2016 URSCA FALL GALA

Tuesday
December 13
5-7:30 pm
Riverview Ballroom
University Center
The URSCA Fall Gala is organized and sponsored by the Office of Undergraduate Research, Scholarly and Creative Activity. We gratefully acknowledge that this event is made possible by generous support from:

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UW-River Falls Foundation.

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For more information, contact the URSCA Director, Dr. Lissa Schneider-Rebozo, at 715.425.3902 or elizabeth.schneider-rebozo@uwrf.edu.
URSCA Fall Gala
December 13, 2016
Riverview Ballroom, University Center
5-7:30 p.m.

URSCA Fall Gala is an annual showcase event to celebrate the research, scholarly and creative activities of University of Wisconsin-River Falls undergraduates. Campus URSCA from all areas of study is represented through research posters, short films, art exhibits, slide shows, and interactive displays. We hope you enjoy this opportunity to learn more about the hands-on research activities that are taking place every day on our campus.

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Ahrndt, Brianna

*The Effects of Sericea Lespedeza on Gastrointestinal Parasitism in Goats* (Slide show presentation)
Faculty Mentor(s): Dr. Casie Bass, Animal and Food Science

Goats are becoming an important livestock species in the US as the number of goats used for meat and dairy production have risen rapidly in the past few decades. Parasites are a common problem in the production of livestock and up until now their control has mainly been achieved with the use of chemicals. Unfortunately, many gastrointestinal nematodes are becoming progressively resistant to chemical anthelmintics and other avenues of control must be explored. One such possible management practice is to include plants that contain certain bioactive compounds, called condensed tannins, in the diet. Sericea lespedeza is an example of such a plant and when included as a major portion of the diet for goats it significantly decreases fecal egg counts and the number of adult worms in the digestive system. The objective of this project was to review research of using sericea lespedeza to reduce gastrointestinal nematodes and evaluate what conditions allow it to be the most effective.

Alexander, Jonathan

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)
Research Collaborator(s): Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

Our Soil Physics (SOIL 460) class did an assessment of soil physical properties and quality across four different land uses in Western Wisconsin—row crop production, conservation reserve program, turf/urban, and native/undisturbed.

Alexander, Jonathan

*Long Term Tillage Management in Row Crop Production and its Effects on Soil Health* (Slide show presentation)
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science
Tillage management in row crop production can have a significant impact on soil physical and biological properties, as well as the economics of a farming operation. Choosing a tillage management strategy for agricultural land in row crop production is not straightforward with costs, benefits, and drawbacks to be considered. The objective of this study was to compare soil health and quality of two adjacent fields in Redwood County, Minnesota, that have been in row crop production and managed with either ridge till and conventional tillage for more than 30 years. The soil quality parameters quantified in this study included bulk density, penetration resistance, aggregate stability, organic carbon, infiltration, carbon dioxide flux, microbial biomass, and economics. The soils at the site were Aquic Calciudolls and Calcic Hapludolls. Results from the study suggested that there was higher penetration resistance at the surface (0-15 cm) and greater aggregate stability in the ridge till managed field when compared to conventional tillage, but little statistical differences in the other parameters studied. From a cost standpoint, ridge tillage may cost less per acre compared conventional tillage. Better understanding of the costs and benefits associated with different tillage management options can help producers choose what is best for their operation and maximize soil quality.

Almich, Maxwell

Quantifying the Impact of Land Use on Soil Physical Properties (Poster)
Research Collaborator(s): Jonathan Alexander, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorensen, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff
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Arnoldussen, Brent

Effects of the mycorrhizal helper bacterium Peanibacillus validus on the growth and life cycle of Rhizophagus intraridices and mycorrhization in-vitro (Slide show presentation)
Faculty Mentor(s): Dr. Brian Smith, Plant and Earth Science

Arbuscular Mycorrhizal Fungi (AMF), members of the in the phylum Glomeromycota, form symbiotic relationships with most land plants, making it the most ubiquitous symbiotic relationship in land plants. This relationship is important to plants since its increases nutrient and water uptake, and alleviates heavy metal toxicity and certain soil borne diseases. AMF are obligate biotrophs, forming endosymbiotic structures known as arbuscules, where the fungus
delivers nutrients, especially phosphates and water, in exchange for sugars. Most research focuses on the mycorrhizal association between plants and the fungi, but it is now apparent that several species of bacteria play vital roles in this symbiosis. The goal of this project is to better understand the relationship between the model AMF Rhizophagus intraridices and Peanibacillus validus, a bacterium commonly associated with fungal spores. Strains of this bacterium have been shown to allow the fungus to sporulate in absence of plant roots, which could be useful in research the in vitro and inoculant production. To demonstrate whether other accessions of this bacterium have the same capacity to grow hyphae and spores in absence of a plant root host, the fungus is co-cultured on modified minimal media with P. validus NSF 1000 and P. validus B-14484 separately and in combination. Several spores from each treatment were isolated to document and quantify the hyphae growth and spore production among treatments. Root organ cultures of carrots were treated with AMF spores with and without P. validus to demonstrate the bacterium’s impact on root growth and mycorrhization by percent colonization.

**Beisner, Megan**

*Greenhouse Rain Garden* (Poster)
Research Collaborator(s): Jenna Schauer
Faculty Mentor: Dr. Joel Peterson, Agricultural Engineering Technology

The Greenhouse Rain Garden Project is focused on creating a rain garden that will be located to the south of the campus greenhouse. The main issue with the area behind the greenhouse is that the soil is eroding from the immense amount of water coming from the pipes off of the greenhouse. Our task is to design and implement a rain garden where a rock bed currently resides. The construction of a rain garden will prevent further erosion and also beautify the campus. By building a rain garden we will be fixing the current erosion problem for that area. Right now, the rock pile located at the end of the pipes only slows down the water flow. A rain garden in that location would allow the water to infiltrate the soil so that the water will not flow down the hill and continue to erode away the hill. The rain garden will also control the warm water runoff into the nearby Kinnickinnic River, which is a Class I trout stream, meaning the water needs to be cooler when entering the river. A benefit of having a rain garden is that it will help to enhance the appearance of the area. The rain garden will include many colorful plants that will attract birds, butterflies, and other pollinators. Our research will be focused on determining if the rain garden was successful in reducing erosion, increasing soil infiltration, and lowering the water temperature. In order to complete our project we will use mathematics and engineering practices to calculate the volume and size of the rain garden.

**Boles, Lee**

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

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Borash, Daniel

*The effects of replacing milk fat with plant based fat in a whipped dairy product* (Poster)
Research Collaborator(s): Kody Guden
Faculty Mentor(s): Michelle Farner, Animal and Food Science

An attempt at creating a clean labeled whipped dairy product using coconut oil and a citrus emulsifier.

Burris, Shanna

*Independence Saddle Lift* (Interactive Display)
Faculty Mentor(s): Dr. Dean Olson, Agricultural Engineering Technology

Raising the independence of Para-riders via mechanical lift to saddle the horse.

Carpenter, Crystal

*The Effects of Invasive Macrophytes on Turtle Community Structure In The Kinnickinnic Watershed* (Poster)
Faculty Mentor(s): Dr. Kevyn Juneau, Plant and Earth Science

According to the International Union for Conservation of Nature’s “Red List of Threatened Species,” approximately 45% of freshwater turtle species are listed as threatened or endangered. Wisconsin lists the ornate box turtle as endangered in the state and wood turtles as threatened. Blanding’s turtles were recently taken off the list, but their numbers are slightly declining in Wisconsin. Turtle population declines are often linked to land use changes; however, invasive macrophytes could contribute to the impoverishment of turtle habitat. It is well known that the presence of invasive macrophytes alter water chemistry, out-compete native vegetation, and alter habitat structure by changing hydrological regimes, reducing water flow, and making the water column impassible for animals due to the dense buildup of vegetation. Eurasian watermilfoil and curlyleaf pondweed have invaded many of Wisconsin’s lakes, ponds, and rivers, and have made a significant negative impact on the invaded
waterbodies. A consequence of watermilfoil and curlyleaf pondweed invasion is the reduction of quality habitat for native turtle populations. In this ongoing study conducted throughout the Kinnickinnic watershed, we examine the correlations between invasive macrophytes and 1) turtle species utilizing the waterbodies and 2) turtle population sizes within the waterbodies. We also make lake management recommendations to help better conserve native turtle populations in Wisconsin.

**Fah, Diane**

*Whole cream Fat vs. Coconut oil Fat in Vanilla Ice Cream* (Poster)
Research Collaborator(s): Alexus Forder
Faculty Mentor(s): Michelle Farner, Animal and Food Science

We wanted to experiment with substituting coconut oil for whole cream fat in vanilla ice cream and see if the creaminess and texture changed in the end product.

**Filkins, Kaitlynn**

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff
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**Forder, Alexus**

*Whole cream Fat vs. Coconut oil Fat in Vanilla Ice Cream* (Poster)
Research Collaborator(s): Diane Fah
Faculty Mentor(s): Michelle Farner, Animal and Food Science

We wanted to experiment with substituting coconut oil for whole cream fat in vanilla ice cream and see if the creaminess and texture changed in the end product.

**Frank, Hannah**

*Discovering Compositional and Sensory Quality Variances of Frozen Kefir Compared with a Common Frozen Yogurt* (Poster)
Faculty Mentor(s): Michelle Farner, Animal and Food Science
Fermented foods have been gaining popularity in recent years for their health benefits and unique taste. One of these foods is kefir, a fermented milk product that has the consistency of very thin yogurt and a tangy taste. Kefir is a highly nutritional food with many health benefits. Why not use kefir as a main ingredient in frozen dairy dessert? The purpose of this experiment was to determine the composition, meltability, and sensory qualities of “frozen kefir” as compared to a frozen yogurt that is already on the market, to see if frozen kefir could make a preferable alternative.

**French, Amanda**

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)

Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff

Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

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**Gajdosik, Alex**

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)

Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff

Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

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**Garman, McKenna**

*Effects of Varying Milks on Coffee Creamers for Palatability and Consistency* (Poster)

Research Collaborator(s): Alyssa Thooft

Faculty Mentor(s): Michelle Farner, Animal and Food Science
Using varying types of milk, we have made three coffee creamers to measure the palatability and consistency of each. We have also researched the amounts of fat, protein, lactose, and other milk components in each creamer.

**Guden, Kody**  
*The effects of replacing milk fat with plant based fat in a whipped dairy product* (Poster)  
Research Collaborator(s): Daniel Borash  
Faculty Mentor(s): Michelle Farner, Animal and Food Science  

An attempt at creating a clean labeled whipped dairy product using coconut oil and a citrus emulsifier.

**Hahn, Casey**  
*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)  
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff  
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science  

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**Hei, Ryan**  
*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)  
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff  
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science  

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**Johnson, Tanner**  
*The Effects of Bacteria Strains on Yogurt Palatability* (Poster)  
Research Collaborator(s): Taylor Polka
Faculty Mentor(s): Michelle Farner, Animal and Food Science

The objective of this experiment is to use different strains of bacteria in the production of frozen yogurt to determine if consumers can notice a difference in palatability. We will use three different strains of bacteria along with a combination of the bacteria cultures while producing our frozen yogurt. Each strain of bacteria will affect the yogurt in a different way such as consistency, pH level, flavor and palatability. This experiment will showcase these differences as well as show consumer preferences.

Karklow, Jamie

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)

Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff

Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

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Kuester, Hailey

*The Effects of Supplemental Oxygen on the Passive Transfer of Immunoglobulins in Holstein Dairy Calves* (Poster)

Faculty Mentor(s): Dr. Sylvia Kehoe, Animal and Food Science

Every farmer dreads hearing the news that another one of their calves is dead. Every time a calf dies the farmer is wasting time and money. A majority of calf mortality is due to a serious problem called dystocia. Dystocia is when cows have difficulty birthing due to a large or awkwardly positioned fetus. This complication has been a direct link to the failure of the passive transfer of Immunoglobulins. If we could propose a new way to improve the passive transfer of Immunoglobulins in calves we could save farmers time and money and most importantly reduce calf mortality. We have composed a new way of improving the passive immunity transfer of Immunoglobulins through providing the calves with supplemental oxygen post-birth. We randomly assigned the calves to a control or treatment group. All calves received a dystocia score, had blood drawn directly after birth and 24 hours post birth, and received colostrum 1 hour after birth. Treatment group calves received 10 minutes of supplemental oxygen directly after the first blood draw was taken. This information then allowed us to see if supplemental oxygen had a positive impact on the passive transfer of immunoglobulins.
LaCoy, Brett

**Structural Aspects of Crustal Shortening in the Bude Formation** (Poster)
Faculty Mentor(s): Dr. Ian Williams, Plant and Earth Science

Some Structural Aspects of Crustal Shortening in the Bude Formation

Larson, Aaron

**The Effects of a Citrus Fiber Emulsifier on Dairy and Non Dairy Coffee Creamer** (Poster)
Research Collaborator(s): Joel Oelke
Faculty Mentor(s): Michelle Farner, Animal and Food Science

We tested a commercial citrus fiber emulsifier at different levels on two different simple coffee creamers we developed.

