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Maria Aristeo
(Pictured on the left)

Human Resource Management Major

Faculty Mentor: Christina Abreu

The objective of this project is to utilize Oral History to archive the personal stories of Latinx working in Higher Education and commemorate their path to education. The content of the project will be added to the Latinx Oral History project archived in the Regional History Center at Northern Illinois University. This includes a collection of oral history stories from the DeKalb/Sycamore, Chicago, and the Northern-Illinois region. By implementing the research methods of audio recordings, transcriptions, and interviews, a collection from four independent participants will be archived. The themes of Latinidad, support systems, racism, hierarchy in education, will help researchers understand the obstacles that Latinx whom work in Higher Education, have faced.

Vivian Meade
(Pictured on the right)

Spanish Major

Faculty Mentor: Christina Abreu

The Latinx Oral History Project is a collection of oral histories from Latinx population in the Midwest, particularly in the DeKalb and the Chicago metropolitan area. The project was founded by the Center for Latino and Latin American Studies at Northern Illinois University (NIU) in DeKalb, IL. Each oral history is collected and then deposited into the project at the Founder’s Library at NIU. Researchers and historians will be able to access this project and utilize it to their needs. The emphasis on my portion of this project is to see if and how racism and discrimination affects students in higher education studying music. Three of the students are music majors at NIU, and one student is a non-major but involved in the School of Music at Augustana College in Rock Island, IL. Some of the main themes discussed throughout the interviews include racism, discrimination, music, education, self-identity, and family.
Mia Bonds

Communications Major

Faculty Mentor: Vernese Edghill-Walden

Historically, it is common for African Americans to be labeled inferior to their white counterparts. In the United States, there has always been a system or tactic in place to oppress African Americans, such as slavery, black codes and Jim Crow. The question this research will answer is whether the criminal justice system is being used as an oppressive system towards the black community. Some Presidents, since the 70's, have implemented policies that impacted the way officers treated African Americans, an example would be the war on drugs. Incarceration rates of black people in the prison system in comparison to their white counterparts and how these numbers changed with federal policies, will be analyzed. This research will also focus on implicit biases, how African Americans interact with the criminal justice system, how it differs from what Whites experience and how it has changed over time. Media has always played a significant role in social movements and policies. There is increase coverage of black people and police homicide, brutality and wrong-doing. Examples include Kalief Browder, Trayvon Martin and Eric Garner. Some of these cases were the very motivation for an anti-racism movement called Black Lives Matter (BLM) founded in 2013.
Exploring Elementary Financial Literacy Education

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Elementary Education Major

Faculty Mentor: Mary Beth Henning

The important decisions we make in our lives can be influenced by the type of education we have received. Through financial literacy education beginning in elementary school, students learn essential skills to positively influence decision making that can improve their future college and career experiences. Since 2016, new K-12 financial literacy standards, or educational learning goals, have been mandated by the state of Illinois. However, elementary teachers are still new to these standards, and it is unknown how well they are understood by teachers. In order to promote financial literacy within elementary schools, those teachers must be exposed to the financial literacy standards and ways for their students to meet those financial learning goals. This research includes data drawn from surveys completed by preservice teachers in elementary education programs in the state of Illinois. This research is significant because it reveals how well prepared and confident preservice teachers are when it comes to teaching the new financial literacy standards. The objectives for this research project include promoting the importance of teaching financial literacy in elementary grades, effective ways of teaching financial literacy in the elementary classroom and finding out how preservice teachers currently interpret financial literacy standards. Using library research and data gathered from surveys collected in 2017 and 2018, the expected results will show how elementary preservice teachers define and perceive financial literacy.
Nahua Featherwork as Knowledge Production in 16th Century Colonial Mexico

Anna Henderson
History Major
Faculty Mentor: Kristin Huffine

The Nahua of pre-Colombian central Mexico encompassed a large network of people that were united in shared religious and cultural practices. Their religious beliefs permeated every aspect of their lives and impacted artistic expressions of self and the sacred, including but not limited to the practice of featherwork. These artists were specialists in the usage of feathers obtained from various species in Mexico that were used for decorating items specifically meant for the most highly esteemed individuals in Nahua society. The feathers themselves were believed to hold tonalli, a Nahua concept that indicated the presence of inner light and heat in a physical body. This light further suggested inner strength and prestige, and was able to transfer from birds to their feathers, then from the feathers to the wearers of the feather-clad object.

