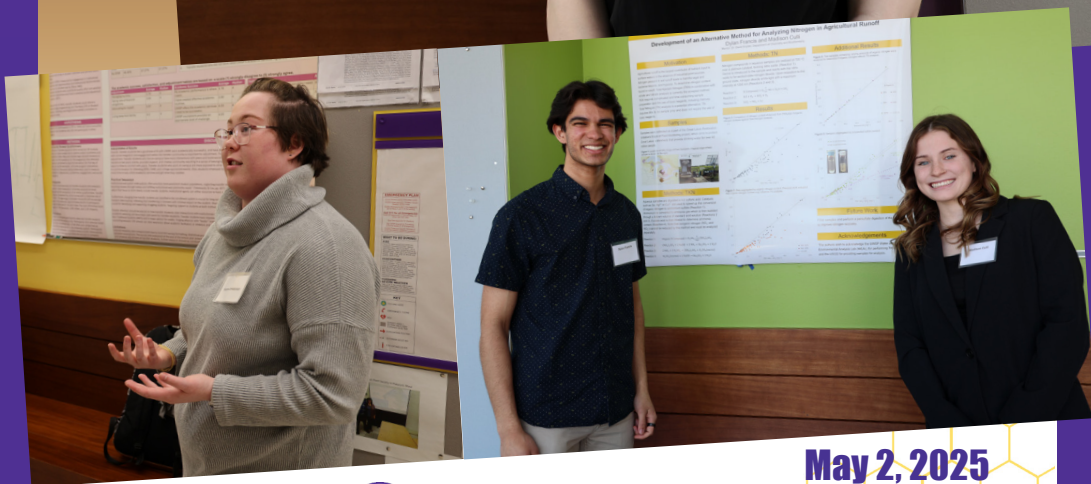


26TH ANNUAL



May 2, 2025



College of Letters and Science
University of Wisconsin-Stevens Point

UNDERGRADUATE RESEARCH SYMPOSIUM

Haeni Chemistry Biology Building

2:00 p.m. Building Dedication, Room 105

2:30 - 4:00 p.m. Research Presentations

Undergraduate Research Symposium

Friday, May 2

Welcome

2:00 p.m. Building Dedication, Room 105

Opening Remarks:

**Dean Joshua Hagen
College of Letters and Science**

**Provost La Vonne Cornell-Swanson
Vice Chancellor for Academic Affairs**

Student Presentations

2:30 - 4:00 p.m. HCBF Floors 1-3

**2:30 – 3:30 p.m.
Oral Presentations**

***See pages 4-7 for oral presentation
topics and room locations**

**2:30 – 4:00 p.m.
Poster Session**

*Complimentary refreshments available
outside of CBB 105*



University of Wisconsin-Stevens Point

Office of the Chancellor

Stevens Point WI 54481-3897
715-346-2123; Fax 715-346-4841
www.uwsp.edu

May 2, 2025

Welcome to the 26th Annual College of Letters and Science Undergraduate Research Symposium! You are about to participate in a rich tradition at the University of Wisconsin-Stevens Point, one that is both an educational experience and an academic celebration.

Student participants—I hope you will find the symposium to be one of your most memorable learning experiences. There is little question your research will enhance the academic value of your overall education at the University of Wisconsin-Stevens Point. You have gained a greater understanding of the world around you, a deeper learning of the subject matter taught in your classes and possibly the opening of new opportunities beyond college.

Attendees and observers, please join me in applauding the drive and initiative of these students. Their work represents exactly what our university means when we encourage our students to “Discover Your Purpose.”

Whether you are here to make a presentation or to witness them, you will be participating in the celebration of these academic achievements. This is a special opportunity for students to share the results of their hard work participating in investigations, projects and research activities. This year’s event features an outstanding group of student researchers representing projects from across COLS majors, a fitting tribute to the level of faculty and student collaboration in and out of the classroom at UW-Stevens Point. Thank you to the faculty members for their mentorship to our students.

Welcome, and congratulations to all of you! I wish you success in presenting your work today and at future symposiums and conferences.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas Gibson".

Thomas Gibson
Chancellor

ABOUT US

As the largest college of the University of Wisconsin-Stevens Point, The College of Letters and Science offers more than 85 majors and minors among 13 academic departments—in academic disciplines ranging from biology to world languages—housed in four schools.

School of Behavioral and Social Sciences

Geography/Geology • Political Science • Psychology • Sociology/Social Work

School of Biology, Chemistry, and Biochemistry

Biology • Chemistry • Biochemistry

School of Humanities and Global Studies

English • History and International Studies • Philosophy and Religious Studies
World Languages and Literatures

School of Mathematics, Computing, Physics and Astronomy

Mathematical Sciences • Computing and New Media Technologies
Physics and Astronomy

Our college structure highlights shared research interests and teaching approaches, as well as common perspectives on career pathways for students. The college features a student-centered curriculum built around high impact learning opportunities that prepare students for success in the future. The college includes:

- More than 205 faculty and staff, across three campuses
- Labs with state-of-the-art instrumentation
- Study abroad programs in over 25 countries
- Planetarium and Observatory with 5,200 visitors annually
- Olson Museum of Natural History programming engaging 2,500 community members

Please consider joining the thousands of donors who help ensure that UW-Stevens Point students are ready to face the challenges of the future. **To make a gift visit: <https://give.uwsp.edu/g/general-give-now-page>**

The University of Wisconsin-Stevens Point exists upon land inhabited by the indigenous people of this area, including the Ho-Chunk, Menominee, Ojibwe, Potawatomi, and the many other nations and groups that predate colonial borders. We acknowledge that with colonization Native American people have been dispossessed of their lands and irreparably changed by the actions of individuals and institutions. We acknowledge our responsibility to understand and respond to those actions. In partnership with the Native American Center, we commit to working together to honor the past, be intentional in the present, and to build our future with truth.

Dear Students, Faculty, Staff, Parents, and Friends of the College,

It is my honor to welcome you to the 26th annual College of Letters and Science Undergraduate Research Symposium! During those years, approximately 2,200 students from all COLS majors have presented their research posters and presentations through the symposium. The symposium is a high point of our year and an impressive demonstration of the close collaboration between students, faculty and staff to engaging in the discovery, dissemination and application of knowledge.

This year's symposium features approximately 90 research projects, including poster presentations and oral presentations representing all of the college's schools and departments. Ranging from the humanities and social and behavioral sciences to the STEM disciplines of science, technology, engineering and mathematics, these presentations and posters highlight the curiosity, dedication and passion of our students to pursue research and intellectual development in close partnership with faculty mentors. Please join me in congratulating and celebrating our students' research accomplishments. Well done!

This year's symposium is additionally noteworthy as we recognize Frank and Kathleen Haeni, 1970 graduates of UW-Stevens Point and longtime educators prior to their retirement. Frank and Kathleen have established several scholarship endowments in biology, history, forestry, and wildlife. Their generosity has also bolstered endowments supporting the College of Letters and Science Undergraduate Research Symposium and the Olson Museum of Natural History. Most recently, Frank and Kathleen established an endowment to fund laboratory repairs and purchases and maintenance of research equipment in the Chemistry Biology Building. In recognition of their generosity, the CBB will be dedicated the Haeni Chemistry Biology Building.

Finally, I also owe thanks to the members of the symposium organizing committee, professors Joe Mondloch (chemistry), Lynn Ludwig (English), David Barry (sociology), and Carrie Hutton (COLS), as well as the college staff for making this wonderful celebration of student research possible.

Sincerely,

A handwritten signature in black ink, appearing to read 'Joshua Hagen', with a stylized, cursive script.

Joshua Hagen

Dean, College of Letters and Science

Oral Presentations 2:30- 3:30 p.m.

GROUP 1

ROOM 135

Alcohol Use and Child Neglect/Abuse (Sociology and Social Work)

By: Jonah Gibson

Faculty Mentor: Dr. David Chunyu

This study investigates the correlation between parental alcohol use and the incidence of child abuse and neglect, focusing on young adult college students across Wisconsin. Out of the United States, Wisconsin ranks third nationally for adult alcohol consumption, and concurrently reports high rates of child maltreatment. Prior literature suggests a significant link between excessive alcohol use in parents and various forms of child abuse and neglect, as well as long-term psychological consequences in affected children. This study aims to provide empirical data supporting this correlation through anonymous surveys distributed to college students who report childhood exposure to parental alcohol abuse and associated maltreatment. The survey assesses types and frequency of abuse, coping mechanisms, mental health outcomes, and attitudes toward policy interventions. Key hypotheses include that excessive alcohol use in chaotic environments increases the likelihood of abuse and that survivors of such environments suffer greater emotional dysregulation and relational challenges. The research also explores the effectiveness of trauma-informed care and alcohol policy changes in preventing child maltreatment. Through stratified and cluster sampling, this study seeks to inform evidence-based interventions and policy improvements under acts like the Child Abuse Prevention and Treatment Act (CAPTA), enhancing child welfare and professional social work practices.

A Comparison of Neighborhoods in the Madison Metropolitan Area (Sociology and Social Work)

By: Lilliana Irmischer, Brian Larson

Faculty Mentor: Dr. David Chunyu

There are great variations in the urban landscape of the United States. In this study, the researchers examined the spatial arrangements, cultural artifacts, and census data of two Dane County census tracts, one in Madison's Marquette neighborhood and the other in the Village of Cottage Grove, both within the Madison Metropolitan Area. Using Logan and Molotch's (1987) conceptual framework of political economy, the researchers analyzed the exchange value and use value of the two Madison neighborhoods. Our methodologies included analysis of census data from 2020 and ethnographic research, taking extensive notes and photographs of the two neighborhoods. Our observations showed that both neighborhoods are predominantly white (87% of total population), primarily between the ages of 20 and 50, and contain home valuations above \$400,000 (Census Bureau, 2024). However, the spatial arrangements of the two neighborhoods vary greatly. The mixed-use zoning for Madison's Marquette neighborhood allows for a variety of businesses and services hence a stronger emphasis on the exchange value, while the Cottage Grove neighborhood focuses on residential developments and so prioritizes use value for residents. The conclusions from this study can be applied to other similarly sized urban areas, such as the Rochester, Minn. and Reno, Nev. metropolitan areas.

Controversy on the Streets: Urban Political Economy and Placemaking in Stevens Point's Business 51 Road Reconstruction (Sociology and Social Work)

By: Dan Kangail, Rebecca Smith

Faculty Mentor: Dr. David Chunyu

The Business 51 improvement project in Stevens Point, Wis. aims to revitalize a three-mile transportation corridor that includes the Division and Church Streets of Stevens Point. Dubbed a "road diet," the Business 51 project involves reducing some portions of the Division and Church Streets from four lanes to two lanes with a middle left-turn lane to address deteriorating pavement, safety concerns, and multimodal needs - including improved pedestrian and bicycle connections. Despite significant funding, including a \$3.5 million grant from the Wisconsin Department of Transportation, the project has faced significant challenges since the beginning. In 2023 a city road project referendum, initiated by the Southside Business Association with the aim of pausing the 51 project, passed by a narrow margin. In early 2025 a proposed roundabout at Division Street and Fourth Avenue has sparked a major debate amongst city officials, resulting in a mayoral veto for the proposed roundabout and an override of the mayoral veto by the city council later. This research applies Logan and Molotch's use value vs. exchange value framework as well as Sherry Arnstein's ladder of citizen participation concept to assess the development of the Business 51 project and why it has generated so much controversy.

Oral Presentations 2:30- 3:30 p.m.

GROUP 2
ROOM 161

The Depiction of Myths in The Last of Us and its Meaning for Survivors (Philosophy and Religious Studies)

By: Mhairi Robertson

Faculty Mentor: Dr. Joshua Horn

The Depiction of Myths in The Last of Us and its Meaning for Survivors explores how the series of The Last of Us uses myths to construct meaning for survivors navigating a world shaped by an infection of death. Drawing from Betty Flowers' concept myths as narratives we accept uncritically, and Lawrence Hatab's critique of myth's philosophical limitations, the analysis examines how the characters like Joel, Ellie, and Abby rely on personal and cultural myths to justify their morally complex decisions. All of the myths that these characters tell themselves helps reveal how myth offers a framework for survival while also concealing uncomfortable truths. Through its interactive storytelling, The Last of Us invites players to embody and challenge these myths, blurring lines between heroism and antiheroism. This paper argues that while myths provide survivors with a sense of purpose, they are fragile constructs that can distort reality and delay emotional reckoning. Ultimately, The Last of Us, not only critiques the characters' reliance on myth, but also challenges the audience to confront their own narratives about morality, loss, and meaning in the face of death.

Developing a "Novel" Revision Process: Falling Into a Personal Writing Methodology (English)

By: Reilly Crous

Faculty Mentor: Jill Stukenberg

This project is an original creative work—the culmination of one year of consistent, committed creation and revision of an original novel concept, in which four unlikely friends fall into interdimensional portals and get trapped in a trickster's utopia, desperate to return home. During this presentation, I will present an exploration into the process of discovering my own artistic methodology, along with an excerpt from the second draft. Many new novelists have followed the writing process Matt Bell outlines in his craft book, *Refuse to Be Done*, and while this method was useful to me in the early stages of draft construction, it didn't prove quite as beneficial as I made my way through revision. The tools I've utilized as I create my own personal methodology have stemmed from my tutoring and editing experience, consumption of young adult media, and individual conversations with other writers in order to determine first order revision concerns, discover new techniques for plot building, and flesh out characters. In doing so, the life of my novel continues to grow and thrive, and as I exercise my revision skills, my personal writing methodology does the same.

