



THE HONORS COLLEGE AT UW OSHKOSH

FALL 2022

HONORS THESIS SYMPOSIA

MONDAY, DECEMBER 5

TUESDAY, DECEMBER 6

WEDNESDAY, DECEMBER 7

UNIVERSITY OF WISCONSIN
OSHKOSH

4:00 p.m. _____

OLIVER LONG

FRENCH AND MICROBIOLOGY

“EXAMINING OXIDATIVE STRESS RESPONSE IN *DEINOCOCCUS AQUATICUS*”

Bacteria face a wide variety of environmental hazards, and stressors they can endure inform their habitats and roles in the environment. Oxidative stress, caused by reactive oxygen species, can cause damage to DNA and result in deleterious mutations. A wide range of genes give cells the capacity to control this damage, including catalases and oxidases to inactivate the hazardous molecules. *Deinococcus radiodurans* is an extremophilic bacterium known for extreme tolerance for a variety of stressors, including oxidative stress. Because of its incredible resilience, *D. radiodurans* is a well-studied, model organism for the genus. By contrast, *D. aquaticus* is a poorly characterized species with very little scientific focus since its discovery in 2008. This study uses several strains isolated from Lake Winnebago to seek a better understanding of the stress response of this common freshwater bacterium. Tolerance and post-exposure growth were compared in three strains of *D. aquaticus* to *D. radiodurans* after exposure to varying concentrations of hydrogen peroxide. Although *D. aquaticus* is not expected to have the same level of resilience as *D. radiodurans*, the comparison may provide insight into the habitats and physiologies of both species and expand the understanding of the diversity in the *Deinococcus* genus. Exposure to hydrogen peroxide over sixty minutes appeared to stimulate regrowth better than fifteen- or thirty-minute exposures. The longer exposure may make the bacteria prepare for active growth when conditions improve or may trigger secretion of opaque proteins.

Advisor: DR. SABRINA MUELLER-SPITZ, DEPARTMENT OF BIOLOGY, COLLEGE OF LETTERS AND SCIENCE

4:30 p.m. _____

REEGAN VAN CAMP

MUSIC EDUCATION

“COMPOSING EDUCATIONAL BIG BAND JAZZ REPERTOIRE”

This creative thesis consists of three pieces of educational jazz ensemble repertoire, composed with the purpose of clearly exhibiting and effectively teaching important elements of jazz styles for students at different levels. The ability to play with a true jazz style is very difficult to teach, since individual mastery of it is heavily based on “feeling” the music. One of the best ways of learning how to play in a jazz style is listening to and performing the repertoire of the greats, such as Duke Ellington or Count Basie for big band swing, but that repertoire is often too complex and difficult for a young or inexperienced group to play. This thesis attempts to address this problem by composing new repertoire that emphasizes jazz concepts and styles in a simple way for developing jazz bands. It includes three pieces—one written in a swing style aimed towards a beginning jazz ensemble (late middle school), one written in a Latin style directed towards a developing group (high school), and one written in a modern big band style for a more advanced group (advanced high school/early university).

Advisor: DR. MARTY ROBINSON, DEPARTMENT OF MUSIC, COLLEGE OF LETTERS AND SCIENCE

5:00 p.m. _____

SPENCER LEBEDUN

ECONOMICS AND SUPPLY CHAIN MANAGEMENT

“THE IMPACT OF BLOCKCHAIN ON SUSTAINABILITY: AN EMPIRICAL STUDY”

As sustainability has proven to be a growing field of study to keep the world healthy, extensive research has been done to examine the effects and definitions of sustainable practices. The field of supply chain management is revealing itself to be a significant factor in a company’s sustainability, especially with the new technology of blockchain affecting how fast a supply chain can run and the question of how blockchain can influence an enterprise’s supply chain sustainability. This empirical study analyzed fifteen publicly traded companies that have integrated blockchain in their respective supply chains and fifteen that have not. The analysis was done through a multivariate linear regression model to see if there is a relationship, and if so, if it is statistically significant. The regression showed a negative relationship between integrating blockchain and sustainability. This suggests that integrating blockchain lowers a supply chain’s sustainability. However, further research is needed to more conclusively address how and to what degree blockchain affects a supply chain.

Advisor: DR. MICHAEL J. TIPPINS, DEPARTMENT OF MARKETING, COLLEGE OF BUSINESS

FALL 2022 HONORS THESIS SYMPOSIA

5:30 p.m.