Featherwork continued to play a role in Nahua culture in post-Conquest Mexico. Though some traditional forms of featherwork artistry can be seen after the Spanish invasion, the bulk of the work is based in Catholic-themed art. Franciscans most likely acknowledged this as confirmation of Nahua conversion to Catholicism. Yet this instead indicated the acceptance of Catholic saints into the pantheon of deities the Nahua already worshipped. Using these pieces as instructional objects on the religion of Mexico’s new political power, Nahua featherworkers intended to exhibit the incorporation of Spanish Catholicism into their traditional beliefs. While scholars have acknowledged featherwork in post-Conquest New Spain, the interpretation of it as instructional objects or even indicative of resistance efforts has yet to be fully examined.
Myiesha Hunt

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Faculty Mentor(s): Jack King, Carol Walther

The objective of this project is to determine whether the lack of minority representation within community agencies affect whether minorities succeed or benefit from the service being provided. Specifically, agencies such as mental health providers because the need for services are at an all-time high in our communities and they are either not available or easily assessable to those in need. There are some disparities in minority mental health care that are greatly affecting the service that minorities are receiving. Nearly one in five American adults will deal with a mental health issue in a given year. Majority of theses people are people of color, most of who aren’t aware that they are suffering from a mental illness due to lack of mental health facilities, cultural stigmas, and lack of accesses to services. When services are available to minorities they lack both quality and affordability.
We are investigating previous research that identifies genes responsible for acquired hearing loss. Hearing loss is an increasing problem world-wide. With constant accessibility to technologies, treatment for hearing loss is continually growing. However, sensorineural hearing loss is unique when seeking medical treatment. Further research will gather the genetic variation present in individuals with hearing loss along with the metabolic process involved. Our goal is to find the gene most susceptible to acquired cochlear hearing loss. To accomplish this, we are systematically looking through articles and analyzing the data of various genetic markers which will enable us to find the source of the problem. Once we can identify the gene that has the most significant data in association to acquired cochlear hearing loss, we can further our research by focusing only on that gene’s susceptibility.
The present research examines the water quality within the Kishwaukee River Watershed located in DeKalb County. A watershed is the area of land where all the water that falls into it naturally drains off and goes to a common outlet (USGS, 2016). This research will complement previously established research from 2013 where David C. Mills, M.S. investigated the water quality around concentrated animal feeding operations (CAFOs) within DeKalb County. This study will be focusing on the South Branch of the Kishwaukee River Watershed, where we will sample 18 locations throughout DeKalb County and investigate the present quality of the water to find the quality of it. Two methods will be used while collecting samples, including a water bottle apparatus method and a large clamp method. The water bottle apparatus method is used to sample off bridges when it is not safe or assessable to go on the river bank. The big clamp method is only to be used when there is no bridge and the river bank is assessable. Once samples have been collected we will use a HACH 4HDq Multi Probe to test for pH, dissolved oxygen, electrical conductivity, and temperature which have to be measured while we are still at the site because they will change over time. After we finish a day of sampling we have 24 hours to test all samples using an eXact Micro 20 Meter, which tests for water quality characteristic including total hardness, iron, and phosphates. Also we will be using an Ion Chromatograph which is able to measure concentrations of major anions, such as fluoride, chloride, nitrate, nitrite, and sulfate, and major cations including calcium, magnesium, and potassium. From the study we expect that there will be good quality water in the Kishwaukee River Watershed, but if there is a decline in quality we would like to find out the sources of impact, potentially being Northern Illinois University, the waste water treatment plant, road maintenance, and or local farms. The importance of this study is to keep our watershed clean and safe for all wildlife.
