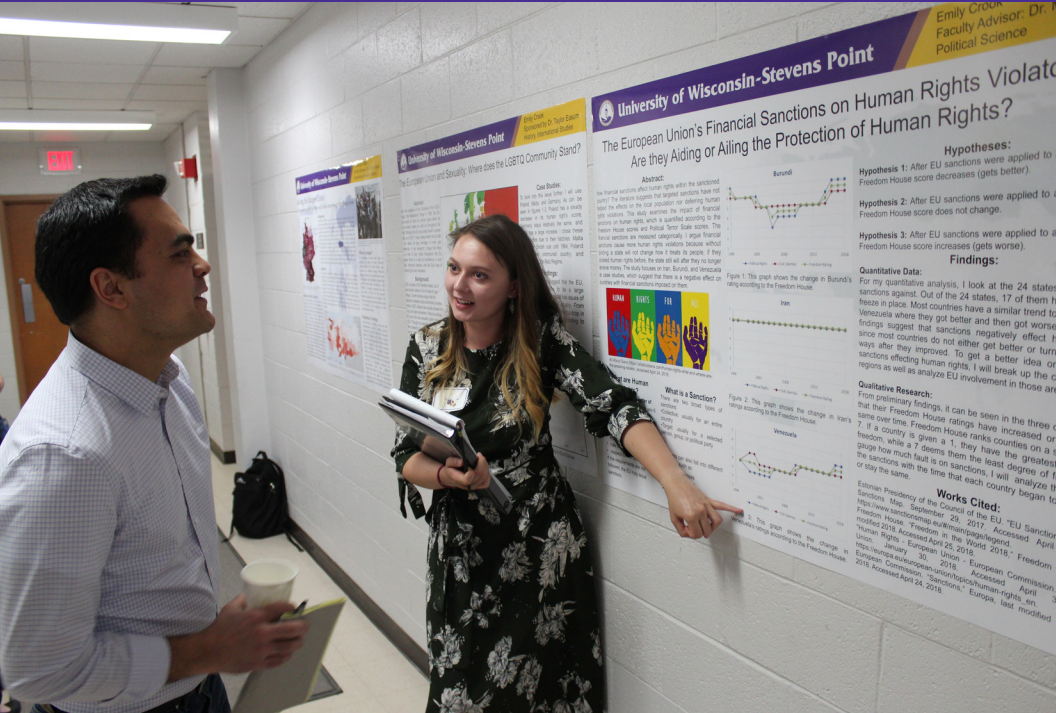


20th Annual

College of Letters and Science Undergraduate Research Symposium



May 3, 2019

Program begins at 2 p.m. - Collins Classroom Center

Reception in CCC 101

presented by
The College of Letters and Science



University of Wisconsin Stevens Point



Dean's Welcome

Room 101, Collins Classroom Center
2:00 – 2:10 p.m.

Presentations

Collins Classroom Center 1st and 2nd floor
Individual room locations and times inside

2:15 – 3:30 p.m.
Oral presentations

3:30 – 4:30 p.m.
Poster presentations

We encourage participants to attend both oral and poster presentations at the times designated above. Posters are on display all afternoon.



Welcome to the 20th annual College of Letters and Science Undergraduate Research Symposium.

Today we celebrate student research. While a symposium may not feel or look like a celebration, with its rather formal structure of oral presentations and poster sessions, this is a time to enjoy the inspiration, dedication, and creativity of our young scholars. It's a moment when we step back from our academic routines to admire the accomplishments of our students and encourage them along the path of intellectual achievement. So much hard work is on stage today, and we should all be inspired by it.

As our former colleague Dean Chris Cirimo pointed out, today we "share how teaching and scholarship go together in the bond that develops between our faculty and their students. . . . Our faculty, as experts in their fields, are the resource that our students most depend upon in experiencing a successful college career." So, today is also about the faculty who give their time to encourage, advise and direct student research. My deepest admiration and respect goes out to the faculty who give so freely of themselves to their students.

Congratulations to all of the scholars, teachers and learners who make this symposium such a special occasion!

A handwritten signature in cursive script that reads "Eric Yonke".

Eric Yonke
Interim Dean, College of Letters and Science
Professor of History

Oral Presentations 2:15-3:30 p.m.

Collins Classroom Center 1st and 2nd Floors

Group 1

Room 104

Can Intron Mutations Cause Spherocytosis and Muscular Dystrophy in Children? - (Biology)

By: Victor Alencar

Faculty mentor(s): Diane Caporale

Moderator: Diane Caporale

Hereditary Spherocytosis (HS) is a disorder characterized by hemolytic anemia due to misshapen red blood cells. Muscular Dystrophy (MD) is a condition where one's muscle mass progressively deteriorates. Scientists from Prevention Genetics (PG) genotyped dozens of children with HS and MD and found each containing a unique mutation at an intron splice site within particular genes. Collaborations with PG started two years ago to assess whether these mutations are the probable causes of the disorders in these children. During my talk, I will describe how we assessed whether each mutation altered messenger RNA in a way that would create a malfunctioning protein, which could cause their condition. The information we discovered is being used to help patients and their families understand why their children ended up with their disorder. This is an ongoing collaboration that we hope will continue for many years.

Hand Dryers or Paper Towels? Investigation of the Bacteria Emitted from Dyson Airblade V Hand Dryers - (Biology)

By: Keegan Brighton

Faculty mentor(s): Terese Barta

Moderator: Diane Caporale

There is an ongoing debate over the use of hand dryers versus paper towels in restrooms. Considerations include hygiene, efficacy of drying, and environmental impact. Our research objective was to examine the hygienic aspect by determining the number of bacteria that were able to pass through the Dyson Blade V hand dryers in the bathrooms in the Chemistry Biology Building. Bacteria were collected by holding plates of media under the hand dryers for approximately 10 seconds, the equivalent of 300 liters of air expelled by the dryer. Room air was sampled using a Millipore sieve impaction air sampler. Statistical analysis showed no significant difference between the air of the room and the filtered air emitted by the hand dryer. This leads us to question the claims made by Dyson about the ability of their hand dryers to filter out bacteria from air being used to dry hands. We are also collaborating with researchers in Chemistry to identify the bacteria with the MALDI Biotyper system.

Group 2

Room 114

***The Book as Brand: Allan Pinkerton's Professional Thieves and the Detectives* - (English)**

By: Brian Maes

Faculty mentor(s): Ross Tangedal

Moderator: Ross Tangedal

In Allan Pinkerton's *Professional Thieves and the Detectives*, the author covers a wide variety of sensational and compelling detective tales. Newspaper advertisements and reviews heralded the incredible insight and never-before-released case studies that fill Pinkerton's book. Indeed, contemporary writings on the subject debate the authenticity of Pinkerton's scenarios. However, the accuracy of the novel is not as important as what it instigated from a business standpoint. *Professional Thieves and the Detectives* successfully creates a brand out of detective work. Pinkerton's previously established celebrity, the relative popularity of the detective profession, and the marketing of the book all contribute to a business model with which Pinkerton could further capitalize on his success. As such, Pinkerton's novel effectively works to market the information it contains therein; it serves as one of the first examples of structuring a business brand model around detective work.

***Goodnight Noises, Everywhere: Margaret Wise Brown's Goodnight Moon and the Advent of Early Reading* - (English)**

By: Katy Nachampassak

Faculty mentor(s): Ross Tangedal

Moderator: Ross Tangedal

Margaret Wise Brown's *Goodnight Moon* (1947) may not be a revolutionary book, but in multiple ways it has revolutionized the children's literature genre and the way children are taught to read. Before the publication of this book, others in the genre were meant for kids in the six to ten-year-old range. *Goodnight Moon* allowed the genre to expand and brought in a new audience to children's literature. The book was written for those that could not read, so that one day they could. Brown knew that parents would read this book to their children because doctors were beginning to tell them that reading to their children was good for their development. Brown utilized her talents to not only better her own literary aspirations, but she dually began the move toward reading to infants and pre-toddlers, essentially creating a new reading market while promoting a practice that continues to this day.

***The Twain Shall Meet: The Texture of the Old and New World in Nantucket Woodcuts* - (English)**

By: Monica Swinick

Faculty mentor(s): Ross Tangedal

Moderator: Ross Tangedal

Nantucket Woodcuts (1967) was written and illustrated by two immigrants — one German and one Japanese — depicting white colonization in their country of arrival. Aoko Matsubara and Fritz Eichenberg share the transformative spectacle of Nantucket but, arguably, so much more which transcends that. They are both artists deeply affected by their predecessors; they both inform their work through the mastery of multiple mediums and disciplines; they both acknowledge the inextricability of story and image. Most of all, they are both united by their devotion to reviving stories and literally carving it out from the woodwork. The profound appreciation for existing literature is consciously present, which allows for a projection into a new arena of gratitude that define Matsubara and Eichenberg as innovators in *Nantucket Woodcuts*.

Group 3

Room 126

***The Glass Hummingbird (Original Chapbook)* - (English)**

By: Benjamin Forst

Faculty mentor(s): Jill Stukenberg

Moderator: Lawrence Morgan

Written over a span of three years, *The Glass Hummingbird* brings together a collection of poems reflecting the anxieties of post-high school young adulthood. The collection explores themes of depression and anxiety, depicting how the two impact daily life and our relationships, and furthermore our view of the world and nature, both human and animal. These ideas are central in the collection, creating the three sections of the chapbook, all of which have their own thematic ties in order to create a more cohesive narrative, the first section dealing with nature, the second dealing with nature and our relationships, and the third dealing with how one might deal with these feelings and emotions. The collection takes inspiration from writers such as Charles Bukowski, Ernest Hemingway and Walt Whitman, which were read during the years when this was written.

***Becoming a Better Writer While Traveling the World* - (English)**

By: Lydia Engelbreth

Faculty mentor(s): Lynn Ludwig

Moderator: Lawrence Morgan

I was fortunate enough to spend my 2018 fall semester studying abroad, in Hungary, at the University of Szeged. While there, I was not only able to visit a total of 14 countries, but I also kept a blog documenting my journey. While this started out as a way to keep in touch with my family, it ended up being an opportunity to expand my skills, as a writer. As the weeks went on, I found myself in new and exciting situations that I wanted to share with family. Being abroad pushed me to jump, feet first, into the culture and dive into the unknown. Learning how to translate this into my blog was a challenge I was excited to accept. Before going abroad, I often felt that my writing was missing

something, and it was. It was missing the passion I had for writing. In this presentation, I will discuss how experiencing new cultures encouraged me to write, how I learned it was ok to fail (especially when it came to writing), and how I have translated this experience into my academic writing.

Group 4

Room 128

Investigating Intrinsic and Extrinsic Dimensions of World Citizenship - (Sociology and Social Work)

By: Justin Weyenberg

Faculty mentor(s): David Barry

Moderator: Rob Harper

Using the Global Identity Survey data distributed out to UWSP students, the relationships between their world citizenship identity and intrinsic beliefs and extrinsic behaviors have been analyzed. SPSS software is used to analyze correlations to further understand the beliefs and behaviors some individuals engage in. With a sample of more than 1,000 students, generalizability of the findings is ensured. Finally, other determinants of world citizenship is examined, all of which contributes to a better understanding of the way global identity is cultivated on college campuses.

Gone But Not Dead: How Eugenicists Created Modern Human Genetics and Genetic Counseling - (History)

By: Abigail Adams

Faculty mentor(s): Rob Harper

Moderator: Rob Harper

While many are familiar with Nazi eugenic programs and policies, many are unaware that those policies were modeled on those implemented in America in the early 20th century. This project follows the transition of the early eugenics movement in America through the more nuanced, science-based eugenics in the years directly before and after WWII, and finally to the fields of human genetics and genetic counseling. Many of the people and institutions involved in early eugenics also had a major hand in developing human genetics and genetic counseling. Often funded by philanthropic organizations, including the esteemed Carnegie and Rockefeller Foundations, eugenics-motivated research included the search for ways of identifying carriers of recessive or unexpressed “bad genes,” which produced such techniques as blood-typing and chromatography.

Group 5
Room 204

A Mixed-Integer Linear Programming Model for Political Redistricting-
(Mathematical Science)

By: Shane Olsen

Faculty mentor(s): Andy Felt, Brad Mapes-Martins

Moderator: Andy Felt

Redistricting has become a major issue in U.S. politics in recent years. Designing new maps in response to population changes has always been an arduous and complex process, but evidence of partisan gerrymandering in many states has raised serious concerns about the fairness of redistricting. The goal of this research is to develop a mathematical model that can generate fair legislative districts for the Wisconsin State Assembly. A mixed-integer linear programming model will be formulated and used to group population units into districts with goals of population equality, compactness, contiguity, and racial and partisan fairness. Using an automated process should help to remove some of the unhealthy incentives involved with the human element of redistricting and result in fairer maps that better reflect the desires of voters in Wisconsin.

Neural Interface Technology: Future and Limitations- (Computing and New Media Technologies)

By: Zachery Frye

Faculty mentor(s): Tim Krause

Moderator: Andy Felt

This presentation provides a broad aspect toward neural interface technology including possibilities and current limitations. This research will focus specifically on the degradation of signals from intra-cortical implants. I will consider ways of improving sustained performance of those devices.

Group 6
Room 205

Escaping Egoism: Can Deep Ecology Maintain its Non-Anthropocentric Status?- (Philosophy)

By: Ella Janson

Faculty mentor(s): Chris Diehm

Moderator: Sandra Neumann

There is a debate between anthropocentrism and non-anthropocentrism regarding how we should view and value the natural world. However, in ensuring that anthropocentrism is eradicated, non-anthropocentrists not only have to focus their attention on views that are explicitly anthropocentric, but they must also assure that thinkers are not using a non-anthropocentric label as a cover for their own instrumental agenda. An example of a non-anthropocentric view that has faced these criticisms is Deep Ecology. In this paper, I examine three critiques that have been lodged against deep ecology — all of which assert that its formulation is nothing but a variant on anthropocentric views. I will then argue that, in every case, Deep Ecology is able to maintain its non-anthropocentric status.

