ORCA SYMPOSIUM SPRING 2024

Poster and Round Tables

Poster Presentations

1. **Exploratory Study with College Students and their Experiences with Familial Deportation or Incarceration**
   Presenter: Yajaira Ceciliano

   Description: Drawing from a report by FWD.us (2018), the United States currently estimates approximately 6 million individuals with incarcerated family members, with a significant rise in Latinos held in detention facilities. Furthermore, data sourced from the American Immigration Council (2021) reveals that between 2013 and 2018, approximately 231,000 people faced deportation by ICE (Immigration and Customs Enforcement), a substantial portion of whom were parents of US citizen children. This data is alarming, as it shows a consistent pattern where a significant number of those deported or incarcerated are men from Black and Latino backgrounds, who at the same time belong to vulnerable and underserved communities (Wildeman and Western 2010, Geller, Garfinkel, and Western 2011). In this context, the study of the gendered effects of familial deportation or incarceration holds significant relevance, given that the University of Houston-Downtown (UHD) is not only a Hispanic-serving institution but also an essential proportion of the students are females from Latinx and underserved communities. Therefore, given the UHD's demographic composition, it is reasonable to suppose that a portion of our students deal with relatives who are deported or incarcerated. However, little is known about how these events affect men and women differently and how these situations affect students' academic journey.
   Therefore, this study's research question is: How do the impacts of family member deportation and incarceration experiences vary by gender?

2. **The Impact of Open Educational Resources on Student Achievement: A Meta-Analysis**
   Presenter: Kit Cho

   Description: This project assesses whether courses that used no-cost resources (i.e., OER) resulted in improved student learning outcomes compared to courses that used commercial resources. A systematic literature review was conducted, and it yielded 26 articles and 56 effect sizes for inclusion in the present meta-analysis. Student achievement was operationalized as (a) completing the course with at least a C, (b) completing the course with at least a D, and (c) course grade. OER courses were associated with higher student achievement on all three criteria. These findings suggest that adopting OER can be a scalable, cost-effective, yet powerful and successful method for educators and institutions to reduce the cost of attending college while bolstering student success.

3. **Effects of Antiproliferative Components from Plant Extracts on Breast Cancer Cells**
   Presenter: Jacob Theruvathu

   Description: Breast cancer is the most common cancer diagnosed in women and the second most common cause of death from cancer worldwide among women. Despite significant scientific breakthroughs in cancer research, breast cancer remains a major health problem. Although chemotherapeutic drugs are very effective in several types of cancer, the side effects are a major concern. Interestingly, studies have shown that several natural products have some remarkable anticancer properties. However, the actual mechanism for their anticancer property is largely unknown. One of the mechanisms of several types of cancer including breast cancer is abnormal DNA methylation, a key process for gene regulation in humans. In addition, previous studies show that natural product ingredients could affect DNA methylation levels in cancer cells. In this project, we propose to study the effects of plant extracts on breast cancer cells. The study will focus on the effects of plant extracts on (a) DNA methylation and (b) expression of transcription factors associated with the regulation of anti-cancer cytokine pathways. Additionally, we will isolate and chemically characterize the active components of plant extracts that elicit the observed cellular responses. Together, knowing the active compounds and their effect on DNA methylation and signaling mechanisms can serve as potential new therapeutic avenues in breast cancer research.

4. **Developing Stereological and Machine Learning Methods to Characterize the Spatiotemporal Metabolic Profiles of the Neuroretina**

   Presenter: Elda Rueda

   Description: The retina is an ideal and useful tissue to identify and understand molecular mechanisms that control neuronal differentiation and cell specification in the vertebrate central nervous system (CNS). This is because compared to the CNS, we understand the physiological organization of the retinal tissue, its cell composition, its circuitry, and the identity of all types and subtypes with a lot of detail. Additionally, single cell transcriptomic analyses of developing retina have provided the bases to comprehensively characterize changes in gene expression that occur during retinal neurogenesis and the specification and differentiation of each major retinal cell type. Even though mitochondrial function is at the center of neuronal development, the role of mitochondrial metabolism in neurogenesis is not completely known. My research focuses on characterizing the role of the mitochondrial metabolism in the mammalian retina. In this project undergraduate students are developing stereological and machine learning methods to characterize the spatiotemporal consequences of the loss of mitochondrial genes in the developing retina.

