

Mississippi University for Women
ATHENA COMMONS

Mississippi Undergraduate Honors Conference

MUHC 2022 Back to the Future: Moving
Forward with Academic Inquiry

Feb 5th, 8:30 AM - 8:50 AM

Opening Plenary

Kim Whitehead

Mississippi University for Women

Nora Roberts Miller

Mississippi University for Women

Hillary Richardson

Mississippi University for Women

Will Balestrino

Mississippi University for Women

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BACK TO THE FUTURE:

Moving Forward with Academic Inquiry

Mississippi Undergraduate Honors Conference

February 5, 2022

hosted by Mississippi University for Women

Welcome to our tenth annual conference.

Conference Schedule

Click on session title to enter the session live stream.

Full conference details and links are also available at [MUHC 2022 online](#).

*All attendees are invited to meet up in the
[Zoom conference lounge](#) between sessions.*

8:30-8:50

[Opening Plenary](#)

Welcome Remarks

Nora Roberts Miller, President, Mississippi University for Women

Making Connections Across Disciplinary Lines

Hillary A. H. Richardson, M.A., M.L.I.S.

Associate Professor and Coordinator of Undergraduate Research & Information Literacy
Mississippi University for Women

Roll Call of Schools

Will Balestrino, President, Honors Student Council, Mississippi University for Women

9:00-10:00 **Oral Presentations**

Concurrent Session I: Humanities

Session moderator: Ali Glasgow, Mississippi University for Women

Jacob Dunahue, Northeast Mississippi Community College

American News Media: How It Has Changed and How It Has Influenced the Nation

Faith Langford, Mississippi University for Women

Constructing Multidimensional Utopias: Spaces of Reform in Margaret Atwood's Hag-Seed

Kathryn Scharwath, Pearl River Community College

Debs, Cleveland, and Public: Views of Socialism from the Pullman Strike

Concurrent Session II: Social Sciences

Session moderator: V Gammel, Mississippi University for Women

Kaden Grace, University of Mississippi

Complementarity of Lotteries and Prize-Linked Savings Accounts (PLSAs)

Olivia Maurer, University of Mississippi

The Case of Santiago de Chile: Pedestrian Deaths, Neo-Liberal Urban Design, and Insufficient Traffic Policy Reform

Ryan Wallace, Pearl River Community College

What Situations Make UVC an Economically Viable Method to Fight Airborne Pathogens?

10:15-11:15 **Oral Presentations**

Concurrent Session I: Social Sciences

Session moderator: Lillian Ergle, Mississippi University for Women

Sachi Ajmera, Pearl River Community College

How Social Media Creates Political Polarization in America

Emily Tannehill, Mississippi Gulf Coast Community College

Students and Cancel Culture: The Digital Divide

MyKayla Williamson, University of Mississippi

By Her Hands: An Analysis of the Hidden Labor of Black Women at the Hugh Craft House from 1850-1900

Concurrent Session II: STEM

Session moderator: Mary Hope Gammel, Mississippi University for Women

Zithlaly Amezquita, Mississippi University for Women

Endogenous CFTR Expression in Human Epithelial Cell Lines

Anh Hoang, University of Mississippi

LC-MS Identification of Serum Proteins Adsorbed onto Ionic Liquid-Coated Nanoparticles

11:30-12:30 **Poster Session**

Humanities

Emma Beeler, Mississippi University for Women

Adultery and Fidelity in the Lais of Marie de France

Social Sciences

Maddison Caldwell, Northeast Mississippi Community College

Parenting Styles: Effects on Lifelong Growth

MacKenzie Paul, Mississippi State University

To Sweeten or Not to Sweeten: The Unique Impact of Emotional Support and Fatalism on Sugar Consumption Among Southeastern Native Americans

STEM

Shirli Salihaj, Mississippi University for Women

Surface Reconstruction via the Curvature Interpolation Method

Sara Lynn Sligh, Mississippi University for Women

Effects of Chloride Ion Channel Activators on CFTR Expression

Stephen Trest, Mississippi Gulf Coast Community College

The Bonnet Carre Spillway and Its Effects on South Mississippi's Economy

12:30-2:00 **Lunch Break**

2:00-2:30 **Closing Plenary**

See the following pages for Research Abstracts.