Lehman, Derrick

**Quantifying the Impact of Land Use on Soil Physical Properties** (Poster)
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

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Mack, Mikayla

**Living Greenwalls: Substrate Feedback in a Model Plant** (Interactive Display)
Faculty Mentor(s): Dr. Sonja Maki, Plant and Earth Science

This part of the URSCA greenwall project entailed both a research aspect and collaborating with other researchers to educate fairgoers about greenwalls at the Minnesota State Fair. The in situ research aspect focused on plant physiology of growing in a greenwall hydroponics setting. Seedlings of a model plant were examined via several environmental parameters in a large scale greenwall as well as in smaller test panels. The test panels were developed by the researcher to examine rooting in different substrates, as well as rooted types and how well they will root into the greenwall foam.

Mathew, Linda
The Process of incorporating Kefir into an Ice Cream (Poster)
Faculty Mentor(s): Michelle Farner, Animal and Food Science

Making kefir ice cream

Melby, Kali

Quantifying the Impact of Land Use on Soil Physical Properties (Poster)
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff
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Miotke, Alison

Attitude, Mood, and Performance Correlates of a Greenwall-Enhanced Environment (Interactive Display)
Faculty Mentor(s): Dr. Travis Tubre, Psychology; Dr. Terry Ferriss, Plant and Earth Science; Dr. David Trechter, Agricultural Economics

Research from multiple disciplines suggests that the physical environment in which an individual lives and works can impact their lifestyle, health, subjective well-being, and productivity. Studies conducted in office and academic settings in such diverse locations as Japan (Shibata & Suzuki, 2004), the United Kingdom (Knight & Haslam, 2010), and the Netherlands (Nieuwenhuis, Knight, Postmes, & Haslam, 2014) have consistently demonstrated that indoor plants can positively impact student and worker moods, attitudes toward work, and even productivity. The goal of our research was to extend on this previous research by studying whether these same benefits would be seen for a greenwall (i.e., a vertically arranged, living wall of plants) that is actually built into the physical environment of a classroom. After confirming initial equivalence of the room targeted for the greenwall installation and a control classroom, we examined the differences between students taking classes in the greenwall-enhanced classroom and the control classroom on work-related environmental perceptions, academic self-efficacy, and mood. Embedded in this larger sample were four multi-section courses where the same instructor taught two sections, one in each room. After analyzing our results, we that student attitudes, mood, and academic performance were significantly higher in the greenwall-enhanced classroom as compared to the control classroom. In addition, we found
significant differences favoring the greenwall-enhanced room in perceptions of air quality, academic anxiety, and environmental restoration.

**Muerhoff, Landon**

*Effects of Citri-Fi citrus-based emulsifier to a base kefir product* (Poster)
Research Collaborator(s): Daniil Usachev
Faculty Mentor(s): Michelle Farner, Animal and Food Science

Taking increments of Fiberstar's Citri-Fi 125FG emulsifier product to a base kefir. By adding this emulsifier, our goal was to create a product that does not separate into individual components as do current kefir products, which must be shaken before consumption. Testing of various percentages (of the emulsifier) to obtain a homogeneous product with appropriate mouthfeel, appearance, and flavor. This has the potential to allow for marketing of kefir in see-through containers.

**Oelke, Joel**

*The Effects of a Citrus Fiber Emulsifier on Dairy and Non Dairy Coffee Creamer* (Poster)
Research Collaborator(s): Aaron Larson
Faculty Mentor(s): Michelle Farner, Animal and Food Science

We tested a commercial citrus fiber emulsifier at different levels on two different simple coffee creamers we developed.

**Pey, Stella**

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff
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Our Soil Physics (SOIL 460) class did an assessment of soil physical properties and quality across four different land uses in Western Wisconsin--row crop production, conservation reserve program, turf/urban, and native/undisturbed.

**Polka, Taylor**

*The Effects of Bacteria Strains on Yogurt Palatability* (Poster)
Research Collaborator(s): Tanner Johnson
Faculty Mentor(s): Michelle Farner, Animal and Food Science
The objective of this experiment is to use different strains of bacteria in the production of frozen yogurt to determine if consumers can notice a difference in palatability. We will use three different strains of bacteria along with a combination of the bacteria cultures while producing our frozen yogurt. Each strain of bacteria will affect the yogurt in a different way such as consistency, pH level, flavor and palatability. This experiment will showcase these differences as well as show consumer preferences.

**Potter, Rachel**

*Characteristics and Properties of Sand Mine Soils in Wisconsin* (Poster)

Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

In the past, gravel and sand were mined for road building materials. Now, it is becoming more common for sand to be used for industrial (frac) mining. For roads, the mined sand and gravel originates from glacial valleys. The industrial (frac) sand, however, originates from a high-purity sandstone bedrock. The purity is desired because of its use for hydraulic fracturing, which uses the sand to for well-stimulation with pressurized fluid. The fluid contains water, sand, and other agents for thickening. This creates a crack in the rock layer, then holds it open. The sand makes a porous layer that oil, natural gas, and brine can flow through freely. With the increase in mining of industrial (frac) sand, it is important to know how this will impact the surrounding soils. This is especially true in Wisconsin because it produces approximately 75% of the industrial sand in the US. After the sand is mined, the mining company needs to reclaim the area. Soils are the foundation of the ecosystem, so it is critical to determine what types of vegetation are suitable for soil types during reclamation.

**Rambatt, Brittany**

*Agricultural Education in Honduras* (Poster)

Faculty Mentor(s): Dr. Tim Buttles Agricultural Education

In the summer of 2016, I spent three months living in the rural community of Lo De Reina in the country of Honduras. There I taught English in the village's local school, taught workshops on home gardening and composting, and researched and implemented Black Soldier Fly composting as a way for families to economically and sustainably feed their chickens and create fertilizer. My project will showcase the work done and how it has impacted my future career in education.

**Roessler, Tom**

*Physiochemical and Sensory Effects of Whey Protein added to Ice Cream* (Poster)

Research Collaborator(s): David Vierling

Faculty Mentor(s): Michelle Farner, Animal and Food Science
The effects of whey protein when added to ice cream to see how it affects the structure and palatability of the ice cream and the relevance of adding some form of nutrition to otherwise empty calories.

**Schalla, Emily**

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)

Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff

Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

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**Schamaun, Jarod**

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)

Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff

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**Schauer, Jenna**

*Greenhouse Rain Garden* (Poster)

Research Collaborator(s): Megan Beisner

Faculty Mentor: Dr. Joel Peterson, Agricultural Engineering Technology

The Greenhouse Rain Garden Project is focused on creating a rain garden that will be located to the south of the campus greenhouse. The main issue with the area behind the greenhouse is that the soil is eroding from the immense amount of water coming from the pipes off of the greenhouse. Our task is to design and implement a rain garden where a rock bed currently resides. The construction of a rain garden will prevent further erosion and also beautify the campus. By building a rain garden we will be fixing the current erosion problem for that area. Right now, the rock pile located at the end of the pipes only slows down
the water flow. A rain garden in that location would allow the water to infiltrate the soil so that the water will not flow down the hill and continue to erode away the hill. The rain garden will also control the warm water runoff into the nearby Kinnickinnic River, which is a Class I trout stream, meaning the water needs to be cooler when entering the river. A benefit of having a rain garden is that it will help to enhance the appearance of the area. The rain garden will include many colorful plants that will attract birds, butterflies, and other pollinators. Our research will be focused on determining if the rain garden was successful in reducing erosion, increasing soil infiltration, and lowering the water temperature. In order to complete our project we will use mathematics and engineering practices to calculate the volume and size of the rain garden.

Schiller, Kaleiah

Investigating the Use of Infrared Thermography (IRT) on Piglets with PRRS Virus (Poster)
Faculty Mentor(s): Dr. Kurt Vogel, Animal and Food Science

This study has a two part hypothesis: 1.) Can IRT serve as a reliable representative of core body temperature as measured by indwelling microchip readings. 2.) Can IRT detect a positive viremia state in pigs with PRRSV.

Snyder, Carl

The Effect of Multiple Small Applications of Nitrogen on Yield and Uptake Efficiency in Corn (Poster)
Faculty Mentor(s): Dr. Natasha Macnack, Plant and Earth Science

Increased nitrogen (N) uptake in corn may be accomplished by applying smaller applications of fertilizer throughout the growing season. An increase in N use efficiency would save the grower valuable dollars and prevent excess N from entering into local water supply.

The purpose of this field experiment is to evaluate the effect of N application frequency on yield and N use efficiency in corn. The experiment will be conducted at the University of Wisconsin River Falls (UWRF) Mann Valley Laboratory Farm. Treatments will be laid out in a randomized complete block design with three replications. Urea-N fertilizer will be applied to five treatments at a rate of 210 lbs. N/acre applied at different growth stages and in different portions and one treatment will receive no N fertilizer (control). Treatment 2 will have two applications, one pre-plant and one at V5, with each application being half of the recommended rate. Treatment 3 will have a first application of 1/3 the recommended rate applied preplant and a second application of 2/3 the recommended applied at V5. Treatment 4 will have two applications, the first at preplant will be 1/4 of the recommended rate and the second will be 3/4 of the recommended applied at V5. Treatment 5 will have three applications of 1/3 the recommended rate applied at preplant, V5, and V8. Treatment 6 will
have four applications of 1/4 the recommended rate of N applied at preplant, V5, V8 and V10. An application of Potassium Chloride will be applied to the entire trial area at a recommended rate of 20 lbs K2O/acre. Results will show that increased N use efficiency and yield can be achieved when multiple small applications of N fertilizer are issued to the crop versus the conventional method of applying a larger single rate of fertilizer.

Sobkowiak, McKenzie

*Determining Fertility in Mares Using Age, Vulva Conformation, Endometrial Biopsies, and the Results of Vaginal and Uterine Cultures* (Poster)

Faculty Mentor(s): Dr. Casie Bass, Animal and Food Science

Collected data from 6 mares from the UWRF Campus Farm 1 to run analysis on. Compared the independent variables (age and vulva conformation) to the dependent variables (endometrial biopsy and culture results) to determine if there is a relationship between them that may result in decreased fertility rates in mares.

Sorenson, Emily

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)

Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff

Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

Our Soil Physics (SOIL 460) class did an assessment of soil physical properties and quality across four different land uses in Western Wisconsin—row crop production, conservation reserve program, turf/urban, and native/undisturbed.

Soto, Taylor

*Determining the Phylogeny of Coyotes (Canis Latrans) using Genetic Analysis in Wisconsin by comparing the ancestral DNA of the Canis family* (Poster)

Faculty Mentor(s): Dr. Kevyn Juneau, Plant and Earth Science

The continuous argument over the evolutionary history and genetic makeup of Canis populations in North America has become primarily relevant to the conservation and management of wolves and coyotes in the upper Midwest. In Wisconsin alone, it is unknown whether or not Coyote-wolf hybrids are present. Many assume that they are, but research on the phylogeny of the coyotes in this
region has yet to be executed. The importance of this research includes many issues such as conservation, management, behavioral changes in the population that create human conflicts, and the pure knowledge of the existence of coyote hybrids in such a prominent area for the species development. The issues that are created over the evolutionary history of the Canis population are thoroughly described in the background information below. If there are not hybrids in Wisconsin, then other studies should be taken place later on, to figure out how they’re evolving rapidly to fill a niche that was once occupied by another top predator, the wolf, less than a century ago. The initial research I would like to conduct this fall will create the base of this study by using genetic analysis of the mitochondrial DNA to determine the ancestry of the coyotes in Wisconsin.