Following this, I will conclude that Deep Ecology merits consideration within non-anthropocentric thought, for the environmental duties it seeks to foster can help bring an end to our ecological crisis.

Development of Musical Stimuli for Research in Psychology of Dance - (Psychology)

By: Ethan Englund

Faculty mentor(s): Amy Gervasio

Moderator: Sandra Neumann

The purpose of this project was to compose musical stimuli representing happiness, sadness, anger, or neutral emotion to be paired with ecologically valid dance excerpts from previous research (Gervasio et al. 2019). Compositions were based on research suggesting that happiness is portrayed by major modes, faster tempos, and ascending lines. However, sadness is expressed by minor modes, slower tempos, and descending lines. Lahdelma and Eerola (2016) suggest that tension may be related to the perception of anger, and might be achieved by manipulating tempo, dynamics, and phrasing. My musical stimuli for anger uses octaves in a minor mode and lower range, providing a sense of power. I composed neutral excerpts using perfect fifths, giving the listener only the outline of a chord. By combining opposing emotions (i.e., happy dance and sad music), we can observe the relative strength of dance versus music. Plans for future research are to conduct an empirical study using these stimuli.

Group 7 **Room 206**

The Implications of Law Enforcement's Response to Survivors of Sexual Assault in Wisconsin - (Sociology and Social Work)

By: Kaitlyn Keech, Stephanie Shudarek

Faculty mentor(s): Maggie Bohm-Jordan

Moderator: Maggie Bohm-Jordan

This preliminary research examined existing statistics in the State of Wisconsin on how law enforcements conduct investigations on reports of sexual violence. Approximately one in five women and one in sixteen men will be sexually assaulted while in college. More reports of sexual violence on campus has been vaguely investigated and some with no formal consequence given to the alleged perpetrator(s). With the #MeToo and #TimesUp movements, social media plays a huge role, including rollbacks surrounding Title IX from the current Department of Education, universities must review their policies and continue to uphold survivors' rights. Rape culture and victim blaming has led to long-lasting health effects on survivors. This research aims to explore the existing policies and protocols on reporting by the law enforcements. Future implications addresses the need to minimizing bias reporting and potential legal actions toward alleged perpetrator(s).

Victims Becoming Abusers Across Generations - (Sociology and Social Work)

By: Nichole Meidl, Madalyne Keenlance, Mykeerah Zarazua, Andrea Brace, Eric Zengler

Faculty mentor(s): Maggie Bohm-Jordan

Moderator: Maggie Bohm-Jordan

The idea of victims becoming abusers across generations is in need of attention. This research examines the likelihood of victims becoming perpetrators varying on a multitude of factors, including the type of abuse that the person endured and the gender of both the victim and the perpetrator. Studies have shown over 30% of abused youth are more likely to become perpetrators. Our research question explores: Do victims of childhood violence become perpetrators by age 64? Intergenerational transmission of violence theory is utilized since abused victims are more likely to become perpetrators. The likelihood of victims becoming perpetrators varies depending on a multitude of factors, including the type of abuse that the person endured and the gender of both the victim and the perpetrator. Future implications will address what contributes to individuals becoming perpetrators and assisting in developing prevention programs and resources.

Reproductive Coercion Among the Latina Population in the United States - (Sociology and Social Work)

By: Taryn Wield

Faculty mentor(s): Maggie Bohm-Jordan

Moderator: Maggie Bohm-Jordan

This research investigated why Latina population experience higher rates of male partner reproductive coercion, also known as pregnancy controlling behaviors. This research is at the preliminary stage and examined the research question on: Why does the Latina population in the United States experience higher rates of reproductive coercion? Exchange, social control, and ecological theories were utilized. The hypotheses are 1) Latinas ages 18 to 24 are more likely to experience reproductive coercion. 2) Latinas with a high school degree are more likely to experience reproductive coercion. 3) Latinas experiencing IPV are likely to experience reproductive coercion. The research also focused on existing policies and practices to minimize reproductive coercion. Future implications will address family planning and education, and how interventions in medical settings play a role in reproductive coercion.

Group 8 Room 207

Discovering Artificial Consciousness in Film - (World Languages)

By: John Duros

Faculty mentor(s): Vera Klekovkina

Moderator: Vera Klekovkina

Artificial intelligence was created for utilitarian purposes. Through the years, the advancement and expanding capability of this technology has brought forth much

speculation of its existential purposes, and the possibility of its awareness and desire to exist outside of enslavement. This contrariety can also be applied to humanity. What is our purpose? Why do we require both utility and discovering our existentiality? Three films have been analyzed in order to gain a wider perspective on the meaning of purpose: “The Matrix” (The Wachowskis, Warner Bros.), “Ex Machina” (Alex Garland, A24/Universal Pictures), and “Lars and the Real Girl” (Craig Gillespie, MGM Distribution Co.). Each film provides a unique look into the world of AI, humanity, and debate of their essence versus existence.

Frida Kahlo, Magical Realist - (World Languages)

By: Stephanie Jones

Faculty mentor(s): Vera Klekovkina

Moderator: Vera Klekovkina

This presentation will demonstrate how Frida Kahlo’s art and life continue to empower women and inspire artists in her beloved Mexico and around the world. Her life of constant physical pain, her emotional heartaches and triumphs, her unwavering belief in transcendence of art serve as examples of creative tools we have at our disposal. Her home, costume, paintings, political views, pets, and gardens – all commingled to create her persona. The presentation will also exhibit my artistic response to her works.

Poster Presentations 3:30-4:30 p.m.

Collins Classroom Center (First and Second Floors)

The Humanities

125 Years of Education for Educators - (History)

By: Cheyenne Fleming, Tyler Kolasa

Faculty mentor(s): Sarah Scripps

Our project is designed to follow, study, and explore the evolution of the education program at UW-Stevens Point. From the beginning of the education program during the school’s founding, to the current practices and programs used today, the education program in UW-Stevens Point has experienced great changes over the years. Our project gives information on key points and developments across the 125 years of the education program at UW-Stevens Point. Our message seeks to inform readers about the tenured past and present of the education program here on campus, and potentially inspire future students to take the route of becoming an educator.

21st Century Japan Bioethics: The Cultural Effects on Health - (History)

By: Dao Yang

Faculty mentor(s): Taylor Easum

Given that medical ethics is not an accurately understood concept in Japan, a breakdown in the physician-patient relationship is inevitable. Bioethics is central to care provision in the 21st century but is not established in Japanese culture and is the source of this

misunderstanding. Unlike the individualistic doctrine in Western practice, familism and paternalism are dominant cultures in Japanese societies. Family and other socio-environmental factors surrounding the patient sustain paternalism. The dialogue between the elderly and children is lacking even as nuclear families become a growing trend. Recently, the elderly fail to instill moral and ethical perspectives. This has impeded ethical contemplations about life among the youth. Given that duty to family and society has predominated all other virtues, Japan lacks the foundation needed to understand bioethical principles such as patient autonomy.

A Hyer Memory - (History)

By: Marie Ackley

Faculty mentor(s): Sarah Scripps

My poster tells the story of Frank S. Hyer, the history of Hyer Hall both before South Hall and after, and the closing of Hyer Hall and what will become of it after the 2019 spring semester. It gives remembrance to the events Hyer Hall leadership team have produced and how they made the best of their time in the hall. Interviews have been conducted with Residential Living to discuss their decision to close Hyer. Few students know much about Hyer Hall because the hall is intended for students aged 21 and older. This poster helps explain Hyer Hall not only to students, but to the community, in hopes to inform them about the building. Most people outside the building do not pay attention to what happens in Hyer, but the residents inside care and this poster will hopefully help express their farewells to the memories they created in the hall.

Africa's Eclectic Dialectic: African Socialism and Internationalism in the Global South - (History)

By: Michael Clay

Faculty mentor(s): Taylor Easum

This project examines the strands of socialism which emerged in Africa during the Cold War in the contexts of neocolonialism, nation-building, and international cooperation. It discusses the myriad motivations for and approaches to socialism in several African countries; the philosophies and extensive influence of their leaders; their interactions with other nations in the Global South; and the attempts by the Soviet Union to subdue and control this mercurial Pan-African ideology. Although socialism in Africa is frequently portrayed as simply a reaction against colonialism or a convenient excuse for authoritarianism, its influence as a tool of national liberation, self-determination, and transnational exchange during the years following decolonization cannot be overestimated.

At a Loss for Words and Worlds: Language Endangerment and Revitalization Efforts in the face of Globalization and Linguistic Extinction in Latin America - (History)

By: Andrew Voss

Faculty mentor(s): Taylor Easum

It's becoming common knowledge that Latin America is integrating into with other regions and losing its indigenous languages to secular ones like Spanish. Language

extinction in Latin America is so widespread that of the hundreds of languages, many are disappearing before they are even documented. This research explores the ways in which language loss impacts cultural identity of Indigenous peoples, and the ways in which the phenomenon is being combated through revitalization efforts in many Latin American nations. Individual stories and case studies of efforts by various governments and organizations are examined, each with varying success and failure. Observing the forces of globalization and conformity as factors in language loss leads to the necessity of adaptation in saving languages, so more successful programs and initiatives may be good references for indigenous groups to promote their languages and thus preserve their cultural identities in the long run.

Community Supported Agriculture as a Political Act: Building Community and Place in United States, Europe, and East Asia - (History)

By: Corrina Wilson-Rodriguez

Faculty mentor(s): Taylor Easum

CSA-like systems were in practice as soon as the 1960's in Japan and gained popularity across Europe and the United States during the 1970's and 80's in response to the ills of the global industrial food system. As an alternative food network, CSA is unique for its inherent dismissal of market exchange, opting instead for a direct relationship between a farm and a community member. More specifically, I will argue that the repeated practice of visiting farmers on their land, lending a helping hand, and directly experiencing the risks and rewards of farming can have a significant impact on one's lifestyle behaviors, ethical considerations, and political involvement. By examining the effects of CSA programs on political, economic, and behavioral levels in East Asia, the United States, and Europe, it becomes clear that CSA participation is a powerful and resilient tool in creating attitudes able to withstand the pressures of the global industrial food system.

Crew At The U: Faculty Homophobia Exposed - (History)

By: Hannah Raschka

Faculty mentor(s): Sarah Scripps

This poster will detail Professor Louie Crew's time at UWSP, including a brief synopsis of his early life, homophobia he faced on an individual level in Stevens Point and at UWSP, his advocacy efforts for the gay community at UWSP, and especially his 1981 faculty homophobia survey that he conducted and published.

Diversity at UWSP - (History)

By: Warren Johnson, Curtis Taylor

Faculty mentor(s): Sarah Scripps

Diversity at UWSP is an issue often overlooked. However, it plays a crucial role within students' lives as well as the greater Stevens Point community. Even though Stevens Point is still predominantly white, recent trends at UWSP show the campus is becoming more diverse. However, questions remain about how diversity developed at UWSP. We believe that the location of the school is the reason for the early diversity troubles but also the reason for the amount of Native American students who attended UWSP in the '70s

and '80s. As time went on, UWSP created the Diversity Council to help develop and maintain a supportive atmosphere for the inclusion and appreciation of diversity among all members of the university community.

Drama as Art Therapy - (English)

By: Kathrynne Eyers

Faculty mentor(s): Laurie Schmeling

Art therapy is the facilitation of structured expressive activities to support a patient's ability to cope with physical/mental disorders. Research suggests that involvement in dramatic activities shows promise in treating patients with ASD and PTSD. Children with ASD engaged in drama therapy workshops showed measurable improvements in social integrations and facial recognition, reducing measured anxiety and depression. Theatrical activities such as the forum style theatre of Augusto Boal and the Gestalt-influenced psychodrama of Jacob L. Moreno have been found to positively affect the symptomatology and recovery of those suffering with PTSD and coping with disease and mental health disorders. This presentation analyzes studies of the health outcomes associated with participation in drama therapy and concludes that drama therapy can be a positive aid in the treatment of the estimated 3.5 million Americans living with ASD and the 24.4 million Americans living with PTSD annually.

Expressions of Soft Power: Chinese Migrants and Social influence in Sub-Saharan African Economies - (History)

By: Kiana Marr

Faculty mentor(s): Taylor Easum

A new power dynamic is emerging from the Chinese government's use of soft power in Africa. This project examines three such cases: Chinese migrant groups in South Africa, economic interactions in Tanzania, and Confucius Institutes around the world. From diplomacy of strangers to friends within the global South, China has forged "new" friendships with Sub-Saharan African nations like South Africa, which influenced some Chinese to migrate to various African nations and settled into African communities. The interactions between immigrants and locals produce different cultural norms in African communities. Chinese influence extends to microeconomic interactions, shaping both local and international reactions to Chinese empire. Current scholarship employs theoretical frameworks such as soft power, postcolonialism, and theories of ethnic identity; this project uses various disciplines to examine China's hold on Sub-Saharan Africa, which is shaping a new postcolonial world.

Female SOE Agents: How They Used Femininity as Their Weapon in World War II - (History)

By: Jeanette Peplinski

Faculty mentor(s): Taylor Easum

This project argues that female agents in Great Britain's Special Operations Executive used their femininity as a weapon for success throughout their clandestine work in World War II. Women have been key players in wartime throughout history, and they expanded their role in the 20th century, first in WWI and then again in WWII. Women were

involved in espionage because their gender made them more invisible and did not attract as much suspicion as men. Using the voices of male and female agents, I will analyze how these women used their femininity to help make their missions successful. I will also examine whether their femininity opened them up to discrimination based on their gender. The women's story will be told through interviews compiled by the Imperial War Museum and the agents' own memoirs. It is important to study women's experience as special agents because they paved the way for the women of today.