Oral Presentations

Humanities

Jacob Dunahue, Northeast Mississippi Community College

American News Media: How It Has Changed and How It Has Influenced the Nation

Since the United States' infancy, the news media has played a vital role in keeping the public informed and influencing the country as a whole, although the American media's national function has significantly changed over time. Originally, newspapers in the colonial United States inspired the American Revolution; later on, some media outlets decided that muddying up a story's facts was the best way to sell newspapers and influence their readers. In 1898, the *New York Journal* and *New York World* used yellow journalism to inspire America's leaders to declare war on Spain. Although, during the Vietnam War, on-the-ground media coverage of the combat helped strengthen an anti-war movement that eventually led to the end of the war. Later, with the shift to 24-hour news broadcasting, news channels and publishers began running out of stories to cover; they had to find a way to retain readers and watchers. In modern day, many news outlets have resorted to only sharing specific viewpoints and stories, and some even intentionally mislead their audience. This has caused numerous American news consumers to become drowned out to alternate viewpoints, and, at worst, misinformed Americans to resort to violence to satiate their conspiracy-driven alarm and paranoia.

Faith Langford, Mississippi University for Women

Constructing Multidimensional Utopias: Spaces of Reform in Margaret Atwood's Hag-Seed

My research explores the concept of utopia as used by Margaret Atwood in her novel *Hag-Seed* (2016), an adaptation of William Shakespeare's *The Tempest* (1611). *Hag-Seed*, set in a prison's literacy program through which Shakespearean plays are taught, involves characters, namely Felix, the protagonist and counterpart to Prospero, both consciously thinking about their lives and influencing those around them. Atwood expands the notion of utopia through her use of setting and characters to include ways in which society can be reconstructed from existing social hierarchies. The novel also employs spaces that are contemporary and familiar, such as prisons, prison reform programs, and technology, to further the notion that entirely "new" worlds do not have to be explored to recreate society. Building off the association of technological advancement with dystopic fiction, the novel also explores the boundaries between utopia and dystopia. Yet, Atwood's text depicts the interconnectedness of utopia and dystopia and understands that individual perspectives rather than communal values influence these two constructs. Engaging with more than just rethinking theories and social constructs, *Hag-Seed* embraces themes significant to our world today from prison reform programs to the possibilities offered by technology.

Kathryn Scharwath, Pearl River Community College

Debs, Cleveland, and Public: Views of Socialism from the Pullman Strike

The presentation will explore the rhetoric of Eugene V. Debs, Grover Cleveland, and others related to the Pullman Strike of 1894 in an effort to understand both the promise and the rejection of American socialism in its early years.

Oral Presentations *continued*

Social Sciences

Sachi Ajmera, Pearl River Community College

How Social Media Creates Political Polarization in America

Social media apps and websites are purely programmed to suck in a user for as long as possible by any means necessary. These “means” are primarily based on showing users personally tailored content to create an addiction fueled by a cycle of confirmation bias and dopamine. This bias creates disillusionment of one’s personal views being the extent of reality, and in a society where half the world uses social media, a small percentage of extreme opinions can effortlessly cause disruption in society. Furthermore, many people who oppose America, whether within the country or not, have learned how to manipulate this confirmation bias to cause politically neutral users to have extreme views.

Kaden Grace, University of Mississippi

Complementarity of Lotteries and Prize-Linked Savings Accounts (PLSAs)

In 2019, four out of every ten Americans would be unable to pay for an unexpected \$400 bill out of their savings accounts. To ameliorate this problem, one policy to incentivize saving is a Prize-Linked Savings Account (PLSA). Unlike a traditional savings account that pays out a minimal and consistent rate of return, a PLSA pools the interest collected on all deposits and distributes the interest in the form of randomly drawn prizes (similar to a lottery). When considering implementing a PLSA, a government may want to know if its PLSA sales could cannibalize their revenue from an already established lottery. A PLSA would encourage individual savings for low-income households, but lottery revenues fund important social programs like education and infrastructure. This undergraduate research thesis focuses on the relationship between Premium Bonds, a PLSA run by the United Kingdom, and lottery sales in the UK. I find that Premium Bonds and lottery sales are loose complements, implying that a government can implement a PLSA to fight poverty without cannibalizing revenue from the lottery. This research provides important policy implications for the state of Mississippi, which battles high poverty and has also recently introduced a state lottery.

