



THE HONORS COLLEGE AT UW OSHKOSH

SPRING 2023 HONORS THESIS SYMPOSIA

MONDAY, MAY 1

TUESDAY, MAY 2

WEDNESDAY, MAY 3

UNIVERSITY OF WISCONSIN
OSHKOSH

— MONDAY, MAY 1

5:00 p.m. —

ELIZABETH MUSCHA

NURSING

“HUMAN TRAFFICKING SIMULATION FOR UNDERGRADUATE NURSING STUDENTS”

Human trafficking is a massive problem humanity faces, but it is often brushed under the rug due to the difficulty of discussing such a nightmarish part of our society. Nurses play one of the most vital roles in recognizing this population's needs and administering confidential and comforting help. Unfortunately, as a result of this topic being labeled taboo, education is not often provided to nurses when they are at their most influential point of their careers—nursing school. Determining whether participating in and observing peers in a simulation is an effective way to educate nursing students on caring for a patient of human trafficking is vital information when best understanding how to educate on this topic.

Advisor: DR. LAURA SMOLINSKI, COLLEGE OF NURSING

5:30 p.m. —

ALLISON SWANSON

CRIMINAL JUSTICE AND POLITICAL SCIENCE

“COST OF LIFE:

AN EXAMINATION OF MASS SHOOTINGS DURING THE CORONAVIRUS PANDEMIC”

Mass shootings occur on average every day in America. In 2020 and 2021, there were more than 1300 mass shooting incidents. While definitions vary among scholars, a mass shooting is most commonly defined as an event in which four or more victims are killed or injured by gunfire. In our research, we investigated mass shooting with variables such as time of day, type of weapon, gang-related, victim information, and offender demographics. The data for this study are the mass shooting incidents during 2020 and 2021 and are provided by the Gun Violence Archive. This time period was chosen in an effort to explain the increase in mass shootings during the COVID-19 pandemic. Our initial findings suggest that mass shootings tend to take place outside of school hours, which implies that mass shootings occur primarily in locations other than schools. Our research also shows that mass shootings are not gang-related and that automatic weapons are rarely used. Our results suggest that mass shootings are the result of interpersonal conflict within disadvantaged areas. Policy implications are also discussed.

Advisor: DR. MATT RICHIE, DEPARTMENT OF CRIMINAL JUSTICE, COLLEGE OF LETTERS AND SCIENCE

6:00 p.m. —————

MEGAN LaFOND

ELEMENTARY AND MIDDLE SCHOOL EDUCATION

“MATHEMATICAL IDENTITIES OF PRESERVICE ELEMENTARY TEACHERS”

Mathematical identity is defined as “the ways in which students think about themselves in relation to mathematics and the extent to which they have developed a commitment to, are engaged in and see value in mathematics and in themselves as learners of mathematics” (Graven, 2019). The mathematical identities of pre-service teachers influence not only their own mathematical work as they prepare to become teachers, but also their future mathematics teaching (Lutovac, 2013). Research suggests that mathematical identities are formed by specific and memorable positive or negative mathematical experiences during their school years. In this study, I focus on comparing the mathematical identities of preservice elementary teachers at both the start and the end of their mathematics content sequence (the start of their math methods course). Preservice elementary teachers in three sections of a first university math course (Number Systems) and in a section of their math methods course completed a twenty-four-question Likert survey that asked them to reflect on their mathematical experiences and views on mathematics. Once the initial data was collected, a select group of students holding either an overall positive or negative mathematical identity was invited to participate in interviews. In that interview, they were asked to reflect on their mathematical memories, to talk about what it means to be a “good math student” and a “good math teacher,” and to reflect on how their beliefs about math changed during their math content sequence (if at all) and why. The data provides an understanding of how (and whether) mathematical identities evolve during teacher preparation and to what participants attribute that evolution. In this talk, I will present the results of this work.