Spaulding, Alexandra

**Evaluation of background and non-point source pollution of phosphorus in the Kinnickinnic River watershed** (Poster)

Faculty Mentor(s): Dr. Jill Coleman Wasik, Plant and Earth Science

Changing land use practices in the St. Croix watershed have increased the delivery of sediment and nutrients into Lake St. Croix (LSC) leading to water quality impairments such as reduced water clarity, increased algal blooms, and increased oxygen loss from lake bottom waters. Because phosphorus is a driver of these impairments, a Total Maximum Daily Load (TMDL) management plan was recently developed and implemented for phosphorus. This TMDL prescribes a 20% decrease of phosphorus inputs to LSC by 2020. As an important subwatershed that contributes directly to LSC, this study focused on the Kinnickinnic River and its contributions to nutrient and sediment loading.

Samples from 15 sites along the Kinnickinnic River and its 6 tributaries were collected on a tri-weekly basis, while samples from within and just above the City of River Falls were collected on a weekly basis. Three storm events were also sampled over the summer. Parameters including dissolved oxygen, specific conductivity, temperature and pH were measured in the field, while samples for total phosphorus, total nitrogen, phosphate, nitrate, and ammonia were collected and analyzed at the UWRF lab.

Both total phosphorus (TP) and Total Suspended Solid (TSS) loads increased from headwaters to mouth on each sampling occasion. One of the largest increases under baseflow conditions in TSS loads along this continuum occurred between the sites located above and below the City of River Falls, which includes inputs from a larger tributary. The greatest increase in phosphate loads occurred between the headwaters and the site located downstream of the first tributary. Preliminary results suggest that both urban and rural land uses in the Kinnickinnic watershed are contributing to sediment and phosphorus loads that enter Lake St. Croix and that TMDL prescribed phosphorus allocations will only
be met if best management practices are applied in both agricultural and residential areas of the watershed.

**Strahm, Matthew**

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Danielle Towner, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

Our Soil Physics (SOIL 460) class did an assessment of soil physical properties and quality across four different land uses in Western Wisconsin—row crop production, conservation reserve program, turf/urban, and native/undisturbed.

**Thooft, Alyssa**

*Effects of Varying Milks on Coffee Creamers for Palatability and Consistency* (Poster)
Research Collaborator(s): McKenna Garman
Faculty Mentor(s): Michelle Farner, Animal and Food Science

Using varying types of milk, we have made three coffee creamers to measure the palatability and consistency of each. We have also researched the amounts of fat, protein, lactose, and other milk components in each creamer.

**Towner, Danielle**

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Travis Vieths, Jonathan Wagaman, Jared Winter, and Katherine Wolff
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

Our Soil Physics (SOIL 460) class did an assessment of soil physical properties and quality across four different land uses in Western Wisconsin—row crop production, conservation reserve program, turf/urban, and native/undisturbed.

**Usachev, Daniil**

*Effects of Citri-Fi citrus-based emulsifier to a base kefir product* (Poster)
Research Collaborator(s): Landon Muerhoff
Faculty Mentor(s): Michelle Farner, Animal and Food Science

Taking increments of Fiberstar’s Citri-Fi 125FG emulsifier product to a base kefir. By adding this emulsifier, our goal was to create a product that does not separate into individual components as do current kefir products, which must be shaken before consumption. Testing of various percentages (of the emulsifier) to obtain a homogeneous product with appropriate mouthfeel, appearance, and flavor. This has the potential to allow for marketing of kefir in see-through containers.

Vanden Heuvel, Brittany

*The Effects of Various Anticake Levels on Shredded Cheese over Time* (Poster)
Research Collaborator(s): Claire Wojnowiak
Faculty Mentor(s): Michelle Farner, Animal and Food Science

Using a FOSS Food Scan, we have tested white cheddar cheese containing five different levels of anticake to determine how the cheese composition changes over time. Our objective was to determine what level of anticake should be applied to shredded cheese based on what consumers prefer and the ideal amount of powder needed to be affective.

Vierling, David

*Physiochemical and Sensory Effects of Whey Protein added to Ice Cream* (Poster)
Research Collaborator(s): Tom Roessler
Faculty Mentor(s): Michelle Farner, Animal and Food Science

The effects of whey protein when added to ice cream to see how it affects the structure and palatability of the ice cream and the relevance of adding some form of nutrition to otherwise empty calories.

Vieths, Travis

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Jonathan Wagaman, Jared Winter, and Katherine Wolff
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science
Our Soil Physics (SOIL 460) class did an assessment of soil physical properties and quality across four different land uses in Western Wisconsin—row crop production, conservation reserve program, turf/urban, and native/undisturbed.

Wagaman, Jonathan

Quantifying the Impact of Land Use on Soil Physical Properties (Poster)
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jared Winter, and Katherine Wolff
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

Our Soil Physics (SOIL 460) class did an assessment of soil physical properties and quality across four different land uses in Western Wisconsin—row crop production, conservation reserve program, turf/urban, and native/undisturbed.

Welch, Anna

Wisconsin Dairy: Capital Expenditure Decisions (Poster)
Faculty Mentor(s): Dr. Jim White, Agriculture Economics

This research was conducted with the objective to compile information regarding the capital expenditure decisions of dairy producers in Wisconsin. With the opportunity to interview four producers, each at different production levels, characteristics such as expectation for growth in both size and technology use were assessed. Literature was collected from major dairy technology manufacturers to develop a perspective of the innovative technology options these producers face. Considering both sources of information, I was able to develop qualitative profiles for the producers. Finally, with the perspective developed from my literature review, I was able to compare and contrast the factors and final decisions faced by each firm.

Winter, Jared

Quantifying the Impact of Land Use on Soil Physical Properties (Poster)
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, and Katherine Wolff
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science
Our Soil Physics (SOIL 460) class did an assessment of soil physical properties and quality across four different land uses in Western Wisconsin—row crop production, conservation reserve program, turf/urban, and native/undisturbed.

**Wojnowiak, Claire**

*The Effects of Various Anticake Levels on Shredded Cheese over Time* (Poster)
Research Collaborator(s): Brittany Vanden Heuvel  
Faculty Mentor(s): Michelle Farner, Animal and Food Science

Using a FOSS Food Scan, we have tested white cheddar cheese containing five different levels of anticake to determine how the cheese composition changes over time. Our objective was to determine what level of anticake should be applied to shredded cheese based on what consumers prefer and the ideal amount of powder needed to be effective.

**Wolff, Katherine**

*Quantifying the Impact of Land Use on Soil Physical Properties* (Poster)  
Research Collaborator(s): Jonathan Alexander, Maxwell Almich, Lee Boles, Kaitlynn Filkins, Amanda French, Alex Gajdosik, Casey Hahn, Ryan Hei, Jamie Kraklow, Derrick Lehman, Kali Melby, Stella Pey, Emily Schalla, Jarod Schamaun, Emily Sorenson, Matthew Strahm, Danielle Towner, Travis Vieths, Jonathan Wagaman, and Jared Winter  
Faculty Mentor(s): Dr. Holly Dolliver, Plant and Earth Science

Our Soil Physics (SOIL 460) class did an assessment of soil physical properties and quality across four different land uses in Western Wisconsin—row crop production, conservation reserve program, turf/urban, and native/undisturbed.
College of Arts and Sciences

Adachi, Yuri

**Oral History Project** (Slide show presentation)
Faculty Mentor(s): Alexander Hatheway, English

This ESL 311 Research Writing Oral History Project involved researching history in international students’ home countries and in the USA. Through this project, people could compare their lives today to the lives of people in other times and other places.

For this project, I interviewed two people who lived through the mid-20th Century. One of the people was American, the other one was from my home country Japan. Before I interviewed them, I researched these two countries’ 20th Century history. Then, I prepared some questions about the political, social, cultural, and economic situation during their lives. Also I asked about the things that interested in at that time. After the interviews, I compared their lives and prepared the presentation about them.

This project showed me a lot of differences between different times and places. The most interesting point for me was that travel abroad was a common thing for American people, but only a few rich people in Japan could travel abroad at that time.

Ahlswede, Mitchell

**National High Power Rocketry Competition** (Interactive Display)
Research Collaborator(s): Adam Hendel
Faculty Mentor(s): Dr. Glenn Spiczak, Physics

The goal of this project was to compete in the NASA Midwest High Powered Rocket Competition, which included teams from throughout the nation. The competition entailed designing a high-powered rocket with an active braking system to be launched twice, once with and once without the activation of the air brake system. Along with the physical rocket launches themselves, two written reports were submitted and two presentations were required for the competition. The research conducted in the project had industrial applications including controlling the velocity of spacecraft used in commercial space exploration.

Ahlswede, Mitchell

**Finding the Response Function of Neutron Monitors Through FLUKA Simulation** (Poster)
Faculty Mentor(s): Dr. James Madsen, Physics; Dr. Seurujhdeo Seunarine, Physics

Cosmic rays are high energy atomic particles traveling nearly the speed of light through space. When these cosmic rays interact with the earth’s atmosphere, they start a chain reaction producing secondary particles that can reach the earth’s surface. Some of those secondary particles, such as neutrons, are detected by neutron monitors placed around the globe. These monitors study space weather and changes in the earth’s magnetosphere, which affects the rate at which particles are detected by neutron monitors. UW-River Falls maintains neutron monitors at the South Pole, McMurdo Station, and on campus. To better understand the data from neutron monitors, Monte Carlo simulations are done. A response function, which characterizes the rates of particles detected, can be used to compare different configurations of neutron monitors. Simulations of different types of neutron monitors with the same incident flux of cosmic rays and atmospheric conditions are used to investigate the response functions. We determined the response function of five different types of neutron monitors, first without the building or other surroundings. We then extended the simulations to explore the effects the physical environment has on the count rates of twelve neutron monitors tubes at the Amundsen-Scott Station at the South Pole. Results of the simulated response functions of five types of neutron monitors tubes along with the preliminary results of environmental effects on twelve neutron monitors at the South Pole will be shown.

Ahlswede, Mitchell

*Expandable and Customizable High-Volume 3D Printer* (Interactive Display)

Faculty Mentor(s): Dr. James Madsen, Physics; Dr. Surujhdeo Seunarine, Physics

3D printers are becoming a part of nearly every industry. They are used in art, fashion, complex mechanical design such as triple gear systems, to print low cost housing, to create physical representations of mathematical expressions and visualization of non-Euclidean geometric shapes, and even in biotechnologies such as lab grown tissue. They allow for rapid iteration of concepts and design on site. This saves time, money, and increases productivity. Even NASA has begun to utilize this technology specifically for those very benefits on their new engine design. This technology, since the expiration of many key patents, has been exploding and its full potential is seemingly far from being found. That is where this project comes in. To innovate we must first have a foundation of knowledge on that which is being innovated. This project not only gave us that knowledge but also resulted in an easily modified high-volume 3D printer that will help further innovation in other areas of the department.
Anderson, Emily

*The Impact of Biases on an Individual’s Perceived Credibility* (Poster)
Research Collaborator(s): Bryce Podgorsek
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

Our study is attempting to find out if biases regarding race and age have a detrimental effect on a man’s perceived credibility, specifically in the field of computer science. We are also exploring the possibility of an interaction between race and age. We hypothesize that young males as computer science authority figures will be considered more credible than older males as computer science authority figures. We hypothesize that white males as computer science authority figures will be considered more credible than black males as computer science authority figures. We hypothesize that there will be an interaction between age and race. A young white man as a computer science authority will be considered more credible than a young black man as a computer science authority; further, based on previous research, it is likely age will serve as a leveler and cause both an older black and white male to have equally lower scores than those of the young counterparts. We are going to measure using McCroskey’s credibility scale. We will be using UWRF students from the Psychology 101 class.

Anderson, William

*Phys Con Trip* (Poster)
Research Collaborator(s): Jacob Hanson-Flores, Robert Phipps, Jakob Till, Peter Jacobs, Joshua Hunt, and Gabrielle Chapin
Faculty Mentor(s): Dr. Earl Blodgett, Physics

Presentation about what the quadrennial physics convention is like. Sharing personal experiences while at the convention and discussing what kind of speakers are at the convention.