This research entails the development of an Intelligent Tutoring System (ITS) to teach Middle School Students scientific argumentation. In an article, ITS is any computer program that can help in learning, and that contains intelligence. (Freedman, Ali, & McRoy, 2000). In a traditional classroom setting, giving each student a tutor is ideal, but it is not reasonable. ITS can act similar to a tutor and provide students with experience at a fraction of the cost. The Intelligent Tutoring System developed in this research will be able to engage students in scientific argumentation that can foster a better understanding of the concepts and processes of science. In classrooms, the opportunities for an authentic scientific argument amongst the students is scarce. This system will provide a platform where students can present their arguments and counterarguments on a given topic in a classroom setting. The purpose of this research is to help middle school students get a better understanding of scientific argumentation, using an Intelligent Tutoring System explicitly designed for this audience as the current systems are outdated and built for college-level students. This system will focus on two majors aspects 1) appropriate scaffolding to help the students whenever possible, 2) a reward system that will include meta-cognition to make the students aware of their own thought process and self-regulation to allow the students to monitor and control their behavior, emotions, or thoughts, adapting them with the situation.
Antibodies are proteins located in the blood that are manufactured to counter specific antigens. When the antibody binds to the antigen, it releases a chemical signal that various alert parts of the immune system. The signal informs the T-Cells to attack and destroy the antigen marked by the antibody. An antibody is composed of a Fab and Fc component. The most abundant antibody is IgG and is in the blood. The antibody VHH also called “Nanobody,” is the most used reagent for detection and quantification of proteins. However, their setback is their long production time and that they are only found in the camelid family requiring animal immunization process. A VHH antibody corresponds to the Fab region of an antibody and lacks the light chain typically located in the antibodies in humans. Having only a heavy chain makes the size of VHH very small and makes it easier to express link or conjugate. This study looks at ways to modify VHH with disulfide bonds to reduce the rate of denaturation and allow it to be more heat resistant. The program Pymol is used along with various lab techniques to model the protein and get a better understanding of its structure. The interphase of this program aids in recognizing the distinct locations of different residues, side chains, an amino group, and a carbonyl group. The expected result of this study is for the VHH molecule to be more stabilized. The stabilization of the VHH is measured based on the rate of becoming denatured due to the thermostabilization temperature. The expected result is for the protein to maintain its native state for a more extended period. Its expected for the protein to take 10 degrees Celsius for it to unfold. The advantage of the VHH antibody is the relatively small size that enables them to bind to larger extent of epitopes that other antibodies cannot access. Their smaller molecular weight provides them with more efficient penetration and faster clearance. This also allows to them to participate in intercellular probing. Stabilizing the VHH antibody leads to the further stabilization of the protein GFP. Green Fluorescent Proteins is used in the medical field to detect genes, diseases, and even tumors.
Nyari Turner

Biological Sciences Major

Faculty Mentor: Eric Hall

When discussing the Civil Rights Movement, the main events that are brought up are the March on Washington, the Montgomery Bus Boycott, Brown vs. Board of Education, and the Little Rock Nine. Hardly ever does anyone go into the details of the less popular movements that happened around the nation. Northern Illinois University was involved in Civil Rights demonstrations, yet few scholars have written articles, or gone in depth with NIU’s involvement. This project brings to light the unique aspects of both NIU and DeKalb as well as their influence and contributions to Civil Rights during a turbulent time.
Since opioids were prescribed at a greater rate within the last two decades, officials have called upon the nursing profession to address the escalation of substance use disorders. States’ board of nursing (SBON) provide regulatory guidelines and resources for their constituents, but it is yet to be known the extent SBON provide guidance to nurses in reducing prescription opioid misuse, abuse, and diversion. The purpose of this study is to determine the varying content of each states’ board of nursing and identify patterns and/or characteristics across states. By methodically reviewing and documenting the resources provided on each SBON website, this study aims to describe and quantify the educational content available to nurses through their Boards to reduce and reverse the epidemic of prescription opioid-related abuse and overdose death.