Oral Presentations 2:30- 3:30 p.m.

GROUP 3
ROOM 131

Applying Culturally Relevant and Sustaining Teaching Materials in Rural Settings (English)

By: Elliot Heiling

Faculty Mentor: Dr. Erica Ringelspaugh

Culturally relevant and sustaining pedagogies require consistent, intentional planning and constant flexibility within the classroom (German 2021). During my English Education Methods Block, I created a 36-week course founded on culturally relevant and sustaining pedagogy. Now, in my student teaching placement, I apply that theory into practice, analyzing research on the community and transferring it to relevant pedagogical practices to best fit a rural school. I discuss how my research better equipped me to build relationships with my students and how my understanding of the community changed as I had regular first-hand interactions with the community culture. In this presentation, I evaluate how such practices morphed to better succeed for the students in my classroom, including how to introduce concepts such as systematic oppression to students who have had less opportunity to discuss these topics openly.

The Impact of Windows and Mirrors in English Education (English)

By: Taylor Zastrow

Faculty Mentor: Dr. Erica Ringelspaugh

The term windows and mirrors, pioneered by Dr. Rudine Sims Bishop, is used to describe how readers can view new worlds and ideas from the setting or characters in a book (windows) or how they can see themselves on the pages (mirrors). This presentation will dive into the importance of windows and mirrors in the materials presented to students. Windows and mirrors can change based on the students' age and the subject of the class and providing windows and mirrors to all students is crucial, not only in their academic journey, but for their personal lives as well. Windows help students gain empathy and understanding for their peers around the world while mirrors give students the opportunity to feel seen and validated in their experiences to know that they are not alone. As a future English educator, it is my job to ensure that the materials I choose for my classroom provide windows and mirrors for all of my students and also show that windows and mirrors are not just for young children nor are they just present in English classes; windows and mirrors are needed for everyone in every subject.

Poster Presentations

School of Biology, Chemistry and Biochemistry

School of Mathematics, Computing, Physics and Astronomy

Floor 1 – Haeni Chemistry Biology Building | 2:30- 3:30 p.m.

Adsorption of PFAS in Metal-Organic Frameworks (Chemistry and Biochemistry)

By: Brody Berens, Dylan Sweeney, Jamie Conner

Faculty Mentor: Dr. Joe Mondloch

Perfluoroalkyl or polyfluoroalkyl substances (PFAS) are a class of anthropogenic compounds found in water. Some PFAS are known to be carcinogenic and can cause other adverse health effects. Metal-organic frameworks (MOFs) are a class of sorbents capable of adsorbing PFAS from water. (Ce)MOF-808-FA, (Zr)MOF-808-OH, and (Zr)MOF-808-FA were synthesized and characterized using powder x-ray diffraction, thermogravimetric analysis, and nitrogen adsorption analysis. We tested each of these MOFs for their ability to absorb PFBS (perfluorobutanesulfonate). We found that (Zr)MOF-808-FA outperformed (Ce)MOF-808-FA and (Zr)MOF-808-OH outperformed (Zr)MOF-808-FA.

An Analysis of Invasive Trematodes and Their Interactions with Native Diving Ducks of Eastern Wisconsin (Biology)

By: Morgan Marty, Gage Kriese, Emma Latza, Grace Wood

Faculty Mentor: Dr. Sarah Orlofske

Lake Winnebago and Green Bay provide important aquatic habitats for waterfowl and aquatic invertebrates in Wisconsin. The non-native faucet snail (*Bithynia tentaculata*) was first detected in the Green Bay region of Lake Michigan in 1920 and in Lake Winnebago in 2013. Lesser Scaup (*Aythya affinis*) and American Coot (*Fulica americana*) are potentially negatively affected by the invasive parasites from these snails, including *Leyogonimus polyoon*, *Cyathocotyle bushiensis*, and *Sphaerioditrema globulus*. Our research objective is to examine the occurrence of invasive trematodes in diving and sea ducks in Eastern Wisconsin. Diving ducks such as Lesser Scaup, Greater Scaup (*Aythya marila*), Common Goldeneye (*Bucephala clangula*), and Bufflehead (*Bucephala albeola*) and sea ducks including Long-tailed duck (*Clangula hyemalis*) have experienced an infection rate between 2.9-10.6% by one or more of these parasites out of 97 specimens collected from either Lake Winnebago and Green Bay combined. Lesser scaup appear to have a disproportionately high rate of infection by these parasites, especially *Leygonimous polyoon*. By observing the trends of infection rates and pathology caused by invasive parasites that occur in diving ducks, improvements in management of non-native species can be made to support populations of native diving ducks in Wisconsin.

A Summer Internship in Microbiology at Johnsonville Sausage (Chemistry and Biochemistry)

By: Dylan Sweeney

Faculty Mentor: Dr. Joe Mondloch

Johnsonville produces a variety of food products; including but not limited to bratwursts, hotdogs, breakfast sausage, and individually packaged meat sticks. As the company produces hundreds of thousands of pounds of pork, chicken, and beef daily there is a strong need to manage food safety quality. The microbiology team is one of the many departments that fall under the food safety quality

hood at Johnsonville. Their tasks include testing for food parasitic activities within production plants, testing products for a variety of microbes, measuring shelf-life sustainability, and a variety of other things. During the summer of 2024 I had the incredible opportunity to intern in the Microbiology department at Johnsonville Sausage. This poster will describe my internship experience at Johnsonville Sausage in the summer of 2024.

Captive Primate Housing Composition Effects on Stress and Calm Behaviors (Biology)

By: Chloe Dettmers, Faye Knapstein, Cora Blohowiak, Karissa Rettler, Kyp Meyers

Faculty Mentor: Dr. Sarah Jane Alger

Housing composition is a significant factor in the wellness of social species, like primates. Primates Incorporated is a sanctuary dedicated to providing the best quality of life for primates retired from research facilities or surrendered from pet ownership. The behaviors exhibited from the primate residents of Primates Incorporated communicates their overall state of being, which must be considered when deciding housing composition in the sanctuary. Though it is known that primates in the wild prefer to be gregarious to reduce stress, there is a lack of knowledge of surrendered research/pet primates' preferences. Observational data was collected in set time intervals consisting of all behaviors exhibited by each primate resident, during which several different housing arrangements took place. Housing arrangements were assigned based on compatibility placing them in either a single, double, or triple housing composition. We analyzed the frequency of stress and calm behaviors in each housing arrangement and compared their significance. We will discuss which housing compositions resulted in the most calm and least stressed behaviors exhibited, indicating this composition resulted in the best quality of life for the captive primates.

Characterization of through-space charge transfer via arylene ethynylene templates (Chemistry and Biochemistry)

By: Elijah Randazzo

Faculty Mentor: Dr. Nate Bowling

Electronic interaction between an electron-rich aromatic moiety and an electronic-poor aromatic moiety can lead to the formation of an electron donor-acceptor (EDA) complex. Orbital mixing between the donor and acceptor of the complex leads to new electronic features/properties that are often evidenced by a low energy (often in the visible), charge transfer (CT) band in the electronic spectrum. Charge transfer behavior is useful in a variety of fields, including in organic light-emitting diodes (OLEDs) and organic photocatalysis. The type of charge transfer utilized in photocatalysis is tricky to study directly due to rapid dissociation of electron donor and acceptor in solution. In this study, electron donors and acceptors are connected to arylene ethynylene templates such that the donor and acceptor moieties rotate around a central tolane, preventing them from diffusing away from each other. In one version, donors and acceptors are installed on both sides of the rotating tolane core, effectively preventing rotation and forcing persistent EDA complex formation. In a second design, only one donor and one acceptor are installed on each side of the tolane core. While this design aligns donors and acceptors for EDA complex formation, there is—unlike the first design—also a conformation that allows donor and acceptor to not interact. N,N-Dimethylaniline and 1,3-dinitrobenzene were chosen as the donor and acceptor, respectively. The charge transfer band associated with this EDA complex is in the visible portion of the spectrum, separate from the rest of the compound, allowing us to easily characterize the charge transfer behavior via UV-Vis

Spectroscopy. The difference in charge transfer behavior between these two compounds was studied via UV-vis spectroscopy. Both compound 1 and compound 2 seem to exhibit charge transfer.

Comparative Analysis of Trichome Structure in Feral and Modern Hemp under Lead-Induced Environmental Stress (Biology)

By: Mary Joy Relagio

Faculty Mentor: Dr. Brian Barringer, Dr. Qiang Sun

Hemp (*Cannabis sativa*) is known for its wide variety of commercial and industrial applications and for its ability to withstand environmental stressors such as soil pollutants, UV radiation, pests, and harsh weather conditions. A key factor to this resilience lies in its trichomes — tiny hairlike structures on the surface of plant tissues that play crucial roles in many essential plant functions. Despite their importance, only a limited number of research studies have been conducted on trichomes in hemp, particularly in terms of how soil pollutants affect trichome morphology and density, leaving a number of important questions unanswered. This study investigates the effects of lead contamination on plant growth and the morphology and density of trichomes in four feral and modern hemp lineages using a Scanning Electron Microscope (SEM). The data suggest feral and modern lineages of hemp differ in terms of their growth, morphology, trichome number, and trichome density, and that exposure to lead influences these traits. This study deepens our understanding of how these plants respond to variation in their environment. It also provides insights to help enhance the commercial, industrial, and environmental applications of hemp and hemp products.

Construction of an External Cavity Light Source with Optical Feedback Using a Superluminescent Diode (Physics and Astronomy)

By: Jevin Sannes

Faculty Mentor: Dr. Maryam Farzaneh

Superluminescent diodes (SLDs) are broadband, high-power light sources which are similar in design to semiconductor laser diodes. However, unlike laser diodes, they lack an internal resonance cavity which would lead to the optical feedback and stimulated emission. We have designed and constructed an optical system which uses an external mirror to create an external cavity for an SLD and to generate optical feedback into the SLD chip. This essentially converts the SLD into a laser diode with high power and a narrow linewidth. We report on the results of our work studying the variation of the SLD's output optical power at different injection currents and changes in the polarization state and the spectrum linewidth with optical feedback.

Diving Deeper: How Depth Influences Species Diversity in Tidepools around the Big Island of Hawaii (Biology)

By: Abby Rosell, Madeline Hetland, Roslin Johns, Julia Storch, Tori Radford

Faculty Mentors: Dr. Krista Slemmons, Dr. Laura Lee

Tidepools are unique coastal ecosystems that are found widely around the Big Island of Hawaii and are home to a diverse group of organisms. Tidepool structure can vary by depth and width, and these structural differences can alter biotic community structure. This study investigates the effect of tidepool depth on species diversity. We hypothesized that deeper tidepools would foster higher species diversity than shallow pools because they offered more stable conditions, more microhabitats, and a greater source of food abundance. The study was conducted through visual observation and surveys of multiple tidepools on the Big Island of Hawaii. Multiple tidepools that

varied in depth, width, and distance from the coastline were sampled at three different coastal sites. The research group recorded the depth of the deepest part of the pool. To observe species diversity, the research group recorded each species observed and their abundance. Results indicated that species diversity and tidepool depth were not correlated. Other factors may be at play in lowering diversity including tidepool chemistry, exposure time and distance from the shoreline. The uniquely high levels of endemism of species and isolation of Hawaiian Islands may be factors in lowering overall species diversity present in the tidepools.

Documents, manuscripts, maps and photographic slides, precursors to the publication of the landmark book, Fishes of Wisconsin (Becker 1983), curated by the Becker Memorial Ichthyological Collection (Olson Mus. of Nat. Hist.) for transfer to UWSP Archives (Biology)

By: Sawyer Schmitz

Faculty Mentor: Dr. Justin Sipiorski

Fishes of Wisconsin was a genre-bending work conceived over several decades by noted Ichthyologist and UWSP Biology Professor, George C. Becker (1917-2002). The work revolutionized the format, style and depth of coverage in books on regional fish diversity. Perhaps largely as a result of this 1983 publication, the amount of detail included in subsequent regional fish diversity literature skyrocketed. Also remarkably, Becker spent his career (1960s-70s) employing UWSP undergraduates and graduate students in his Ichthyology and Fish Life History courses to conduct exhaustive literature searches on fish species occurring in Wisconsin. Students wrote papers for these courses and Becker literally physically excerpted their essays (cut-and-paste) to construct initial drafts of species accounts. Students also were encouraged to collect fishes in the field to add data to his point-by-point fish distribution maps. These preserved fish specimens are mostly deposited in the Becker Memorial Ichthyological Collection in the UWSP Olson Museum of Natural History. The contents of this work defy time and will remain relevant for decades to come. We have cataloged and curated this material (approximately five, standard, five-drawer file cabinets) in advance of their eventual transfer to UWSP archives.

Effects of PFAS on Soil Microbial Communities and Potential for Phytoremediation (Biology)

By: Josephine Crisci, Sawyer Miller, Sarah Dawe, Anna Hurtado, Lizzy Vitale, Olivia Combs, Warren Sauer

Faculty Mentors: Dr. Ann Impullitti, Dr. Brian Barringer, Dr. Joe Mondloch, Dr. Shannon Riha, Dr. Bryant Scharenbroch

PFAS, or per- and polyfluoroalkyl substances are challenging pollutants as they don't degrade naturally and are still widely used in many everyday products. PFAS are known to accumulate in the environment and have numerous health effects in humans. A safe and effective method to remove these pollutants from the environment is yet to be found. Hemp (*Cannabis sativa*) and alfalfa (*Medicago sativa*) are thought to be phytoremediators, meaning that they can remove contaminants such as PFAS from soil. Our experiment uses current molecular and microbial analysis techniques to investigate how microbial communities potentially change with these contaminants and how agricultural plants can be used as phytoremediators.