Olivia Maurer, University of Mississippi

The Case of Santiago de Chile: Pedestrian Deaths, Neo-Liberal Urban Design, and Insufficient Traffic Policy Reform

Chile’s rate of road fatalities and pedestrian deaths in particular has remained a global outlier, even as comparable states have reduced occurrences. Santiago, one of the most urbanized cities in Latin America and Chile’s capital, serves as a unique product of competing urban design ideologies put forth by democratic and authoritarian governments throughout the 20th century, and the social and economic stratification created has continued to present challenges for solving urban planning issues in modern Santiago. Recent adjustments in traffic laws have begun a reduction in road fatalities, but they still do not account for the discrepancy between Chile and other states. This is due to the failure to address the underlying problem of urban design solely shaped to create profit which has ignored lower-income sectors of the population who rely heavily on walkability in urban areas. A comparative analysis of US pedestrian deaths in suburban arterials furthers this analysis that adjustments in traffic policy will be insufficient in impactfully lessening pedestrian deaths in Santiago, Chile.

Research Abstracts

Oral Presentations *continued*

Emily Tannehill, Mississippi Gulf Coast Community College

Students and Cancel Culture: The Digital Divide

Cancel culture is a prevalent setback in today's society. It affects politics, careers, and most importantly, adolescents. As technology improves, so does the progression of social media. While social media continues to advance and get better over time, the social constructs in today's society are constantly changing. Not only this, but the way these rules are being enforced online is getting more and more strict. This is called internet accountability, but it is more commonly known as cancel culture. Cancel culture has recently been taking the world by storm. Those who are cancelled are publicly shamed online, and by popular opinion, it is usually well-deserved. However, long term effects of internet accountability have been known to cancel a person for life, making people live in shame for years. This is not a world we want our youth to grow up in. Though bullying in schools has always been an issue, cancelling others is an activity a majority of adolescents partake in. There are various different solutions that will be discussed that would rid society of this issue. However, unless many people partake in this action against cancel culture, it will continue to infest society, schools, and teenagers.

Ryan Wallace, Pearl River Community College

What Situations Make UVC an Economically Viable Method to Fight Airborne Pathogens?

I intend to assess how effective UVC is as a method of fighting airborne pathogens as reported by peer-reviewed studies. Assuming UVC is effective, I will review cost estimates of UVC HVAC systems and compare the costs of these systems to national cost averages for lost productivity and healthcare costs for small, medium and large businesses. Additionally, the costs for these systems may be compared to more traditional prevention methods to rank methods according to cost and effectiveness.

MyKayla Williamson, University of Mississippi

By Her Hands: An Analysis of the Hidden Labor of Black Women at the Hugh Craft House from 1850-1900

This project considers the gap in theorizing the hidden labor of Black women in the seldom-researched setting of urban slavery. The project unearths the hidden labor of Black women by analyzing architectural, primary, and secondary documentary evidence surrounding the urban antebellum Hugh Craft House site in Holly Springs, Mississippi. It draws on household and Black feminist archaeology theories to uncover the hidden labor in the domestic spheres that the enslaved women were actively shaping. Research methods included watching clips of Behind the Big House tour interpretations; taking a Craft House tour in Holly Springs; looking at primary sources like Works Progress Administration narratives and federal census records; and consulting secondary sources on antebellum households, household archaeology, and Black feminist archaeology. This research finds that the layout and architecture of the site were designed to give Black women restricted and hidden access to the main house. It also shows that although the Craft family and descendants still relied on Black labor after the Civil War, the expectations for their labor were different.