JESSICA TISCHAEFER

PSYCHOLOGY AND RADIO-TV-FILM; MINOR IN MUSIC INDUSTRY

“HARMONY WITHIN: MUSIC AND COGNITION”

Language represents the principal way in which humans organize, rehearse, and communicate information. Music, another form of human communication, shares a number of similar properties with language. For example, both are organized in systematic ways (i.e., grammar) and are comprised of smaller units (e.g., letters or notes) that follow specific patterns to be combined into larger units (e.g., words or chords). It should not be surprising, then, that a wealth of experimental research demonstrates that music can also play a critical role across a range of human experiences. For example, it has been shown to impact cognitive development, play a role in everyday mood regulation, and serve as a helping mechanism in certain therapeutic settings. This documentary serves as an overview of peer-reviewed scientific research in music cognition and includes discussions with individuals who have made music a cornerstone of their professional and personal life.

Advisors: DR. QUIN CHROBAK, DEPARTMENT OF PSYCHOLOGY, COLLEGE OF LETTERS AND SCIENCE
MS. BETH HUBBARD, DEPARTMENT OF RADIO-TV-FILM, COLLEGE OF LETTERS AND SCIENCE

6:00 p.m.

EMILEE WISE

ENGLISH EDUCATION

“PAINT IT WITH YOUR PEN”: NARRATIVE IMPRESSIONISM AND THE MOTIF OF HAIR IN LOUISA MAY ALCOTT’S *LITTLE WOMEN*”

UNDER THE UMBRELLA (OIL-ON-CANVAS PAINTING)

Women have used their hair—braided, chopped, pressed, pinned, or curled—as a constructed and decodable text for generations. One of the most iconic uses of hair as a motif in literature is found in Louisa May Alcott’s classic novel *Little Women* (1868). Reimagining the events of Alcott’s own life, *Little Women* follows the four March sisters—Meg, Jo, Beth, and Amy—as they transition from girlhood to womanhood. Throughout the novel, Alcott uses hair to interweave the strands of past, present, and future; hair also expresses the sacrifice, independence, and domestic artistry of the March sisters’ coming-of-age. By correlating childhood with loose, free-flowing hair and adulthood with pinned, bound hair, Alcott not only signals the transitional stages between girlhood and womanhood but also considers the freedoms and expectations placed on the sisters as girls and as women. Jo and Amy both attempt to balance their personal artistic ambitions with the standards imposed upon them as women. As the novel progresses, Jo and Amy are seen literally trying on different hats and hairstyles, which come to represent their attempts to fulfill different roles. Ultimately, both women find the most success when capturing domestic moments in time. Jo’s and Amy’s success in capturing time reflects Alcott’s own ability to both freeze time and anticipate its endless continuum in *Little Women*. Alcott thus constructs a perception of time as both fluid and captured, reminiscent of late nineteenth-century Impressionist paintings, which emphasize simple, domestic life and use elements such as brush strokes and light placement to construct memory-like scenes. The oil-on-canvas painting *Under the Umbrella* similarly manipulates light as a method of storytelling. The portrait features Jo March with half-shorn hair beneath an umbrella. Her hand is posed to display the hair ring on her finger. Jo’s rendering is caught between light and shadow, just as Jo stands in the liminal space between the dusk of her childhood and the dawn of her womanhood for most of the novel. Through symbols such as hair and umbrellas, *Under the Umbrella* not only captures Jo’s likeness but also illustrates Alcott’s impressive ability to bottle time in *Little Women*.

Advisor: DR. DON DINGLEDINE, DEPARTMENT OF ENGLISH, COLLEGE OF LETTERS AND SCIENCE

TUESDAY, DECEMBER 6

4:00 p.m.

JERRETT NETZER

RADIO-TV-FILM; MINOR IN INFORMATION SYSTEMS

“WIRE FRAUD: A LOOK INTO MODERN-DAY SCAMS”

This project presents details and information on a variety of scams that can collectively be referred to as wire fraud. It provides in-depth details on how these scam calls are scripted and covers a variety of methods, including the more recent refund scam as well as social engineering tactics that scam callers use during their “sales.” Further explanation will be provided on how these calls, such as money muling, are monetized and the systems used to avoid authorities. Specific examples include front businesses such as VRM Business Services and MET Technologies, which are put in place as protection for the scam callers, along with anecdotal evidence that these vendors are also sometimes complicit in hosting call centers for scammers. Finally, the project will provide insights regarding how to avoid being scammed, what to do if you have been scammed, and how to confirm whether a person contacting you is trying to con you.