***From Hmoob to Hmong* - (History)**

By: Stephanie Vang

Faculty mentor(s): Sarah Scripps

The purpose of this poster is representation and awareness for Hmong students at the University of Wisconsin-Stevens Point who are not always provided with the right resources and tools to equip themselves in new environments. UWSP must realize that these students carry this baggage of historical trauma and often lack the vocabulary to explain it. I will use pictures for visual engagement – including data of East Asian Americans and Southeast Asian Americans. These Hmong students juggle a traditional and modern lifestyle while trying to adapt to new environments that have oppressive systems of whiteness, including the Hmong American women that face systems of Hmong patriarchy. Their adaptation to these new environments is how they, as a group, have survived for centuries. Although Hmong students have a history of getting their culture uprooted in forms of war, genocide, forced assimilation, and refuge, they also have a history of resilience and preservation.

***From Rails to Trails: Parallels in Development, Tourism Promotion, and Recreation* - (History)**

By: Amber Hederer

Faculty mentor(s): Taylor Easum

While the rail-to-trails movement presents a recent alternative for the development of recreational trail systems, it also parallels the ways in which companies historically developed railroad systems in the United States and abroad. As such, rail-trails can be considered an extension and evolution of the railroad, particularly reflecting its shift from industry to tourism. This shift is most apparent in late 19th and early 20th century railroad advertisements, which promote environmental tourism and recreation as a remedy for the stresses of modern life. Through analysis of a local case study, Wisconsin railroad promotional materials, and literature on railroad and trail tourism, this research connects the development, promotion, and use of railroads to the contemporary rails-to-trails movement. By outlining these connections, this focused historical examination of Wisconsin's rail-trails will contribute to an improved understanding of the broader rails-to-trails movement.

Gazing Through The Iris - (History)

By: Michaela Kraft, Katrina Reigh

Faculty mentor(s): Sarah Scripps

This project is a look at the campus of the University of Wisconsin-Stevens Point over the last 118 years through the campus yearbook, *The Iris*. Not only does this collection of yearbooks encapsulate the history of this campus, but they are also time capsules of the year in which they were written. The *Iris* contains many familiar on-campus names and faces, along with important pieces of student lifestyles and cultures.

German American Bund and Other Interactions Between America and Germany During and After World War II - (History)

By: Kyle Schmitt

Faculty mentor(s): Taylor Easum

My project argues that America and Germany were not as separate during the World War II era as most people think. The project focuses on the political and military aspects of the interactions. The focus is on the German American Bund, a group that had similar ideals to the Nazi Party in Germany that disbanded when America entered World War II. The project then moves onto German POWs in America during the war, and Operation Paperclip an operation that America had to bring Nazi scientist to America. Sources used in this project include news articles, books, and articles from scholarly journals. This project shows that Germany and America had more interactions in the World War II era than most people realize and will help to change the way people think about World War II.

History of Schmeekle Reserve - (History)

By: Freddy Rivera

Faculty mentor(s): Sarah Scripps

This poster presents the history of Schmeekle Reserve. Schmeekle plays a big role in the legacy of UWSP. It not only provides students with a place to study nature and the animals who live there but it is also one of Stevens Point's biggest tourist attractions, with one of the first manmade lakes in Wisconsin. Some would even say that Schmeekle Reserve helped shape the city of Stevens Point because it came out of a partnership between the university and Sentry Insurance. The history of Schmeekle Reserve is in essence the history of UWSP and should not be overlooked.

Is Thailand Truly a "Gay Paradise"? An Evaluation of LGBTQ+ Life in Thailand - (History)

By: Cassady Dean-Wyman

Faculty mentor(s): Taylor Easum

For this research I was interested in what LGBTQ+ community lives are like in the Thai community, including how they are depicted in media and what stereotypes are put upon the LGBTQ+ community. Thailand is often thought to be one of the best countries for the LGBTQ+ community, or is seen as a "gay paradise." Thailand is also a popular

destination for getting gender reassignment surgery, with people traveling worldwide to have their surgeries performed there. In this research I looked at what the lives for LGBTQ+ peoples are really like. Is Thailand truly a paradise for the LGBTQ+ community? Or is there more to it if you look deeper? I used both peer reviewed sources and current pop culture and media to figure out what life as a member of the community really is like for the Thai.

Jordan Zimmermann's Journey: D3 Baseball to the Major Leagues - (History)

By: Liz Cavanagh, Autumn Oakey
Faculty mentor(s): Sarah Scripps

Jordan Zimmermann grew up in Auburndale, Wisconsin, where he excelled athletically in three sports, including baseball. He eventually took his baseball talent to the University of Wisconsin-Stevens Point. At UWSP, Zimmermann led the Pointers in nearly all pitching categories, along with achieving two All-American awards. Zimmermann left UWSP after his junior year to enter the Major League Baseball draft. He was drafted by the Washington Nationals and had major success there. Since then he has moved on to the Detroit Tigers where his continued success landed him as the Opening Day starter for the 2019 season. More recently, Zimmermann has also showed his pride for being a Pointer alumni by donating \$500,000 to the Pointers Baseball program. The UWSP Baseball Organization plans to honor Zimmermann's donation and legacy by renaming the baseball field after him. Zimmermann's legacy continues to bring acknowledgement to UWSP.

L Hath no Fury Like a Lily Scorned: The History of Lesbian Identity, Culture, and Struggle within Japan - (History)

By: Rachel Dye
Faculty mentor(s): Taylor Easum

Every year on the 14th of February the activism from the lesbian population of Japan can be seen and heard on news outlets covering their desire for nation-wide marriage and family equality. Japan has yet to adopt a country-wide law recognizing same-sex marriage despite polls as recent as January of this year showing a staggering 78% in favor rating among the population ages 20-59. The older generations, however, still hold on to the archaic idea that lesbians are simply teenage girls going through a phase. In this year of 2019, the media portrayals of relationships between women are as varied as colors in a rainbow spectrum. As more and more positive examples are put to screen, either in animation or live action, pop culture begins to remove harmful clichés, tropes, and misconceptions about the lesbian community. Change is a slow process but one that will not stop so long as voices and images keep getting louder.

Marginalization and Depreciation of Ainu in Japan - (History)

By: Xiao Yang
Faculty mentor(s): Taylor Easum

Throughout history, indigenous people around the world has suffered from the outcome of colonialism, exclusion, and modernity. A particular group of people called the Ainu,

mainly from Hokkaido, Japan, and other parts of the country, has been dealing with a wide history of displacement of their homelands and discrimination toward their identity. In this paper, I address the historical and cultural ties between modern Japanese people and the Ainu that has affected them through a time period of migration and marginalization. Some prolonged issues the Ainu continue to deal with include social identity and belonging, land rights, and indigenous policy reforms. To understand the broader picture of Ainu identification and their cultural perspective, I will focus my research on different scholars and literature that use the theoretical lens of self-identification, indigeneity, diaspora, and cultural studies.

More Than a Mural: Piecing Together the University's Values Through Community Engagement - (History)

By: Amber Hederer, Maddie Mueller

Faculty mentor(s): Sarah Scripps

E Pluribus Unum was completed in 1982 under Professor Richard Schneider's artistic direction. The project combined cutting-edge technology and an army of community volunteers, resulting in a 286,200-tile computer-generated mural depicting the historical and environmental cornerstones of UW-Stevens Point. After examination of archival sources related to the project, we argue that the mosaic reflects the values of the University of Wisconsin-Stevens Point at the time it was created, emphasizing the role of the university by uniting the arts, environmental sciences, history, and technology with a public art project accomplished through community engagement. By examining this topic within the 125th anniversary exhibit, Times of Transition, we further argue that the mural has helped to establish and shape the character of our university community. This research supports future examination of the role of community engagement in public art and the historical legacy of such projects.

New Roles Provoke New Rules: Addressing Masculinity in the Soviet Red Army During WWII - (History)

By: Taylor Pehrson

Faculty mentor(s): Taylor Easum

This research analyzes how women's new role on the frontlines of the Red Army affected previous ideas of gender roles in the Soviet Union. Soviet women's unprecedented participation in the military has been studied from the women's perspective to show the progression of Russian femininity. However, by comparing how male soldiers' diaries, memoirs, and letters portrayed women during the war to women's war experiences seen through interviews with previous female soldiers, the Soviet Red Army becomes a sphere through which masculinity is analyzed. Researching this different lens in the field of gender studies shows that because of the stress of war, men's pre-war ideas of what masculine versus feminine identities are come into question. As a result, an overemphasis on thoughts of female soldiers being victims of war occurs, and the Soviet policy of women returning to their role in the home after the war is easily accepted.

Of Malthus and Mao: China's Juggling of Modern Population Policy - (History)

By: Francis Quinn

Faculty mentor(s): Taylor Easum

This project explores the role of Malthusian thought in creating China's 'One Child' Policy. Scholars such as Susan Greenhalgh highlight the influences of the Club of Rome and Malthus in the implementation of the policy, but the policy reflects broader views than Malthus. Using an interdisciplinary approach this paper concludes the attribution of the One Child Policy being solely a Malthusian construct is misconstrued as other factors influenced the construction of the Chinese One Child Policy besides Malthus.

Paper Beats Rock: How Martin Luther Used Printing to Challenge the Authority of the Catholic Church - (History)

By: Tyler Moore

Faculty mentor(s): Taylor Easum

Writing has dominated the informational world for the past 500 years. Prior to this, mass printing was a revolutionary phenomenon that was thought to be technologically impossible. This research examines how Martin Luther used the Gutenberg printing press to create the first widespread informational campaign in history. Luther employed the printing press during the Protestant reformation as a marketing tool to streamline and distinguish his message. Unfortunately, ideas that shatter cultural and political boundaries, which the Protestant reformation did, do not happen by accident. There was a deliberate strategy behind the dissemination of Luther's teachings. Current research acknowledges the importance and significance of this printing reform; however, I argue that without the printing press the Protestant reformation could not have had such pervasive effects. The success of the Protestant reformation can be linked to Luther's effective use of the Gutenberg printing press.

Peruvian Forced Sterilizations: Government Influences on the Well-Being of Women in Latin America - (History)

By: Eliana Luke

Faculty mentor(s): Taylor Easum

In this research project, I examine influences on the health of women in Latin America. Using research conducted by Ainhoa Molina Serra, (Forced) Sterilization in Peru: Power and narrative configurations, I discuss in depth the impact of government driven narrative about family planning, used to mask ethnic cleansing between 1996 and 2000. Forcible sterilizations of impoverished Quechua women were mandated by the government under former President Alberto Fujimori. The sterilizations were frequently carried out in a misleading or even physically forceful way, despite official denial from Fujimori's party. Quechua women were affected at a disproportionate rate, with racism promoting the idea of inferiority and the necessity to sterilize the population. There are many influences on women's reproductive rights throughout Latin America, but the intersectionality between women's reproductive rights and minority rights is especially significant in Peru.

Racial Discrimination in Cuba's Tourism Industry - (History)

By: Emily Ott

Faculty mentor(s): Taylor Easum

This poster examines racial prejudice and discrimination in the Cuban tourism industry. I synthesize scholarship from the disciplines of History and Anthropology as well as interdisciplinary work in Cuban Studies and Race Studies. Racial prejudice has a long history throughout Latin America and can still be seen today in Cuba. My preliminary research suggests that scholars focus on local interactions with global themes including racism, tourism, and other prominent economic industries. Current works employ theoretical frameworks such as assessing the presence and effects of racial prejudice and discrimination throughout Cuba in relation to postcolonialism, especially in the economic industry of tourism, to analyze global cultural issues in a local context. In conclusion, local interactions of racial discrimination within tourism has global effects, especially by misconstruing image of what it actually means to be “Cuban” in local settings with local struggles.

Silent No Longer - (History)

By: Aubrey Berning, Jacob Meidl

Faculty mentor(s): Sarah Scripps

Our project focuses on the effects of the Vietnam War on campus. Our poster will provide a brief but detailed overview of the conflict in Vietnam, the impact that the war had on campuses around the nation, and our findings on what went down at UWSP over the course of the war, especially how it affected students, their relationships with the older generation, the government and with peers. Our goal is to get a very detailed look at how our own campus was affected and how the story at UWSP tied into a larger national narrative. In addition, it will discuss the context behind the war, our reasons for involvement, the men behind it, key events that occurred in Vietnam, and key events that occurred stateside. The comparative analysis of college campuses exposes the mindset of a newer generation of academia and illustrates how UWSP was part of that broader transition.

Stevie Pointer - (History)

By: Cheyanne Reyna, Savanna Williams

Faculty mentor(s): Sarah Scripps

The purpose of our poster is to highlight the history and the relevance of Stevie Pointer, the mascot of University of Wisconsin-Stevens Point. The project will introduce Stevie Pointer, then detail his first named appearance, the first appearance and the evolution of the costumed mascot, and how Stevie has changed through the years up until present day. The project will be interspersed with relevant pictures of Stevie referencing turning points in his history, major university events and accomplishments due, at least in part, to Stevie's presence.

Strange Vices and Devices: A Social History of Stabbing People in Early Modern England - (History)

By: Henry Bleifuss

Faculty mentor(s): Taylor Easum

The practice of fencing in European history has often been conceptualized as the sport of the upper classes with specific divisions of fencing style by region. However, by the Early Modern period fencing had taken on an increasingly cosmopolitan aspect and had also become the pastime of members of a burgeoning urban middle class. By analysing both primary source documents related to the practice of fencing in urban England during the later 16th and early 17th centuries as well as research done on the social history of the period, a more holistic understanding of what fencing meant as an activity emerges. This project seeks to examine how fencing both shaped and was shaped by changes in demographics and social structure that took place in Early Modern England and much of Europe.