Research Abstracts

Oral Presentations *continued*

STEM

Zithlaly Amezquita, Mississippi University for Women

Endogenous CFTR Expression in Human Epithelial Cell Lines

Cystic Fibrosis Transmembrane-conductance Regulator, CFTR, is a large size glycoprotein that is present on the cell surface of many epithelial cells. There are several mutations that effect the function of CFTR. The most common mutation, dF508, causes a genetic disease called Cystic Fibrosis (CF). CF is common among the Caucasians of Northern European origin. The endogenous CFTR expression is difficult to detect by conventional western blotting methods. Using a newly developed western blotting method, I propose to detect the endogenous CFTR expression in human pancreatic cell lines, viz, Capan-I and CFPAC. By using human lung cell lines that have been transfected with the CFTR gene, I will also be comparing the endogenous CFTR expression to its exogenous expression.

Anh Hoang, University of Mississippi

LC-MS Identification of Serum Proteins Adsorbed onto Ionic Liquid-Coated Nanoparticles

Nanocarriers are promising candidates for drug delivery due to their size and tunable surface characteristics. However, when they are intravenously injected, few particles make it to their designated location. This is because upon entering the bloodstream, the serum in the blood, which is rich with a diversity of proteins, adsorbs onto the particles' surfaces forming a protein corona. Many of the attached proteins trigger the mobile immune system and are removed by macrophages, and many particles are then filtered out by the liver and kidneys. Ionic Liquids (ILs), which consist of asymmetric, bulky components that are liquid <100°C, are emerging as a promising surface modification technology that can be used to reduce serum protein adsorption. The results indicated that IL-coated NPs were able to enrich new proteins from the serum, and the identity of the proteins was determined by the chemical identity of the IL. These findings could provide the identity of adsorbed proteins, and enable directed drug delivery.

Posters

Humanities

Emma Beeler, Mississippi University for Women

Adultery and Fidelity in the Lais of Marie de France

Using both literary and historical analysis, I will examine contrasting depictions of adultery and fidelity within the *lais* written by 12th-century poet Marie de France. A *lai* is a type of narrative poem, ranging in length from 118 to 1184 lines. Many of Marie de France's *lais* follow the literary trope known as courtly love; however, the reader is encouraged to sympathize with different characters depending on the *lai*. In some *lais*, the reader is encouraged to sympathize with the adulterous spouse, and in others, with the faithful spouse. To understand these different depictions, I will consider Medieval marriage law, church doctrine, and social factors, as well as literary aspects of the *lais*.

Research Abstracts

Posters continued

Social Sciences

Maddison Caldwell, Northeast Mississippi Community College

Parenting Styles: Effects on Lifelong Growth

This project will examine parenting styles and how each can affect lifelong development. The parenting styles authoritative, authoritarian, permissive, and uninvolved will be explored. This project will require extensive analysis through different studies and scholarly articles. Parenting styles affect a child's behavior, social competence, personality, well-being, and career choices. A parent's choice of a parenting style affects their child their whole entire life. The authoritative parenting style was found to be the most beneficial style that can be used by a parent, while the authoritarian style was prone to cause conflict within the family. When the permissive parenting style is used, children were found to not set boundaries for themselves. Lastly, the uninvolved parenting styles causes relationship difficulties the child inhibits. I will also include a graph to show and explain how the different styles affect different aspects of life. This project clearly explains the four parenting styles and how they affect lifelong development throughout a child's life.

MacKenzie Paul, Mississippi State University

To Sweeten or Not to Sweeten: The Unique Impact of Emotional Support and Fatalism on Sugar Consumption Among Southeastern Native Americans