Anderson, Emily

*Chronic stress enhances nicotine-seeking behavior in an animal model of addiction* (Poster)
Faculty Mentor(s): Dr. James Cortright, Psychology

Drug addiction is a major public health and serious economic concern in the United States costing taxpayers billions of dollars annually. Experimental evidence shows that exposure to stress is not only a factor in the development of addiction; but also a trigger for drug relapse, or reinstatement. As tobacco use has been linked to a number of cancers and represents the leading cause of preventable death in the United States, elucidation of the effects of stress on nicotine-seeking behavior and relapse is critical. A critical role of chronic stress
in the compulsion to seek tobacco and other nicotine delivering products has long been suspected. Although many studies have provided compelling evidence for a role of chronic stress in the enhanced sensitivity to cocaine-seeking behavior and relapse, few have assessed the contribution of chronic stress on nicotine-seeking behavior. In fact, stress induced cross-sensitization to nicotine remains controversial. Additionally, there have been no studies investigating the effects of chronic stress on nicotine-seeking relapse, or reinstatement. Thus, these experiments assess the ability of repeated exposure to variable stress to augment nicotine-seeking behavior and relapse in an animal model of drug addiction. Male Long-Evans rats were exposed to variable stress that consisted of the exposure to different stressors once a day in random order for 20 days. During this period the control group was left undisturbed except for cage cleaning. Rats were allowed to self-administer nicotine (0.03 mg/kg/infusion) under fixed ratio schedules of reinforcement across 15 consecutive daily sessions. Responding under a progressive ratio schedule of reinforcement was assessed over the following six daily sessions. This schedule allows for break points to be analyzed, a measure that reflects the motivation to self-administer nicotine. Following up to 20 days of extinction training, rats were tested for nicotine-seeking behavior reinstatement by a non-contingent injection of nicotine (0.4 mg/kg, IP). Rats exposed to chronic stress acquired nicotine self-administration at a faster rate relative to controls, exhibited enhanced motivation to obtain the drug, and were more resistant to nicotine extinction. Further, exposure to chronic variable stress led to enhancements in nicotine-primed reinstatement, or relapse. Collectively, these findings indicate that chronic stress can enhance the motivational effects of nicotine.

Asif, Marium

**WSGC Rocket Competition** (Slide show presentation)
Research Collaborator(s): Raven Hernandez, Kelsey Kolell, Laura Lusardi, and Laura Moon
Faculty Mentor(s): Dr. Glenn Spiczak, Physics

We participated in the Wisconsin Space Grant Consortium rocket competition. The object of the competition was to build a "true scale model" of a pre-existing rocket and have it complete a successful flight. Additional requirements of the competition included having an electronic deployment of the rocket’s parachute, a downed rocket location aid, and purchases from reputable rocketry vendors. The competition was scored in five segments: an outreach event, flight and design plan, pre-flight presentation, rocket launch, and post flight data analysis.

Beck, Casey

**Squared Pots In A Round World** (Artwork)
Faculty Mentor(s): Rhonda Willers, Art

When you think of a handmade wheel thrown pot, you typically think about something that is round. I take this idea of round and stretch it, paddle it, and subtract from it until it has four sides. People say square is boring, I think square is interesting. Squared pots create four planes of interest. In atmospheric firings these planes can illustrate the effects of that type of firing. Squared pots also reference architecture, and with the squared pots I reference building features, such as windows, doors, and sidings. I create these squared pots to not only be interesting to the eye, but also interesting to the touch. I create handles that will make your hand feel happy, lips that will invite you to put your lips to them, and textures and small physical features that let you discover something new with each use.

Blankenship, Vicki

The Effect of Second-Hand Prior Information and Level of Attraction on First Impression (Poster)
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

Often times before meeting a new coworker, a new instructor, or a new friend we are told someone else’s first impression of them first (second-hand prior information). Once we do meet them the first thing that is often noticed about them is their physical appearance. The goal of the current study was to examine how negative or positive second-hand prior information and level of attraction may affect first impression of individuals. Undergraduate students at UWRF participated in a between subjects online experiment within Qualtrics. They rated an individual they had never met before on a ten item personality inventory and Likert scale items for level of attraction and likability after receiving either positive, negative, or no prior second-hand information about them. It was hypothesized that level of attraction would act as a moderator variable that would affect the strength of the prior second-hand positive or negative information on personality impression.

Bohar, Ava

Special Effects Makeup Presentation (Interactive Display)
Faculty Mentor(s): Robin Murray, Stage and Screen Arts

I will be showing individuals how I did special effects makeup on a model I am bringing. I will have a binder explaining How To's. The makeup will be from prosthetics and also including a unique wardrobe.

Bonse, Heather

Islamic Multicultural Society in Early Spain (Poster)
Research Collaborator(s): Natalie Lewis
Faculty Mentor(s): Dr. Daniela Goldfine, Modern Language

Before the widespread of Catholicism, Spain’s early history was marked by a Muslim invasion across the strait of Gibraltar in the year 711. This was during the time in Spain where the Jewish and Christian religions frequently engaged in internal conflicts, struggling to build a successful culture. After the invasion, the new Muslim rulers created a peaceful multi-cultural society that truly flourished, naming their new community Al-Andalus, which is current day Andalucía. Muslim rulers reigned over an accepting and tolerant society, in contrast to later years when the church came to power and religious diversity was vanquished.

Today, Spain is considered a country strong in the Catholic faith, but Muslim culture left a legacy as a Golden Age of history while the rest of Europe was still in the Dark Ages. The Muslim rulers implemented great societal, scientific, and architectural advances. Religious minorities also thrived during this time, as religion was not a barrier for marriage, social status, and jobs. Jews and Christians during this time were permitted to practice their own religions, although some chose to convert to Islam. However, as the Catholic Church began sweeping the nation, Isabel of Castile and Ferdinand of Aragon began separating people based on religious and social status. Ultimately, with the hysteria of the church and the Inquisition underway, the Jews and Muslims were exiled out of Spain, all the while the Catholic Church worked very hard to cover up the rich culture the Muslims had built in Spain.

Antes de la expansión del catolicismo, la historia de España fue marcada por la invasión de los musulmanes por el estrecho de Gibraltar en 711. Esto fue durante el tiempo que en España las religiones de los judíos y musulmanes tomaron parte en conflictos internos en la lucha por crear una cultura exitosa. Después de la invasión, los nuevos gobernantes musulmanes crearon una sociedad pacífica y multicultural que floreció, nombrando su nueva ciudad Al-Ándalus—hoy en día es Andalucía. Los gobernantes musulmanes reinaron sobre una sociedad tolerante, en contraste con años más tardes cuando la Iglesia llegó al poder y la diversidad de religión fue extinguida por los Reyes Católicos.

Hoy España es considerada un país muy fuerte en la fe católica, pero la cultura de los musulmanes dejó un legado de una edad de oro mientras todo el resto de Europa todavía estaba en una etapa oscura. Los gobernantes musulmanes implementaron grandes avances en la sociedad, las ciencias y la arquitectura. Las minorías religiosas también florecieron durante este tiempo, porque la religión no fue una barrera para casarse, ni para el estatus social o los trabajos. Los judíos y los cristianos durante este tiempo fueron permitidos practicar sus propias religiones, pero algunos decidieron convertirse al islam. Pero, la iglesia católica empezó a tomar poder y tuvieron influencia sobre España. Los Reyes Católicos, Fernando de Aragón e Isabel de Castilla empezaron a separar a los judíos y los musulmanes basándose en sus religiones y estatus social. Finalmente, con el caos de la Inquisición, ocurrió la expulsión de los musulmanes.
y judíos de España, mientras la sociedad multicultural y sus logros fueron destruidos por los Reyes Católicos.

**Borkowski, Iza**

*Examining the Effects of Rehabilitative Programs During Incarceration on Recidivism* (Poster)
Faculty Mentor(s): Dr. Rich Wallace, Sociology, Criminology and Anthropology

This study examines whether the availability of rehabilitation programs to those incarcerated in federal and state correctional facilities affects the occurrence and/or severity of recidivism.

**Britts, Kyia**

*Sustainable Lighting in Theatre* (Poster)
Faculty Mentor(s): Robin Murray, Stage and Screen Arts

In theatre, there are many ways we try to be sustainable, but there is more we can do. One day I hope to be a lighting designer. The types of lights we use here at the University of Wisconsin-River Falls worry me though. My hypothesis is that if I can eliminate dust and build up on the lighting instruments we use as well as the dust and build up on the lamps in the instruments, the instruments would last longer. I propose to collect data on lighting instrument performance from three different shows to test my hypothesis.

**Budge, Alec**

*Correlation Between Casual Sex and Self-Esteem of Undergraduates* (Poster)
Research Collaborator(s): Michelle Stage
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

The purpose of this experiment is to study how people perceive the frequency of casual sex taking place on the UW River Falls campus, participants’ personal attitudes toward casual sex, participants’ casual sex behavior, and how self-esteem is correlated with these variables. An online survey was provided to participants in order to gain an understanding of casual sex on campus, and understanding participants’ self-esteem. In total there were 70 UW River Falls undergraduates students that participated. After providing consent, each participant completed an online survey assessing their casual sex behaviors, attitudes, and perceptions. Some items used in the survey originated from the Sociosexual Orientation Inventory – Revised (Penke & Asendorpf, 2008) to access casual sexual attitudes and behaviors. We adapted a Descriptive Peer Norms item to access participants’ casual sex perceptions (Van De Bongardt et al., 2013). Self-esteem items were taken directly from the Rosenberg Self-
Esteem Scale (Rosenberg, 1965) to access participants’ self-esteem. Attitudes toward casual sex and casual sex behavior were positively correlated as expected. Contrary to expectations, casual sex behavior and self-esteem were not correlated. The effect of congruence between attitudes and perceptions on self-esteem was also explored.

Burkland, Tori

*A Comparative Study Between Polish and American Police Officers’ Thoughts on Alcohol Policies* (Poster)
Faculty Mentor(s): Dr. Rich Wallace, Sociology, Criminology and Anthropology

This is a comparative study of research I conducted in both Poland and the U.S. I conducted surveys to find differences or similarities between the two countries and their thoughts on alcohol related policies.

Burns, Michael

*Honeybee Genotype Project* (Poster)
Faculty Mentor(s): Dr. Brad Mogen, Biology; Dr. Kim Mogen, Biology

Honey bees are essential to everyday human life. It is predicted that 33% of all the food we enjoy is pollinated by honey bees. Over the past 12 years, beekeepers have experienced a 30 to 40% decline in the number of hives that make it through just one Wisconsin winter. This research project focused on a specific strain on Honey bee, the Russian Honey bee. Known for its genetic resistance to varroa mites, hardy nature, and productive work ethic, Russian honey bees might just be what Wisconsin needs. Arguably the biggest problem with keeping Russian honey bees is that their genetics are quickly diluted when the queen mates with 10-15 drones of various strains. The objective of this research was to determine how “Russian” the Russian honey bees were after one season in a small apiary. This is easily tested after mapping the genome of the test strain (Russian) and the control strain (mutts). Using the online Basic Local Alignment Search Tool (BLAST) website, comparing the genome of these two strains will be the largest tell as to how diluted the Russian genome became after one summer in a Wisconsin apiary.

Chapin, Gabrielle

*Phys Con Trip* (Poster)
Research Collaborator(s): William Anderson, Jacob Hanson-Flores, Robert Phipps, Jakob Till, Peter Jacobs, and Joshua Hunt
Faculty Mentor(s): Dr. Earl Blodgett, Physics
Presentation about what the quadrennial physics convention is like. Sharing personal experiences while at the convention and discussing what kind of speakers are at the convention.

Chen, Ke

*Interactions among students University classes* (Poster)
Faculty Mentor(s): Rhonda Petree, English

This research looks at interaction between students and instructors in university class. Data was gathered through my three observations, including self-observation, participant observation and non-participant observation. I took notes by using the SPEAKING framework during observations. Results showed that American professors give many chances for students to express their own ideas. Additionally, teachers regularly ask their students if they are confused about something what teacher said before.

Clark, Catelynn

*The Jewish Expulsion from Spain: Movement Toward Unity or Devastation?*

*La expulsión de los judíos de España: ¿Movimiento hacia la unidad o devastación?* (Poster)
Faculty Mentor(s): Dr. Daniela Goldfine, Modern Language

Upon assuming power of the Iberian Peninsula in the 15th century, King Ferdinand and Queen Isabella decided to unite Spain through what they considered the only means available: Catholicism. Because of this, the minority religious groups that existed in Spain at that time—the Muslims and the Jews—were required to convert to Catholicism or leave the country. After experiencing many years of discrimination, the Jews were officially banished from Spain in 1492. Although Spain became the most powerful country in the world during the following century, the Jewish expulsion resulted in many unexpected and detrimental consequences. The inability to value other cultures and ways of thinking hindered Spain's intellectual development and modernization. In addition, many of the Jews that left the country were merchants and bankers, which caused economic turmoil. Because of this and other reasons, Spain’s time as the most powerful nation in the world only lasted a mere century. While religious intolerance was the means by which the Catholics intended to unify Spain, the Jewish expulsion was just the first of many events that lead to Spain’s international decline.

