of accessing healthcare. Many studies have been done to identify the existence of racial disparities among individuals with Parkinson's Disease, but no conclusive evidence regarding the cause of these disparities has been found. I am in the process of administering a researcher-developed survey to adults who have been diagnosed with Parkinson's Disease or Parkinsonism to identify the presence and cause of racial disparities among individuals with PD. I anticipate that the survey data will reveal inequalities between Black and/or African Americans with PD and Whites regarding distrust of the healthcare system, lack of referral for therapy, and prior research participation. This research has the potential to positively impact individuals, specifically Black and/or African Americans, with PD; by highlighting disparities within these communities, the process of proposing and implementing realistic solutions to mend them can begin. Findings are still in process.

Max Hartleroad

An Audible Representation of Plato's Republic

Plato's Republic attempts to define justice. He does this by first finding what the Just city looks like and then applies the same model to one's soul. Dividing both into three parts, the logical, appetitive and the spirited, Plato sees how these parts interact with each other and the harmony between them leading to justice. I attempted to make a representation of these theories using sound. By using the same instrumentation throughout the song, I was able to provide a base to show Plato's theories. Sound samples of societal leaders are intermixed with consonance or dissonance to make listeners understand the negative aspects of one class taking the role as the "guardians". Using a single person's voice, I repeated this process to make listeners understand justice of the soul. I found that the use of consonance and dissonance as well as audio samples did produce the unrest or tension that Plato describes in his theories on Justice.



Hannah Heaton

What is "Around Me" in 2021?

The title of my composition that I am using for this performance presentation is "Around Me." It is a solo violin work performed by Dr. Serena Scibelli, a music professor from the University of North Georgia, and composed by me, Hannah Heaton. Serena Scibelli requested if I could write a solo violin work for her upcoming album that would be a reminder of reflection through music during the 2020 Pandemic. I intend to take this work and show any listener how they can relate with my piece, "Around Me." "Around Me" is a relatively short work, but through use of the play in pauses and space, I am introducing a space for thought and acknowledgment for the listener. Through the use of dynamics and musical phrasing, I am introducing the idea of emotion that one might go through in their act of reflection. Lastly, through the use of musical development of a single theme, I am introducing the idea of reflection that continues to grow. Pauses and space, dynamics and musical phrasing, and musical development are all deeper analyzed through the performance and score of the piece in this presentation. After analyzing these three points from the first performance of "Around Me," the performance is then played a second time with the intent for the listener to recognize the connections from the presentation to the repeated performance. With the analyzed points and performance in mind, the listener is finally challenged to confront their own surroundings and how they feel about them. It is important that we acknowledge our surroundings and how we feel in the process of what is going on around us, especially during all of our journeys during 2020 Pandemic. The objective of this presentation is to bring any listener the awareness in how they can connect their own circumstances to the violin solo, "Around Me."

Faith Langford

Reading The Nun's Priest's Tale through the Dream Vision Genre

Geoffrey Chaucer's *The Nun's Priest's Tale* has long been considered an intricate mix of genres ranging from fable to epic. Placing this tale alongside Chaucer's works in the dream vision genre and the critical analyses pertaining to them, *The Nun's Priest's Tale* can be read as reconstructing the world of a dream vision beginning with Chauntecleer's vision of the unidentified fox. The tale reconsiders each element of the dream vision genre in its reconstruction, interweaving theological and philosophical topics alongside accounts of bodily experience. Though viewing Chauntecleer's vision through this genre serves to later validate his vision as prophetic, this lens also allows the physical aspects of the vision and its fulfillment through Chauntecleer's pursuit by the fox, to be included as part of his educative experience. The conflicts between Chauntecleer and his chief wife Pertelote concerning their philosophical and practical engagements with the vision allow for further reexaminations of the tale through the dream vision genre's focus on theological explorations and physical encounters. Granting a more equal consideration of both interpretations, this reading allows Pertelote's interpretation not to be altogether dismissed as invalid and presents a reexamination of Chaucer's explorations of subjectivity and objectivity.