Evaluation of Avipel as a Non-Lethal Bird Deterrent for Cultivation of Corn (Biology)

By: Danielle Singkofer

Faculty Mentors: Dr. Laura Cole, Dr. Brian Barringer

Avipel is a commercial seed treatment whose active ingredient, 9,10-anthraquinone (AQ), is an organic compound that occurs naturally in plants. It is used by farmers across the United States as a nontoxic deterrent for birds, including sandhill cranes, that feed on newly germinating corn seed. However, some farmers claim that Avipel washes off before germination, rendering it ineffective, and have proposed culling birds as an alternative solution. In response, the International Crane Foundation is working to evaluate Avipel's effectiveness in hopes of saving Wisconsin bird populations. In this study, corn seed was treated with solid and liquid Avipel according to the manufacturer's instructions, sown in growth chambers at UWSP, and later collected for chemical analysis. AQ was extracted from seeds and soil, then quantified using high-performance liquid chromatography (HPLC) to determine whether the Avipel coating was retained during the early stages of cultivation. The effects of application rate, watering treatment, and growth time on AQ recovery were all measured. Findings from this study show that the methods for extraction and quantification are successful, and future work may inform wildlife-friendly agricultural practices by determining whether Avipel can be used as an effective bird deterrent.

Exploring how through-space charge transfer is influenced by relative orientation of electron donors and acceptors (Chemistry and Biochemistry)

By: Wyatt Lind, Kaleb Bannach

Faculty Mentor: Dr. Nate Bowling

Conjugated molecules that demonstrate charge transfer (CT) are highly desirable for their electronic properties and are often used in functional materials, like OLEDs. In these materials, interactions of electron-rich and electron-poor components are almost exclusively through bond conjugation. Though there are potential advantages to through-space, rather than through-bond, CT interactions, there has been very little study of this phenomenon. In our current study, modifications of an arylene ethynylene template were attempted to control the relative spacing and orientation of electron-rich and electron-poor components in order to see what effects spatial differences had on the overall electronic properties. One modification was to increase the size of the bridge between the donor and acceptor units to see how spatially separated donors and acceptors can be and still exhibit CT behavior. Similarly, synthesis of an isomer of this extended framework was attempted to bring the donor and acceptor into closer proximity but in a different orientation. Completion of these studies will provide greater understanding regarding how the spatial relationships of electron-rich and electron-poor substituents affects through-space charge transfer.

Exploring Sloan Digital Sky Survey Quasars In A Multiwavelength Approach: Optical Spectroscopy, Radio Morphology, and Infrared Photometry (Physics and Astronomy)

By: Alex Hurtado

Faculty Mentor: Dr. Sebastian Zamfir

We are exploring the properties of low redshift quasars extracted from vetted catalogs (e.g., Wu & Shen 2022, based on the Sloan Digital Sky Survey Data Release 16). We focus on quasars with high quality optical spectra. We complement the optical photometry and measurements obtained from optical spectra with radio properties from online public archives like FIRST (Faint Images of the Radio Sky at Twenty Centimeters), which provide information about radio morphology. We also get infrared

photometry from online archives (e.g., Wide-field Infrared Survey Explorer). We are investigating potential correlations between the measures of emission lines in optical spectra, the radio morphology (e.g., extended vs. compact), and optical/infrared photometry. Together, this data may shed light into and provide constraints to the physical models of quasars.

Factors That May Affect Black-spot (Trematoda: Diplostomatidae and Heterophylidae) Parasitism Rates in Wisconsin Logperch (Peciformes: Percina caprodes caprodes), a 75-year Perspective (Biology)

By: Collin Styers, Jennifer Kahn

Faculty Mentor: Dr. Justin Sipiorski

Logperch (*Pericna caprodes caprodes*) have been collected from Wisconsin waters for over 100 years and many specimens are housed in the Becker Memorial Ichthyological Collection in the Olson Museum of Natural History in COLS, UWSP. Over 2,000 individuals have been analyzed in an effort to determine a correlation between aspects of Logperch growth, body condition and black-spot infestation rates. These variables include location (Latitude, Longitude), type of waterbody, collection year, sex, age, length and weight. Very little research has been done previously on Wisconsin Logperch regarding black-spot parasitism. This research seeks to understand how geographical, climatological and ecological factors influence black-spot parasitism rates in the State over the past 75 years.

Finite Element Analysis of Beam Deflection (Physics and Astronomy)

By: Leah Edson

Faculty Mentor: Dr. Brad Hinaus

The deflection of an Euler-Bernoulli beam was analyzed using the finite element method (FEM). The beam was modeled as a system of point masses interconnected by vertical, horizontal, and diagonal springs to simulate structural stiffness and deformation behavior. The dynamic response of each mass was computed numerically through the implementation of Newton's second law. The generated coupled differential equations were solved using the Euler-Cromer method in a Python script. To validate the accuracy of the results, the analysis was compared with simulations performed in ABAQUS, a commercial finite element analysis software, which applies FEM to complex parts and assemblies.

A Fluorescence Quenching Study of Bovine Serum Albumin-Vitamin B6 and Aspirin Interactions (Chemistry and Biochemistry)

By: Monica Apsey, Wyatt Lind, Kate Bergmann, Natalie Heuring

Faculty Mentor: Dr. Amanda Jonsson

Serum albumins are the major soluble protein in the bloodstream and have many functions, including binding to a wide variety of small molecules, including many drugs. Understanding how compounds interact with serum albumin proteins can help us understand how drugs and other small compounds behave in the body. We are using bovine serum albumin (BSA) as our model protein and want to explore how different small molecules bind to the protein and whether ligand binding impacts the stability of the albumin protein. Currently, our work involves pyridoxine, vitamin B6, which is important for brain function and metabolic processes and 2-acetylbenzoic acid, aspirin, which is important for managing pain. We titrate mixtures of BSA in buffer with either vitamin B6 or aspirin. We use fluorescence spectroscopy and Stern-Volmer plots to evaluate the characteristics of the quenching and evaluate binding modes of the ligand. Recently, we have incorporated

temperature control in our fluorimeter and continued to have mixed results for both fluorescence intensity and calculated Stern-Volmer constants.

GAPDH is determined to be a control primary antibody for studying Sickle Cell Disease in livers (Biology)

By: Rachel Leveille

Faculty Mentor: Dr. Dan Graf

Using the Western Blot procedure, a reliable control primary antibody was determined to be GAPDH when studying Sickle Cell Disease (SCD). Using sickle cell livers from mice, three primary antibodies were tested for their consistency in determining protein concentration. GAPDH and Beta Actin are common primary antibodies used in Western Blot procedures. As hypothesized, GAPDH most accurately expressed protein concentration within the samples. Beta Actin was determined to be a less fit primary antibody because of its high presence within cytoskeletal filaments, which are lost during hemolysis of cells. KCDT12 is uncommonly used for the Western Blot or SCD samples, but it was tested. KCDT12 worked as a primary antibody in the samples, likely due to its high presence in liver Kupffer cells. The impacts of SCD on the liver are not well studied. Determining GAPDH as a reliable primary antibody, the presence of desired proteins can be studied to monitor liver health in SCD patients.

High Affiliation between zebra finch pairs correlates with physiological stress when isolated (Biology)

By: Kali Stanislawski

Faculty Mentor: Dr. Sarah Jane Alger

Relationship stability is key for loving and stress-free monogamous relationships from humans to zebra finch. Consistency of affiliation can greatly influence an individual when going through a stressful event. An indicator of high stress in songbirds is a high heterophil to lymphocyte ratio in their blood. Little information is available about how socially monogamous zebra finch pairs physiologically react when separated from their partner. Two experiments collected behavioral data on the socially monogamous zebra finch. Through these experiments, the pairs were exposed to different influences of stress such as environmental and partner strain. The birds were then isolated for two hours, and their blood was taken and heterophil to lymphocyte ratio was recorded. Birds who had consistently high affiliation behavior with their partner were also recorded having higher heterophil to lymphocyte ratio after isolation. This indicates that the strength of the relationship is directly correlated with the amount of physiological stress the individual experiences when isolated from their partner.

Hydrogen Production with Oxide Semiconductors (Physics and Astronomy)

By: Icarus Fortenberry

Faculty Mentor: Dr. Ken Menningen

Photoelectrochemical (PEC) water splitting can produce hydrogen gas as a means to store and transport renewable energy. One method of PEC water splitting uses n-type semiconductors made of metal oxides. We created oxide semiconductors by combining different ratios of metal solutions and heating them in air. The photocurrent production and catalytic activity were measured using SEAL and HARPOON experiments, respectively. Among the semiconductors tested in this study, bismuth vanadate with tungsten oxide (BiV-W) produced the best results at a 9:2 ratio, and bismuth vanadate with iron and nickel oxides (BiV-FeNi) produced the best results with a 0:1 ratio. Between these two semiconductors, BiV-W outperformed BiV-FeNi.

The Influence of Invasive Species on Forest Understory on the Big Island of Hawaii (Biology)

By: Jen Zach, Alice Maas, Molly Krystal, Veronica Petrach

Faculty Mentors: Dr. Krista Slemmons, Dr. Laura Lee

Invasive species are a problem around the world, but their impact is much more evident in isolated ecosystems, like the Hawaiian Islands. Specifically, ornamental Himalayan ginger, introduced in the 1940's and rapidly expanded by the 1950's, is taking over the understory of the Hawaiian forests. In this observational study, the diversity of the forest understory was compared between two study sites: Hawaii Volcano National Park (HVNP; high abundance of Himalayan ginger) and the Kaulana Manu Nature Trail (KMNT; no Himalayan ginger). To minimize any impact on these state and national parks, data regarding the plant diversity was only collected through photographing followed by identification of plant species. Only six native species were found in the Himalayan ginger dense understory of HVNP. The KMNT site had 31 native, indigenous, and endemic plant species. This pilot study indicates that invasive species drastically alter the landscape, decrease species diversity and alter ecosystem structure by eliminating native understory plants. This study underscores the importance for future quantification of the effectiveness of Himalayan Ginger removal projects to determine the most effective means of removal and the long-term resilience of these ecosystems to invasive species removal.

The Influence of Peacock Grouper (*Cephalopholis argus*) on Fish Species Richness within Coral Reefs of the Big Island of Hawaii (Biology)

By: Amanda Welch, Ruby Nelson, Chris Dalzell

Faculty Mentors: Dr. Krista Slemmons, Dr. Laura Lee

Cephalopholis argus, commonly known as the Peacock Grouper, is a species invasive to the Big Island of Hawaii. The grouper, introduced as a game fish in 1956, now resides in coral reefs throughout the Hawaiian Islands and can be found in depths up to 30-40 meters below the surface. Since its introduction, *Cephalopholis argus* has become a dominant predator in coral reefs, and its population has grown exponentially. Little is known about how this grouper might impact fish diversity in coral reefs. Our goal was to determine if the presence of the Peacock Grouper had a negative impact on the local coral reef ecosystem and impacted species richness. Through the roaming diver method, we selected several bays around the Big Island and counted each species sighted and the presence or absence of *Cephalopholis argus*. Based on this initial pilot study, we determined that *Cephalopholis argus* did not affect species richness and that species richness remained similar across all sites. This data suggests that other factors such as depth, substrate, or coral density may have a larger influence on fish diversity than that of the Peacock Grouper.

Intramolecular Charge Transfer between overlapping Aromatic Rings via Pyridine Scaffold and Metal Clamping Mechanism (Chemistry and Biochemistry)

By: Sebastain Sczgerski, Mya Beyerl

Faculty Mentor: Dr. Nate Bowling

Charge transfer (CT) between aromatic rings of different electronic profiles in close proximity is of interest to our research group. Under most circumstances, electron donor-acceptor (EDA) complexes are short lived due to diffusion of electron-rich and electron-poor rings away from each other. Consequently, the CT band—usually, a visible light absorption—that is observed from EDA formation is difficult or impossible to detect. To exploit this proximity dependent electronic response, electron

donors and acceptors have been attached to a bis(pyridine)-containing arylene ethynylene framework. With no external stimulus, no significant amount of EDA complex is formed. However, the introduction of transition metals organizes the backbone in a way that forces electron-rich and electron-poor units into close proximity. UV-Vis studies clearly demonstrate the change in electronic properties of the molecule and the emergence of a charge transfer band in the visible region of the spectrum. This behavior may be exploited for metal sensing applications or as a mechanism to turn on/off CT photocatalysis with a constant light source.

Investigating Freshwater Snail (*Helisoma* sp.) Shell Sizes with Varying Population Density (Biology)

By: Maverick Vang, Mallory Wanta, Lily Truchon, Angelica Torres-Lima, Morgan Melvin

Faculty Mentor: Dr. Sarah Orlofske

Different population density distributions often influence the population dynamics of a species through effects on intraspecific competition, finding potential mates, or providing protection from predators. Our study examines the population dynamics of the freshwater Ramshorn snail (*Helisoma* sp.). Ramshorn snails are found across North America in lentic (standing) water ecosystems including ponds and wetlands where they are found at a range of population densities. Our field research at Mead Wildlife Area showed a low of density of 0 snails per sq. ft. to a high of 4.2 snails per sq. ft.. We conducted a small-scale laboratory experiment varying snails sourced from two different wetlands at three levels or densities (2, 4, and 6 snails/1.5 gallon) for 6.5 weeks. Our research found no significant differences due to site of origin or density on the change in size of *Helisoma* shells. Additional research is needed to identify the specific variables responsible for differences in snail shell size including the role of predators, food resources, viable mating periods, or water movement. Understanding the population density of a species is critical in the management of wildlife and their ecosystems.