Sundown Towns and Pulitzer Winners - (History)

By: Merriam Mistlebauer, Haley Budrow, Vivian Olmstead, Kyle Schmitt, Holly VanEperen

Faculty mentor(s): Sarah Scripps

In Fall 2018, HIST 390: Museum Studies students had the opportunity to not only bring awareness about housing discrimination to the Stevens Point community but also to organize a collection to its fullest potential. Students produced an exhibit showcasing how Stevens Point grappled with fair housing in the 1960s. Other members of the class created an exhibit that displayed UWSP's collection of Pulitzer Prize winning photographs by organizing the photos according to genre. The project consisted of hours spent in the university archives and searching through different documents in order to piece together the storylines. After compiling research, the class was able to put two different exhibitions on display in the Collins Classroom Center and invite the community to participate. The response to the exhibits drew positive feedback and helped further discussion on the history of fair housing as well as the university's collection of Pulitzer Prize winning photographs.

Terry Porter: Middle American Success Story - (History)

By: Robert Jonet

Faculty mentor(s): Sarah Scripps

Terry Porter was born and raised in Wisconsin, went to college in Stevens Point, and played professionally in Portland, Oregon. Porter has avoided the mass-media storm that comes with college basketball stars and NBA All-Stars during their career. This is almost too fitting, as Porter's personality maintains this idea of down-to-earthiness. Working tirelessly with the Boys and Girls Club of Portland, charities in his hometown, and fundraising for his alma mater, Porter has developed a fine résumé of humanitarian work and philanthropy. Porter's small town roots and avoidance of the spotlight during his career have had a massive impact on the humanitarian work he has done in his life. Porter

is a different kind of NBA star and his time at UWSP is a building block on which his actions have come from.

***The Medici in Media: A Portrait Carefully Cultivated* - (History)**

By: Morgan Snyder

Faculty mentor(s): Taylor Easum

This project will examine the evolution of the Medici family's image through art and media in order to showcase the ways in which the family manipulated said image, through the use of soft power and their patronage of the arts, to present a more positive and benevolent view of themselves. The project draws from several sources including the UNESCO World Heritage Centre and several Renaissance paintings of or commissioned by the Medici family. In addition, this project looks at the way collective memory works and is influenced by outside sources. This research is significant because it is important to be able to discern where our information comes from and how it's been influenced. Many misconceptions we have about history were carefully constructed for that exact purpose, and by studying the history of the Medici through media we have a prime example of that and begin to understand it better.

***The Application of Dramaturgical Research to a Production of Marsha Norman's 'night, Mother* - (English)**

By: Dana Qualy

Faculty mentor(s): Laurie Schmeling

The creation of a theatre production does not start with design concepts, casting, or in rehearsal, but with investigation. Extensive research into the play's text and the circumstances of its writing, the author's biography and other works, the historical period in which the play was written and in which it takes place, the play's genre, its reception by theatre critics and scholars – all inform the production of a show. This presentation describes the director-author's dramaturgical investigations in preparation to direct Marsha Norman's, *'night, Mother*, the still-controversial Pulitzer-Prize winning play. It analyzes how the student creative team's overall understanding of the play was shaped and deepened through their consideration of Norman's work in the dual contexts of feminist theatre of the 1980s and feminist dramatic theory. These scholarly investigations informed their work in the rehearsal room, in production and design conversations, and in performance.

***The Ballad of the Other Booth: Edwin Booth and Nineteenth-Century American Theatre* - (English)**

By: Katrina Reigh

Faculty mentor(s): Laurie Schmeling

To some, Edwin Booth is known only as the brother of John Wilkes Booth, arguably the most infamous assassin (and actor) in American history. Too few know that Edwin Booth is one of the towering figures in the history of American theatre. Onstage, his record 100 consecutive performances as William Shakespeare's *Hamlet* raised the reputation of the acting profession in the United States; offstage, he was equally accomplished. This presentation examines how the Booth family left its mark on American history, onstage

and off, and argues that Edwin deserves to be remembered as more than just the older brother of Abraham Lincoln's assassin.

***The Beth Israel Synagogue* - (History)**

By: Zach Pfannerstill, Merriam Mistlebauer

Faculty mentor(s): Sarah Scripps

The Jewish community has long been an integral part of Stevens Point. Since the mass immigration of Eastern European Jews to the area around the late 1800s and early 1900s, Jewish residents have been a major force in Central Wisconsin. At one point they owned a significant portion of downtown, and Temple Beth Israel was the heart of this activity. The third-oldest synagogue in Wisconsin, it was made entirely with funds from Jewish members and has stood intact since its construction in 1905. Now it stands as a museum operated by the Portage County Historical Society dedicated to preserving the history of this community. Over the course of this previous summer, we helped run the synagogue museum and did what we could to help restore this building, including making direct improvements to physical exhibits, offering guided tours, and conducting an inventory and record-keeping.

***The Influential Years of Mildred Davis* - (History)**

By: James Bauer, Miki Brinegar

Faculty mentor(s): Sarah Scripps

Mildred Greta Davis served the University of Stevens Point for a phenomenal length of time. With the longest teaching record in the history of the campus of 44 years, Mildred Davis was involved in the Foreign Languages Department, and upon retirement continued to be involved on campus until her death in 1984. In 1979, the Foreign Language Laboratory was named in her honor. Mildred taught classes in French, Spanish, and Speech, and she was credited as the first person on campus to conduct a class on speech correction. Mildred was also a very talented artist; she has three bound volumes of fashion sketches and her art is featured on UWSP diplomas. Mildred Davis's devotion to the university makes her quite unforgettable in the eyes of her peers. Davis should be viewed as the epitome of dedication and deserves a place in the heart and history of the University of Wisconsin-Stevens Point.

***The Legacy of Lee Sherman Dreyfus* - (History)**

By: Erin Ditzler, Amber Hanson

Faculty mentor(s): Sarah Scripps

Lee Sherman Dreyfus was a prominent figure at UWSP and well as the state of Wisconsin. Dreyfus became the ninth president of the university in 1967 and later became the first chancellor in 1974. During his time at the university, Dreyfus oversaw many changes, including the merger into the state university system, which took place in 1972. After his time at the university, Dreyfus served as the 40th governor of Wisconsin from January 4, 1979, to January 3, 1983. These are a few reasons why Dreyfus is important, and why we chose to create a poster to inform the public of his life and legacy. Because the University Center is named after him, his name has become a part of the campus forever. However, many do not know about his life and legacy. Not only are his

accomplishments great, but so was the way he was able to connect with students and the public. His life and accomplishments create intrigue, and we hope the public will appreciate learning more about him.

***The Loss of Place and the Disruption of Self in Chekhov's The Cherry Orchard and Three Sisters* - (English)**

By: Ella Janson

Faculty mentor(s): Laurie Schmeling

As a writer, Anton Chekhov was no stranger to the complexities of the human psyche. Reading two of his plays through the lens of environmental philosophy/psychology, specifically the concept of place-attachment, offers new insight into the plight of the central characters in *The Cherry Orchard* and *Three Sisters*. This presentation investigates the historical circumstances and exigencies of these characters, analyzing the social expectations and obligations that were placed on them. In each of these plays, the characters' sense of self is intimately bound to a specific place, a place that either begs them to stay or calls upon them from afar. Applying the concepts of personal place-attachment and of trans-personal place-attachment to my readings of *The Cherry Orchard* and *Three Sisters* sheds new light on the pain, depression, and self-disruption experienced by the families at the center of Chekhov's plays.

***The Presentation of the Female Experience and the Perception of Sex Work in the Plays of Plautus* - (English)**

By: Tess Bents

Faculty mentor(s): Laurie Schmeling

This presentation compares the actual historical social status and treatment of Roman women, particularly sexual laborers, to that of their fictional counterparts in the work of the comic playwright Plautus. Drawing on scholarship about women, sexuality, religion, and sexual labor in the Roman Republic, the presentation considers whether or not Plautus's use of stock female characters in his plays reinforces the objectification of women prevalent in Roman culture. Despite Plautus's apparent confirmation of anti-female social biases in his comic treatment of women, the playwright's tendency to upset patriarchal order in the plots of his plays allows for unanticipated glimpses into the truth of – and sympathy for – women's experiences. In addition, evidence suggests that this tendency is uncharacteristic of other Roman playwrights and that this aspect of Plautus's work has been obscured by later biased translations and commentaries.

***The Stevens Point Normal School* - (History)**

By: George Klumb, Zach Pfannerstill

Faculty mentor(s): Sarah Scripps

The earliest days of the university were days of experimentation, controversy, and ingenuity. The school, new as it was, experimented with different teaching styles and reached out to ensure the local community had access to the kind of education they needed. The school offered a wide range of classes, and in the process started on the road that led to the modern incarnation of UWSP. The road was fraught with complications, both internal and external, but as the school developed out of its infancy it moved toward

the more modern version of UWSP we are all familiar with. How the school developed, the problems it faced, and how it overcame these obstacles are all important to understanding the broader legacy of UWSP over the past 125 years.

UNESCO: World Heritage vs. Stevens Point - (History)

By: Laura Lundorff

Faculty mentor(s): Taylor Easum

This research project examines how local and national parks were created and established to preserve and conserve different environments. Both national and international organizations helped create many parks that are still here today. UNESCO was created as an international organization to protect and promote preservation by creating heritage sites, which are able to protect natural areas. Nationally, WPA projects under the FDR administration helped to establish park spaces, including Iverson Park here in Stevens Point. These policies help protect our planet nationally and internationally. I study and compare Iceland's Vatnajökull National Park internationally and Iverson Park locally in order to understand how natural spaces are protected and maintained. I end by highlighting how further research on both locations is needed to help analyze and study how both parks should be equally protected to preserve for future citizens of the world to use.

UWSP Basketball and Its Impact on University and Community Culture - (History)

By: Bailey Houston

Faculty mentor(s): Sarah Scripps

My project is about how the UWSP basketball program has affected the culture of the university and community as a whole through the big names it has produced and the positive effect of the university basketball alumni throughout Wisconsin. It will include the university basketball legend Terry Porter and his time playing school basketball as well as his time after university basketball as a player and coach. It will then move on to local hero Bruce Weinkauff's playing career along with his accomplishments coaching basketball at the local high school. It will then conclude with the Bennett brothers, Dick and Jack, and how they impacted the community and school through their coaching careers. My project is meant to demonstrate the positive impacts the university basketball program has had locally and statewide.

UWSP Trivia: Celebrating 50 Years! - (History)

By: Kyle DeVoe

Faculty mentor(s): Sarah Scripps

UWSP is home to the world's largest trivia contest. Every year, WWSP-FM hosts its trivia contest on the campus of UWSP. Over a timeframe of 54 hours, hundreds of teams answer trivia questions broadcasted from WWSP 90FM, a student radio station. April 12, 2019, marked the start of the 50th trivia contest. For my poster, I plan to celebrate the legacy that hundreds of trivia-loving teams have taken part in over the past 50 years. I showcase the contest's founders and individuals that make each contest fun for participants of all ages, as well as include sample questions from previous years to show

how the questions change as time goes on. Thousands of teams have participated and these participants display their love for trivia as well as Stevens Point. For many, this trivia contest is a tradition that they celebrate every year and it also attracts thousands of tourists to the area. Trivia is not only significant to local identity but is an important part of the history of UWSP.

UWSP's Battle for Creativity - (History)

By: Julie Riley, Kyle Schmitt

Faculty mentor(s): Sarah Scripps

Our poster illustrates how the Noel Fine Arts Center has grown into what it is today, as well as how it has impacted UWSP's campus and the broader Stevens Point community. The project examines important figures in the introduction of the arts, the push for and battle over the construction of the NFAC, as well as the Aber Suzuki Institute and the involvement in the arts among UWSP students today. The Noel Fine Arts Center is a major part of the university, as it provides a home for many of the university's most creative and artistic students.

Who Owns the Rights to Cultural Heritage? The Repatriation of Stolen Chinese Artifacts - (History)

By: Stacey Javier

Faculty mentor(s): Taylor Easum

China has a long history of cultural looting at the hands of grave robbers from foreign lands. In recent years, China has expressed great interest in the return of its artifacts, but has been met with great resistance from museums and private collectors from all over the world. China has implemented countless laws since ancient times in an attempt to protect its cultural heritage, but to no avail as foreign invaders and scheming looters have still found ways around those laws. There is also the issue of the way nations display these artifacts in their own countries and the consequences of the acquisition of these items. Is China justified in its want for the repatriation of these objects, or are these artifacts meant to stay forever lost in the hands of other nations.

Women and the Holocaust: Dehumanization, Degradation and Discrimination - (History)

By: Molly Ponasik

Faculty mentor(s): Taylor Easum

This project examines the dehumanization, degradation and discrimination of both Jewish and German women during the Holocaust. I will begin my research by briefly discussing the history of the Holocaust and analyzing why Jews alike were sought out for persecution. I will then analyze the research of feminist and Holocaust scholars such as Joan Ringelheim, Nicole Ephgrave and Judith Baumel. Along with their research and many others, I will express my own evaluations regarding the importance of understanding the social, physical and psychological characteristics of women that made their experiences different. I will also discuss the policies put in place under Adolf Hitler and the Nazis that belittled German women by forcing them to reproduce and perform "motherly" duties for the benefit of the Volksgemeinschaft. I argue by looking at the

experiences that dehumanized, degraded and discriminated women, a better and more complete understanding of the Holocaust can be attained.

Women in Greek Drama: A Reflection of the Greek Man's Worst Fears - (English)

By: Elena Cramer

Faculty mentor(s): Laurie Schmeling

Ancient Greek society emphasized warrior-like behavior, justice, status, and the role of the citizen. Women fit into this societal structure by being restricted to the realm of the home. However, heroines in Greek drama like Medea and Antigone behave in complete contrast to this feminine ideal. The portrayal of women in Greek drama was a tool for Greek playwrights to reinforce, challenge, and explore the role of women in ancient Greek society and the fears of men. Some scholars argue that the ancient Greek obsession with male honor indicates that oppressive laws may have been a preventative act to keep women from fully taking advantage of their potential. These rules were rooted in a fear that women were in reality much more powerful than men and if given the opportunity, they could overthrow them. Read through this fear, the power of women in drama, the tragedy that follows them, and their potential threat to societal norms embody the Greek man's worst nightmare.