Advisor: DR. DONALD HEATH, DEPARTMENT OF INFORMATION SYSTEMS, COLLEGE OF BUSINESS

4:30 p.m.

EMILY HOLLAND

FINANCE; MINOR IN LAW AND POLICY

“STUDENT ENTREPRENEURSHIP: THE IMPACT OF ENTREPRENEURSHIP EDUCATION ON BUSINESS FORMATION”

Entrepreneurs are essential to promoting progress, sustaining local economies, and getting passionate people involved in the economy. Without small businesses, there would be less to distinguish one city from another and chain businesses would consume the economy and leave little room for exciting new ideas. Many modern entrepreneurs are young, bright minds on college campuses looking to leverage their education to start their own businesses. Therefore, it is crucial for universities to understand the impact they're having on entrepreneurial students and provide adequate resources to help students flourish as young self-starters. College students have unique exposure to a diverse group of classes, classmates, on-campus organizations, faculty, and staff while pursuing their passions through their studies. This type of environment is beneficial to students looking to start their own businesses because they have many opportunities to learn and grow while they are developing specific skills. It is vital that universities nurture students' entrepreneurial spirit and provide all the resources these individuals need as it assists the students, the university, and the economy, when students form their own companies. The goal of this research is to identify students' feelings towards entrepreneurship and to pinpoint university resources that students consider essential to starting their own business. To reach a conclusion, a brief survey will be released to students attending UW Oshkosh and a few additional universities in various departments and programs to create a diverse response pool. The research will help determine 1) which resources are beneficial for student entrepreneurs from various universities and 2) what motivates these individuals to start their own businesses so they can continue to foster entrepreneurial creativity and contribute to the greater community and economy. I anticipate that many students are looking for more resources and on-campus support so they can establish a side hustle while pursuing their undergraduate degrees. Based on the conclusions drawn, universities will be able to decipher which entrepreneurial avenues are worth resources and whether they are able to provide and promote resources that students will utilize to start their own businesses.

Advisor: DR. JEFFREY SACHSE, CENTER FOR CUSTOMIZED RESEARCH AND SERVICES

FALL 2022 HONORS THESIS SYMPOSIA

5:00 p.m. _____

JOSH STORTZ
BIOLOGY AND CHEMISTRY

“METHODS FOR ARCHAEOLOGICAL LIPID EXTRACTION AND ANALYSIS”

Swan Point, an archeological site in Alaska, is a place where some of the first nomadic people crossed the land bridge into North America. The remnants of ancient hearth sites (campfires) at Swan Point contain lipid residues that offer clues to the foods and fuels used by these people. These lipid residues can be extracted from the soil and analyzed using a technique known as gas chromatography (GC) to identify lipid patterns and amounts in order to draw conclusions about the way these nomadic people lived. In this Honors thesis project, new lipid extraction techniques were developed and tested. The standard method for lipid extraction, known as Soxhlet extraction, is slow and impractical for large numbers of samples. Based on research conducted by previous students, the extraction techniques of sonication and microwaving were tested extensively to determine if these faster methods could produce results similar to those of Soxhlet extraction. The second portion of the research focused on how lipid residues responded to simulated weathering cycles similar to those of Swan Point. These lipid residues had to be converted to Fatty Acid Methyl Esters, which could then be analyzed by GC. Results obtained from GC can be used to draw conclusions about the stability of lipids in nature and to provide insights into the lives of ancient nomadic people.