Isolating curcumin from turmeric by column chromatography using a non-halogenated solvent system (Chemistry and Biochemistry)

By: Ethan Theoharopoulos

Faculty Mentor: Dr. Robin Tanke

The spice Turmeric, which comes from the underground stem of the *Curcuma longa* plant, has many compounds in it, such as curcumin or (1E, 6E)-1,7-bis(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione. Curcumin has a vast number of beneficial properties such as, antioxidant properties, anti-inflammatory properties, boosting brain-derived neurotrophic factor, and other great properties. Curcumin is a conjugated molecule, meaning that it has special chemical properties such as absorbing UV light. So far, the known isolation methods used chlorinated solvents like Dichloromethane and Chloroform. These compounds are great solvents, especially for conjugated systems because they interact favorably with the delocalized π electron system of conjugated molecules. However, these solvents are dangerously carcinogenic and are toxic to the environment. So, with that in mind, a new solvent system without any halogenated solvents at all was developed. A system of 60% Hexanes, 39% Ethyl Acetate and 1% Methanol proved to be effective in isolating Curcumin from Turmeric by methods of Thin-Layer chromatography and Column Chromatography. This solvent system uses much safer compounds compared to halogenated solvents and is much less hazardous for the environment. The extraction and isolation yielded 0.2376g of Curcumin from 5.0125g of Turmeric (4.74% yield). Curcumin was characterized by TLC, NMR-Spectroscopy and IR-Spectroscopy.

Isolation of pH-dependant, Differentially Expressed Proteins from Edwardsiella ictaluri (Chemistry and Biochemistry)

By: Josie Voigt, Brendan Turner

Faculty Mentor: Dr. Jim Lawrence

Edwardsiella ictaluri is a bacterium that causes enteric septicemia in channel catfish. This bacterium is highly infectious and causes high mortality rates, leading to significant losses within the commercial catfish farming industry. Previous research demonstrates that exposing *E. ictaluri* to acidic pH alters protein expression and secretion. To test this, cultures of *E. ictaluri* were cultured in minimal media at pH 7, transferred to minimal media at pH 5.5 and returned to minimal media at pH 7. The supernatants of each pH treatment were collected, as well as the cells after the final pH 7 treatment. Once collected, the samples were filter sterilized and concentrated. Analysis was done using a Bradford assay and SDS-PAGE. Upon staining and imaging our gel, bands of differing molecular weights were observed among the supernatants collected from the different pH treatments. This indicates that there is altered protein secretion in *E. ictaluri* in response to different pH conditions. Further testing using mass spectrometry will be required to determine the identity of the different proteins.

Long-term Monitoring of Shark, Skate and Ray (Chondrichthyes: Elasmobranchi) Diversity and Demography in Tampa Bay, Florida Area (Biology)

By: Rachel Taylor

Faculty Mentor: Dr. Justin Sipiorski

Understanding the population and distribution of Elasmobranchs (Sharks, Skates and Rays) in Tampa Bay, Florida is essential for fisheries management, public awareness, conservation efforts and ecosystem health. Through the Coastal Marine Education and Research Academy (CMERA) we conducted fieldwork to assess local Elasmobranch populations. We deployed long lines and gill nets to capture individual fishes and recorded demographic data such as species, sex, total length, and disc width. Each individual was tagged and released to contribute to ongoing population monitoring. This information is shared annually with the Florida Department of Fish and Wildlife. These data are crucial for supporting sustainable management practices and informing conservation efforts.

Mating Term Definitions Lack Consistency: a View from the Textbooks (Biology)

By: Kate Bergmann

Faculty Mentor: Dr. Sarah Jane Alger

Consistency in definitions is an overlooked, yet vital aspect of scientific research. For terms relating to mating, in scientific literature, definitions and usage are not always consistent (Elgar et al. 2013). There is minimal research on whether the misuse of terms comes from an inconsistency within textbook definitions. Mating term definitions were collected from 33 different textbooks and mating term definitions were cataloged. Various features of the definition were also included in data collection including information about the textbook that housed the definition as well as features specific to a definition like number of partners per sex and relationship evidence. Chi-Square revealed that many terms were statistically different from the others; however, the two terms with the most overlap in definition features, polygyny and promiscuity, did not show a significant difference for male number of partners ($\chi^2=3.77$, $df=2$, $p>0.05$). Multiple Correspondence Analysis (MCA) revealed that number of partners and relationship evidence had the greatest impact on

clustering definitions; however, there was significant overlap. Across the main mating term definitions, terms did not have distinct definitions and overlap between terms was abundant.

Measurement of the Polysaccharide Content of Shiitake Mushrooms (Chemistry and Biochemistry)

By: Maggie Amundson

Faculty Mentor: Dr. Katie McGarry

Previous research has been found to show that mushroom substrate has many valuable properties such as use as a growth media and the polysaccharides found in the mushrooms have potential immunomodulation and anti-virus properties. In this study we focused on finding the polysaccharide content of shiitake mushrooms (*Lentinula edodes*) using two different methods of extraction. This project utilized fresh mushroom powder to create an extract by either sonication or maceration, the extract was then tested to determine the polysaccharide content using the phenol-sulfuric method which produces an orange color when exposed to sugar. A UV-Vis spectrophotometer was then used to quantize the color produced and determine the amount of polysaccharides present in the extract. It was found that the extract obtained using maceration contained a higher polysaccharide content than the extract obtained using sonication.

Multivariate Approaches to Assess Johnny Darter (*Etheostoma nigrum*) Body Condition within the Plover and Tomorrow Rivers, Wisconsin (Biology)

By: Lin-Li Szczesny

Faculty Mentor: Dr. Justin Sipiorski

The Johnny Darter (*Etheostoma nigrum*) is not typically a primary species for research. However, the species can serve as an indicator or a pioneer species, and a prey source for many other fish species. Body condition can be a useful tool to understand the age and growth patterns in fishes. The Plover River basin in Central Wisconsin is composed of glacial outwash soils, warmer waters, and is prone to groundwater contamination. In contrast the Tomorrow River occurs in moraine formations and is cooler but can also be influenced by pollution mainly from agricultural activities. We analyze the length-weight relationships of Johnny Darters in the two systems and compare them. Our objective was to determine if there were significant differences between the length-weight relationships of Johnny Darters in the two systems. We predicted that there was a significant statistical difference between the two populations.

Observation and Characterization of Exoplanets via Transit Method Using the UWSP Meade 16-inch Telescope in the Pejsa Observatory (Physics and Astronomy)

By: Logan Hodorowski

Faculty Mentor: Dr. Sebastian Zamfir

We use the 16-inch Meade reflector in the Pejsa Observatory to measure (photometrically) the light curves of stars that are known as good candidates for the transit method. These “hot Jupiter” exoplanets periodically move in front of their parent stars and create an apparent decline in brightness measured in parts per thousand (“ppt” or milli-magnitudes), which is detectable. We typically measure planets with short orbital periods (of the order of days) and short transits (of the order of hours). The telescopic system is equipped with a motorized focuser, a focal reducer, a filter wheel, an imaging camera, a guiding telescope, and a guiding camera. The complete set-up is computer-controlled with the help of N.I.N.A., an astrophotography imaging suite (NIGHTTIME IMAGING 'N' ASTRONOMY). The telescopic system is hosted in our main observatory dome, atop the Science Building. Here we report our progress in this project which began more than a year ago and

was partially supported through a Wisconsin Space Grant Consortium undergraduate research scholarship. We reflect on several aspects: 1) successfully measured targets, 2) technical challenges (software and hardware), 3) future plans for research and implementation of the project in ASTR306-Observational Astronomy or similar classes here at UWSP.

Parasite Diversity in Diving Ducks at George W. Mead Wildlife Area (Biology)

By: Gage Kriese, Morgan Marty, Roxanne Gasperetti, Katie Garcia, Kylie Lieven, Madisen Miller, Jazlyn Walker

Faculty Mentors: Dr. Sarah Orlofske, Dr. Robert Jadin- Lawrence University, Department of Biology, Craig Ziolkowski- Wildlife Management Program-George W. Mead Wildlife Area, Wisconsin Department of Natural Resources

Diving ducks rely on wetlands with large, deep bodies of water to support their feeding and seasonal migrations. Diving ducks accumulate parasites from the diverse organisms they consume. We surveyed the internal parasites of diving ducks from George W. Mead State Wildlife Area (Mead) to investigate patterns of infection related to feeding habitats and diet. Hunter donated waterfowl carcasses were measured, and each organ was examined under a microscope using standardized procedures. Parasites were identified based on morphology and totals were used to calculate infection intensity (number of parasites) and prevalence (proportion of hosts infected). We examined 7 Lesser Scaup, 11 Ring-necked ducks and 2 Redhead ducks and all were infected with at least two types of parasites. Total parasite abundance ranged from 5 to 262 and an average of 74, excluding tapeworms but did not statistically differ among species (ANOVA, $p=0.58$). Parasite richness ranged from 2 to 5 taxa per host, with an average of 3 and was not significantly different among species (ANOVA, $p=0.08$). Increasing waterfowl sampling will improve parasite community assessment. Understanding parasite communities within diving ducks can give a baseline for comparison to management activities, detect potential pathogens, and indicate host diet diversity.

Phytoremediation of PFAS from Soils Using Hemp and Alfalfa (Chemistry and Biochemistry/Biology)

By: Grace Geils, Morgan Harwood, Benjamin Jore, Sharayah Lazaroff, Jenna Muenchow, Cody Mussell, Benjamin Opaneye, Sophie Ryf, Olivia Schwarz, Alexandra Silavanh, Danielle Singkofer
Faculty Mentors: Dr. Shannon Riha, Dr. Joe Mondloch, Dr. Brian Barringer, Dr. Ann Impullitti, Dr. Bryant Scharenbroch

Many everyday products, including non-stick cookware, fire-fighting foams, and water-repellent textiles, contain per- and polyfluoroalkyl substances (PFAS). These compounds vary in size and functional groups, giving them unique desired properties for various industries. Recently, PFAS have been classified as emerging contaminants by the EPA due to their harmful health effects. Despite efforts to curb further environmental contamination, PFAS persist in soil and water due to their extremely strong C-F bonds. One potential solution for removing these "forever chemicals" is phytoremediation—using plants to concentrate and remove contaminants from the soil. This study focuses on two historically important native Wisconsin plants, alfalfa and hemp, as potential phytoremediators for PFAS because previous research has demonstrated their ability to remediate other types of contaminants. In this experiment, alfalfa and hemp were grown in soil with and without PFAS contamination. After harvesting, PFAS were extracted from their tissues and quantified using liquid chromatography-mass spectrometry (LC-MS). The results of this study reveal where PFAS accumulates in the plants and identify which PFAS compounds were effectively removed. Overall, the

findings suggest that both alfalfa and hemp show promise as phytoremediators of PFAS and could potentially be used to help clean up the environment across Wisconsin.

Porking out on Plastic: Albatross diets in the Hawaiian Archipelago (Biology)

By: Skyla Geller, Molly Moder, Zephyr Lopez, Rylie Ullrich

Faculty Mentors: Dr. Krista Slemmons, Dr. Laura Lee

The Hawaiian Archipelago is home to two species of albatross: the moli (Laysan, *Phoebastria immutabilis*) and ka'upu (black-footed, *P. nigripes*). Both species have a long history of overharvest and exploitation. Albatross feed on squid and fish eggs in open water and regurgitate food for their young. Plastics and other man-made materials pollute the water where adults forage and become a part of their diet. We examined albatross bolus from the Papahānaumokuākea National Marine Monument, specifically from Midway Atoll. Boluses were weighed and dissected. Contents were separated into four categories: squid beaks, pumice stone, plastic fragments and fishing line. Weights from each category were recorded and compared. Our findings indicate that heavier boluses had a high percentage of plastic compared to the lighter ones. Smaller boluses had a higher concentration of squid beaks compared to larger ones. Adult albatrosses that consume high amounts of plastic may be spending more energy foraging to meet nutritional needs for themselves and their chicks. As consumption of plastic causes mortality in albatross populations, this study underscores the importance of ocean cleanup efforts and the reduction of single use plastics for the future survival of these species.

Rodent Desensitization to Presurgical Stress and Its Effects on Sedation (Biology)

By: Madeline Krzykowski, Cesily Keel, Faith Kempe, Mya Kreul

Faculty Mentors: Dr. Jennifer Bray, Sandie LaVake

In the human physiology course (BIOL 385) at UWSP, students participate in rat ovariectomy surgeries. Some rats used for surgeries appear to take longer to undergo sedation. We hypothesized that stress and anxiety could affect induction time and length of sedation following anesthesia injection. Our research project explored whether human interaction would reduce anxiety and increase the effectiveness of anesthesia in rats. For our study, we handled ten rats for five days per week for a total of four weeks leading up to practice surgeries. We flipped the rats on their backs and tickled them to simulate rat play. Studies show this reduces anxiety in rats (Cloutier et al., 2018). We used an elevated plus maze to evaluate rat anxiety levels. Studies have shown that more time in the open arms suggests less anxiety (Kraeuter et al., 2019). We measured and analyzed the time of anesthesia induction and total time anesthetized during the Fall 2024 semester. Our results showed that handling rats did not have a significant effect on the anxiety levels, as measured using the elevated plus maze. In future semesters, we will investigate additional ways to reduce rat anxiety and develop a process for more consistent sedation.