The Social and Behavioral Sciences

Determinants of Respect for Ethnic Minorities in Post-Communist Europe - (Political Science)

By: Mariah Mantzke

Faculty mentor(s): Mert Kartal

What determines levels of respect for ethnic minorities within a given country? This research specifically considers post-communist countries, which garners the idea of pre- and post-Europeanization to see if this effects levels of respect. In my paper, I develop three hypotheses, and test each of them quantitatively. Statistical findings show the relationship between respect for human rights between GDPPC, Europeanization and finally the percentage of minorities within each given country. My conclusion regarding quantitative research suggests that the lower the GDP per capita is in each country, the lower the level of respect will be in response as well as a correlation between EU member states and the level of respect for minorities. Furthermore, my qualitative research discusses the causal relationship between Hungarian government actions regarding the Roma minority. I find that sentiments of homogeneity and national identity are the cause to a lack of respect for Roma rights.

Development of Experimental Methods Used to Study Spatial Cognition in Darkling Beetles - (Psychology)

By: Alexis Hoffman, Zachary Gaschignard, Kayla Grimes, Murrion Roff
Faculty mentor(s): Jody Lewis

The purpose of our study was to develop methods to test learning and cognition in darkling beetles, family Tenebrionidae. Only one of these species (*Tenebrio Molitor*) has ever been tested in cognition studies before. All beetles were tested in a standard T shaped maze and beetles were reinforced to revisit one side of the maze. In phase one, each beetle was given three side bias tests and the goal box was determined as the side they went to the least. In phase two, beetles were reinforced for visiting the goal box. For *T. Molitor*, beetles were reinforced by providing home cage substrate and turning the lights off when they entered the goal box. *Zophobos Morio* and *Asbolus verrucosus* beetles were reinforced by providing home cage substrate, a place to hide, and food rewards. We were interested in the average performance of these three species. Specifically, we measured average trials to criterion, average number of correct choices, and average time to complete each trial.

Disaster Plan Testing and Effectiveness Among Institutions of Higher Education - (Psychology)

By: Rita Donahue
Faculty mentor(s): Sandra L. Neumann

Even though at least 450 major disasters have impacted the United States from 2007-2017, it is unknown how many college campuses have experienced a disaster. This project identified the number of campuses that have experienced a disaster since 2007, whether a tested emergency response plan was in place prior to the disaster, and how effective these plans were in guiding immediate campus response. Preliminary analyses of $n=41$ campuses show that 80.5% of campuses reported being directly impacted by a disaster since 2007. Prior to a disaster, 41.5% had a response plan in place, with 29.3% campuses having tested it pre-disaster. Post-disaster, the average effectiveness rating was $M=3.53$ (neither effective nor ineffective). But plans rated as effective were more frequently tested, and tested with multiple strategies.

Do Boys and Girls Play with Gender-Typed Toys Differently? - (Psychology)

By: Holly Erpenbach, Ashley Hock, Natalie Romo
Faculty mentor(s): Erica Weisgram

Gender differences in children's play behaviors and interests are found across the psychological literature (Weisgram & Dinella, 2018). Although much of the recent literature on gender, toys, and play has focused on the factors that shape children's gender-typed toy interests, few studies have examined both children's interest and play style with gender-typed and counter-stereotypical toys. In this study, we focused on preschool boys' and girls' play style differences and preferences for superheroes and fairy toys. Participants included 57 preschool children (Mean age = 4.14 years) who were randomly assigned to play with either superhero figures or fairy figures. Researchers coded their play behaviors for dress-up play or rough-and-tumble play. In addition,

children were asked about their own interest and their peers interests. Masculine toys were found to elicit more rough-and-tumble play in all children. In addition, children predicted their peers would have gender-typed interests.

Does Self-Categorization Moderate Mortality Salience? The Case of Support for Animal Rights - (Psychology)

By: Mason Kuchenbecker, Sydney Wayner
Faculty mentor(s): Mark Ferguson, Erica Weisgram

Our study examines whether shared identity moderates morality salience effects in the context of animal rights. When shared (human-animal) identity was relevant, participants in the human mortality condition reported greater support for animal rights than those in the animal mortality condition. The results offer initial evidence that self-categorization moderates morality salience.

Effects of Developmental Bisphenol-S Exposure on Male Sexual Behavior in Rats - (Psychology)

By: Tyler Pozolinski, Brianna Havens, Emily Kolberg, Holly Erpenbach, Dana Dalske
Faculty mentor(s): Heather Molenda-Figueira

Bisphenol-S (BPS) is an endocrine disrupting chemical that has replaced BPA in many household products, but it is unclear whether it is a safe alternative. We investigated the impact of developmental BPS exposure on male sexual behavior in rats. 50µg of BPS in 0.3% saline vehicle/kg body weight/day or saline control was administered orally via pipette to each dam from the day of pairing with a male until the day of birth. Pups continued treatment with BPS or saline for the next 45 days. At 60 days of age, males were paired with a sexually receptive female and behaviors video recorded. Mounts, intromissions, ejaculations and anogenital investigation frequency was recorded. We found no effects of BPS exposure on any male sexual behaviors measured. Thus, in comparison to circuits regulating hormone release and gamete production, the brain regions controlling sexual behavior may be less sensitive to the negative effects of developmental exposure to BPS.

Emergent Ingroups in the Context of International Relations - (Psychology)

By: Sydney Wayner, Mason Kuchenbecker, Leah Gastonguay, Corynn Wartgow, Morgan Wagner
Faculty mentor(s): Mark Ferguson

The Emergent Ingroup Model suggests that people generally perceive four types of groups in society: 1) established ingroups (high status ingroup members), 2) emergent ingroups (low status ingroup members), 3) established outgroups (low status outgroup members), and 4) emergent outgroups (high status outgroup members). We examine the EIM in the context of international relations. One-hundred and twenty-nine undergraduates sorted 150 countries into one-of-five categories: 1) established ingroups (always positive), 2) emergent ingroups (increasingly positive), 3) established outgroups (always negative), 4) emergent outgroups (increasingly negative, and 5) not sure. In the context of international relations, the results support a three (versus four)-category model:

1) established ingroups (such as Australia, Canada, and the United Kingdom), 2) emergent ingroups (such as Germany, Japan, and South Korea), and 3) emergent outgroups (such as China, Russia, and North Korea).

Gender Depictions in Children’s Toy Advertising: A Content Analysis - (Psychology)

By: Holly Erpenbach, Ashley Hock, Natalie Romo

Faculty mentor(s): Erica Weisgram

Gender differences in children’s toy interests are large and consistent throughout the psychological literature. One possible predictor of gender-typed toy interests is gendered marketing strategies that intensified in the 1990s (Fine et al. 2018; Orenstein, 2011). Research has shown that different toys are labeled in websites as “for boys” or “for girls” (Auster & Masnbach, 2011) and that depictions of boys or girls in advertisements can influence children’s interest in toys (Spinner et al., 2018). In this study, we performed a content analysis of children’s holiday toy catalogs. We collected catalogs over a three-year period from major retailers in the U.S. and coded each toy depicted with a child (over 400 toys) in terms of toy type and color. We found that toy advertisements align strongly with gender stereotypes for toys. Boys were more likely to be shown with toy weapons and vehicles, girls were more likely to be shown with dolls and domestic toys.

Hillary Clinton and the 2016 Presidential Election - (Political Science)

By: Robert Larscheid

Faculty mentor(s): Saemyi Park

This research investigates the electoral effects of campaign visits by Donald Trump, Hillary Clinton, and Gary Johnson. It also identifies if visits to a county during the 2016 presidential election increased a candidate’s share of the vote in that county. By focusing on the Midwest, I reveal how each state voted by different means of how much or how little the candidate spent their time and resources in an area. Some examples of this being how different candidates focused on different area’s and demographics like how Hillary Clinton focused on the African-American vote and the women’s vote. The location of the rallies made an impact as well for Clinton, who focused more on the inner-city urban areas. Trump focused more on white Christian “middle America” and promised to bring back jobs to them. This shows how every little incident could be influencing to uninformed voters.

Mi Familia: Perception of Families and Gangs - (Sociology and Social Work)

By: Anabel Perea, Shakira Hawkins

Faculty mentor(s): Maggie Bohm-Jordan

This research examines gang members’ perception of family. Studies found that the stigma of gangs are mostly negative – violent, dangerous to society, low income neighborhoods, and broken homes. Parental support, parenting and family development provides the foundation for children and youth. Therefore, a strong social ties/support within a family can project or prevent the increase in joining gangs. We explored two

questions, 1) What is the meaning of “family” to members in a gang? 2) How to minimize the negative stigma behind family members associated in a gang? Social network and resilience theories were examined within abuse/neglect and trauma among child/youth and family dynamics. Results showed a pattern as the eight interviewers addressed the importance of loyalty and protection is a must for family. Most participants were abused or have experienced trauma that led them to an intergenerational vicious cycle. Future implication will address on the meanings behind gang tattoos.

Perceived Prejudice in Response to Political Humor - (Psychology)

By: Erin Gellings, Israel Haugen, Harley Stenzel, Brianna Havens, Alexis Luangpraseuth

Faculty mentor(s): Mark Ferguson

We examined whether people perceive prejudice in others who tell political jokes. One-hundred-and-twenty-four participants (82 Democrats and 42 Republicans) were randomly assigned to conditions in a 2 (Comedian: Democrat, Republican) x 2 (Target: Democrat, Republican) mixed factorial design. After reading comedy routines, participants completed measures of perceived prejudice toward liberal groups (such as ethnic minorities or gays/lesbians) and conservative groups (such as whites or wealthy people). The results revealed significant main effects of target across measures. Comedians who tell jokes targeting Democrats are perceived as more prejudiced against liberal groups, whereas those who tell jokes targeting Republicans are seen as more prejudiced against conservative groups. We discuss the implications of these results for perceived prejudice research.

Psychological Coercion in Human Trafficking - (Sociology and Social Work)

By: Emily Mueller

Faculty mentor(s): Maggie Bohm-Jordan

This study focused on Biderman’s (1957) theory of coercion, which Baldwin and colleagues (2015) used to examine trafficked survivors’ experiences. As human trafficking becomes an increasingly popular social issue, it is important to examine individuals’ experiences involving nonphysical tactics instead of the physical force. Using the theory of coercion, this research proposal examined similar methods to Baldwin et al., (2015) with semi-structured interviews on adult trafficked victims in the state of Wisconsin as opposed to in Los Angeles County. It is hypothesized that the participants residing in Wisconsin will experience similar coercive methods – coercive tactics include isolation, monopolization of perception, induced debility or exhaustion, threats, occasional indulgences, demonstrating omnipotence, degradation, and enforcing trivial demands. Future implications will address nonphysical methods to explain victims’ submission to their traffickers without using physical force.

The Effects of Immigration Policies on the U.S.-Mexico Border -
(Political Science)

By: Irene Rizzolatti

Faculty mentor(s): Jennifer Collins

This paper argues that immigration policies implemented by different U.S. presidential administrations, whether Democratic or Republican, over the last 30 years have contributed to the human rights crisis currently happening on the U.S.-Mexican border. It begins by examining the historical development of immigration from Latin America to the United States with special focus on how laws aimed at limiting the ability of workers to migrate changed over time, as well as how the concept of “illegal immigrant” came into being. The paper then undertakes an analysis of the immigration policies implemented by such disparate presidents as George H.W. Bush, Barack Obama, and Donald Trump, and explains how these policies have affected the situation at the border and the life of Latin American migrants in the United States.

The Increasing Turnout In Midterm Elections - (Political Science)

By: Dane Suleski

Faculty mentor(s): Saemyi Park

This study aims at how midterm elections have become more prominent in the public’s mind today. In recent years, there has been a spike in participation and media coverage of midterm elections. We investigated this by looking at the data collected from numerous polls and research article to articulate why there has been a spike in the importance of the midterm election to the average citizen. The data collected has seen levels of participation that haven’t been seen since the 1970s for a midterm election, and levels of volunteerism have reached a new record high. This has led to a drastic rise in the media coverage of the 2018 midterm election alone. However, there are multiple factors that could explain this rise in attention. Some of the most important factors of which we look at is that of the president’s influence, the importance of issues, and finally polarization that leads to more money in elections.

The Relationship Between Adverse Experiences, Resiliency, and Social Support on the Severity of Mental Health Functioning in an Undergraduate Population - (Psychology)

By: Julia Erickson, Jennifer Killick, Samantha Powers, Kayla Reinwand, Cassandra Strebe

Faculty mentor(s): Rebecca Gathje

The current study investigates the role of various risk and protective factors in the development of mental health difficulties in young adults. Research has documented the increase in mental health difficulties in college students (Auerbach et al., 2016). The role of both childhood and adult adverse experiences have been shown to be a major contributor to mental health problems, but there are gaps in the literature in terms of measurement of these factors in college students. This study involved participants completing a series of computer-administered rating scales assessing mental health symptoms, both past and present adverse experiences, perceived social support, and resiliency. Participants were undergraduate UWSP students who are enrolled in

Psychology courses. Data collection is concluding with data analyses forthcoming. Our hope is that these data will provide an increased awareness of the mental health and adverse experiences that undergraduates at UWSP are experiencing.

The Role of Religion in Social Work Practice - (Sociology and Social Work)

By: Marisa Skajewski

Faculty mentor(s): Jess Bowers, David Barry

It is important for social workers to have a holistic approach in the treatment of their clients, which can include the implementation of religion. This study aims to survey Wisconsin state certified social workers in order to explore social work practitioners' self-efficacy and behaviors regarding the use of the client's religiosity/spirituality in clinical practice. This research investigates the relationship between religiosity/spirituality of the practitioner and organization and the intent to use religious sources in providing services. This survey further explores the educational opportunities available to social work professionals in using religious sources with client populations. This study will lead to a better understanding of the way social workers address religion within their practice to improve client outcomes. This study will provide insight to the adequacy of training for social workers to develop competence in using religion/spirituality in practice settings.