Al asumir el poder de la Península Ibérica en el siglo XV, el rey Fernando y la reina Isabel decidieron unificar a España mediante lo que consideraron el único medio disponible: el catolicismo. Por eso, los grupos religiosos minoritarios que existían en España en ese tiempo—los musulmanes y los judíos—tenían que
convertirse al catolicismo o salir del país. Después de experimentar muchos años de discriminación, los judíos oficialmente fueron desterrados de España en 1492. Aunque España se convirtió en el país más poderoso del mundo durante el siglo siguiente, la expulsión de los judíos resultó en muchas consecuencias imprevistas y perjudiciales. La incapacidad de apreciar otras culturas y maneras de pensar impidió el desarrollo intelectual y la modernización de España. Además, muchos de los judíos que salieron del país eran comerciantes y banqueros, lo cual causó agitación económica. Por esta y otras razones, el tiempo en el que España era el país más poderoso del mundo sólo duró un mero siglo. Mientras que la intolerancia religiosa era el medio por el cual los católicos intentaron unificar a España, la expulsión de los judíos fue el primero de muchos otros acontecimientos que llevaron a la decadencia internacional de España.

Cota, Adry

Ornate Process (Artwork)
Faculty Mentor(s): Brett Kallusky, Art

Exploring an old developing process and techniques, while also exploring new photographic processes in scanning film.

Crane, Chelsea

Cognitive Complexity & the Dark Tetrad of Personality (Poster)
Faculty Mentor(s): Dr. Cyndi Kernahan, Psychology

A correlation between low scores on a measure of cognitive complexity and high scores on measures of the dark tetrad of personality was hypothesized. Research was conducted using a sample of seventy-five Intro to Psychology students.

Cundiff, Nathan

MN Education Case Study (Poster)
Faculty Mentor(s): Dr. Rich Wallace, Sociology, Criminology and Anthropology

The project will explore if the amount of money school districts spend per student is a significant determining factor on the number of students that graduate from that school district.

Dernovsek, Abigail

UWRF Student Attitudes towards Male Contraception (Poster)
Faculty Mentor(s): Dr. Rich Wallace, Sociology, Criminology and Anthropology
The purpose of this study is to assess the link between attitudes towards women and willingness to use a male contraceptive pill.

**Durand, Madison**

*The influence of plants on anger, stress, and frustration in a work environment.* (Poster)

Research Collaborator(s): Alison Miotke
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

Our experiment study examines the effects of introduction green foliage into a stressful environment. We hypothesized that individuals that are working in stressful environment will have a reduction in state anger, stress and frustration when green foliage is introduced into the environment, and that these effects would be greater when the amount of green foliage increased. We also hypothesis that gender will have an effect on the reduction of state anger, stress, and frustration an individual feels. For our experiment we used difficult math problems to provoke anger stress and frustration. Individuals were randomly assigned to one of the three conditions no plants, moderate amount of plants or large amounts of plants. Individuals were asked to report their level of trait and state anger, stress, before and after partaking in the difficult math problem task.

**Dwyer, Maria**

*The role of women in Spain during the 16th century*

*El rol de la mujer en España durante el siglo XVI* (Poster)

Research Collaborator(s): Yazzaret Salgado
Faculty Mentor(s): Dr. Daniela Goldfine, Modern Language

During the 16th century, women in Spain had very few choices for their lifestyle. After la Reconquista, a lot of women decided to either be a housewife and take care of their homes, or join a convent and dedicate their lives to God. In reality these were the only options that were presented to women, as well as the most honorable and common at the time. Women in this era didn’t have the same rights as women today, back then it was not allowed for women to go to school, and they weren’t respected by men who at the time had all the power. Those who chose to become a housewife had to dedicate themselves to their husbands and obey to anything they said, as well as take care of their children. Those who chose to become a nun, had the opportunity to become educated and possibly have more liberty as well. The conflict between these options was big because although these women didn’t have many choices, the ones they did have were very different and affected their lives in distinct ways.

En el siglo XVI, España tenía pocas opciones para el tipo de rol que una mujer podía escoger para su vida. Después de la Reconquista muchas mujeres se casaron y se hicieron cargo de sus casas, otras decidieron ir a un convento y
dedicar sus vidas a Dios. En realidad, estas dos opciones eran las pocas que se presentaban en la vida de estas mujeres, eran las opciones más honorables y comunes que había en España en estos tiempos. La mujer en esta época no tenía los mismos derechos que tiene una mujer hoy día: antes no estaba permitido que las mujeres fueran a la escuela, ni tampoco eran respetadas por los hombres quienes tenían mucho más poder. Al escoger la vida de esposa, tenían que dedicarse completamente a su esposo, obedecerlo en todo lo que mandaba y también cuidar a sus hijos. Si escogían la vida de monja, tenían la oportunidad de educarse y tener un poco más de libertad también. El conflicto entre estas opciones era grande porque, aunque las mujeres no tenían bastantes elecciones, las que tenían eran muy diferentes y afectaban sus vidas de formas muy distintas.

Ekstrand, Julia

*How female police officers are treated differently from citizens compared to their male counterparts.* (Poster)

Faculty Mentor(s): Dr. Rich Wallace, Sociology, Criminology and Anthropology

My research project is looking at how female police officers are treated differently by citizens compared to their male counterparts.

Elberg, Kerrn

*Using Calculus to Measure Voting Power* (Poster)

Faculty Mentor(s): Dr. Keith Chavey, Mathematics

In this project we used three mathematical methods to measure the relative power of voters in a weighted voted system. We then compared their results, and the advantages and disadvantages of each method.

Ellsworth, Jael

*Reducing Recidivism* (Poster)

Faculty Mentor(s): Dr. Rich Wallace, Sociology, Criminology and Anthropology

I will present my human subject research on the topic of reducing recidivism. I will be interviewing ex-offenders to gain their perspective on what is needed to support newly released felons.

Erickson, Maxwell

*Sakatah Trail Improvements* (Poster)

Research Collaborator(s): Brian Quiram

Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science
In this project we mapped the Sakatah Singing Hills State Trail from Madison Lake to Warsaw Minnesota, an approximate 22 mile stretch. We focused on what could be improved or added in terms of the condition of the trail, the convenience of the trail, and the information on the trail. The state trail attracts hundreds of tourists each year and also benefits the local population with recreation such as: camping, hiking, etc. Our goal is to improve the trail to attract more or encourage more people to visit the area.

**Ferron, Kendra**

*The Affects of Family Structure on Deviance in Adolescents* (Poster)
Faculty Mentor(s): Dr. Rich Wallace, Sociology, Criminology and Anthropology

The research will seek to determine the affects certain family elements and structures have on various deviant behaviors in adolescents.

**Frikken, Dylan**

*Simulating Antarctic Snow’s Effect on IceTop’s cosmic ray detection* (Poster)
Faculty Mentor(s): Dr. Surujhdeo Seunarine, Physics

A cosmic ray is a high energy subatomic particle moving at nearly the speed of light that are produced in extreme environments in outer space. The study of cosmic rays play an integral role in our understanding of the universe. IceCube, an international collaboration, aims to study cosmic rays using a one cubic kilometer detector constructed in the ice at the South Pole. IceTop is the surface component of the IceCube Neutrino Observatory. IceTop detects showers of charged particles resulting from primary cosmic rays interacting with the Earth’s atmosphere. The goal of this project was to investigate the impact of snow that is accumulating on top of the IceTop tanks. Preliminary results of computer simulations show that the snow decreased the electromagnetic portion of the showers as expected, but also showed that the snow had a greater effect on the muon component of the shower than expected. Preliminary results of the simulation of an $E^{-1}$ spectrum on the snow’s effect on cosmic ray detection at the South Pole will be shown.

**Galde, Tyler**

*Parks of Rochester, MN* (Poster)
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

A map of the parks in Rochester, MN

**Gehring, Emma**
Unification of Spain under Isabella and Ferdinand (Poster)
Faculty Mentor(s): Dr. Daniela Goldfine, Modern Language

The marriage of Isabella and Ferdinand, in the 15th century, united the two largest regions of Spain, Aragon and Castile, under one monarchy. The unification of these two regions created a country more powerful than others in Europe. Due to this massive power influx Spain was able to expand its empire and gain more territory. From these territories Spain expelled its newly acquired citizens of Jewish and Muslim faiths. The goal of Isabella was a Spain completely united under one monarchy and one religion. Fernando’s goal was to expand the Spanish empire while also expanding the power of Spain. Under the control of one of the first power couples in history, Spain became one of the most powerful nations in all of Europe. It was under the rule of these two that Spain was able to take back territories it lost, as well as conquer new territories across the Atlantic in the Americas. Under Fernando and Isabella Spain was no longer separated into regions by mountains and rivers, for the first time in history, the country was viewed as a whole, as one united nation. It was at this point in time that the name “España” (Spain) was used to describe where its citizens were from rather than the individual region.

Gelhar, Devon

The Dinner Table: Explorations Into Tableware (Artwork)
Faculty Mentor(s): Rhonda Willers, Art

For the past two years, I have focused my work on an investigation into functional pottery in preparation of putting together a graduate school portfolio. This investigation started with an exploration into the use of earthenware clay and has culminated into the making of an entire tableware set. This culmination includes the development of research, ideas, trial and error, and making. For the final body of work that I have put together I have made a series of objects that one would place on a formal dinner table including, plates, bowls, cups, pitchers, platters, serving dishes, and various other accoutrements. I hope to present this body of work, demonstrating the cohesion of research, ideas, and making.

Haas, Alex

Neutron Monitor Analysis and Searching for Forbush Decreases (Poster)
Faculty Mentor(s): Dr. Surujhdeo Seunarine, Physics

This past summer, the neutron monitor located in Centennial Science Hall at University of Wisconsin-River Falls was moved from the first floor of the building to the third floor. Analysis was done on the effect that the additional two stories of building had on the neutron detection rates. In addition, software that was built by a prior student to display neutron monitor data was recoded, removing
extraneous code and improving the visual appearance of data. This also included a preliminary subroutine to locate significant drops in the neutron detection rates, which could be correlated to an increase of solar activity, known as a Forbush decrease. Finally, analysis was done on a potential Forbush decrease occurring on June 22nd, 2015.

Hall, Taylor

*Impression Management: Discussing Ethical Consumption* (Poster)

Faculty Mentor(s): Dr. Paige Miller, Sociology, Criminology and Anthropology; Dr. Rich Wallace, Sociology, Criminology and Anthropology

This study is designed to better understand discussions surrounding ethical consumption. The study primarily focuses on ethical clothing purchases, such as buying fair trade. The study is based on Irving Goffman’s theory of Impression Management, which is used to understand how people save face in their daily interactions. I will explore the way consumers talk about their purchases. Questions addressed include why ethical consumers might highlight certain aspects of their consumption habits over others and how this might change based on the context.

Hanson-Flores, Jacob

*Phys Con Trip* (Poster)

Research Collaborator(s): Robert Phipps, Jakob Till, Peter Jacobs, Joshua Hunt, Gabrielle Chapin, and William Anderson

Faculty Mentor(s): Dr. Earl Blodgett, Physics

Presentation about what the quadrennial physics convention is like. Sharing personal experiences while at the convention and discussing what kind of speakers are at the convention.

Hathaway, Dagan

*A Study of Quantum Optics* (Poster)

Faculty Mentor(s): Dr. Lowell McCann, Physics

Pairs of single photons produced by spontaneous parametric down conversion were used to explore the wave-particle duality of light and perform the which-way experiment. The tests showed that single photons are capable of being both like a wave and a particle depending on how one chooses to measure them. The test used for the wave-like nature of light used a Mach-Zehnder interferometer, which was also used in the which-way experiment, and gave a fringe visibility of ~0.25 with single photons. The which-way experiment results followed those expected by the quantum mechanics explanation of the phenomena.
Haugen, Owen

*Interactive Web Map of Whitetail Ridge* (Poster)
Research Collaborator(s): David Paynotta and Josh Leonard
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

In this project we created a map intended to provide trail users with up to date information about Whitetail Ridge Mountain Bike Trail located in River Falls, Wisconsin. The goal of the project is to make a simple, clean, online map that can be accessed at home or on the go. In order to achieve this goal, we collected information about the trail using GPS receivers and constructed the map using CARTO. We hope that the final product is simple to use, up to date, and accessible to the user.