In 2020, 14.8% of Mississippi adults and 12.6% of Louisiana adults reported having diabetes, as compared to the national average of 10.8%. Furthermore, Native Americans of Mississippi and Louisiana experience disproportionately higher diabetes prevalence at 38% and 34% respectively. Research has shown that excessive sugar consumption is associated with an increased risk of developing type-2 diabetes. Psychosocial variables such as chronic disease fatalism and emotional support may also influence diabetes self-care behaviors including food consumption patterns like sugar intake. Therefore, the objective of this study is to examine the impact of emotional support and fatalism on sugar consumption among Southeastern Native Americans. The Mississippi INBRE Telenutrition Center Community Health Assessment Survey was utilized to survey 368 adults from Mississippi and Louisiana. Eighty-one of the participants, who self-identified as Native American, were included in the study. A hierarchal linear regression analysis showed that increased emotional support was significantly related with reduced sugar consumption ($\beta = -0.307$, $p = 0.004$), and increased fatalism was significantly associated with elevated sugar consumption ($\beta = 0.286$, $p = 0.007$). More research is necessary to substantiate this relationship among a broader Southeastern Native American population and identify potential implications for diabetes management in this disparate group.

STEM

Shirli Salihaj, Mississippi University for Women

Surface Reconstruction via the Curvature Interpolation Method

The surface reconstruction for scattered data becomes a problem as the number of sample points increases to construct a continuous function that satisfies given conditions in three dimensions (3D). However, it is known that this problem does not have a definite solution and therefore requires numerical

Research Abstracts

Posters *continued*

approximations. This project studies the Curvature Interpolation Method with Iterative Refinement (IR-CIM), an innovative algorithm that produces smooth and reliable surfaces from 3D point cloud data. I use pre-collected data by Light Detection and Ranging (LiDAR) technology and MATLAB to perform digital image processing. I first study interpolation on 2D data and then practice with 3D data sets with simple interpolation methods to practice the implementation of IR-CIM for LiDAR data. The research objective is to compare the efficiency and accuracy of the IR-CIM with the inverse distance weighting method. Furthermore, I will verify that the IR-CIM outperforms the inverse distance weighting method and show that it is a good alternative to replace the outdated algorithm when processing LiDAR data.

Sara Lynn Sligh, Mississippi University for Women

Effects of Chloride Ion Channel Activators on CFTR Expression

The purpose of this research is to determine the effects of newly synthesized compounds, which have shown the ability to function as chloride ion channel activators, on the expression of Cystic Fibrosis Transmembrane-conductance Regulator (CFTR), a protein found within Cystic Fibrosis Bronchial Epithelial (CFBE) cells. Mutations in the CFTR protein cause the genetic disease Cystic Fibrosis (CF). To conduct this research, a tissue culture utilizing three main cell lines is being performed. The three main cell lines are CFBE-wild type, CFBE- Δ F508, and CFBE-41 \emptyset . CFBE-wildtype contains the normal, functional CFTR protein. CFBE- Δ F508 contains the nonfunctional CFTR protein as well as the mutation that is responsible for over 70% of CF cases. CFBE-41 \emptyset is the parental cell line and will function as a negative control. The main method used to determine the effects of the new compounds is Immunofluorescence Cytochemistry. Through this method, images are generated that identify the location of CFTR within the cell while maintaining the cell's integrity. These experiments are being run weekly to generate data via images captured by an immunofluorescent microscope.

Stephen Trest, Mississippi Gulf Coast Community College

The Bonnet Carre Spillway and Its Effects on South Mississippi's Economy

The Bonnet Carre Spillway is a flood control system located in Saint Charles Parish, Louisiana. In recent years, this spillway has been opened longer and more often than it had in the past. As a result, there has been a much larger quantity of fresh water in the Mississippi Sound, and this has killed a large quantity of marine life. This seriously impacts our local fishing economy. Many fishers have had to take entire seasons off because it would not be profitable to operate in these conditions. On top of the effects on fishing, the excess fresh water contributes to the flesh-eating bacteria outbreak which has plagued our beaches for years. 2019 was the first time in history that the Bonnet Carre was opened twice in one year, and it was also a particularly bad year for flesh-eating bacteria on our beaches; tourism is a major industry on the coast, and the beach is the main reason for that. We need a healthy Mississippi Sound for our coastal economy to thrive, and the repeated flooding of fresh water through the Bonnet Carre is negatively affecting that. Since flooding New Orleans is not an option, I will go over the other possible solution: restoring the Mississippi River Delta.