Screening for Antimicrobial Activity in *Lentinula edodes* Extracts (Chemistry and Biochemistry)

By: Aidan Arbaugh and Elliona Staves

Faculty Mentor: Dr. Katie McGarry

Characterizing fungal natural products has been a major source of inquiry in pharmacognosy. Perhaps the most notable contribution these natural products have on drug discovery lies in their use in the development of effective antibiotics such as cephalosporins. While having been used for medicinal practices in Eastern medicine for centuries, little is known about the presence and profile of antimicrobial compounds in Shiitake mushrooms (*Lentinula edodes*). In this study, we aim to

isolate and characterize the potential antibiotic compounds in shiitake mushrooms by first developing effective and resourceful extraction protocols and testing for antimicrobial activity. Extractions of powdered shiitake mushroom were carried out via maceration and ultrasound-assisted extraction (UAE) using ethanol (100%) as the solvent. Extracts were filtered, processed by serial dilution with water, and used in agar diffusion assays to screen for antibacterial activity against *Bacillus megaterium*. This presentation details the antimicrobial activity demonstrated after downscaling extraction volumes as well as the initial ultrasound extraction results and what they entail for future inquiry.

Synthesis, Characterization and PFBS Adsorption of Zr-MOF-808-BuA (Chemistry and Biochemistry)

By: Grace Versnik, Julia Storch

Faculty Mentor: Dr. Joe Mondloch

Per- and polyfluoroalkyl species (aka forever chemicals) contain at least one fully fluorinated carbon atom. They are broadly used in society because of their desirable properties such as their high chemical and thermal stability and ability to repel water, oil, and grease. These same properties ensure that PFAS persist in the environment as well as in animals and humans. Unfortunately, PFAS have been shown to have some negative health impacts including increased cholesterol, lower antibody response to vaccines, low birth weights, and cancer. Here we evaluate the ability of a porous materials termed MOF-808-BuA to remove PFAS from water.

Synthesis, Characterization and PFBS Adsorption of Hf-MOF-808-FA and its Comparison to the Zr Analog (Chemistry and Biochemistry)

By: Jackson Mikel, Isabel Bauer, Mckenzie Osowski

Faculty Mentor: Dr. Joe Mondloch

Per- and polyfluoroalkyl species (aka forever chemicals) contain at least one fully fluorinated carbon atom. They are broadly used in society because of their desirable properties such as their high chemical and thermal stability and ability to repel water, oil, and grease. These same properties ensure that PFAS persist in the environment as well as in animals and humans. Unfortunately, PFAS have been shown to have some negative health impacts including increased cholesterol, lower antibody response to vaccines, low birth weights, and cancer. Here we explore the synthesis of a porous material termed Hf-MOF-808-FA to evaluate its ability to remove PFBS from water when compared to Zr-MOF-808-FA.

Testing the GALFIT Code in a Photometric Analysis of Early-Type Spiral Galaxies (Physics and Astronomy)

By: Grace Wilson

Faculty Mentor: Dr. Adriana Durbala

We perform data reduction and photometric analysis of a sample of early-type spiral galaxies in isolated environments. We use images in the red/near IR i-band from the Sloan Digital Sky Survey - Data Release 18. We employ a computer code called GALFIT for bulge/disk/bar decomposition analysis and we present a progress report pertaining to testing this complex code. The sample of isolated ("nature") galaxies will serve as a baseline to investigate the effects of environmental density on the formation and evolution of early-type galaxies by comparing our results with those for galaxies in denser environments ("nurture"). Our work will provide insights in quantifying the relative role of "nature versus nurture" (intrinsically versus environmentally driven influences) in shaping the morphology and evolution of galaxies.

Towards Molecular Wires: A Density Functional Theory Study of Metallocenes (Chemistry and Biochemistry)

By: Icarus Fortenberry, Benjamin Jore, Ethan Theoharopoulos

Faculty Mentors: Dr. Jason D'Acchioli, Eric J Watson

Organometallic sandwich complexes, also known as metallocenes, are some of the most instantly recognizable motifs in chemistry. In particular, triple-decker sandwiches are attractive because of their potential use in molecular electronics. We are using density functional theory to model the physical and electronic structure of a series of synthetically accessible metallocenes. This study benchmarks the most appropriate density functional for the compounds in question by comparing vertical and adiabatic ionization energies to experimental ionization energies for ferrocene and ruthenocene, two well-known metallocenes. Going forward, the density functional that best models these systems will be used to examine how their properties change with different substituents, with the intention of finding a structure with electronic properties suitable for molecular wires.

Ultrastructure of Testis and Cerebellum in DSS-Treated Mice, a Model for Inflammatory Bowel Disorders (Biology)

By: MacKenzie Hardy, Ethan Theoharopoulos

Faculty Mentors: Dr. Karin Bodensteiner, Dr. Jennifer Bray, Dr. Sol Seipsenwol, Dr. Michael Steury
Mice fed with dextran sodium sulfate (DSS) exhibit signs closely related to those found in the human inflammatory bowel disorders of ulcerative colitis and Crohn's disease. It is thought that cytokines released from immune cells of the inflamed GI tract induce vascular leakage and physiological changes in gut and other tissues, such as kidney and brain. We hypothesized that DSS-induced changes might include changes to the ultrastructure of the capillaries of affected tissues. As part of a larger study, we examined the ultrastructure of capillaries of testes and cerebellum of DSS-treated mice. To do this, tissues were perfusion-fixed and prepared for transmission electron microscopy (TEM). Marked changes, previously unreported, occurred in capillaries of the interstitial tissue of the testis, including abnormal numbers of protrusions, atypical tight junction complexes, and irregular apical membranes of endothelial cells. Leydig and germ cells of the seminiferous tubules, however, appeared normal at the ultrastructural level. Neither capillaries, nerve cells, nor synapses within the cerebellum showed differences from controls.

Using FANTASY (Fully Automated python Tool for AGN Spectra analysis) to Explore the Diversity of Quasar Phenomenology (Physics and Astronomy)

By: Jaxom Blaser

Faculty Mentor: Dr. Sebastian Zamfir

Quasars give us a glimpse into how the physics work in the center of active galactic nuclei (AGN) and their surrounding environment. This research utilizes FANTASY, an open-source Python tool for multi-component AGN spectral fitting in the optical rest-frame (3600-8000 Å). We analyze low-redshift ($z < 0.85$) quasars using high signal-to-noise SDSS spectra, focusing on (1) internal broad emission line shifts (e.g., H β , Balmer lines), (2) giant radio quasars (GRQs) with jets >0.7 Mpc, and (3) quasars with extreme colors. This poster presents progress on spectral modeling and initial findings, with ongoing work aimed at refining emission-line diagnostics and quasar classification.

Poster Presentations
School of Humanities and Global Studies
Floor 2 – Haeni Chemistry Biology Building | 2:30- 3:30 p.m.

Advocating for Official Acknowledgment and Personal Healing through Protest and Artwork: The “Comfort Women” of South Korea (1990-2025) (History and International Studies)

By: Adam Rogge

Faculty Mentor: Dr. Valerie Barske

In this research project, I examine the commemorative artwork and protests of the survivors and supporters of the Japanese “comfort women.” “Comfort women” refers to the euphemism given to women forced into institutionalized sexual slavery by the Imperial Japanese military. Although taken from all areas under Japanese occupation, most women came from Korea (Kazue 2016). I analyze protests against the Japanese government, petitions, and artwork used by survivors as a form of coping with intense trauma. Since 1992, survivors and their supporters helped to organize protests outside the Japanese embassy in Seoul (Kazue 2016). I focus on feminist identity through social cohesion as women came together to support the fight for acknowledgment (Zakowski 2020). The “House of Sharing,” a home for survivors, collected paintings such as Punish Those Responsible (Kang Duk Kyung 1993-1997). Compiling this evidence, I argue that protest movements and artwork created by the survivors of the “comfort women” programs bring awareness to the history of these atrocities and force official acknowledgment and apology by the Japanese government, while helping individuals cope with trauma.

Bailables Folkloricos: Preserving the Commemorative Practices of Mexican Folk Dance (1952-2024) (History and International Studies)

By: Lesly Rodríguez Hernández

Faculty Mentor: Dr. Valerie Barske

In this research project, I examine the commemoration of folkloric dances in Mexico in relation to the diverse cultures of indigenous, *mestizo*, and regional traditions. Many institutions such as Ballet Folklórico de México founded by Amalia Hernández (1952), El Ballet Folklórico VINI CUBI, founded by la Universidad Nacional Autónoma de México (UNAM) (1973), and other art schools feature professional dancers and art students showcasing ways to preserve and transcend “traditional” Mexican folk dances for current and future generations. In recent years, the role of preserving dances with a focus on authenticity remains challenging as the impact of tourism and globalization risks “simplifying” or changing the performances to reach a bigger audience and mainstream media with indigenous festivals such as Guelagueta in Oaxaca. I examine how specific institutions strive to innovate folkloric dances yet try to maintain traditional elements by working alongside local/rural communities at risk of losing their dance traditions. Groups such as Vini Cubi also aim to establish a bridge between tradition and experimentation to expand the complex relationship of knowledge and artistic expression by utilizing online platforms to preserve their performances. The commemoration of Mexican folk dance preserves and strengthens cultural identity, diversity, and memory.

Balancing Tradition and Tourism: The Commemorative Significance of Loy Krathong's Yi Peng in a Globalized Era (2015-2024) (History and International Studies)

By: Jordan Dietz

Faculty Mentor: Dr. Valerie Barske

In this research project, I explored the transformation of the traditional Thai festival Yi Peng, a sub-festival of Loy Krathong, amid globalization and rising tourism. Yi Peng, celebrated in Chiang Mai, is rooted in the symbolic release of lanterns and holds deep cultural and religious meaning. As international interest grows, the festival's modern adaptations raise questions about preserving its original meanings (Isaadmin 2017). Ultimately, this case study offers insight for scholars, cultural heritage practitioners, and global audiences into how globalization reshapes local traditions and the significance of commemorative practices. The example of Yi Peng demonstrates that commercialization and tourism enhance tensions between maintaining cultural traditions and meeting global demands. I examine how local communities such as the Duangtawan Santiparp Foundation Buddhists, government authorities, and tourism organizations navigate this balance, highlighting changes in the celebration and marketing of Yi Peng in recent decades, especially its shift into a global spectacle (Thompson 2021; Cavanagh 2025). This framework also considers environmental concerns tied to the release of mass lanterns. Using theories of cultural preservation and globalization, I analyze how local identities and national culture intersect with international tourism. This framework also considers environmental concerns tied to the release of mass lanterns.

The Collective Memory of Mohandas Karamchand Gandhi: Satyagraha and the Role of Gandhi (1948-2025) (History and International Studies)

By: Benjamin Balge

Faculty Mentor: Dr. Valerie Barske

Mohandas Karamchand Gandhi (1869-1948), known as the Mahatma throughout the world, inspired millions with his teachings and influenced countless social movements globally. Major philosophies that he championed, such as ahimsa (nonviolence) and *satyagraha*, revolutionized nonviolent protests like the peace marches found in India, civil rights movements in North America, and the inspirational work of Nelson Mandela in South Africa. *Satyagraha* is understood as an "insistence on truth" and a "soul force," and practitioners of the philosophy call themselves satyagrahis (Kytle 1982, p. 91). In the nearly 80 years since his death, nonviolent movements in India, the United States and globally employ Gandhi's image and methodologies to further their mission with great reach and success. However, the broader spectrum of remembrance practices regarding Gandhi remains complicated by counterprotests in places such as South Africa (Rao 2023). While recognizing the complex nature of Gandhi's legacy, my research examines a diverse collection of visual, archival, and textual sources to examine how groups utilize *satyagraha* to unify global activism, commemorate Gandhi's work, and advance messages of love, nonviolence, and truth.

Commemorating German Reunification: Understanding Intersectional Issues within the German State (2010-2022) (History and International Studies)

By: Connor Tauchen

Faculty Mentor: Dr. Valerie Barske

In this research project, I examine the effect of intersecting identities such as ethnicity, geographic position, and political affiliation related to German Unity Day commemorations. Beginning in 1990, German Unity Day represents a relatively new holiday with controversial meanings. For example, “the dramatic events of November 9, 1989... caught nearly all by surprise” (Berdahl 2005), which led to a ten-year plan for Reunification. However, the German nation re-unified after a single year, which institutionalized significant inequalities between their economies. As evidence, I examine various aspects of German media including commemorative speeches, social media, and news outlets. More specifically, I argue that the Reunification commemorations, although officially a day of unity, often express dissatisfaction regarding policies about the economy, asylum seekers, and questions of political power. I employ the theoretical approach of intersectional identities to explore specifically how these issues affect immigrants, East Germans, and West Germans. This research examines how German Unity Day is shaped by geographical, political, and ethical factors, while identifying the divisive elements in official commemorative practices.