Advisor: DR. BRANT KEDROWSKI, DEPARTMENT OF CHEMISTRY, COLLEGE OF LETTERS AND SCIENCE

5:30 p.m. _____

BREANA VANDER WIELEN
ACCOUNTING AND HUMAN RESOURCES MANAGEMENT

“A COMPARISON OF POTENTIAL METHODS FOR REPORTING HUMAN CAPITAL IN AUDITED FINANCIAL STATEMENTS”

Employees (human capital) are recognized as one of the most valuable assets of any organization due to their flexibility, judgment, and range of skills. Yet there is no recognition, valuation, or removal of human capital in financial statements, accounts, ledgers, or journal entries. In 2020, the Securities and Exchange Commission (SEC) announced a change in disclosure requirements for publicly held organizations. Companies are required to 1) disclose the number of employees with description of their human capital resource if material to the organization and segment and 2) provide any material human capital measures or objectives the company utilizes in managing its business. Metrics related to attracting, compensating, developing, ensuring safety, increasing engagement, and reducing turnover for employees are examples of human capital measures. In this thesis, I review several models organizations use to measure their human capital and discuss the impact of reporting human capital on financial statements. Each model is identified, defined, and critiqued in terms of the costs and benefits of maintaining the information. Then, advantages and disadvantages of each model are discussed. This process reconciles seemingly disparate means of measuring human capital. I expect non-monetary measures to be a more accurate measure of human capital. A key obstacle for accurate monetary measures is affixing an accurate dollar amount to metrics like ensuring safety, reducing turnover, and increasing employee engagement. Finally, I propose the method that seems to best accomplish the goals of the SEC's new disclosure requirement.

Advisor: DR. NATHAN STUART, DEPARTMENT OF ACCOUNTING, COLLEGE OF BUSINESS

6:00 p.m. _____

JORDAN BETTS
PSYCHOLOGY

“THE PRICE OF VALOR: AN EXAMINATION OF THE ROLE OF MORAL INJURY AND STIGMA IN MILITARY VETERAN PTSD”

Moral injury (MI) is a term used to describe individuals who struggle with distress, shame, and guilt in relation to the perpetration of an action, or the failure to act, in a way that opposes one's own moral code. While MI is its own standalone condition, its features can greatly overlap those of post-traumatic stress disorder (PTSD). It is not uncommon for military veterans to struggle with MI and PTSD, and as such it is vital to understand the mechanisms of MI as it relates to PTSD so that clinicians can make informed treatment decisions for clients who suffer with both conditions. In addition, the military population may not seek professional mental health treatment for their PTSD and MI due to perceived and real stigma from others and themselves. The current body of literature regarding military veterans with PTSD and an MI casts an unclear light on how the presence of stigma may decrease the likelihood of help-seeking behaviors and treatment outcomes. While there are current treatments—such as cognitive processing therapy and prolonged exposure—with the potential for being effective, future research endeavors should discern whether new therapies should be developed to target the MI. Therefore, the goals of this literature review are to survey what current treatments are used for MI, to examine whether stigma and MI interact with each other in ways that impact help-seeking behavior and treatment outcomes for military veterans with PTSD, and to offer suggestions for future research undertakings on this topic.

Advisor: DR. KATHY PHILLIPPI-IMMEL, DEPARTMENT OF PSYCHOLOGY, COLLEGE OF LETTERS AND SCIENCE

————— WEDNESDAY, DECEMBER 7

4:00 p.m. —————

GWENDOLYN GRUBER
PSYCHOLOGY; MINOR IN SOCIAL JUSTICE

“THE EFFECTS OF EDUCATION ON ADOLESCENTS’ GENDER DEVELOPMENT AND MENTAL HEALTH”

Research on the concepts of gender and mental health suggests that education plays a significant role in influencing and determining whether an adolescent’s gender development and mental health will be healthy or destructive through the rest of adolescence and adulthood. Gender polarization, sex segregation, gender biases, and gender stereotypes that exist in schools have been shown to negatively impact adolescents’ confidence, stress levels, anxiety levels, and happiness levels, which all affect their overall mental health and ability to succeed in school. Researchers have studied mental health and gender development in education, but they have never combined both mental health and gender development in a single study. This study will build a bridge between gender development and mental health in education and will provide evidence that reveals how stereotypical and exclusive ideas about gender being taught in schools have negative implications on adolescents’ mental health and lives as future adults. Before obtaining survey results, I predicted that students who identify as girls and LGBTQ+ will indicate that they experience higher levels of discrimination and gender stereotyping in school than students who identify as boys and non-LGBTQ+. However, those who identify as girls, boys, non-LGBTQ+, and LGBTQ+ will indicate that they experience gender polarization and sex segregation. While all students experience limitations in education because of their gender, those who identify as girls and non-binary will have poorer gender development and poorer overall mental health than students who identify as boys.