Roundtable Presentations

5. **ORCA Proposals – A Session with two ORCA Committee Chairs**
   Presenters: Godwin Agboka and John Rountree

   Description: Join the current ORCA Committee Chair and the past-chair to get their insight on ORCA proposals and the submission process.

6. **Applying for External Funding with ORSP**
   Presenters: Denise Burgen, Youn-Sha Chan, and Kenneth Johnson

   Description: Join the ORCA Pre-Award Director and two ORCA Faculty Fellows to talk about turning your ORCA proposal into a proposal for external funding.

7. **Investigating Cytotoxic Compounds for Their Potential to Inhibit Metastasis and Angiogenesis**
   Presenter: Rachna Sadana

   Description: Cancer is a collection of diseases hallmarked by uncontrolled cell division. Cancer treatment involves varying combinations of surgery, radiation, chemotherapy, and hormone therapy. Chemotherapy employs the use of drugs that kill the rapidly dividing cells. The main feature of these drugs is to cause cell death without inflammation. My lab has screened more than 500 newly synthesized compounds in past ten years using a colorimetric cell proliferation assay and has identified ~20 compounds as cytotoxic that inhibit cell division- a required property of anti-cancer drugs. Using ORCA funds received in fall 2021, we found that some of these compound arrest cells in specific cell cycle stages and initiate apoptosis. Currently we are ***investigating if these cytotoxic compounds alter metastatic and angiogenic properties of cancer cells using Matrigel Invasion Assay and wound healing assay***.

8. **The Strategic Value of Blockchain Technology in Marketing Supply Chains**
   Presenter: Steve Zhou

   Description: Blockchain has been developed for about a decade, but the industry has only begun to implement and explore it in the past few years. While global companies such as Amazon and Alphabet have begun to invest in the development of this technology, most firms are still on the sideline, since they do not have a good level of understanding of it, nor do they know how to apply and benefit from it. This project aims to help understand the blockchain, its benefits and applicable occasions, and to promote the development of blockchain technology. The objective of this project is three-fold: a) it will focus on blockchain's application potential in management and decision making in firms and their supply chains, where current real time data is hard to fetch and information is stored in an independent manner; b) address challenges (technological,

regulatory, and system transformation) that affect the adoption and impact of blockchain in supply chains; and c) discover opportunities brought by blockchain and how organizations could realize such chances to enhance business performance, along with traditional supply chain management.

9. **Painting Pictures by Numbers: Edward Long's Political Economic Fantasy for Jamaica**
   Presenter: David Beck Ryden

   Description: Edward Long (1734–1813), wrote the *History of Jamaica* (1774), in part, with the hope that his words would reshape the colony's frontier by drawing yeoman farmers from Britain to the island's unsettled interior. Long's vision was to remake the unimproved frontier into something approximating rural England, which would serve the planter class by reducing island food prices; denuding forested safe havens for runaways and rebels; and refashioning the colony into something that could better withstand nascent British antislavery critique. Long's rhetorical strategy obscured the harsh realities of Jamaica's slave economy while it pointed potential migrants away from commercial slave ownership. This article highlights how the planter-author juxtaposed his picturesque descriptions of the island with quantitative tables that were intended to attract migrants of a certain caste. It was Long's hope that these settlers would be liminally and forever fixed between the enslaved population and the ruling planter class. Long's plans for the creation of British settlements excited neither the ruling class nor potential migrants and therefore failed.

10. **Taking Honor Seriously in Student Honor Codes**
    Presenter: Andrew Pavelich

    Description: My project investigates a theoretical framework for understanding the ethical grounds of plagiarism remedy, grounded in the virtue of honor. My thesis is that if we look at academic honesty issues through this lens, we can create academic practices that may more effectively help students accept the wrongness of plagiarism, and also allow them to return to an understanding of themselves as good students after committing these transgressions, by drawing on the tools that so-called honor societies use to deal with transgressions of their honor codes.