Commemorating the 2010 Haiti Earthquake: Cultural Practices, Remembrance, and National Memory 2010-2025 (History and International Studies)

By: Jaden Holdsworth

Faculty Mentor: Dr. Valerie Barske

In this research project, I examine commemorative practices related to the 2010 Earthquake in Haiti. On January 12, 2010, a 7.0 magnitude earthquake struck the Haitian capital Port-au-Prince leaving “more than 316,00 dead or missing, 300,000 injured, and over 1.3 million homeless” (Desroches 2011, p. 1). This earthquake not only impacted the residents of Haiti but threatened the loss of unique cultural libraries, archives, and collections. Haitian cultural creators thus fought to preserve and promote their cultural in a new post-colonial fashion (Dougal 2016, p. 389-391). Specifically, I analyze how Haiti’s rich culture of music, dance, art, and religious syncretism play a pivotal role in commemorative practices. I apply a post-colonial and intersectional framework to highlight the interplay between Haiti’s material and embodied heritage (Bertrand 2010, p. 36-37). Additionally, I consider Haiti’s traditional religion of Vodou and its ritual objects such as Vodou flags and ceremonies in commemorating the dead. Both the material art and embodied cultural practices of ritual spells/magic, poetry and music are used in commemoration of the dead (Daniels 2017, p. 957-958). This research project is vital for understanding our post-colonial world and how groups affected by colonialism combat its effects through cultural practices.

Commemoration through Carnival: The Interplay of Race and National Identity in Rio de Janeiro (1970-2024) (History and International Studies)

By: Destiny Jochimsen

Faculty Mentor: Dr. Valerie Barske

In this research, I examine the connection between race and identity in the context of Carnival in Rio de Janeiro. Carnival is a pre-Lenten celebration viewed as a rite of passage for people who live in Rio (London 1979). It is an event used to celebrate and commemorate a national identity. Carnival reflects a deep connection to concepts of race given the history of enslavement and the push for a unified national identity in Brazil. Therefore, Carnival provides a chance for cultural expression, especially for Afro-Brazilians to represent both pride in their heritage and resistance to the whitewashing of their traditions (Harden 2023). In this study, I use sources from the Brazilian government and academic research focused on Afro-Brazilian identity and race. Two terms help describe how Carnival has changed over time: “touristification” by which Carnival becomes more of a tourist attraction than a cultural tradition (Karner 2024), while “festivalization,” shows how Carnival promotes Brazil on a global stage, especially during the 2016 Olympics (Gough 2017). This research analyzes how race and national identity connect and how Carnival continues to honor Afro-Brazilian history and resistance.

A Comparative Analysis of Hmong and Miao Funeral Practices and Their Role in Collective Identity and Cultural Commemoration (1975-2025) (History and International Studies)

By: Caryleen Yang

Faculty Mentor: Dr. Valerie Barske

This research project compares Hmong and Miao funeral practices from 1975 to 2025 and their role in shaping collective identity and commemoration. The Hmong people are a subgroup of the Miao, who originated from northern central Asia (modern-day Mongolia) with a history tracing back to 2300 B.C.E. (Owens 2007). Through a series of historical events, Hmong people have migrated all over the continent and the Miao remained in China. The Hmong and Miao share several funeral customs that I analyze as a form of collective identity reinvention and cultural commemoration. Drawing on research from scholars of Hmong and Miao cultures, I explore how funeral rituals become linked to broader themes of spirituality, cultural memory, and community cohesion. Patricia Symonds (2000) offers insight into the intersectionality of Hmong funeral practices, especially in terms of gender and the cycle of life. By examining funeral practices, I discuss how culture, religion, language, traditions and history influence the identities of both groups. Most importantly, I consider how each aspect persists in contemporary context and through the commemorative practices honoring the dead. Collective identity extends beyond the living but also the dead, highlighting the connection between funeral rituals and cultural continuity.

The Controversial Commemoration Practices Surrounding the Discovery of King Tutankhamun's Tomb and the Voices Lost Along the Way (1930-2024) (History and International Studies)

By: Brittany Novotny

Faculty Mentor: Dr. Valerie Barske

In this research project, I investigate the controversial commemoration practices surrounding the discovery of King Tutankhamun's tomb, which was unearthed on November 4, 1922. This site was the first fully intact Pharaonic burial site, significantly enhancing King Tutankhamun's fame. I argue that this discovery fostered an over-glorification of both the young pharaoh and Howard Carter, while often sidelining the crucial contributions of the Egyptian people involved. Many Egyptians who played essential roles in the discovery remain unrecognized and nameless (Lewis, 2022). Consequently, the spotlight tends to highlight British archaeologist Howard Carter (1874-1939), overshadowing the efforts of those who worked diligently alongside him. This research aims to highlight these issues, emphasizing the contributions and legacies of the Egyptian public and its remarkable individuals. It calls for a reevaluation of how history commemorates its heroes. This project is significant because the representation of minority groups is frequently overlooked in a culture dominated by white males. I aspire to illuminate the "unsung heroes" of the King Tutankhamun discovery and address how commemorative practices can neglect those who truly deserve recognition.

Crafts, Contests, and Control?: An Insider Analysis of Bias and Its Effects Within the Cosplay Community (Women's and Gender Studies)

By: Angel Bronk

Faculty Mentors: Dr. Rebecca Stephens, Dr. Lauren Gantz

When a subculture is built upon the rubble of insecurity, the end product is imbued with the bias and anger of those who laid the first brick. Despite the subculture of cosplay and anime conventions originating from a position of otherness, the community has long felt the sting of bias and bigotry lingering underneath its glimmering petals of chiffon and showmanship. From cosplays very origin, long mistaken to have started with men but was actually birthed by Myrtle R. Douglas, it has suffered under the weight of being seen as a woman's work, despite white, cisgender men taking home many of the awards and recognition rightfully belonging the true crafters - often marginalized groups. Modern day cosplay remains much the same, with frequent attacks on body type, race, gender identity, sexuality, disability, and economic status have permeated the comment sections of photo ops and audiences of masquerades for decades despite recent pushes for acceptance and judgment on craftsmanship alone. Through interviews, historical examination, and my decade of experience, this project seeks to investigate the roots, extent, and damage such attitudes can produce within the cosplay community, from the hallways of the Artist Alley all the way to the judge's table of a competition with thousands of dollars on the line. Consequently, the rules, policies, and criteria surrounding conventions and their craftsmanship contests will be put under a lens to examine whether these negate the damages of bias or if more must be done to regulate a subculture reaching closer to the mainstream.

Día de Los Muertos: A Holiday Transformed from Indigenous Practices to Commemorate and Celebrate the Dead (2008-2025) (History and International Studies)

By: Nick Fare

Faculty Mentor: Dr. Valerie Barske

In this research project, I examine how the people of Mexico commemorate the dead through *Día de Los Muertos* celebrations. *Día de Los Muertos* (Day of The Dead) is a two-day holiday celebrated in countries all over Latin America, but primarily in Mexico. The origin of *Día de Los Muertos* stems from a mixture of Catholic religious rituals that the Spanish brought with them when they came to Mexico in the 1500s, and the Aztec and other Indigenous groups' practices of honoring death since the pre-Hispanic times more than 3,000 years ago. The Catholic church ultimately disregarded the beliefs of the Aztecs and other Indigenous groups and reworked the holiday as "All Saints Day" and "All Souls Day," aligning the celebration with the Catholic calendar. Since the 16th century, various groups in Mexico have participated in a unique annual celebration. More specifically, I analyze how the Aztecs and other Indigenous groups commemorated death, how modern-day *Día de Los Muertos* celebrations affect those traditional practices of commemorating death, and how certain Indigenous groups in Mexico today celebrate *Día de Los Muertos* differently compared to the rest of Mexico through the preservation and reinvention of traditional practices.

The Embodied Ludicity of Yōkai in Japanese Tourism and Pop Culture: Commemorating the Past and Negotiating Memory Through Play (1945-2025) (History and International Studies)

By: Naomi Sanchez-Nava

Faculty Mentor: Dr. Valerie Barske

In this research project, I evaluate the role of tourism and pop culture in the collective memory of *yōkai* in Japan. *Yōkai* 妖怪 represent Japan's answer for explaining the unexplainable, with *yōkai* themselves not entirely definable but loosely identified as "spirits," "monsters," or "mysterious phenomenon" (Foster 2024). Nowadays, they are often characterized by cute, mascot-like depictions that appear in various tourism initiatives, video games like *Pokémon* (1996), and animanga like *GeGeGe no Kitarō* (1960). While *yōkai*'s proliferation and popularity continue to increase, the work of scholars, including Shige Suzuki (2020) and Elisha Ager (2023) begins to unpack the complicated intersectionality of trauma, commodification, and "pre-Western" idealization that shape their commemoration. Drawing on work in tourism, cultural, and memory studies, I use sites such as the Mizuki Shigeru Road and events like the Ichijō *Yōkai* Night Parade to explore how *yōkai* persist in Japanese collective memory as both nostalgic symbols and vehicles of ludicity, the human condition manifested in game and play (Lopes 2005). Ultimately, I argue "playing with *yōkai*" serves as a transformative, powerful example of commemoration that reframes traumatic histories while retaining their emotional impact.

From Heretic to Heroine: Public Perceptions and Commemorating Joan of Arc (1900-2025) (History and International Studies)

By: Quinn Greer

Faculty Mentor: Dr. Valerie Barske

In this research project, I analyze the changing commemoration of Joan of Arc (born ca. 1412) through media from 1900 to 2025. Burned at the stake for heresy in 1431, she became the patron saint of France and later an icon for women's rights and the LGBTQIA+ community. However, this shift represented great historical changes and cultural developments over several centuries. I

examine the dominant historical perspectives shown in media depictions and how the view of her shifted to a more positive light through multiple media sources including *The Passion of Joan of Arc* (Société Générale des Films 1928) and *I, Joan* (Josephine 2022). Considering an intersectional lens, the global LGBTQIA+ community also now looks to Joan of Arc as a symbol of nonbinary pride due to her crossdressing. In 2024, pop singer Chapell Roan dressed as Joan of Arc at the VMAs and proudly dedicated her award to the LGBTQIA+ community, cementing Joan's status as a reimagined historical symbol (Barton 2024). These perceptions of Joan of Arc show that the significance and remembrance culture related to a given historical figure may change based on media depictions, which reflect the specific cultural, political, and social contexts of the time.

The Gravity of Atomic Amnesia: Commemoration, Resistance, and Aftermath of Hiroshima and Nagasaki, Japan Post-1945 (History and International Studies)

By: Brayden Banks

Faculty Mentor: Dr. Valerie Barske

In this research project, I analyze how commemorative practices (re)shape collective memories of Hiroshima and Nagasaki, Japan post-1945. These bombing sites remain pivotal to global discourse on nuclear weaponry, yet their remembrances are never neutral. While formal commemorations tell one story, embodied hibakusha (survivor) testimonies reveal another tale often excluded from nuclear narratives (Lawless 2018). Nihon Hidankyo, the 2024 Nobel Peace Prize-winning group, fights to preserve these memories as hegemonic nuclear proliferative views often conflict. Japan's strategic positioning under the "nuclear umbrella" further complicates its role in victimhood and complicity (Parke 2024). Frequently, dominant narratives obscure the suffering of the other, turning nuclear memory sites into ideological struggles where commemoration takes form in antinuclear protests, cultural expression, or embodied scars (KASE 2016). More specifically, my research contends that nuclear memory is not static but constantly (re)negotiated through commemorative acts, which can manifest as resistance. In his poem August 6 (1951), survivor Sankichi Tōge (1917-1953) shows how commemoration extends beyond recalling indiscriminate devastation. He pleads to continually preserve the memory of those who never returned home. My research thus highlights intersectional considerations of gender, religion, and nation to discern how nuclear memory is (re)shaped as global nuclear tensions become increasingly urgent.

International Quds Day: Implications for Zionist Resistance in the Middle East's Struggle for Sovereignty in a Post-Colonial World (History and International Studies)

By: Elric Guldan

Faculty Mentor: Dr. Valerie Barske

My research examines Quds Day's role in shaping collective memory, resistance narratives, and Islamic solidarity. Ayatollah Khomeini (1900-1989), following the Iranian Revolution, established Quds Day on the last Friday of Ramadan to express solidarity with Palestinians and challenge Israel over Jerusalem (Takeyh 2009 p. 62). Since then, it has become a global phenomenon, with worldwide digital demonstrational campaigns. More specifically, I argue that Quds Day's commemorative practices reinforce political, religious, and anti-colonial identity through protest, media and international activism. Using postcolonial theory (Said 1978; Fanon 2004), memory studies (Halbwachs 1992), and intersectionality (Crenshaw 1991), my research investigates how power, religion, and nationhood intersect in Quds Day. Furthermore, the evolution of Quds Day from a revolutionary Iranian initiative to a decentralized global movement presents how digitization

shapes activist engagement. This research contributes to debates on colonialism, resistance, and remembrance, addressing the significance of Quds Day in international relations. Studying Al-Awda (Palestinian Right to Return Coalition) and Students for Justice in Palestine (SJP) within al-Quds Day could aid diplomatic institutions such as the Brookings Institution and Chatham House. Ultimately, analyzing Quds Day enhances scholarly discussions on commemorative practices in contested spaces, highlighting how history is mobilized in the struggle for self-determination.

A Mother's Love Never Dies: Commemoration of Disappeared Children in Argentina from Dictatorship to Democracy (1976-2025) (History and International Studies)

By: Ruth Durrant

Faculty Mentor: Dr. Valerie Barske

In this research project, I examine the commemorative practices of La Asociación Madres de Plaza de Mayo (The Mothers of the Plaza de Mayo). During La Guerra Sucia (The Dirty War) in Argentina (1976-1983), tens of thousands of people were “disappeared” meaning kidnapped, tortured, imprisoned in concentration camps, and/or executed and disposed of by the military junta (CONADEP 1984). In April 1977, a group of mothers bravely decided to march around the Plaza de Mayo, located just outside the presidential palace, to protest the disappearances of their children. Every Thursday since, Las Madres, recognizable in their white pañuelos (kerchiefs), march and fight for global justice. By utilizing government-released documents, ethnographic research, and political historical research on intersectionality and risk, my project highlights Las Madres’ motivations, struggles, and identities, which challenge the standard image of a resistance fighter. I analyze Las Madres’ website to explore how their protest adjusts over time to respond to changing political and social situations in Argentina and globally.