The Social Determinants of World Citizenship Among College Students - (Sociology and Social Work)

By: Kerstin Karels

Faculty mentor(s): David Barry

Previous research suggests higher education provides curriculum for world citizenship development, emphasizing the cultivation of global identities. This study aims to test this expectation, and others, by exploring the social determinants of world citizenship among college students at a midwestern university. Data for this study comes from a campus-wide online survey. Discussion of results follow.

Violence at Work: The Unspoken Violence Behind Labor Trafficking - (Sociology and Social Work)

By: Savannah St. Peter, Makenna Brown

Faculty mentor(s): Maggie Bohm-Jordan

This research examines the impacts that violence has on labor trafficked victims globally. Labor trafficking is a form of modern slavery that is often overlooked. Conversely, while human trafficking is more widespread and tends to focus on women and girls who are sex trafficked, labor trafficking is susceptible to anyone who are most vulnerable – migrant workers and the poor. Violence is often inflicted upon those who are forced into the different occupations that often involve the illegal practice of labor trafficking, such as the seafaring industry. There is a need to increase awareness of labor trafficking due to the lack of attention. A common theme amongst this research is the violence associated with labor trafficking which often leads to mental health issues and PTSD. Additionally,

this research will draw attention to the need for more policies and prevention programs that are in place to help and support labor trafficking victims globally.

What Facilitates Human Rights Performance? - (Political Science)

By: Becca Andraschko

Faculty mentor(s): Jennifer Collins, Mert Kartal

The existing literature offers three possible explanations for variations in human rights performance across countries: dominant religion, GDP per capita, and the number of human rights treaties ratified at the domestic level. To evaluate the explanatory power of these variables, data was collected for over 50 countries and regression analysis performed to test the significance of each. The results of this quantitative analysis indicate that all three variables are statistically significant. This research supports the hypotheses that countries where Christianity is the dominant religion, those with higher GDP per capita, and those that have ratified more human rights treaties display better levels of human rights performance. The concluding section addresses the strengths and shortcomings of the methodologies utilized and their implications for the strength of the findings, as well as suggesting pathways for future research.

The Natural Sciences/Math and Computing

A Hall Effect Apparatus to Measure the Electrical Properties of Zinc Oxide Thin Films - (Physics and Astronomy)

By: Adam Opperman

Faculty mentor(s): Palash Banerjee

Doped zinc oxide thin films are both transparent and conducting, and therefore have potential use in photovoltaic applications. The electrical properties of these films depend on how they are grown and doped. We have built a Hall effect apparatus to measure these electrical properties. The apparatus consists of a low-noise current source, nanovoltmeter, a home-built switching matrix, and a large electromagnet. Data acquisition for the apparatus is controlled by means of custom LabVIEW software. We calibrated this apparatus by measuring a standard sample of fluorine-doped tin oxide and a doped silicon wafer. For the silicon wafer, the sample was observed to be p-type. We measured the resistivity to be $9.4 \pm 0.2 \text{ } \Omega\text{cm}$ and a charge carrier density of $(2.25 \pm 0.07) \times 10^{15} \text{ per cm}^3$. Our preliminary measurements of 75 nanometer-thick intrinsic ZnO film show the resistivity to be $54 \pm 2 \text{ } \Omega\text{cm}$ and the charge carrier density to be $(1.10 \pm 0.06) \times 10^{15} \text{ per cm}^3$.

Analysis of Nanoparticle Inks for Their Use in Thin Film Solar Panels - (Chemistry)

By: Cassidy Volm

Faculty mentor(s): Shannon Riha

Nanoparticle inks are colloid solutions that contain nanometer-sized particles suspended in a solvent. These inks have many relevant uses for consumer products and technologies, but perhaps one of the most beneficial is their contribution to the advancements of the

solar energy market. In this study, we consider the use of CuSbS₂ nanoparticle inks for thin and flexible solar panels given the material's ability to absorb sunlight, its element abundance, and its non-toxicity. Long chain organic molecules were used in the preparation of the nanoparticle inks in order to prevent the nanoparticles from forming bulk solids. Thin films were then made using a doctor blading method and subject to different post-processing methods to replace or remove the long-chain organic molecules for better electron transfer. The doctor bladed thin films were characterized by UV-vis spectroscopy, ATR-IR analysis, scanning electron microscopy, and photo-electrochemistry.

Are Mites Everywhere? Ectoparasite Communities of Midwest Songbirds - (Biology)

By: Ashley Kolton

Faculty mentor(s): Sarah Orlofske

Ectoparasites, lice, mites, or ticks, live on the skin or feathers. Migration, the traveling from area to another, affects ectoparasite infection because birds that seasonally migrate may get different species of ectoparasites as opposed to non-migratory birds, which stay in one area year-round. We predicted that parasite infection would be affected by sex, migratory behavior, size or age. Birds were collected from a window collision project in Chicago and combined with specimens donated to the UWSP Ornithology Collection. I recorded size, sex and age of each bird when possible and followed a standardized ectoparasite protocol using a dissecting microscope. Sex and species were not well represented in our data, so analyses focused on migration status and size. Size was negatively related to total ectoparasite intensity but was only marginally significant ($p=0.0561$). Our results could be affected by different collection locations/dates, and some ectoparasites lost from handling.

Biogeography of Freshwater Mussels on the Wisconsin Natural Heritage Working List - (Biology)

By: Olivia Roescke-Kretzer, Lilly Taylor

Faculty mentor(s): Daniel Graf

Twenty-six species of freshwater mussels (families Unionidae and Margaritiferidae) are on the Wisconsin Natural Heritage Working List (WNHWL), an inventory of the state's rare and threatened species. We examined the geographical distributions of all species of freshwater mussels in Wisconsin, Minnesota, and Michigan with a database of more than 39,000 museum records derived from both Internet sources and collections visits. Each museum record was georeferenced to township and placed in the drainage hierarchy. These data were used to determine species richness by county and drainage basin. For the species on the WNHWL, we compared the county and basin distributions reported by the Wisconsin Department of Natural Resources with the distributions supported by specimen vouchers deposited in museum collections. Our poster will document the discrepancies between these two sources and assess the utility of our large dataset for determining species distributions in the region.

Cacophonous Aggregation Behavior of Western Scrub-Jays - (Biology)

By: Mara Hathaway

Faculty mentor(s): Sarah Jane Alger

When confronted with a predator or a dead conspecific, Western scrub-jays (*Aphelocoma californica*) gather in cacophonous aggregations, resulting in conspecifics temporarily avoiding the area. It is not known if Western scrub-jays avoid cacophonous aggregation areas due to fear, aggression, or perception of alarm calls. However, jays have been shown to work together to aggressively fend off predators. In a previous experiment, Western scrub-jays were exposed to a variety of auditory stimuli (vocalizations from two different cacophonous aggregations, duck calls, or silence) and visual stimuli (a model predator, dead jay, or novel object). Jays were sacrificed and brain slices were prepared and immunostained for Zenk and c-FOS proteins, which indirectly measure neuronal activity. I examined slides for immediate early gene activity by looking at various brain regions responsible for fear and aggression behaviors. Brain region results and patterns of brain activity will be discussed.

Changes in Giving-Up Densities (GUD) of Small Mammals in Different Environments on Two College Campuses - (Biology)

By: Max Read

Faculty mentor(s): Christopher Yahnke

Gathering food is risky for prey species like rodents. The longer time spent on a food patch increases the chances of being caught. Undergraduate students set out to investigate small mammal foraging behavior through Giving Up Densities (GUD), which measures the amount of time spent on a food patch before moving to a more productive patch. Ten grams of shelled sunflower seeds were mixed with three liters of sand inside a 14" tray. The trays were set out in different habitats on two college campuses. Trays were also placed during different times of the day to attract both diurnal and nocturnal mammals. During the early spring and late summer, the average GUD was significantly higher than in mid-fall. There was no difference in GUD between nocturnal mammals and diurnal squirrels. We conclude that a change in foraging behavior occurs primarily with changing seasons. This suggests that food requirements in fall lead squirrels to take more risks as they prepare for winter.

Comparing Diatom Communities of Two Central Wisconsin Streams Via Gut Content Analysis of the Central Stoneroller (*Campostoma Anomalum Pullum*) - (Biology)

By: Noah Daun, Michael Perry

Faculty mentor(s): Justin Sipiorski, Krista Slemmons

Wisconsin streams have experienced substantial environmental change over the last 50 years due to climate and landscape change. Long-term data assessing the effects of environmental change on aquatic systems is often limited. To assess this change, we examined the gut contents, specifically diatoms (*Bacillariophyceae*), from stonerollers collected every decade since the 1960s from the Plover and Tomorrow Rivers from specimens housed in the UWSP Ichthyological Collection. Diatoms, abundant phytoplankton, are unicellular autotrophs that are important ecological indicators as they

respond to environmental or land use changes relatively quickly compared to other species. We outline a novel methodology using electron microscopy to extract and examine gut contents from stonerollers and determined if this method was effective in tracking aquatic community change. Preliminary results indicate differences in diatom species richness and community turnover among the sampled times.

Confocal Raman Studies of PM2.5 - (Chemistry)

By: Benn Fox, Danielle Chapuis

Faculty mentor(s): David Szpunar, David Snyder

Atmospheric particulate matter of diameter less than 2.5 microns (PM_{2.5}) has wide-ranging consequences ranging from climate change to health. Inhalation of PM_{2.5} is responsible for health concerns, while the interplay of particulate matter and radiation balance is of great importance in climate change models. We present here the preliminary results of morphological and compositional studies of PM_{2.5} collected from the UWSP campus on filters using confocal Raman spectroscopy. The data presented here are a part of a longitudinal study examining PM_{2.5} collected on the UWSP campus over the past year. Data show evidence of soot particles and inorganic species tentatively assigned to ammonium nitrate.

Defective Gene Splicing with Mutant Alleles of Several Genes Isolated from Patients with Muscular Dystrophy - (Biology)

By: Lexus Hagedorn, Victor Alencar, Arthur Rech Tondin, Lorenzo Smith, Brayden Stoeger

Faculty mentor(s): Diane Caporale

Muscular Dystrophy (MD) is an inherited condition, whereas a child's muscle mass progressively deteriorates. Scientists from Prevention Genetics (PG) in Marshfield have genotyped 34 children with MD and found each containing a mutation at an intron splice site within one of four genes related to MD. To help identify the cause of MD, we assessed whether altered messenger RNA, and thus protein, is generated in mouse cells. Plasmid constructs containing each mutation and wildtype form provided by PG were amplified in bacteria and plasmids were isolated and transfected into a mouse cell line for expression. RNA was extracted and reverse-transcribed into DNA to be sequenced. DNA derived from the mutated introns were compared with their respective wildtype forms. So far, we found several intron mutations produced altered mRNA, which would result in a malfunctional muscle protein. These suggest that these mutations are the probable cause of Muscular Dystrophy in those children.

Dominance Status Does Not Affect Zebra Finch Mate Choice - (Biology)

By: Jade Piper

Faculty mentor(s): Sarah Jane Alger

Zebra finches are among the most highly studied models of monogamy, pair bonding and mate choice. We tested if dominance plays a role in mate choice in zebra finches. We observed same-sex dyads for two weeks to determine relative dominance status. We then co-housed each dominant/subordinate male dyad with a dominant/subordinate female

dyad in a single cage with two nest boxes and observed pair bond-related behaviors (PBRBs) for five weeks. We analyzed both the numbers and proportions of PBRBs directed towards each cagemate. Overall, zebra finches did not form clear monogamous pairs. Males were more likely than females to direct their PBRBs towards more than one cagemate and in a more proportionally even manner. Of the 15 cages, only four formed two clear breeding pairs, 10 formed one pair and one formed no pairs. Dominance status did not influence PBRBs nor mate choice. These data suggest that the zebra finch mating system in captivity is heavily influenced by gregariousness.

Effect of CCL2 Overexpression on Colitis in Mice - (Biology)

By: Samuel Adelmeyer, Michael Krause, Michelle Petkovsek

Faculty mentor(s): Michael Steury, Jennifer Bray

People who suffer from either Crohn's Disease or Colitis (collectively called IBD) display a dysfunctional immune response that leads to damage to their small and large intestines, severely decreasing their quality of life. IBD is associated with an increase in inflammation in the intestinal tract specifically through inflammatory cytokines such as CCL2. CCL2 was studied in this experiment through its overexpression in neuronal cells. Uncontrolled expression of chemokines contributes to the neural impairment associated with a variety of CNS conditions as well as ENS both of which are known factors involved in IBD. Eight-week old wild-type or CCL2 overexpressing C57/BLK6 mice were treated with DSS or a water control and checked daily and measured for disease progression through a DAI score including signs such as diarrhea, bloody stool, weight loss. The purpose of this study was to determine the role of neuronal CCL2 overexpression on the progression and severity of DSS induced colitis.

Effects of Overwinter Activity on Energetics of Common Side-Blotched Lizards - (Biology)

By: Sylvia Lewis

Faculty mentor(s): Pete Zani

To survive winter, ectotherms must sequester energy prior to winter and maintain access to energy in a usable form until spring. Animals must also balance life-history trade-offs in using energy for survival during winter vs. saving it for spring reproduction. And yet, ectotherms are sometimes active mid-winter despite the potential expenditure of energy, which calls into question the generality of such trade-offs. Here, we attempted to determine how levels of overwinter activity affect energy storage and cycling of lipids and glycogen in common side-blotched lizards. By comparing body composition of active lizards in field to inactive individuals overwintering in semi-natural enclosures, we tested for the effects of mid-winter arousal on energy storage and mobilization. Preliminary results indicate that fat bodies did not differ in mass between active and inactive individuals consistent with the idea that lipids stored in fat bodies are sequestered for subsequent use during breeding.