Advisor: MR. COURTNEY BAUDER, SOCIAL JUSTICE PROGRAM, COLLEGE OF LETTERS AND SCIENCE

4:30 p.m. —————

JACK FEYE
EXERCISE AND SPORT SCIENCE

“CHRONIC EFFECT OF POSTACTIVATION POTENTIATION IN HIGH SCHOOL BASEBALL PLAYERS”

The purpose of this study is to determine whether chronically utilizing postactivation potentiation (PAP) has an effect on throwing velocity. Many studies have investigated the acute effects of PAP on various measures of athletic performance, but few have examined the results of utilizing PAP for prolonged periods. Subjects (n=6) will be male high school baseball players at Kaukauna High School. Subjects will conduct a baseline test in order to establish initial throwing velocities and shoulder internal rotation strength. They will then conduct maximal velocity throwing exercises twice per week for five weeks. The exercises will consist of five maximal velocity throws with a regulation baseball, each preceded by three heavy internal shoulder rotations using a resistance band (to induce PAP). There will be four minutes of rest between the rotations and each throw. Testing will be conducted again after five to six weeks and compared to initial testing to determine statistical significance of any differences between groups. We hypothesize that there will be improvements in both throwing velocity and shoulder internal rotational strength, even if the difference is not statistically significant.

Advisor: DR. BRIAN WALLACE, DEPARTMENT OF KINESIOLOGY AND ATHLETIC TRAINING, COLLEGE OF LETTERS AND SCIENCE

FALL 2022 HONORS THESIS SYMPOSIA

5:00 p.m. _____

THEODORE BUCUR
CHEMISTRY; MINOR IN PHYSICS

“SYNTHESIS AND CHARACTERIZATION OF BIPYRIDINE DERIVATIVE
FOR PRODUCT SELECTIVITY IN CARBON DIOXIDE REDUCTION”

A new bipyridine ligand was synthesized for the purpose of adapting a catalyst used in carbon dioxide reduction. Manganese bipyridine tricarbonyl catalysts have been used for some time to catalyze the reduction of carbon dioxide to products such as carbon monoxide or formic acid, which can then be converted into other value-added chemicals. Studies have shown that introducing extra- and intra-molecular aliphatic and aromatic amines can shift product selectivity towards formic acid. This new ligand was formed using Suzuki coupling to attach an aromatic amine to the bipyridyl group. Future electrochemical studies will indicate whether this new ligand will alter product selectivity, enhance catalysts by acting as a proton shuttle, or shut down catalysis by promoting hydride formation.

Advisor: DR. SHERI LENSE, DEPARTMENT OF CHEMISTRY, COLLEGE OF LETTERS AND SCIENCE

5:30 p.m. _____

QUILL GRAHAM
HISTORY

“ANIMALS AND AUTISM IN MIDDLE-GRADE LITERATURE”

Middle-grade literature about nonhuman animals, children, and autists reveals how those three categories—which are associated with “inferior” mental and linguistic capacities—blend together in the cultural imagination. These stories form such a large and relatively monolithic body of work that they constitute their own “autism/animal” subgenre, which has yet to be examined by humanities scholars. The genre’s patterns of representation reflect how and why people envision autists as mentally and spiritually closer to nonhuman animals, a conception that has popularized animal therapy programs for autists and has justified the maltreatment of those on the spectrum. Stories in the autism/animal genre often act out translation fantasies that allow characters to overcome the frustrating communication barriers between autists and neurotypicals as well as between humans and animals. These translation fantasies, although responding to a natural desire to connect with others, can place unfair burdens on autists and animals and can engender unrealistic expectations about communicating with those of a different neurotype or species other than one’s own.

Advisor: DR. STEWART COLE, DEPARTMENT OF ENGLISH AND ENVIRONMENTAL STUDIES PROGRAM,
COLLEGE OF LETTERS AND SCIENCE



Honors students must choose an Honors Senior Capstone—their final requirement to graduate from The Honors College—either by enrolling in the Honors Senior Seminar *or* developing their own research project as an undergraduate thesis.

Those who opt for the Honors Thesis work independently with a faculty advisor to bring their innovative ideas to fruition. For many, this opportunity is one of the most challenging yet rewarding academic experiences. The Honors College congratulates these students for their determination to create and complete successful Honors Thesis projects.

THE HONORS COLLEGE AT UW OSHKOSH

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