Advisor: DR. JENNIFER SZYDLIK, DEPARTMENT OF MATHEMATICS, COLLEGE OF LETTERS AND SCIENCE



—TUESDAY, MAY 2

5:00 p.m. —

JACK SATORI

CHEMISTRY

“LIGAND-GATED ION CHANNELS AS TARGETS TO KILL PARASITIC WORMS”

Schistosomiasis is a neglected tropical disease that infects over 200 million people worldwide [1]. However, there are no vaccines that can prevent this infection, and only one chemotherapy is currently on the market. Numerous flatworm species can cause this disease in humans and animals. In order to identify new drug targets to control this disease, we are examining the specific receptors and neuromuscular pathways that regulate worm movement. Previously, MacDonald et al. approached this problem by screening various schistosome acetylcholine-gated chloride channels (SmACCs). The SmACCs are important because they regulate signaling through acetylcholine, which is known to paralyze worms [2]. However, there have been no follow-up studies in the decade since this paper was published, and analysis of sequenced genomes by me and by others has found additional unstudied SmACCs [4]. Future work could study these SmACCs using approaches that have been taken in another recent study conducted by Habibia et al. These expressed ACCs that were cloned from a different parasitic worm, *H. contortus* [3]. They used the patch clamp method for their experimental approach, which is utilized for studying electrical impulse currents in individual tissues and cells to determine that these channels were anion selective and responsive to stimulus. These articles are relevant to my research, which has focused on the paralyzing activity of carbochol, acetylcholine, and other compounds that likely act through ACCs. This work further discusses the mechanistic properties of ion channels, neurotransmitters, and their importance as targets for chemotherapies that can be developed to treat schistosomiasis.

References:

1. Chan, J. D.; Day, T. A.; Marchant, J. S. *Elife*, 2018, 7.
2. MacDonald, K.; Buxton, S.; Kimber, M.J.; et al. *PLoS Pathogens*, 2014, 6, 1-14.
3. Habibia, S.; Blazieb, S.; Jinb, Y.; et al. *Molecular & Biochemical Parasitology*, 2020, 237, 1-10.
4. Chan, J. D.; Johnson, H.; Satori, J.; *microPublication Biology*, 2022, 1-6.

Advisor: DR. JOHN CHAN, DEPARTMENT OF CHEMISTRY, COLLEGE OF LETTERS AND SCIENCE



5:30 p.m.

KAELI WELSH

BIOLOGY

“EXPLORING THE YEAST DIVERSITY OF CANINE GASTROINTESTINAL TRACTS”

Yeasts are unicellular, eukaryotic fungi that thrive in a variety of environments and engage in commensal or parasitic relationships with other organisms. *Cyniclomyces guttulatus* is a species of yeast found in the gastrointestinal tracts of several mammals, including domesticated pets like rabbits, dogs, and cats. It is not well documented, likely due to the very distinct conditions that are required for its growth. It is debated whether *C. guttulatus* causes disease in animals or is a commensal yeast, and it is unknown if *C. guttulatus* is resistant to any antifungal medications. This study aims to investigate the relationship between *C. guttulatus* and canine disease, as well as whether natural isolates exhibit antifungal resistance. We cultured yeast from canine fecal swabs of both healthy and unhealthy individuals with modified yeast culture protocols to enrich for the growth of *C. guttulatus*. These modifications included low pH growth media, high incubation temperature, and high levels of CO₂, as well as antibiotic to inhibit bacterial growth. We used microscopic observations to confirm the isolation of yeasts. We found an unexpected amount of diversity in yeast cell and colony morphology, and we further identified species using molecular tools. We also tested the yeast isolates for growth in the presence of antifungals. Our results indicate that a previously underexplored diversity in yeasts was found in canine digestive tracts.

Advisor: DR. DAVID KRAUSE, DEPARTMENT OF BIOLOGY, COLLEGE OF LETTERS AND SCIENCE

6:00 p.m.

MADDIE YOUNG

GEOLOGY

“HOW OLD ARE YOU?”

NEW DATA ON THE AGES OF ANCIENT ROCKS RECOVERED FROM ANTARCTICA

According to plate tectonic theory, the outer rigid shell of the Earth (lithosphere) is broken up into multiple sections (known as plates). These plates move slowly with respect to each other, creating major belts of mountains and volcanoes that typify the surface of our planet. Although the present-day motions of plates are fairly well known, the nature and timing of ancient plate movements are poorly constrained because of the fragmentary character of the geologic record. This research focuses on better understanding the development of an ancient mountain system exposed in Antarctica known as the Ross orogenic belt. The eroded remnants of the Ross orogenic belt include igneous, sedimentary, and metamorphic rocks found along the edge of the East Antarctic craton in the Transantarctic Mountains. Previous studies that have focused on determining the ages of rocks involved in the development of the Ross orogen suggest that this belt reflects the convergence of plates along an ancient plate boundary ~600-500 million years ago. Other analyses of minerals that record the cooling ages of rocks suggest mountain erosion, rock uplift, and subsequent rock cooling occurred from ~525-480 million years ago. The goal of this project is to better constrain the ages of igneous crystallization (the solidification of magmas) and subsequent igneous and metamorphic cooling through new isotopic analyses of minerals separated from rocks previously collected from the Ross orogen. The data will provide new information about the age of mountain building associated with the Ross orogeny in Antarctica.