Eliciting the Mechanism of Aminoglycoside Resistant NpmA as a rRNA Methyltransferase - (Chemistry)

By: Noah Langenfeld, Kaitlin Freese, Logan Harper, Samantha Schuetze, Tehya Schultz

Faculty mentor(s): Amanda Jonsson

Aminoglycosides are a broad class of antibiotics that effect proofreading mechanisms in the translation of mRNA, causing bacteria to produce non-functional proteins. NpmA modifies the rRNA in a wide range of bacteria to prevent binding of aminoglycoside antibiotics by using the cofactor S-adenosyl-L-methionine (SAM) to methylate bacterial rRNA at position A1408. The β 2/3 linker of NpmA is critical to the recognition of rRNA as an appropriate substrate. The β 5/6 linker of NpmA changes conformation upon binding to rRNA, which helps shift the position of E146 and keeps R207 in the β 6/7 linker in place. By forcing the location of R207, A1408 flips position and is methylated by NpmA, which prevents binding of aminoglycosides to the bacterial rRNA, thus leading to resistance. Understanding the mechanism behind aminoglycoside resistance may lead to medications or techniques that could combat the bacterial adaption and slow the spread of resistance within populations.

Evaluating Stress Behaviors in Retired Research Monkeys - (Biology)

By: Kira Hodgeman, Kaela Jones

Faculty mentor(s): Sarah Jane Alger

Variations of stress behaviors of research animals can negatively impact their lives and research they may be involved in. There is very little research studying stress behaviors when animals are retired from research. Animals exhibit behaviors like self injury and aggression when stressed. We are analysing behavioral data of two monkeys of similar research history and age, one with high stress and one with low stress. These monkeys are housed at Primates Incorporated, a retirement sanctuary for research monkeys in Westfield, Wis. We suspect that the monkey with higher stress levels will display substantially more self-harm and aggressive behaviors than the calm monkey, and that stress behaviors will decrease in both individuals over time. The aggressive monkey is on Prozac and we also will assess its effects on behavior. What is learned can be used to help lower stress behaviors in other captive species as well as help the caregivers more effectively conduct research.

Evidence of the Persistence of Ca and Mg from Road Salts: A Long-Term Study of Parking Lot Soils - (Chemistry)

By: Julia Reigh, Elena Hausmann, Michael Dombrowski, Anastasia Wolff, Shane Goettl

Faculty mentor(s): David Snyder

Soil samples collected from parking lots on the UWSP campus were analyzed for calcium (Ca), magnesium (Mg), and sodium (Na) using Inductively Coupled Plasma - Optical Emission Spectroscopy (ICP-OES). Levels of Ca, Mg, and Na were roughly 1,000 times greater than those observed in background samples. Concentrations of all three metals showed seasonal variation with spring sample concentrations on average 65-70% higher than samples collected in the fall. A strong correlation between Ca and Mg

was observed across all samples, suggesting a common source. These correlations, along with the observed seasonal variations, strongly suggest that Ca and Mg in parking lot soils are a result of the application of deicing salts during winter months. Additionally, the concentrations of Ca and Mg observed in both spring and fall were 50-150 times greater than the observed concentrations of Na suggesting that Ca and Mg are much more persistent in parking lots than Na.

Exploring the Dynamics of the Apo L-Amino Acid Oxidase/Monooxygenase Protein - (Chemistry)

By: Kaitlyn King, Logan Harper, Paige Rudick

Faculty mentor(s): Amanda Jonsson

L-amino acid oxidase/mono (LAAO) protein from *Pseudomonas* sp. AIU 813 is an enzyme that catalyzes both the oxidative deamination and oxidative decarboxylation of L-amino acids with basic side chains. The crystal structures of LAAO in the ligand-free and ligand-bound (lysine, arginine, or ornithine) states have been previously determined. The ligand-free structure of LAAO is missing electron density in a disordered loop. In the ligand-bound structures this disordered loop creates a second binding site for the substrate and it is assumed that substrate enters the active site through this region. We are using all-atom, explicit solvent molecular dynamics simulations to model the dynamics of this disordered loop in the ligand-free structure by removing the coordinates of the ligand in silico from the known ligand-bound structures. Our goal is to compare the dynamics of this loop when starting from the different ligand-bound structures.

Finding the Best Semiconductor for Water Splitting - (Physics and Astronomy)

By: Sean Walsh

Faculty mentor(s): Ken Menningen, Shannon Riha

Two experiments were conducted to evaluate the photocurrent efficiency and the catalytic ability of oxide semiconductors to split water into hydrogen and oxygen using only sunlight. Mixtures of metal ions were deposited onto plates using a micropipette and annealed at high temperature to produce dots of oxide semiconductors. These plates were scanned using experimental kits called SEAL and HARPOON to measure photocurrent and oxygen evolution efficiency. A quantitative assessment of the results revealed the best candidates from among the semiconductors that were studied.

Identifying Promoters Affiliated with the EsrB Regulator Protein in Edwardsiella ictaluri - (Biology)

By: Monica Sheber

Faculty mentor(s): Matt Rogge

Edwardsiella ictaluri is a bacterial pathogen that causes enteric septicemia of channel catfish (*Ictalurus punctatus*) and contributes to significant mortality in catfish aquaculture. EsrB is a regulatory protein in *Edwardsiella ictaluri* and is involved in the regulation of a virulence type III secretion system. An esrB mutation was constructed by deleting an internal portion of the coding region, and confirmation of the expected sequence was determined using PCR and DNA sequencing. Promoter sequences for the

virulence genes *escB* and *escC* were amplified and fused to GFP by cloning into pZep08. The fusion construct was cloned into pBBR1 and conjugated into wild type, and mutant *Edwardsiella ictaluri* strains. These strains will be evaluated in environmental conditions that activate *EsrB* to determine if the *escB* and *escC* promoters are regulated by *EsrB*.

Imaging and Databasing UWSP Herbarium Specimens for the Great Lakes Invasives Thematic Collections Network- (Biology)

By: Bailey Boudreau, Abigail Graves, Zachary Loken

Faculty mentor(s): Stephanie Lyon

The Great Lakes Invasives Thematic Collections Network consists of 20 institutions across the U.S. and Canada that combined efforts to digitize and database museum specimens of genera of fish, mollusks, and plants containing potentially invasive species in the Great Lakes watershed. The UWSP herbarium contributed over 25,000 specimen records from 45 plant genera. More than 18,000 of specimens were imaged and databased in 2017-2018 using high-resolution photography and high-throughput methods to minimize damage to specimens. These data have been made publicly available through theGLIN as well as throughiDigBio. To demonstrate the utility of these data, we mapped and analyzed all Great Lakes area records of the pondweed genusPotamogeton (*Potamogetonaceae*). Using this dataset we reconstruct the direction and timing of the invasive*P. crispus*spread through Wisconsin's lakes and rivers and examine its possible impact on the native aquatic flora.

Investigation into Possible Gene Mutations Associated with Postural Orthostatic Tachycardia Syndrome: A Family Study- (Biology)

By: Octavia Wiesman

Faculty mentor(s): Diane Caporale

Postural Orthostatic Tachycardia Syndrome (POTS) is characterized by an abnormality within the autonomic nervous system. Symptoms include blood pooling in the lower extremities, increased heart rate, and low blood volume. Previous studies identified four areas of the *SLC6A2* gene that have strong association with POTS. Within a family of 12, two members were diagnosed and several are showing some symptoms of POTS. My goal was to identify possible genetic causes of this syndrome within this family. After IRB approval, saliva and survey forms were collected from family members. Primer pairs were designed to amplify areas of the *SLC6A2* gene. DNA was isolated, amplified by PCR, and sequenced to identify possible mutations. A 4-base deletion (frameshift) was identified in both members with POTS, which translates to a nonfunctional *SLC6A2* protein, the likely cause of POTS. Pedigree analyses show other individuals with the same mutation, which can be used as a future predictor of POTS.

Measuring GFP Expression in Escherichia Coli- (Biology)

By: Zoe Ziolkowski

Faculty mentor(s): Matt Rogge

Our goal was to introduce the green fluorescence protein (GFP) into *E. coli* and culture cells under different concentrations of arabinose to determine which concentration induces the greatest expression of GFP. We fused GFP to the arabinose promoter in the

pBAD expression plasmid. The fusion plasmid was used to transform *E. coli*, and successful construction and transformation was verified by using PCR and observation of green fluorescence when cultured in the presence of arabinose. Moving forward, transformed *E. coli* will be cultured in different concentrations of arabinose, and different strategies for measuring GFP expression will be evaluated, including western blotting and fluorometry.

Nanobubble Oxygenation Effects on Fish Growth and Water Nutrients in an Aquaponic System - (Biology)

By: Noah Langenfeld, Lucy Jones, Colton Branville, Benjamin Weirich
Faculty mentor(s): Christopher Hartleb

Aquaponics is the combination of aquaculture and hydroponics. This closed system can expand production in a fresh, sustainable manner. Systems currently rely on airstones to provide oxygen rich water for plants, fish, and bacteria. Nanobubble technology has the potential to increase crop growth and production across the system. At the UWSP Aquaponics Innovation Center, six replicate systems were stocked with three different fish species with one of each residing in an aerated system and a nanobubble system. Fish included bluegill sunfish, black crappie, and rosy red minnows and we tested the effects of nanobubble oxygenation compared to air stones on fish growth. Fish were measured monthly and plants were grown to maturity. Nutrient analyses were conducted weekly. Nanobubble oxygenation led to increased fish growth and higher nutrient levels for certain parameters. By providing the fish with ample oxygen, the fish were able to put more of their energy into growth instead of maintenance.

Pair-wise Comparisons of Cancer Cell Lines Previously Metastasizing to the Liver or Not - (Biology)

By: Morgan Broske, Arthur Rech Tondin, Christian VanScoyk, Cody Schreiner
Faculty mentor(s): Lindsay Dresang

Cancer incidence is expected to climb to nearly 24 million people worldwide by 2030 (SEER data, cancer.gov 2018). Once diagnosed, a patient's overall prognosis for any cancer depends heavily upon its staging. Many late stage cancers involve liver metastases. As an example, stage I breast cancer (tumor, no metastases) typically has a 5-year survival of >99% (ACS, 2008 & 2014), whereas stage IV breast cancer with liver metastasis has a prognosis of ~4 months (Wyld et al, 2003; Hoe et al, 1991). To determine factors which relate to liver metastasis, three cell line pairs of completely different cancer types — Merkel cell, colorectal, and pancreatic (adeno)carcinomas — were assessed. Previously published data for each pair demonstrated substantial liver metastasis in a mouse model versus no liver metastasis at all. Here we present the initial culturing of these cancer pairings, their RNA isolation results, and the current workflow for in-progress NovaSeq transcriptome analysis.

Particle Size Analysis of Periglacial Ice Wedge Casts in the Chippewa River Valley, Wisconsin - (Geography and Geology)

By: Alyssa Sims, Alexandra Peacock
Faculty mentor(s): Samantha Kaplan

Following the Last Glacial Maximum in Wisconsin, dramatic landscapes of glacial outwash, meltwater lakes and periglacial features were left in the glacier's wake. Permafrost and patterned ground were common near the former ice margin. Ice wedge casts persist today where these former ice-filled cracks in the permafrost were later filled in and preserved. These casts can be seen in aerial photographs or exposed in road cuts and in sand pits. Ice wedge casts in the Chippewa River Valley are being studied as part of a larger investigation of permafrost melt and landscape destabilization following ice retreat in this region. Our analysis of the sand that fills these ice wedge casts indicates it is windblown in origin and likely part of a larger windswept landscape including numerous sand dunes, glacial loess and sand-blasted rocks, suggesting that these ice wedge casts are actually sand wedges – cracks that filled with eolian sand as they formed and not later after the permafrost melted.

Potential Effects of Oyster Mushroom Mycelium on Plant Health - (Biology)

By: Miranda Norton
Faculty mentor(s): Laura Lee

This study was designed to test a common “garden hack” that mushroom mycelium can improve plant health by increasing organic matter and retaining soil moisture, resulting in increased plant growth. Black Simpson lettuce was grown in garden soil with and without oyster mushroom mycelium. Early on, mycelium presence speeded seed germination (X2, $p < .05$). However, as the experiment progressed and survival was tracked, the treatment seedlings began to die from damping off and fungus gnats. While plants in the control soil also suffered from the same afflictions, fewer died. After 10 weeks, leaf size of control plants was significantly greater than treatment plants (t-test, $p < .05$). This suggests that directly sowing mushroom spores into garden soil could contribute to garden problems/pests that would not have been present otherwise, thus actually impeding plant growth.

Reinterpreting Collections Held by The Old Copper Culture Museum: Engaging Both Past and Present Misconceptions in Regional Archaeological Exhibits - (Geography and Geology)

By: Amber VanDenHeuvel
Faculty mentor(s): Ray Reser

Many small county and municipal historical museums suffer from an absence of expertise and intuitive and accurate object interpretation. This project examines selected portions of the collections curated under the Old Copper Culture Museum operated by the Oconto County Historical Society. The objects investigated during the study include prehistoric Native American artifacts sourced from sites adjacent to the museum as well as from the

broader region in an effort to offer more accessible and accurate interpretations of the county's archaeological record.