Hayes, Charles

*Optimizing Honey Bee Nucleus Hive Strategies for Beekeepers in the Upper Midwest* (Poster)
Faculty Mentor(s): Dr. Kim Mogen, Biology

The honey bee is of crucial agricultural significance worldwide. Honey bees produce roughly $290 billion dollars a year in revenue and account for over 28 thousand jobs nationwide. But the nation has less than 50% of the honey bee colonies it did in 1947. Also, because of a dramatically different agricultural landscape, beekeepers now lose 30-50% of their production hives annually compared to the historical norm of 10–15%. The replacement costs for those hives are making beekeeping unprofitable and ultimately unsustainable. In order to address this dire situation, less than one year ago, President Obama released a “National Strategy To Promote The Health of Honey Bees and Other Pollinators”. A new approach to combat some of the problems beekeepers are experiencing is to incorporate the use of nucleus hives (nucs) in northern apiaries. This approach is revolutionary for beekeepers experiencing overwintering losses and summer declines, and its methodology is generally unknown to most beekeepers. The purpose of this research is to create and implement effective and easy-to-follow guidelines to raising nucleus hives within the region based on success from various different queens and techniques.

Hendel, Adam

*Mechatronics and Control Theory: Ball and Plate* (Interactive Display)
Research Collaborator(s): Matthew Sheldon
Faculty Mentor(s): Dr. Glenn Spiczak, Physics
This project was to research control theory algorithms to be used in a two axes ball and plate system. Two separate proportional, integral, derivative controllers operate independently to manipulate the position of a steel ball on a flat surface.

Hendel, Adam

*National High Power Rocketry Competition* (Interactive Display)
Research Collaborator(s): Mitchell Ahlswede
Faculty Mentor(s): Dr. Glenn Spiczak, Physics

The goal of this project was to compete in the NASA Midwest High Powered Rocket Competition, which included teams from throughout the nation. The competition entailed designing a high-powered rocket with an active braking system to be launched twice, once with and once without the activation of the air brake system. Along with the physical rocket launches themselves, two written reports were submitted and two presentations were required for the competition. The research conducted in the project had industrial applications including controlling the velocity of spacecraft used in commercial space exploration.

Henson, Joe

*Willow River State Park Trail Map* (Poster)
Research Collaborator(s): Miranda Martin
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

The purpose of our project was to map the trails of Willow River State Park in Hudson, Wisconsin. To accomplish this, we walked all of the trails in the park and used a GPS receiver to track our paths. We then mapped this data, as well as locations of important features such as maps currently posted along the trails.

Hernandez, Raven

*WSGC Rocket Competition* (Slide show presentation)
Research Collaborator(s): Kelsey Kolell, Laura Lusardi, Laura Moon, and Marium Asif
Faculty Mentor(s): Dr. Glenn Spiczak, Physics

We participated in the Wisconsin Space Grant Consortium rocket competition. The object of the competition was to build a “true scale model” of a pre-existing rocket and have it complete a successful flight. Additional requirements of the competition included having an electronic deployment of the rocket's parachute, a downed rocket location aid, and purchases from reputable rocketry vendors. The competition was scored in five segments: an outreach event, flight
and design plan, pre-flight presentation, rocket launch, and post flight data analysis.

**Hong, Zixing**

*Language Research* (Poster)

Faculty Mentor(s): Rhonda Petree, English

This language project involves discovering how participants interact with each other during classes, the cultural differences and similarities between American students and international students. The goal is to show cultural differences and similarities: the specific words and habits which the participants use when they are interacting with others. This project ran for about a month. The data has was gathered by three types of observations: self-observation, participant observation, and non-participant observation. Results showed that during interactions, international students like to use a few sentences pattern to explain their ideas while American students do not have regular pattern. Moreover, both American and internationals do have many similar conventions during interactions.

**Hunt, Joshua**

*Phys Con Trip* (Poster)

Research Collaborator(s): Gabrielle Chapin, William Anderson, Jacob Hanson-Flores, Robert Phipps, Jakob Till, and Peter Jacobs

Faculty Mentor(s): Dr. Earl Blodgett, Physics

Presentation about what the quadrennial physics convention is like. Sharing personal experiences while at the convention and discussing what kind of speakers are at the convention.

**Iversen, Nicholas**

*Professor Rating Dependent on Gender and Stereotype Adherence* (Poster)

Research Collaborator(s): Toria Lodzinski

Faculty Mentor(s): Dr. Melanie Ayres, Psychology

Research has shown that male professors are consistently rated more favorably than female professors (Basow & Silberg, 1987). This study found a significant interaction between professor sex and student sex; male students rated female professors worse on all rating variables and female students rated female professors less harshly, but still in a more negative fashion. There is however, a lack of research in the area of stereotype adherence and its effect on professor rating. There are many ways professors can adhere or not adhere to stereotypes for their gender—perhaps by the field of study they teach, their appearance, or their teaching style. Research suggests that people prefer when others adhere
to the ideas they have about them: this is evaluative consistency theory. (Felipe, 1970). Further, people also use the stereotypes they have for certain types of people to evaluate others; this is known as the implicit personality theory (Schneider, 1973). Due to these factors, this study was designed to look at the question of how a professor’s gender and adherence to gender stereotypes will affect student’s ratings.

We will provide participants with descriptions of professors that vary in gender and their adherence to their gender’s stereotypes and ask participants to rate each professor on different qualities. The rating scale used in this study was adapted from Kaschak (1978) and Anderson (2010), which includes eight questions using a seven-point Likert scale. The questions pertain to a professor’s warmth, competence, likeability, and overall rating. Our design has been unofficially approved by a member of the IRB, and we expect to hear confirmatory results within the next week. Once approved and data has been gathered, we will perform statistical analysis using a two-way ANOVA.

We expect that male professors will receive higher ratings than female professors. In addition, we hypothesize that when professors adhere to their gender’s stereotypes, they will receive higher ratings from students than when professors do not adhere to their gender’s stereotypes. However, we believe that there will be a smaller gap between males and females when professors do not adhere to gender stereotypes. The results are meaningful because student rating affects tenure tracks, hiring, and firing of professors. It would also add evidence to the fact that most student-professor evaluations are not effective in measuring what they appear to be—the evaluations should be measuring the professors actual quality, but students may actually rate a professor's quality on factors other than their teaching performance.

Jacobs, Peter

*Phys Con Trip* (Poster)
Research Collaborator(s): Joshua Hunt, Gabrielle Chapin, William Anderson, Jacob Hanson-Flores, Robert Phipps, and Jakob Till
Faculty Mentor(s): Dr. Earl Blodgett, Physics

Presentation about what the quadrennial physics convention is like. Sharing personal experiences while at the convention and discussing what kind of speakers are at the convention.

Johnson, Debra

*Do Drug Court Programs Reduce the Rate of Recidivism* (Poster)
Faculty Mentor(s): Dr. Rich Wallace, Sociology, Criminology and Anthropology
The study is designed to determine if participants who have been referred to Drug Court have completed the program and have not been arrested for a drug or alcohol related offense after completing the program. This study will determine if drug court is a successful option to those offenders who would otherwise be imprisoned and perhaps not receiving treatment for their addiction.

Johnson, Emily

The Effects of Relationship Quality With Father on College Student’s Current Relationships (Poster)
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

This study looked at how a college students' relationship with their father, currently, or in the past, effects their perception of relationships in college. In this study, I examined college students overall quality of relationship with their father, as well as overall quality of relationship with a romantic partner, and friend. This study also went further to evaluate college students' sense of individuality in a romantic relationship as well as with their friends.

Jorgensen, Henrik

Don’t Judge a Book by its Cover: Portraiture Through Blown Glass (Artwork)
Faculty Mentor(s): Eoin Breadon, Art

Three glass busts accompanied with panels that together are subtle representations of the three classes in society: ultra-poor, middle-class, and ultra-rich.

Kile, Mitchell

Casting a new light on glass art (Artwork)
Faculty Mentor(s): Eoin Breadon, Art

I will display alternative forms of glass art created through kiln-formed castings, these art pieces are very different from what glass art is traditionally thought as. My goal in this project is to educate people in the art of kiln-formed casting, and broaden their understanding of glass art.

Kinney, Molly

A journalistic examination of fourth wave feminism and the climate justice intersection (Poster)
Faculty Mentor(s): Andris Straumanis, Communication and Media Studies
A journalistic examination of fourth wave feminism and the climate justice intersection

Kock, Jackson

**Improving Size Measurements of Optically Trapped Water Droplets** (Poster)
Faculty Mentor(s): Dr. Lowell McCann, Physics

At the beginning of my research I learned how to model the two-lens system. I planned on using in OSLO, a ray tracing program, to design the model. After some use of OSLO, I had a general idea of how I was going to align the system, and with what equipment. I next built this system apart from the optical trap, so I could spend time observing the light’s behavior. I ran experiments observing the size and location along the optic axis, and the intensity of the focused light. Once I was satisfied I implemented the design to the optical trap. I then learned about how we acquire a spectra of wavelengths (color) scattered off the droplet. This spectra is how we are able to accurately determine the droplets size. Currently I am experimenting with the program my peer and mentor created, that determines the droplet’s size very precisely. I am hoping to discover an improved measurement of the droplet’s size.

Kolell, Kelsey

**WSGC Rocket Competition** (Slide show presentation)
Research Collaborator(s): Laura Lusardi, Laura Moon, Marium Asif, and Raven Hernandez
Faculty Mentor(s): Dr. Glenn Spiczak, Physics

We participated in the Wisconsin Space Grant Consortium rocket competition. The object of the competition was to build a “true scale model” of a pre-existing rocket and have it complete a successful flight. Additional requirements of the competition included having an electronic deployment of the rocket’s parachute, a downed rocket location aid, and purchases from reputable rocketry vendors. The competition was scored in five segments: an outreach event, flight and design plan, pre-flight presentation, rocket launch, and post flight data analysis.

Krogman, Elena

**Heart Failure Attenuation by Compounds from Trapa natan** (Poster)
Faculty Mentor(s): Dr. Cheng-chen Huang, Biology

Heart failure is a condition when the heart is unable to supply sufficient amount of oxygen-rich blood throughout the body. Heart failure is the one of the leading causes of death in the United States. In more recent years, there has been several species of animals that have been identified as being useful models for
heart failure research. These animals include pigs, rats, and some aquatic species. A low-cost model using zebrafish has been established to replace other expensive animal models. Zebrafish embryos are used and placed in 10 µM solution of aristolochic acid in order to develop certain cardiac phenotypes that resemble human heart failure. In this project, I’ve added a second compound or herbal extract to test the amount of cardiac rescue that is observed. Two positive extracts have been identified that rescue the heart failure phenotypes. These extracts are called C2 and C3 and come from the shells of the Trapa natan fruit. The crude compounds in both extracts were further separated into fractions. Of these two extracts, two fractions showed the highest heart failure attenuation. These fractions are C2-80% and C3-20% and show approximately 90% rescue. The positive fractions will be analyzed with HPLC to identify the candidate compounds. In conclusion, we have been working on identifying natural compounds using a simple zebrafish model that resembles human heart failure.

LaCoy, Brett

**Mapping Geological Features with Drone Technology** (Poster)
Research Collaborator(s): Gary Strohbeen and Rachel Potter
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

3D imaging is important in the field of geology and physical geography. The goal of our project was to map two quarries near River Falls where we took aerial photographs. Through the use of a Phantom 3 drone and the Drone Deploy software, we collected images along predetermined transects. These images were then processed to create a georeferenced air photo overlay, a 3D model, and elevation data for each transect we created.

Leonard, Josh

**Interactive Web Map of Whitetail Ridge** (Poster)
Research Collaborator(s): David Paynotta and Owen Haugen
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

In this project we created a map intended to provide trail users with up to date information about Whitetail Ridge Mountain Bike Trail located in River Falls, Wisconsin. The goal of the project is to make a simple, clean, online map that can be accessed at home or on the go. In order to achieve this goal, we collected information about the trail using GPS receivers and constructed the map using CARTO. We hope that the final product is simple to use, up to date, and accessible to the user.

Lewis, Natalie
Islamic Multicultural Society in Early Spain (Poster)
Research Collaborator(s): Heather Bonse
Faculty Mentor(s): Dr. Daniela Goldfine, Modern Language

Before the widespread of Catholicism, Spain’s early history was marked by a Muslim invasion across the strait of Gibraltar in the year 711. This was during the time in Spain where the Jewish and Christian religions frequently engaged in internal conflicts, struggling to build a successful culture. After the invasion, the new Muslim rulers created a peaceful multi-cultural society that truly flourished, naming their new community Al-Andalus, which is current day Andalucía. Muslim rulers reigned over an accepting and tolerant society, in contrast to later years when the church came to power and religious diversity was vanquished.