Advisor: DR. TIM PAULSEN, DEPARTMENT OF GEOLOGY, COLLEGE OF LETTERS AND SCIENCE

— WEDNESDAY, MAY 3

5:00 p.m. —

SARAH SCHAEFER

ENGLISH; MINOR IN LAW AND POLICY

**“DISCOURSES OF CONTESTED IDENTITY AND COMMUNITY HEALING:
THE MONUMENT OF CHIEF OSHKOSH”**

Soon five new plaques will surround the original (1911) statue and plaque of the Chief Oshkosh monument located in Menominee Park in Oshkosh, Wisconsin. These new plaques serve as a form of critical discourse analysis by confronting the colonialist misrepresentation and erasure of the lives, cultures, and histories of Indigenous peoples. By telling a fuller story of the life and accomplishments of Chief Oshkosh and exposing the failures of the original monument, the authors of the plaques create a more accurate and holistic view of this prominent chief of the Menominee Nation. The new language also urges visitors to read the entire monument in consideration of the “living and present legacy of settler colonialism” (South side plaque). This is just one of the ways that these new plaques perform critical discourse analysis, which is the view that ideology and power relations are interwoven in language and that no language is free from context. My project will attempt to clarify the negotiation and contestation of power relations in the discourse surrounding the Chief Oshkosh monument and how discovering these power relations “promot[es] the forms of education and dialogue that are necessary steps in the process of healing” (South side plaque). By closely analyzing the language of the new plaques alongside the original plaque and statue, my own analysis will reveal how the new language and images confront the colonialist discourse of the original monument while promoting a crucial dialogue of healing.

Advisor: DR. MARGARET HOSTETLER, DEPARTMENT OF ENGLISH, COLLEGE OF LETTERS AND SCIENCE

5:30 p.m. —

JULIA STACHOWSKI

NURSING

**“EXAMINING THE EFFECTIVENESS OF SUPPLEMENTAL INSTRUCTIONAL METHODS
FOR NURSING-RELATED COURSES”**

This project was conducted to examine the effectiveness of two Supplemental Instruction (SI) methods for pre-nursing students currently enrolled in Chemistry 102 at the University of Wisconsin Oshkosh. Chemistry 102 is a prerequisite for entry into the College of Nursing. The objective of this quality improvement project was to implement two commonly used education methods and examine if the SI fostered a better understanding of course content. This project also sought to determine which education method is the preferred method for pre-nursing students. During an optional SI session for Chemistry 102, students who chose to attend engaged in a review worksheet and Jeopardy game. Before implementation of the learning strategies, the students completed a pretest. The students were then separated into two groups, where one group completed the worksheet and the other group participated in Jeopardy. The students then completed a posttest. After the posttest, the groups switched learning methods. Once the students completed both the worksheet and the game-based method, they completed a postsurvey to evaluate their preferred method of instruction. The results showed that the two SI education methods increased the understanding of course content and within SI, the game-based method was preferred by pre-nursing students. Thus, in similar College of Nursing courses, SI should be considered for nursing students to increase content knowledge through the preferred game-based method.

Advisor: DR. NAHAL RAHMANPANAHI, COLLEGE OF NURSING

6:00 p.m.

LUCIANO VALDEZ

FINANCE;

MINORS IN INSURANCE AND RISK MANAGEMENT
AND RISK MANAGEMENT AND ACTUARIAL SCIENCE

“IMPACT OF THE COVID-19 PANDEMIC ON WRESTLERS’ SUCCESS:
EVIDENCE FROM NCAA DIVISION I”

The COVID-19 pandemic caused significant disruption to sporting events. In wrestling, the 2019-2020 season of the national tournament was cancelled. Athletes lost a year of eligibility with seniors not being able to compete in the last tournament of their college careers. This study examines wrestlers’ success in the NCAA Division I Championship, as measured by their NCAA placement, using panel data from 2019 to 2022. The findings show that teams’ performances as well as athlete’s personal characteristics play a significant role in their success. Furthermore, the pandemic greatly challenged the duration of the following season and the way athletes practiced. This can impact their technique development and future success in wrestling.

Advisor: DR. SARINDA TAENGNOI SIEMERS, DEPARTMENT OF ECONOMICS, COLLEGE OF BUSINESS





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THE HONORS COLLEGE AT UW OSHKOSH

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