John McGee

“Yes, Separation! No, Integration!” A Historical Analysis of Black Nationalist Groups Across the Decades: From the Civil Rights Era to the Contemporary Era

As tens of thousands of protesters have taken to the streets with the chants of “Black Lives Matter!” Or “hands up, don’t shoot” issues such as police brutality and institutional racism have once again been thrust into the national spotlight. The strength, longevity, and occasional violence associated with these protests have made Americans from all backgrounds aware of the demands of the protestors. Unsurprisingly, these recent protests, often concerned with issues of race and justice, have drawn comparisons to the powerful protests of the civil rights era. As a result of the success of the civil rights movement and leaders such as Malcolm X and Martin Luther King Jr., the Black Power and Black nationalist movements took root in America hoping to unite the invigorated spirit of many African Americans. Like the civil rights era, the recent protests have had a radicalizing impact on some African Americans, as membership of contemporary Black nationalist groups has exploded in recent months. This paper examines four Black nationalist groups: the Black Panther Party (BPP) and the Republic of New Africa (RNA), both of which were a product of the civil rights era, as well as the New Black Panther Party (NBPP) and the Not F---ing Around Coalition (NFAC), two extremist groups that are leading the charge of the most radicalized African Americans in today’s society. Although the time-period in between the four groups stretches nearly 55 years, the core tenets of Black nationalism have stayed the same. While the four groups have clear differences in politics (from Marxism, to African socialism, to left-wing paramilitarism), ideology, and areas of influence, they all believe that the United States and its institutions are unreformably racist and the only way for Black people to become truly liberated is through the creation of an independent Black nation or, at the very least, self-determination for the Black citizenry in America.

Cayla Skinner

The Correlation between Rheumatoid Arthritis and Periodontal Disease

Individuals with chronic conditions face challenges that can negatively impact their health in a variety of ways. One such example is the correlation between rheumatoid arthritis and the development of periodontal disease. Studies have suggested several possible biological mechanisms by which autoimmune conditions like arthritis and immune-inflammatory conditions like periodontal disease can interact. In this study we plan to look at possible linkage between a clinical condition, rheumatoid arthritis, and its possible subsequent relationship in creating the conditions for the development of periodontal disease due to its hindering the ability of an affected person to perform daily healthcare routines. Our methodology is to present a survey to individuals with or without rheumatoid arthritis and periodontal disease to ascertain the level of hindrance that their conditions have on their ability to perform day-to-day tasks. In doing so, I hope to identify the socio-economic factors that affect patients with rheumatoid arthritis and the development of periodontal disease.



Sara Lynn Sligh

Effects of Chloride Ion Channel Activators on CFTR Expression

Cystic Fibrosis Transmembrane conductance Regulator (CFTR) is a protein that functions as a chloride ion channel on the plasma membrane of epithelial cells. A mutated CFTR is the cause of the genetic disease cystic fibrosis (CF), which is more common in Caucasians of northern European origin. The most common of CFTR mutations is DF508 accounting for >70% of CF cases. The aim of my proposed study is to determine the effects of certain synthetic compounds with known chloride ion channel activation properties on the expression of the DF508-CFTR protein. Dr. Heda's laboratory has obtained five such compounds (viz., PJ-03, PJ-08, PJ-09, PJ-10, JVD alkyl) with his collaboration from an institution in India (IISER). Cystic Fibrosis Bronchial Epithelial (CFBE) cells transfected with DF508-CFTR will be treated with various concentrations (10 μ M-60 μ M) for 60 hours to increase the CFTR expression. Cell lysates will be prepared and immunoblotted. Immunoblotting is a commonly used technique for the detection of protein expression levels. This analytical technique will allow me to determine the effects of any of these compounds on the expression of DF508-CFTR. Increase in DF508-CFTR expression because of these compounds may have therapeutic properties on the CF diagnosis.



Special Thanks

Undergraduate Research Advisory
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Fant Memorial Library Faculty and Staff

Olivia Sagely, OUR Student Assistant

Dr. Ross Whitwam

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