Nick Caraway: Disillusion and Dishonesty in The Great Gatsby (English)

By: Sophie McPherson

Faculty Mentor: Dr. Ross Tangedal

Within the tale of Jay Gatsby, Nick Caraway acts as narrator and arbitrator of the story. All information the reader receives is mediated through the scrutiny of Nick. He becomes the judge of moral character and often highlights the shortcomings of those around him. However, in doing so Nick proves his unreliability as a narrator through his voyeurism, deceit, supposition, and affairs. His character is a man who creates illusions of what he wishes the reader would see and a man who lies to place himself upon a podium of truth. All the while he hides away behind his words, allowing the reader to forget him until he needs to be remembered.

Nuclear Earthquake: Remembering 3/11 Fukushima through Suzume (2022) as Animated Commemoration (History and International Studies)

By: Thomas Marren

Faculty Mentor: Dr. Valerie Barske

In this research, I examine how Makoto Shinkai’s 2022 anime film *Suzume no Tojimari* (Suzume’s Locking Up) depicts the aftermath of the 2011 Triple Disasters in Tōhoku Japan as a form of cultural commemoration. I argue that *Suzume* represents a form of commemoration because of the scenes of the Fukushima nuclear disaster, the aftermath, and the cleanup. These scenes correlate with photographs of the ruined Fukushima reactor and debris provided by TEPCO (2011). *Suzume* shows how the disaster is commemorated in Japan through the theoretical concept of “radioactive performances” (Polleri 2021), which refers to how Japan as a nation processes and commemorates

the disaster through *kawaii* (cute) characters like Suzume. Anime thus functions as a form of commemoration that matters because it provides a way to tell stories that include scenes of disasters and historical events such as Fukushima and 3/11. The public should see anime films such as *Suzume* in memory of Fukushima as a serious form of commemoration because anime offers a unique medium that uses vibrant colors and animation. My work gives a fresh perspective on commemorating disasters such as Fukushima by highlighting the importance of anime as a form of commemoration.

Ostalgie and the Idealized Allure of the Past: Remembrance of Eastern Europe (1945-2025)-

(History and International Studies)

By: Max Hohensee

Faculty Mentor: Dr. Valerie Barske

In this research project, I examine the various ways former Soviet bloc states remember and commemorate their socialist pasts, as well as how those ways may represent dissatisfaction with the current neoliberal status quo. I focus specifically on the German Democratic Republic (GDR); however, I compare other states such as Poland, Romania, and Russia to showcase the differences between motives and commemorative events in certain cultures or geographical regions. The timeline covers 1945 to 2025. Regarding East German *Ostalgie*, the more repressive aspects of the GDR are often ignored in favor of remembering cultural things like brands, crosswalk symbols, and stylistic choices. I consider the commemoration of East Germany through the lens of those who lived there in comparison with the more common Western narrative to understand the complexities with remembrance of the GDR. I use a large list of history-focused articles as well as other works focusing on culture, politics, economics, and behavioral science to broaden the scope of this project (Böck 2020, p. 144). Challenges remain between Western and Eastern Germans, in no small part due to the differences in how they remember and commemorate divided Germany, and true reconciliation cannot happen without examination of these issues.

Perceptions of Religion in Anime (Philosophy and Religious Studies)

By: Maya Ramseier

Faculty Mentor: Dr. Luke Whitmore

The project aims to answer the question of how viewers of the anime *Death Note*, *Neon Genesis Evangelion*, and a character from *Demon Slayer*, Douma, respond to the religious ideas and iconography present in each, and whether they view it as religious at all. Using an online survey, religious background and peer reviewed analyzations, and the references in the anime themselves, this paper will argue that the viewers of these anime have gained a different perspective on their current religious ideas and beliefs and potentially new religious ideas and beliefs compared to their current outlook on religious imagery and ideas, expanding on their knowledge and viewpoints and providing new perspectives.

Personal Commemoration United in Mass Commemoration: Nuestra Señora de Guadalupe, Ciudad de México (History and International Studies)

By: Faith Wren

Faculty Mentor: Dr. Valerie Barske

I analyze the personal and cultural connection between the native Aztec people and the apparition of Our Lady of Guadalupe in 1531. While often described as an example of “inculturation” where Catholic and Aztec beliefs and symbols merged during colonization (Mong 2018), I argue that her message became personalized resulting in the largest mass conversion in Christian history. Her image reflected familiar Aztec symbols while honoring Catholic beliefs, helping two different worlds find meaning in her appearance. Guadalupe’s message was not just political or imposed by missionaries, rather evidence suggests that she was embraced by native populations. Her importance has lasted nearly 500 years, especially through the celebration of her feast day December 12th in Mexico City. Today, millions gather at the Basilica de Nuestra Señora de Guadalupe, displaying devotion across generations and geographical spaces. I use primary sources, photographs, and historical studies to explore this blend of cultures and symbols. Father Tim Oudenhoven (2023) highlights the idea that understanding her image and message requires understanding the dignity of the cultures to which she appeared and how they understood the appearance. This history continues to shape why she is remembered and why her memory keeps growing in Mexico and beyond.

Politics and Memory: Commemorations of Hiroshima and Nagasaki (History and International Studies)

By: Kamryn Beyer

Faculty Mentor: Dr. Valerie Barske

This research project focuses on the commemorative practices surrounding the August 1945 bombings of Hiroshima and Nagasaki. The post-war legacy of the atomic bomb and the broader atomic age remains complex and conflicting. This complicated history is especially true when considering the political nuances of the ways that various groups in Japan commemorate the events of August 6 and 9, 1945. The ever-shifting political narratives and agendas shape the way that these commemorations are conducted and interpreted, as well as a more general understanding of historical narratives. The Japanese government and Japanese citizens as a whole use these memorials as a way to give voice to the lives that were lost in the bombings and advocate to leave these weapons in the past, namely to “let Nagasaki be the last” (Kishida 2024). Commemorative practices, like those that are analyzed in this project, serve as not only a way of honoring and remembering the victims of the atomic bombs, but also as a strategic tool to shape the public’s perception of war and nuclear policy.

Preserving Haka: Indigenous Survivance, Cultural Memory, and Māori Activism in Aotearoa (NZ) (1973-2025) (History and International Studies)

By: Sydney Whitcher

Faculty Mentor: Dr. Valerie Barske

In this research project, I examine how Māori cultural practices, specifically *haka*, survived colonization, and continues to be used, performed, and celebrated on different cultural stages. *Haka* represents a type of traditional dance that originated in Māori mythology, meant to represent the strength and spirit of the Māori people (NDTV News Desk 2024). Since the 13th century, the Māori people have used traditional types of *haka*, each with its own meaning. *Haka* involves stomping, chanting, swift movements, and most notably, intense facial expressions known as *pukana*. After the initial British colonization of New Zealand in 1840, the Māori remained steadfast in the belief that their culture should be represented and celebrated, despite countless historic and contemporary challenges. For example, Māori political leaders used *haka* to protest the 2024 parliamentary challenge to the Waitangi Treaty established to protect the Māori people. Throughout their existence, the Māori continue to celebrate their culture through *haka* performances in everything from weddings, to funerals, to coronations, and even at sporting events for the New Zealand All Blacks. This research aims to analyze the different occasions where *haka* is performed and their significance to not only the Māori people but to the wider postcolonial world.

Shared Struggles, Different Stories: Commemorating the Hmong Diaspora in the United States and Australia through Literature (2004-2025) (History and International Studies)

By: Sandy Vang

Faculty Mentor: Dr. Valerie Barske

In this research project, I examine the literary works of the Hmong diaspora in the United States and Australia. Originating from the border regions of southern China and Southeast Asia, the Hmong people have a long history of migration. The largest Hmong diaspora occurred in 1975, following the withdrawal of U.S. forces from the Vietnam Wars (Lee 2007). This displacement resettled millions of Hmong people worldwide, with most immigrating to the United States and some to Australia, France, and French Guiana. The post-war diasporic experience is characterized by efforts to preserve collective memory and cultural identity. This study analyzes works by four authors: Kao Kalia Yang (*The Latehomecomer* 2008), Mai Der Vang (*Afterland* 2017), Gary Yia Lee (*Dust of Life* 2004), and Michele Lee (*How Do I Let You Die?* 2023). These texts serve as commemorative practices for remembering and recreating diasporic collective identity. This research employs an intersectional framework integrating postcolonial theory and diaspora studies while addressing gender, race, and nationalism. Storytelling is not only a tool for cultural preservation but also a unifying method for shared memories (Yang and Liu 2024). Thus, literary works foster collective identity and safeguard the Hmong people's unique historical and cultural legacy.

These Are the Times that Try Men's Souls: Commemoration of the Northern Ireland Troubles, 1998-2023 (History and International Studies)

By: Kallie Frank

Faculty Mentor: Dr. Valerie Barske

In this research project, I examine commemorative practices related to the Northern Ireland Troubles. The Troubles refer to political conflicts that began in Northern Ireland in 1968 and continued until the Good Friday Agreement signed in 1998. Although the conflict spanned a period of over thirty years, I analyze more modern commemorative practices, including memorials honoring victims and first-hand accounts that challenge or affirm collective memory. I consider themes of national identity and how collective memory of the conflict has shaped certain parts of Ireland. However, commemoration in Northern Ireland is far from neutral. Recently, commemoration reinforced division and contested histories. Some commemorative efforts foster community healing, while others emphasize boundaries and selective memory. The state's approach to official remembrance seeks to avoid tensions, while grassroots memorialization stays politically charged (Rolston, 2010). As Northern Ireland continues its battle with this legacy, commemorative practices reveal the potential for bringing peace. This analysis of collective memory and memorialization specifically answers questions regarding not only how national identity and memory influence how we remember the past, but also how we use what we remember to influence commemorating the past.

Women, Religion, and Power in West Bengal (Philosophy and Religious Studies)

By: Patience Graham

Faculty Mentor: Dr. Luke Whitmore

Religion is a space in which women can occupy roles of power, find sources of strength, and find connection with other women. While still acting within the boundaries of the dominant patriarchal framework, women can participate in resistance by finding or creating cracks within oppressive structures. In this paper, I argue that women in West Bengal use these cracks in the patriarchy to claim authority and autonomy within the sphere of Bengali religion, culture, and society. I consider specifically the examples of the West Bengal political leader Mamata Banerjee, the Maitri Sena ("Women's Army" — a religious political group led by women), and the singer/religious teacher Parvathy Baul.

Wonderful Things?": Analyzing Orientalizing Exhibits, "Egyptomania" Revivals, and Commemorations of King Tut's Artifacts (1971-1978) (History and International Studies)

By: Jameson Powell

Faculty Mentor: Dr. Valerie Barske

In this research project, I analyze the world-famous traveling exhibit "Treasures of Tutankhamun" (1971-1978) and the long-term effects of Orientalizing representations of King Tut (1341 BCE–1323 BCE). On November 26, 1922, British archaeologist Howard Carter (1874 -1939) and his international team discovered an entrance to King Tut's tomb. When first stepping into the room, Howard Carter's teammate asked what he saw, and Carter exclaimed, "Wonderful things!" (Colla, 2007). For the next 40 years, Egypt and Britain clashed over ownership until coming to a deal where Cairo agreed to loan 50 artifacts to Britain for an exhibit that began at the British Museum. Using Roy Sartin's (2021) definition of "Egyptomania," newspaper reviews of the exhibit from The New York Times and the British Newspaper Archives, I argue that Egyptomania perpetuated Orientalist views

that exacerbated the immense success of the 1971 exhibit. Egyptomania reduces Egyptian cultural properties to pop culture representations such as pharaoh gas pumps and SNL comedy skits (1978). This view manifests in multiple ways, from commercializing culture to withholding of Egyptian cultural property. Unpacking the circumstances that led to the success of this exhibit may help us better understand current Orientalizing discourses and the call for cross-cultural reconciliations around the globe.

Poster Presentations
School of Behavioral and Social Sciences
Floor 3 – Haeni Chemistry Biology Building | 2:30- 3:30 p.m.

Belief in Repressed Memory: A Review of the Literature and Proposal for New Research (Psychology)

By: Mickey McGuire, Makenze Van De Leygraaf, Jean Xiong, Macy Dickman

Faculty Mentor: Dr. Robert Nemeth

Ever since the “memory wars” of the 1990s, memory researchers and therapists have clashed over claims about repressed and recovered memories of child sexual abuse. At the core of the controversy is whether individuals are genuinely recalling previously repressed traumatic memories or experiencing implanted false memories. Recently, there have been alternative terms for repressed memories such as dissociative amnesia, indicating that the controversy continues to this day. This study reviews existing research on the commonality of beliefs in repressed memory. In addition, we propose further research to better understand the connections between belief in repressed memory and other psychological dimensions such as locus of control, religiosity, social justice beliefs, and belief in the paranormal.