Today, Spain is considered a country strong in the Catholic faith, but Muslim culture left a legacy as a Golden Age of history while the rest of Europe was still in the Dark Ages. The Muslim rulers implemented great societal, scientific, and architectural advances. Religious minorities also thrived during this time, as religion was not a barrier for marriage, social status, and jobs. Jews and Christians during this time were permitted to practice their own religions, although some chose to convert to Islam. However, as the Catholic Church began sweeping the nation, Isabel of Castile and Ferdinand of Aragon began separating people based on religious and social status. Ultimately, with the hysteria of the church and the Inquisition underway, the Jews and Muslims were exiled out of Spain, all the while the Catholic Church worked very hard to cover up the rich culture the Muslims had built in Spain.

Antes de la expansión del catolicismo, la historia de España fue marcada por la invasión de los musulmanes por el estrecho de Gibraltar en 711. Esto fue durante el tiempo que en España las religiones de los judíos y musulmanes tomaron parte en conflictos internos en la lucha por crear una cultura exitosa. Después de la invasión, los nuevos gobernantes musulmanes crearon una sociedad pacífica y multicultural que floreció, nombrando su nueva ciudad Al-Ándalus—hoy en día es Andalucía. Los gobernantes musulmanes reinaron sobre una sociedad tolerante, en contraste con años más tardes cuando la Iglesia llegó al poder y la diversidad de religión fue extinguida por los Reyes Católicos.

Hoy España es considerada un país muy fuerte en la fe católica, pero la cultura de los musulmanes dejó un legado de una edad de oro mientras todo el resto de Europa todavía estaba en una etapa oscura. Los gobernantes musulmanes implementaron grandes avances en la sociedad, las ciencias y la arquitectura. Las minorías religiosas también florecieron durante este tiempo, porque la religión no fue una barrera para casarse, ni para el estatus social o los trabajos. Los judíos y los cristianos durante este tiempo fueron permitidos practicar sus propias religiones, pero algunos decidieron convertirse al islam. Pero, la iglesia católica empezó a tomar poder y tuvieron influencia sobre España. Los Reyes Católicos, Fernando de Aragón e Isabel de Castilla empezaron a separar a los
judíos y los musulmanes basándose en sus religiones y estatus social. Finalmente, con el caos de la Inquisición, ocurrió la expulsión de los musulmanes y judíos de España, mientras la sociedad multicultural y sus logros fueron destruidos por los Reyes Católicos.

**Lodzinski, Toria**

*Professor Rating Dependent on Gender and Stereotype Adherence*  
(Poster)

Research Collaborator(s): Nicholas Iversen  
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

Research has shown that male professors are consistently rated more favorably than female professors (Basow & Silberg, 1987). This study found a significant interaction between professor sex and student sex; male students rated female professors worse on all rating variables and female students rated female professors less harshly, but still in a more negative fashion. There is however, a lack of research in the area of stereotype adherence and its effect on professor rating. There are many ways professors can adhere or not adhere to stereotypes for their gender—perhaps by the field of study they teach, their appearance, or their teaching style. Research suggests that people prefer when others adhere to the ideas they have about them: this is evaluative consistency theory. (Felipe, 1970). Further, people also use the stereotypes they have for certain types of people to evaluate others; this is known as the implicit personality theory (Schneider, 1973). Due to these factors, this study was designed to look at the question of how a professor’s gender and adherence to gender stereotypes will affect student’s ratings.

We will provide participants with descriptions of professors that vary in gender and their adherence to their gender’s stereotypes and ask participants to rate each professor on different qualities. The rating scale used in this study was adapted from Kaschak (1978) and Anderson (2010), which includes eight questions using a seven-point Likert scale. The questions pertain to a professor’s warmth, competence, likeability, and overall rating. Our design has been unofficially approved by a member of the IRB, and we expect to hear confirmatory results within the next week. Once approved and data has been gathered, we will perform statistical analysis using a two-way ANOVA.

We expect that male professors will receive higher ratings than female professors. In addition, we hypothesize that when professors adhere to their gender’s stereotypes, they will receive higher ratings from students than when professors do not adhere to their gender’s stereotypes. However, we believe that there will be a smaller gap between males and females when professors do not adhere to gender stereotypes. The results are meaningful because student rating affects tenure tracks, hiring, and firing of professors. It would also add evidence to the fact that most student-professor evaluations are not effective in
measuring what they appear to be—the evaluations should be measuring the professors actual quality, but students may actually rate a professor’s quality on factors other than their teaching performance.

Loeffler, Kelsey

*Peer Social Development in Early Childhood* (Poster)
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

Peer acceptance is an important area of study as it has many consequences for developing children (Asher & Paquette, 2003). For example, rejected children are more likely to do poor in school and may have a hard time dealing with problems (Walker, 2009). One of the additional challenges for rejected children is they are likely to remain in that status long-term (Levine & Munsch, 2011). Although we know a lot about peer acceptance in school-aged children, little research has examined how young children are first associated with a particular peer status.

This current study is designed to determine peer status over time among children ages 2-4. In particular, I want to examine social status changes within a toddler room ages 2-3 years old as well as a preschool room, 3-4 years old. Through observations and simple interviews, we assessed peer status over time and looked at how that correlates with play behavior and affect.

Lusardi, Laura

*WSGC Rocket Competition* (Slide show presentation)
Research Collaborator(s): Laura Moon, Marium Asif, Raven Hernandez, and Kelsey Kolell
Faculty Mentor(s): Dr. Glenn Spiczak, Physics

We participated in the Wisconsin Space Grant Consortium rocket competition. The object of the competition was to build a "true scale model" of a pre-existing rocket and have it complete a successful flight. Additional requirements of the competition included having an electronic deployment of the rocket's parachute, a downed rocket location aid, and purchases from reputable rocketry vendors. The competition was scored in five segments: an outreach event, flight and design plan, pre-flight presentation, rocket launch, and post flight data analysis.

Maher, Jacquelyn

*Baseline inventory of native pollinating insects at new biomonitoring locations in Washburn County and Pierce County, Wisconsin* (Poster)
Faculty Mentor(s): Dr. John Wheeler, Biology

Why study insect pollinators? There is a global decline of native pollinators and their diversity due to a variety of reasons including climate change, pesticide
use, habitat loss, and invasive exotic pathogens. Monitoring wild pollinators in any area is important to the food supply for humans as well as an enormous amount of wild animals. Without the wild pollinators, there would be limited fruit set of all types of horticultural, agronomic and wild food sources that literally feed the world inhabitants. Studies have shown that wild insect pollination contributes around $3 billion to the country’s agricultural food production. The availability of wild pollinators is critical to the success of all ecological systems staying sustainable for the long term. In order to move forward with trying to restore or help correct the native populations, baseline data on the distribution and status of species needs to be identified. Collecting this data is the only way to start the process of beginning to understand how to stop the decline of wild insect pollinators. This research is Biomonitoring of two similar locations to see what the species richness is in both areas and to identify if there are any differences in the two locations over time. The research spanned one summer with two collection times. After all data was collected, statistical analysis was done to compare the findings to see if there were similarities or differences. After identifying the families, genus and species of the pollinators in the two collection zones, it has been determined that there is no statistical difference between the two like locations in species richness, but there was a significant difference in the early collection compared to the later season collection. More collections will need to be done to establish trends of native pollinators in the two areas studied going forward.

Mallizzio, Kara

**Establishing the First Honey Bee “Sentinel Apiary” in the State of Wisconsin** (Poster)
Faculty Mentor(s): Dr. Brad Mogen, Biology

Honey bees, *Apis mellifera*, are an incredibly important keystone species that are extremely important to our agricultural industry here in Wisconsin. Being at the heart of this multi-million dollar industry, bees serve an irreplaceable role as the main pollinators of many of our common cash and food crops. Unfortunately, for a variety of reasons, honey bee populations have begun to decline nationwide. Loss of our honey bees locally, nationally and even worldwide could have extremely detrimental effects. In order to reduce these losses, Regional Management Programs (RMP) are being encouraged as a way for beekeepers to manage the health of their bees. The idea is that all beekeepers in a given area would perform a common management protocol at the same time. This would allow them to monitor and treat their colonies for common problems in a coordinated manner, resulting in the greatest possible collective effect. Preliminary testing of hive monitoring systems was done over the course of the summer to study the effectiveness of these systems and hopefully allow us to become one of the first Sentinel Apiaries in the state of Wisconsin.
Martin, Miranda

Willow River State Park Trail Map (Poster)
Research Collaborator(s): Joe Henson
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

The purpose of our project was to map the trails of Willow River State Park in Hudson, Wisconsin. To accomplish this, we walked all of the trails in the park and used a GPS receiver to track our paths. We then mapped this data, as well as locations of important features such as maps currently posted along the trails.

Martin, Miranda

Rearing Northern Honey Bee Queens from Selected Overwintered Genetic Stock (Poster)
Faculty Mentor(s): Dr. Brad Mogen, Biology

The honeybee, Apis mellifera, is a non-native pollinator that was brought to North America as it was settled. Agriculture throughout the world has become increasingly dependent on this pollinator species, and an overwhelming loss is seen every year due to overwintering in areas with harsher winter climates. In 2011, Wisconsin beekeepers reported an average loss of over 50% of their hives due to long, cold winters that A. mellifera is not adapted to surviving. (Vanengelsdorp et al. 2012) Most queen bees are raised from stock in warmer southern states where they are not suited for winters in the North. While raising queen bees for this study, larvae was chosen from queens that had already shown high winter survival rates in Wisconsin as well as strong hygienic behaviors. From June 16th through June 30th of 2016, four grafting sessions were performed from three overwintered and hygienic queen mothers. This amounted to 94 larvae raised using the cloakeboard method, and a success rate of roughly 50% emerging as queens. It was found that in future grafts, the most important components of queen rearing will be following a strict schedule, grafting the youngest possible larvae, and priming the queen cups with royal jelly to reduce chances of damaging the larvae during the transfer.

Melby, Kali

Evaluating Temporal Trends and Sources of Lead in the Columbia River Gorge Using Epiphytic Lichens and Lead Isotopes (Poster)
Faculty Mentor(s): Dr. Alyssa Shiel, Geology and Geophysics (Oregon State University)

The Columbia River Gorge (CRG) is a designated National Scenic Area. The CRG is a region between Washington and Oregon with complex topography and is valued for recreation. Potential anthropogenic lead (Pb) sources include
vehicular exhaust, diesel exhaust from trains and marine vessels travelling through the CRG, emissions from the Boardman coal-fired power plant emissions, and pollution from the city of Portland. After release into the atmosphere, Pb can be transported in airborne particulates, can be deposited on forest canopy surfaces and bioaccumulate in ephiphytic lichens at levels that reflect environmental metal levels and can be used to assess air quality. Lichen Pb concentrations reveal a steep decline in the atmospheric deposition of Pb in the CRG over the past two decades. The maximum observed Pb concentration decreased by a factor of ~10 between 1993–1994 and 2013–2014 for each of three target lichen species collected. Pb isotopes indicate the relative importance of pollution from the city of Portland to the west, and background levels influenced by historic leaded gasoline.

**Meyer, Audrey**

*Directive and Non directive Tutoring Methods in the University Writing Center* (Poster)

Faculty Mentor(s): Dr. Kathleen Hunzer, Honors Program

A presentation of my research findings on the efficacy of directive and non directive tutoring methods in the University Writing Center from online sources and personal experience as a writing tutor.

**Miller, Anna**

*Effects of Inhibition of the Medial Prefrontal Cortex on Symptoms of Depression in an Animal Model* (Poster)

Faculty Mentor(s): Dr. James Cortright, Psychology

Depression is the most widespread disability on Earth affecting more than 350 million people of all ages across the globe. Depression mostly affects women and can lead to self-injury, substance abuse, and even suicide. The gravity of these consequences indicates that depression is a mental illness which can alter an individual’s self-esteem or self-focus. Self-focus (i.e. the process by which one engages oneself in self-referential processing) is a core issue in the psychopathology of major depression. Previous studies have used functional neuroimaging to identify that the cortical midline structures, including the medial prefrontal cortex (mPFC), play a key role in self-referential processing in depressed subjects. Further examination of the mPFC is warranted not only as a possible precursor to the implication of its involvement in mediating depression but also in order to provide support for a dominant pattern of brain activity which interacts with symptoms of depression. In order to maintain high external validity the study will utilize female Long Evans rats. The rats will undergo a series of randomized chronic stressors in order to induce depressive-like symptoms. Symptoms identified include learned helplessness, lethargy, and anhedonia (motivation). Inhibitory and control drug infusions will be localized to
the mPFC using cranially implanted cannulae through a minor surgery. Subjects will be tested for latency in regards to learned helplessness, for lethargy in a radial arm maze and open field test, and for anhedonia using sugar pellets in an operant chamber. It is hypothesized that a decrease in depressive symptoms will be seen in animals which have undergone inhibition of the mPFC (having also had their self-referential processes inhibited) compared to animals that display symptoms of depression but did not receive inhibitory treatment. Preliminary results indicate an alleviation of symptoms of learned helplessness in depressed animals which receive inhibition compared to other conditions.