Restoring Scientific Studies in Avian Neuroscience - (Biology)

By: Christopher Benny, Amanda Blunck

Faculty mentor(s): Sarah Jane Alger

Reliable antibodies are crucial for immunohistochemistry (IHC), a widely used technique that uses antigen-antibody reactions for mapping the presence of specific proteins in tissues. Immediate early genes (IEGs) are activated temporarily and quickly in response to various stimuli and are used for marking activated neurons. IHC can be used to label IEG proteins produced in active neurons. The IEG antibodies from Santa Cruz Biotechnology were the only ones in the world used in avian studies and are no longer produced. We propose to bridge the void by discovering and validating alternative IEG antibodies that work in avian species. We use sections of zebra finch and scrub jay brains and treat them with combinations of antibodies and blocking agents to look for effective IEG antibodies in avian species. We will discuss our findings with different antibody combinations once we have completed our study. Our conclusion will show us which IEG antibodies were effective and which ones were not.

Spatial Representation of the Wisconsin Urban Forest - (Geography and Geology)

By: Adam Rider

Faculty mentor(s): Keith Rice, Richard Hauer

A key issue in analyzing the change in the physical and cultural geography of an area is having a consistent definition of the environment being examined. In the field of forestry there have often been a variety of definitions given for describing an urban forest. Consequently, before one can adequately describe the current conditions of a forest or changes that have made over time, one must carefully delineate its respective extent. In this study boundary definitions between the United States Census Bureau (U.S. Census) and the Wisconsin Department of Natural Resources (WDNR) were compared to examine acreage differences of urban forests between Wisconsin's urban landscapes, cities, villages, and townships. The defined urban forest area (between these two agencies) was examined based on area, shape, extent and temporal change. It was determined that there were major spatial differences between the Census and WDNR urban forest boundaries due to dissimilar definitions.

The Relation Between the Tension of a Freestanding Liquid-Crystal Film and its Bulk Temperature - (Physics and Astronomy)

By: Zhengzhan Shang

Faculty mentor(s): Mick Veum

This research studies the surface properties of a particular liquid-crystal compound that can be prepared as a stable freestanding film (like a soap-bubble on a ring), as thin as two molecular layers to as thick as several hundred layers. The liquid-crystal film is prepared within a sealed chamber. The environment of the film is well-controlled, including the film's temperature. As the temperature is gradually changed, the film's tension is

recorded as a function of the film's temperature. For the material of interest, a critical change in a film's tension has been observed around 47 celsius, indicating that the material has undergone a structural change, i.e. a phase change. Preliminary results indicate that thorough study of film tension vs. temperature for range of film thicknesses will yield new knowledge about the role of molecular structure, physical structure, and film thickness in determining the properties of a material under a restricted geometry as in a thin film.

The Role of EsrB and EsrC in Regulating Virulence in Edwardsiella ictaluri - (Biology)

By: Megan Rutkowski

Faculty mentor(s): Matt Rogge

Edwardsiella ictaluri is a bacterium that causes substantial mortality in farmed channel catfish (*Ictalurus punctatus*). Edwardsiella ictaluri produces a type III secretion system (T3SS) necessary for replication within host cells. Two T3SS regulatory genes, *esrB* and *esrC*, were mutated via deletion and sequenced to verify correct construction. Promoters from *E. ictaluri* virulence genes were amplified by PCR, fused to GFP, and confirmed using PCR and DNA sequencing. The confirmed constructs were cloned into the expression vector pBBR1MCS-4. The fusion plasmids were transformed into *Escherichia coli* for conjugation to wild type and mutant strains of *E. ictaluri*, which will be cultured under various environmental conditions. The promoter activity, determined by measuring GFP expression, will be evaluated to define the effects *EsrB* and *EsrC* have on the activity of *E. ictaluri* virulence gene promoters.

Thermal Characterization of a Semiconductor Laser Diode by Wavelength Shift Measurements - (Physics and Astronomy)

By: Dia Yang

Faculty mentor(s): Maryam Farzaneh

Semiconductor laser diodes are an integral part of modern technology. They are used in a variety of applications ranging from cosmetic surgery to military weapons development. Critical operational and optical properties of laser diodes, such as gain, threshold current and output power are affected by changes in temperature. Therefore, understanding the thermal effects in these lasers are important to their improvement and maintenance. In this presentation, we will discuss how changes in temperature affect the lasing power in a red laser diode by measuring its shift in wavelength. In our experiments, we measured the peak wavelength of the laser emission at various bias currents and temperatures. From our results we were able to calculate the effective thermal resistance of our laser diode, which yields a measure of the dissipated power in the laser as a function of temperature.

Understanding the Sources of Heavy Metals Found in Parking Lot Soils - (Chemistry)

By: Julia Reigh, Elena Hausmann, Michael Dombrowski, Anastasia Wolff, Shane Goettl

Faculty mentor(s): David Snyder

As a part of an ongoing study of parking lots soils, samples collected from parking lots on the UWSP campus from 2017 – 2018 were analyzed for heavy metals, including lead (Pb), Iron (Fe), Zinc (Zn), Strontium (Sr), Copper (Cu), Barium (Ba), and Manganese (Mn) using Inductively Coupled Plasma - Optical Emission Spectroscopy (ICP-OES). Many of the samples showed highly elevated heavy metal concentrations relative to background samples collected in Schmeekle Reserve. Analysis of the data failed to find any overall correlations between metals, suggesting varying sources. The presence of significant quantities of lead in some samples lead to an analysis of curb paint as a possible source of lead in parking lot soils. This subsequent analysis showed that lead is present in curb paint in many UWSP parking lots.

Using Electrochemistry to Detect THC Metabolites - (Chemistry)

By: Natalie Sellnau, Jaden McKiernan

Faculty mentor(s): Shannon Riha

The legalization of cannabis edibles and smoke across the U.S. warrants the need for a simple and quick testing method that can be used in the field. Based on its rapid response and portability, electrochemical analysis could provide a solution. We are focused on developing an electrochemical method to detect cannabinoids and their metabolites in aqueous solutions. We have chosen to analyze two metabolites of tetrahydrocannabinol, the primary psychoactive cannabinoid, along with cannabidiol, a non-psychoactive cannabinoid that has therapeutic potential in lowering anxiety. Using a combination of different electrochemical techniques we were able to determine the electrochemical response of CBD and the THC metabolites in pH 10 borate buffer and synthetic saliva. Challenges associated with optimizing experimental parameters, differentiating between various cannabinoids and their metabolites, identifying limits of detection, and creating calibration curves will be discussed.

Utilizing the CRISPR-Cas9 System to Create Hydroxysteroid (17-beta) Dehydrogenase 7 (Hsd17b7) Deficient Cell Lines - (Biology)

By: Kaleb Tenhagen

Faculty mentor(s): Ashley Driver

Clustered regularly interspaced short palindromic repeats (CRISPR) has become a convenient and efficient method for genome editing. This system uses a protein called Cas9 which cuts the DNA at a specific site determined by guide RNA (gRNA). Our lab is currently using CRISPR to create clonal lines of mouse fibroblasts deficient in the cholesterol biosynthesis gene Hsd17b7. To accomplish this, NIH-3T3 cells were transfected with CRISPR-Cas9 plasmids containing Hsd17b7 gRNA targeting exons 2 and 4. Antibiotic selection followed by clonal dilution is being performed to isolate uniquely edited cell lines. Molecular testing (PCR and Sanger sequencing) will then be used to determine specific insertion/deletions (indels) within the Hsd17b7 sequence.

RNA and protein analysis will further reveal consequences of these indels on gene expression. Creation of these lines provides a tool for future experiments to characterize the impacts of Hsd17b7 malfunction on cellular structure and function.

What's in the Air We Breathe at UWSP? A Preliminary Analysis of Atmospheric Fine Particle Pollution in Stevens Point, WI - (Chemistry)

By: Elena Hausmann, Michael Dombrowski, Anastasia Wolff, Jacob Dickman, Amanda Stickney

Faculty mentor(s): David Snyder

Fine particle pollution (PM_{2.5}) samples collected from October 2018 – April 2019 from a site located atop the UWSP Science Building were analyzed by a variety of analytical methods in order to provide insights into the general “bulk” chemical composition of fine aerosols found in Stevens Point. Water-soluble organic carbon (WSOC) and total water-soluble nitrogen (TN) were measured using a platinum combustion method (TOC/TN). Water soluble inorganic nitrogen compounds (nitrate, nitrite, and ammonium) were measured using high-performance ion-exchange chromatography (IC), and selected metals were measured using a combination of IC and Inductively Coupled Plasma - Optical Emission Spectroscopy (ICP-OES).

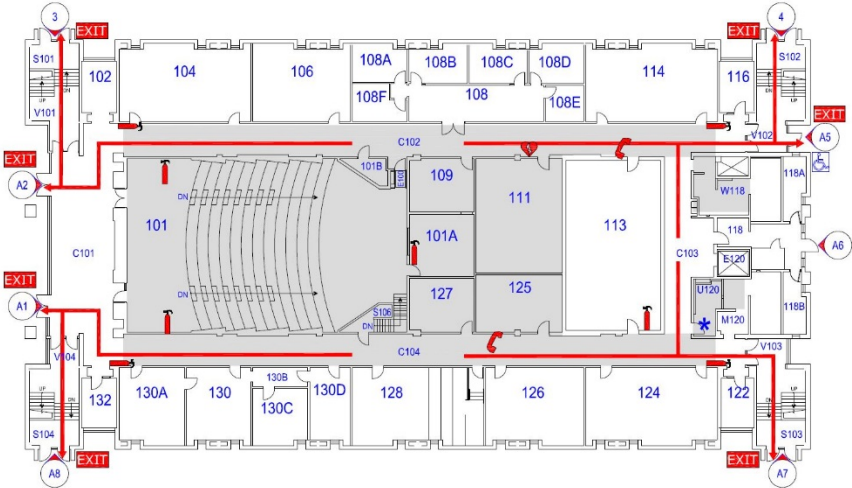
Zebra Finch Parenting Control Study- (Biology)

By: Emma Hogenson, Brittny Dole

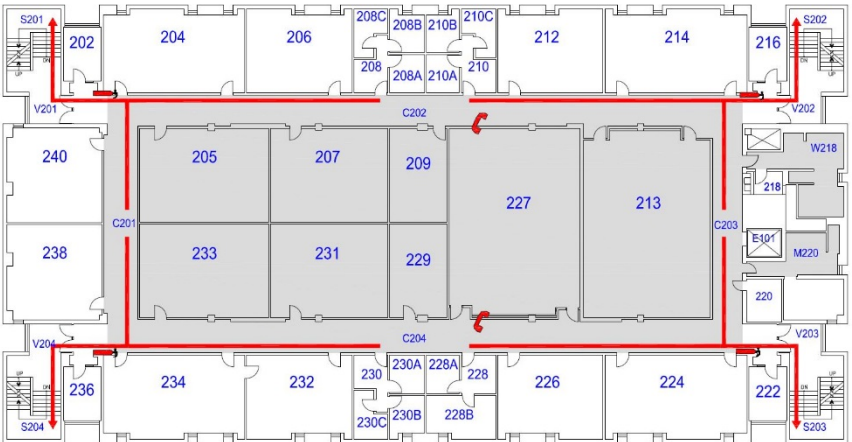
Faculty mentor(s): Sarah Jane Alger

Zebra finch parenting skills are important in determining the fitness of their offspring. The survivability of zebra finch eggs is highly determined by parental incubation and proper nestbuilding. Hatchlings are altricial, needing regular feeding and tending for weeks before they can leave the nest. To accurately detect a lack of parenting behavior or skills due to chemical interference, control data for experienced zebra finch parents is needed. This study records parental behaviors in first-time zebra finch parents, as well as chick weight and hatch data to start a base for future research on how ecological variables such as pesticides influence hatchling fitness by affecting parenting ability.

Collins Classroom Center – First Floor



Collins Classroom Center – Second Floor



Notes

Notes

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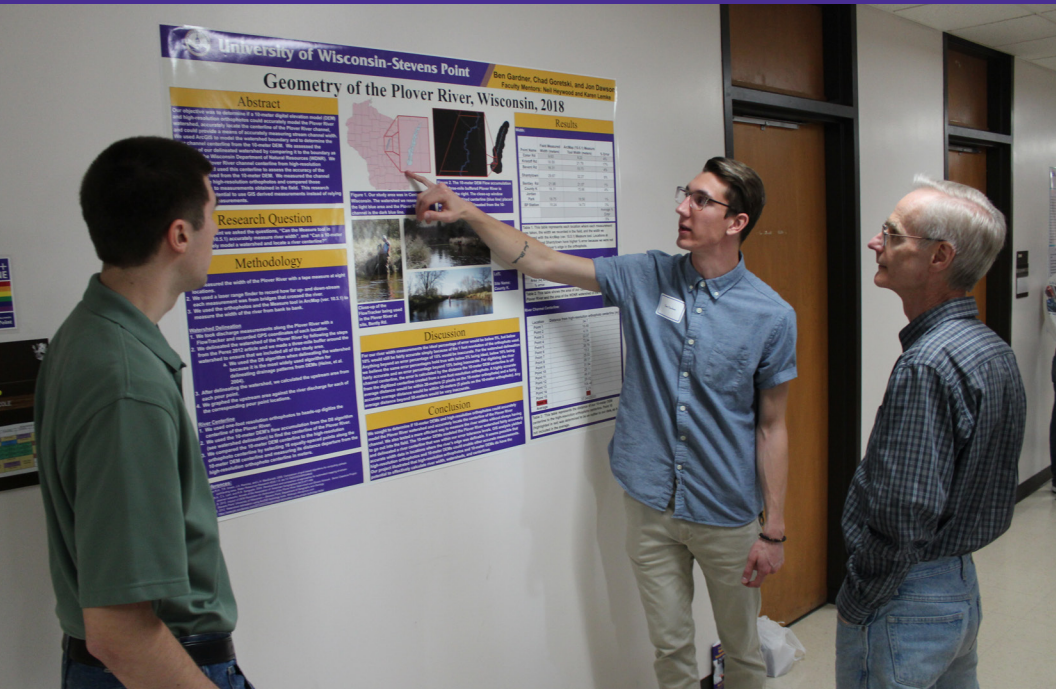
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