Dairy Farms and Disasters: Preparedness and Emergency Management (Psychology)

By: Madeline Hensel

Faculty Mentor: Dr. Sandra Neumann

Although the number of dairy farms in the United States is shrinking, the risk of tragic disasters is increasing due, in part, to changing climate conditions. The possibility of needing a plan for emergency management on dairy farms is a matter of when these plans will be needed – not if. Because the researcher’s roots run deep in agriculture - having grown up in the heart of America’s Dairyland and working on farms with different sizes and varying management practices - she has learned that being proactive is crucial to effective and efficient herd management. In the days of increasing technology use, more cows per farm, larger amounts of laborers lacking a farm background, and higher disaster risk, this study provides a look into disaster preparedness. The research covers the importance of preparedness and outlines a suggested emergency management plan with supporting case study interviews.

The Delayed Behavioral Impact of Acute Stress in Male DBA2/J Mice (Psychology)

By: Nicole Pingel, Max Seppelt, Sidney Otto, Mya Gehle

Faculty Mentor: Dr. Sean Mooney-Leber

Stress is an essential physiological and psychological response that functions as an internal alarm system, signaling potential danger or threat. Despite this system serving a vital role, the temporal pattern of its control on behavior is not fully understood. Here we aim to explore the role stress plays on various behavioral outcomes in male DBA2J inbred mice. Prior to behavioral testing, mice were either exposed to one hour of restraint stress or not. Anxiety-like behavior was assessed using the light-dark box, and spatial recognition-based memory was evaluated using the y-maze. Our results indicate that there were no differences between control and stressed animals in both the light dark box and y-maze. These findings suggest that anxiety-like and spatial recognition-based memory are not impacted 1-hour after stress exposure. Moreover, these outcomes are in-line with our previous findings of immediate stress not altering male DBA2J specific behaviors. Collectively, it is possible

that DBA2J male mice represent a stress resilient phenotype that should be further explored in terms of additional behaviors or timepoints.

Effects of Bisphenol-S on Maternal Behavior in Rats (Psychology)

By: Neo Johnson, Kyla Potter, Sydney Kafka, Elliot Fey

Faculty Mentor: Dr. Heather Molenda-Figueira

The onset of maternal behavior is facilitated by changes in hormones, such as 17 β -estradiol, that drive reorganization of the maternal brain throughout gestation. Bisphenol-S (BPS) is an endocrine disrupting chemical that is known to bind estrogen receptors in various tissues. In this study, we are investigating how BPS exposure throughout gestation may affect the onset and maintenance of maternal behaviors in naïve dams. Dams were administered a BPS treatment throughout pregnancy at a dose of 50 μ g of BPS /kg body weight/day orally. Control dams received saline treatment. Upon birth, dosing of the dams was discontinued. Offspring were then dosed with BPS or saline from PND 1 to 45 to assess the effects of developmental BPS exposure on future maternal behavior. We video recorded the maternal interactions of the dams with their pups on PND 2, 7, and 14 to assess the latency and duration of maternal behaviors such as pup retrieval, licking and grooming, nursing, and nest attendance. Preliminary data is currently being collected. Upon reaching sexual maturity, the female offspring from this study will be dosed with BPS throughout pregnancy to investigate the generational effects of BPS exposure on maternal behavior.

Frame Rate Perception in Video Games (Psychology)

By: Austin Capelle, Lynn Witzel

Faculty Mentor: Dr. Patrick Conley

It is commonly believed amongst both video gamers and electronics manufacturers that higher frame rates in video games lead to both a more aesthetically pleasing image and even better performance in the game itself. Frame rate, often measured as FPS (frames per second) is the number of times that the computer or video game console updates the picture per second; higher FPS are associated with smoother, more fluid motion on the screen. With this study, we examine the assertion that FPS is extremely important to gamers. Using recordings of four different video games played at four different FPS (30, 60, 90 and 120 FPS, specifically), we measured the ability of both high video gamers and low video gamers to correctly guess the frame rates of the randomized recordings. We found several interesting findings. First, high video gamers are indeed better at this task than low video gamers. Second, accuracy decreases as FPS increases, showing that participants are better at identifying low frame rates than distinguishing higher ones. Finally, neither group is especially accurate at identifying frame rates, with many mistakes even amongst the most experienced gamers. This result calls into question whether maintaining high FPS is as important to video gaming as gamers or manufacturers might believe.

A Historical Profile of Frank N. Spindler's Contribution to Psychology at UW-Stevens Point

(Psychology)

By: Makenze Van De Leygraaf, Jean Xiong, Mickey McGuire, Macy Dickman

Faculty Mentor: Dr. Robert Nemeth

Frank Nicholas Spindler was a prominent early faculty member at what would become UW-Stevens Point, serving from 1901 to 1935. Between 1912 and 1925. During his tenure, the institution was known as Stevens Point Normal School (1894-1927) before it was renamed Central State Teachers College (CSTC) from 1927 to 1951. Spindler joined CSTC in the early 20th century, where he became known for blending academic theory with practical teaching. He published several works including, *The Sense of Sight* (1917), a book that reflected both scientific knowledge and personal experience—having lost sight in one eye due to an accident. Throughout Spindler's time at CSTC he was widely involved within the college and community. His death had such a large impact on CSTC that a psychology laboratory was named after him. This poster will examine how Spindler and his family impacted the school and the community and provide a window into the history of the school and psychology.

The Impact of Genetics and Development on Anxiety-like and Cognitive Outcomes in C57BL/6J and DBA/2J Mice (Psychology)

By: Emily Nielsen, Lindsay Nielsen, Sidney Otto, Mya Gehle

Faculty Mentor: Dr. Sean Mooney-Leber

This study aims to further identify behavioral differences between two inbred mouse strains at different stages of life while considering genetic background and sex as potential influencing variables. Anxiety-like behaviors and memory were tested during adolescent and adult timepoints in C57BL/6J and DBA/2J strains of inbred mice. Mice were exposed to light-dark box and novel object location behavioral tests. Results indicated a significant strain difference in anxiety-like behavior in both adult and adolescent mice. Specifically, anxiety-like behavior in DBA/2J mice was elevated at both timepoints compared to the C57BL/6J strain. No memory differences were observed between strains, sex, age, or an interaction of these variables. These findings suggest that enhanced anxiety-like behaviors observed in DBA/2J mice are not necessarily impacted by development. The presence of behavior differences between strains regardless of age indicates a strong possibility of genetic influences. A SNP analysis was also performed to evaluate potential genetic differences and their influence on behavioral outcomes. Further research should be performed to understand what genetic mechanisms account for dissimilarities between the strains of mice.

Influence of Genetics and Sex on Cognition and Anxiety-Like Behavior Following Acute Restraint Stress (Psychology)

By: Max Seppelt, Nicole Pingel, Emily Nielsen

Faculty Mentor: Dr. Sean Mooney-Leber

Stress is a vital phenomenon that serves as an internal signal of danger. Depending on the individual, stress can produce behavioral deficits, resilience, or no change at all. The biological factors that contribute to these outcomes are not fully understood. Here, we aim to explore the role genetics and sex play on behavioral outcomes following stress by using two common inbred mouse strains: C57BL/6J and DBA/2J. Prior to behavioral testing, mice were exposed to either one hour of restraint stress or undisturbed. Anxiety-like behavior was assessed using the light-dark box, and spatial memory was evaluated using the y-maze. Our findings indicate that the impact of acute stress

on anxiety-like behavior is modulated by background genetics and sex. Conversely, none of the explored factors produced differences within the y-maze. These findings support the idea that the ability of stress to alter behavioral functioning is dependent on additional biological factors, such as genetics or sex. Further exploration is necessary to understand which behaviors are sensitive to stress. Moreover, potential biological explanations within stress-sensitive strains and sex can identify a mechanistic profile for individual factors that lead to deficits or resilience following stress exposure.

The Influence of Interpersonal Relationships on Self-Esteem and Social Belonging (Psychology)

By: Jean Xiong, Mickey McGuire

Faculty Mentor: Dr. Robert Nemeth

Self-esteem is a vital aspect of how individuals perceive themselves and the world around them. Research has shown that self-esteem can be a predictor of success and resiliency. Social interactions, both positive or negative, act as a catalyst for how one views themselves and the world around them. These interactions from peers and family have shown to influence self-perception, and more specifically, self-esteem. This proposed study seeks to gain a deeper understanding of how interpersonal relationships, self-esteem, and social belonging interact with one another. The proposed study also discusses possible settings in which the results can be used to further integrate individuals within communities.

PBS Children's Programming and Educational Attainment Level (Sociology and Social Work)

By: Eva Nielsen

Faculty Mentor: Dr. David Barry

The Public Broadcasting Service (PBS) has been creating children's educational programs since 1969. Since then, PBS has set out to provide accessible educational content for all children; to inspire a love of learning and an appreciation for the world around them. From Mr. Roger's Neighborhood to Arthur, millions of children across multiple generations have tuned into PBS's educational children's programming. Using Albert Bandura's social learning theory and C. Wright Mill's idea of the sociological imagination, this study explores the relationship between frequency of watching educational PBS programming as a child and later educational attainment. Previous studies have examined the correlation between educational achievement and hours spent watching television as a child, as well as the effects on children's behavioral and cognitive development. However, none have directly examined the frequency of watching public educational television programs as a child and later education attainment level. Data was collected via an anonymous survey sent to general student, faculty, and staff of the University of Wisconsin-Stevens Point. The survey instrument included items related to language learning, attitudes on PBS programming, and general social demographics. Findings present valuable discussion on this under-researched subject.

Social Comparison Influences Self-Reported Personality Traits (Psychology)

By: Sarah Budde, Quinlyn Mack, Isabelle Schmitt, Jayda Harris, Maddy Koran, Kimmy Lecheler, Aziyah Venable, Macy Dickman, Emma Pagel, Kaitlyn Volbright, Mai Yang

Faculty Mentor: Dr. Mark Ferguson

The social identity approach (Turner et al., 2010) suggests that social comparisons can influence personality trait ratings. One-hundred and eighty-two participants were randomly-assigned to one-of-three conditions that compared college students to either: young children, elderly people, or each other (a control condition). They then completed three personality-related measures: HEXACO

(Ashton & Lee, 2009), the Dark Triad (Jones & Paulhus, 2014), and the ECR-R (Fraley, Waller, & Brennan, 2000). We hypothesized that trait ratings would shift in the direction of comparison target stereotypes. Participants who compared college students to elderly people reported greater negative emotionality and narcissism than those in other conditions. Moreover, participants who compared college students to each other reported more attachment anxiety than in other conditions, whereas those who compared college students to young children reported less attachment avoidance than in other conditions. These results provide partial support for our hypothesis.

Social Connections and Health Outcomes among Elderly (Sociology and Social Work)

By: Jayda Harris

Faculty Mentor: Dr. Maggie Bohm-Jordan

Elders, or individuals aged 65 years or older, who have contributed their whole lives to society are at high risk for health complications but increasing social connections may be the key to preventing them. This preliminary research examines how the level of social support an elder receives impacts their perceived health and interaction with others in a social setting. Social connections can be interpersonal relationships with another person that are frequently expressed upon, at least once a week, and examples can be visiting with a friend or peer, having a caregiver, or talking on the phone with family. Previous literature recognizes the negative health outcomes associated with lack of social connection in elder populations. Eight workers at a Wisconsin public service workplace for elders in the community were interviewed about the social connections they see elders having, whether they are social connections for elders, and the benefits elders get from social connection. Results from this research can be implemented in future programs and policies to ensure social connections for the elderly for better health outcomes.

Unraveling the Mystery of Superstitions: Relationship between Locus of Control and Superstitions (Psychology)

By: Natalie Brown, Austin Capelle, Jackson Carter

Faculty Mentor: Dr. Jody Lewis

The purpose of our study was to examine the relationship between locus of control and superstitious beliefs. Researchers who study paranormal beliefs suggest that individuals who have an external locus of control (the belief that external factors are the cause of their life circumstances) look for causal relationships as to why events occur in their lives. Often these superstitious beliefs give individuals the feeling of control when life feels uncontrollable. We conducted a search through the PsycINFO database and identified all articles which included a measure of superstitious beliefs and a measure of locus of control. We found twelve articles which fit our criteria, and the results of these studies had moderate correlations ranging from 0.13 to 0.44. Based on these correlations we determined that people with more superstitious beliefs tend to have more external locus of control. For future research it would be beneficial to examine variables that may moderate the relationship between locus of control and superstitious beliefs, such as anxiety.

Wisconsin Neighborhoods: A Comparative Study of Two Small Towns (Sociology and Social Work)

By: Sophia Landis, Quinlyn Mack

Faculty Mentor: Dr. David Chunyu

For this research project, we compared two small communities in Wisconsin: Prairie du Chien and Prairie du Sac. Prairie du Chien lies along the Mississippi River in Southwest Wisconsin while Prairie du Sac is about 30 minutes north of the state capital along the Wisconsin River. Prairie du Chien has a population of 5,373, while Prairie du Sac has a population of 4,370. Racial and ethnic diversity is lacking in both communities, but residents have access to affordable housing and experience low crime rates. We found that both communities have potential for good use value and exchange value, but businesses that succeed tend to cater to the communities' unique interests and needs.

Campus Parking

Across Fourth Avenue from the Chemistry Biology Building, the closest available parking is **Lot T**, circled in below map, or surrounding streets.



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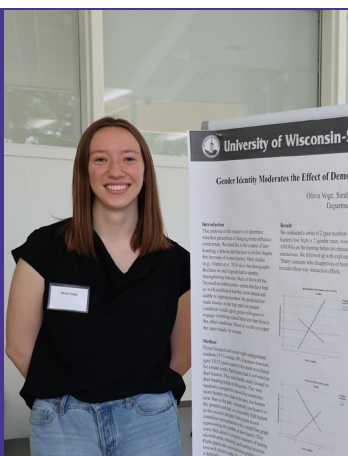
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