**Miller-Chell, Kathleen**

*Formation of Self* (Artwork)
Faculty Mentor(s): Dr. Earl Blodgett, Physics

Science is about discovery and immersion, it has the greatest effect and you learn the most when it has a personal meaning to you. For me, the thing that has always driven my discovery is learning about the planets. When I was young, my father and I used to go out and lay in the grass staring into the night sky trying to pick out planets from the stars. I pulled inspiration from these nights and instilled the experiences into my painting. The girl in my painting represents an early solar system. She is the center mass of the system and as she exhales she breathes life into new planets and solar systems. Each creation is another opportunity to experience the feeling of discovery and to immerse yourself in learning. It's the same feeling whether you love gazing into the sky, exploring the depths of the oceans, or searching out another species. The painting is meant to represent the learner in all of us.

**Minor, Jake**

*Partitions and Partition Identities* (Poster)
Faculty Mentor(s): Dr. Keith Chavey, Mathematics

Partitions have long been a subject of study in the field of number theory. Over the past few weeks I worked to understand the underlying mechanics of two known partition identities. To do this, I used generating functions and a bijection. With these techniques, a general proof is constructed.

**Miotke, Alison**

*The influence of plants on anger, stress, and frustration in a work environment.* (Poster)
Research Collaborator(s): Madison Durand
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

Our experiment study examines the effects of introduction green foliage into a stressful environment. We hypothesized that individuals that are working in
stressful environment will have a reduction in state anger, stress and frustration when green foliage is introduced into the environment, and that these effects would be greater when the amount of green foliage increased. We also hypothesized that gender will have an effect on the reduction of state anger, stress, and frustration an individual feels. For our experiment we used difficult math problems to provoke anger stress and frustration. Individuals were randomly assigned to one of the three conditions no plants, moderate amount of plants or large amounts of plants. Individuals were asked to report their level of trait and state anger, stress, before and after partaking in the difficult math problem task.

Miotke, Alison

**Attitude, Mood, and Performance Correlates of a Greenwall-Enhanced Environment** (Interactive Display)
Faculty Mentor(s): Dr. Travis Tubre, Psychology; Dr. Terry Ferriss, Plant and Earth Science; Dr. David Trechter, Agricultural Economics

Research from multiple disciplines suggests that the physical environment in which an individual lives and works can impact their lifestyle, health, subjective well-being, and productivity. Studies conducted in office and academic settings in such diverse locations as Japan (Shibata & Suzuki, 2004), the United Kingdom (Knight & Haslam, 2010), and the Netherlands (Nieuwenhuis, Knight, Postmes, & Haslam, 2014) have consistently demonstrated that indoor plants can positively impact student and worker moods, attitudes toward work, and even productivity. The goal of our research was to extend on this previous research by studying whether these same benefits would be seen for a greenwall (i.e., a vertically arranged, living wall of plants) that is actually built into the physical environment of a classroom. After confirming initial equivalence of the room targeted for the greenwall installation and a control classroom, we examined the differences between students taking classes in the greenwall-enhanced classroom and the control classroom on work-related environmental perceptions, academic self-efficacy, and mood. Embedded in this larger sample were four multi-section courses where the same instructor taught two sections, one in each room. After analyzing our results, we found significant differences favoring the greenwall-enhanced room in perceptions of air quality, academic anxiety, and environmental restoration.

Mitra, Samantha

**Student Perceptions on Sexual Consent** (Poster)
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

The rise of awareness of sexual assault on college campuses across the country has brought campaigns that spread awareness and prevention tactics, as well as
research on perceptions of sexual consent in its wake. The research done in this article aims to highlight these perceptions on sexual consent, specifically of students of varying ages and genders on the University of Wisconsin: River Falls campus by having students fill out a survey derived from Humphreys & Brousseau (2010) and the Massachusetts Institute of Technology (2014) on a 6 point likert scale. A majority of the research seeks to analyze analyzing how the student feels about consensual sex, as well as how the student feels about victims, but students are also asked about how the feel about how sexual assault is handles at the university and through investigations. Because of the myths and common perceptions on victims of sexual violence, it is imperative to analyze the aspects of how students feel about victims in order to better understand how these students view consent and sexual violence. Factors of the participants that are considered in this research are gender and political affiliation to see if attitudes consent can be predicted based on where the participant falls on those spectrums.

Moon, Laura

*WSGC Rocket Competition* (Slide show presentation)
Research Collaborator(s): Marium Asif, Raven Hernandez, Kelsey Kolell, and Laura Lusardi
Faculty Mentor(s): Dr. Glenn Spiczak, Physics

We participated in the Wisconsin Space Grant Consortium rocket competition. The object of the competition was to build a "true scale model" of a pre-existing rocket and have it complete a successful flight. Additional requirements of the competition included having an electronic deployment of the rocket's parachute, a downed rocket location aid, and purchases from reputable rocketry vendors. The competition was scored in five segments: an outreach event, flight and design plan, pre-flight presentation, rocket launch, and post flight data analysis.

Paynotta, David

*Interactive Web Map of Whitetail Ridge* (Poster)
Research Collaborator(s): Owen Haugen and Josh Leonard
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

In this project we created a map intended to provide trail users with up to date information about Whitetail Ridge Mountain Bike Trail located in River Falls, Wisconsin. The goal of the project is to make a simple, clean, online map that can be accessed at home or on the go. In order to achieve this goal, we collected information about the trail using GPS receivers and constructed the map using CARTO. We hope that the final product is simple to use, up to date, and accessible to the user.
Pechacek, Hannah

*Understanding the Performance of Third Parties in American Politics* (Poster)
Faculty Mentor(s): Dr. Davida J. Alperin, Political Science

It is an undisputable fact that American politics are often defined by its two-party system. Since the middle of the nineteenth century, every president that has been elected to office has been a member of either the Republican Party or the Democratic Party. Despite the obvious power and influence of the two major parties, third-party candidates often run for Congressional and Senate seats, state and local positions, and the presidency. Third parties and third-party candidates typically do not achieve great success in terms of winning elections (although they may gain success through other means, such as influencing the major party platforms). This predicament, however, does not deter the existence of third parties and third-party candidates. Third parties and third-party candidates are still able to garner a certain degree of support and popular votes. However, certain circumstances may contribute to a higher third-party vote.

Pedek, Samantha

*Exploring the Possibility of Detecting Extragalactic Supernovae with IceCube Gen II* (Poster)
Faculty Mentor(s): Dr. James Madsen, Physics; Dr. Surujhdeo Seunarine, Physics

The IceCube Neutrino Observatory is a one cubic kilometer neutrino telescope located deep within the Antarctic ice. It currently consists of an array of 86 strings that each contain 60 photomultiplier tubes (PMTs). Neutrinos are detected indirectly by the light emitted when they interact within the kilometer of instrumented volume that makes up IceCube. This study focused on the possibility of detecting extragalactic supernovae neutrinos. Supernova neutrinos have low energy, in 1MeV to 20MeV range, meaning they are too low to be observed above the noise rate of the detector. Fortunately, they come in very large numbers. Currently, for supernova neutrinos that originate from the Milky Way Galaxy, IceCube will “see” the background noise of the sensors increase significantly for some period of time. The signal from supernova neutrinos from outside our galaxy will spread out so much by the time they reach us, that it gets lost in the background. An extension to IceCube, Gen II, is currently in development. Studies are underway of different types of optical sensor for Gen II and, in particular, sensors that are capable of observing the signals from extragalactic supernova neutrinos. The goal of this project was to determine if the optical fibers would be more effective at “seeing” extragalactic supernovae than the traditional string of PMTs. According to this study, the optical fibers has
potential to perform better than the string of PMTs at detecting extragalactic supernova neutrinos.

Pelot, Joshua

*Differences in the Immune Cell Profiles of Honey Bees of Different Subspecies* (Poster)
Faculty Mentor(s): Dr. Brad Mogen, Biology

Honey bee, *Apis mellifera*, populations have been declining all over the world. One hypothesis is that honey bees are suffering from a weakened immune system, which is making them more susceptible to pathogens. It is important to understand a bee’s immune system if we want to understand bee health as a whole. This research focused on two subspecies of Honey bee, Russians and Palmers. We also examined the differences between the workers and the drones of both subspecies. We extracted hemolymph from 120 bees and profiled it through a flow cytometer. We looked at the percentage of plasmatocytes in each hemolymph profile and compared them. There were found to be differences between the subspecies and the genders.

Peters, Aaron

*Recreation on the Kinnickinnic and Where to Find It* (Poster)
Research Collaborator(s): Stella Pey
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

The Kinnickinnic River, running through River Falls, Wisconsin, is a frequently visited river by hikers, kayakers, and trout anglers. However, there is a lack of mapping that highlights the trails and fishing spots available to the public. Through mapping trails with GPS receivers, and knowledge of the fishing hotspots, a map was created to detail the locations where trout anglers are likely to find success.

Pey, Stella

*Recreation on the Kinnickinnic and Where to Find It* (Poster)
Research Collaborator(s): Aaron Peters
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

The Kinnickinnic River, running through River Falls, Wisconsin, is a frequently visited river by hikers, kayakers, and trout anglers. However, there is a lack of mapping that highlights the trails and fishing spots available to the public. Through mapping trails with GPS receivers, and knowledge of the fishing hotspots, a map was created to detail the locations where trout anglers are likely to find success.
Phipps, Robert

*Phys Con Trip* (Poster)
Research Collaborator(s): Jakob Till, Peter Jacobs, Joshua Hunt, Gabrielle Chapin, William Anderson, and Jacob Hanson-Flores
Faculty Mentor(s): Dr. Earl Blodgett, Physics

Presentation about what the quadrennial physics convention is like. Sharing personal experiences while at the convention and discussing what kind of speakers are at the convention.

Podgorsek, Bryce

*The Impact of Biases on an Individual’s Perceived Credibility* (Poster)
Research Collaborator(s): Emily Anderson
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

Our study is attempting to find out if biases regarding race and age have a detrimental effect on a man’s perceived credibility, specifically in the field of computer science. We are also exploring the possibility of an interaction between race and age. We hypothesize that young males as computer science authority figures will be considered more credible than older males as computer science authority figures. We hypothesize that white males as computer science authority figures will be considered more credible than black males as computer science authority figures. We hypothesize that there will be an interaction between age and race. A young white man as a computer science authority will be considered more credible than a young black man as a computer science authority; further, based on previous research, it is likely age will serve as a leveler and cause both an older black and white male to have equally lower scores than those of the young counterparts. We are going to measure using McCroskey’s credibility scale. We will be using UWRF students from the Psychology 101 class.

Potter, Rachel

*Mapping Geological Features with Drone Technology* (Poster)
Research Collaborator(s): Brett LaCoy and Gary Strohbehen
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

3D imaging is important in the field of geology and physical geography. The goal of our project was to map two quarries near River Falls where we took aerial photographs. Through the use of a Phantom 3 drone and the Drone Deploy software, we collected images along predetermined transects. These images were then processed to create a georeferenced air photo overlay, a 3D model, and elevation data for each transect we created.
Quiram, Brian

*Sakatah Trail Improvements* (Poster)
Research Collaborator(s): Maxwell Erickson
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

In this project we mapped the Sakatah Singing Hills State Trail from Madison Lake to Warsaw Minnesota, an approximate 22 mile stretch. We focused on what could be improved or added in terms of the condition of the trail, the convenience of the trail, and the information on the trail. The state trail attracts hundreds of tourists each year and also benefits the local population with recreation such as: camping, hiking, etc. Our goal is to improve the trail to attract more or encourage more people to visit the area.

Rabe, Talen

*Using RFID Chips to Track Behavior of Honey Bees* (Poster)
Faculty Mentor(s): Dr. James Madsen, Physics

In our study we developed methods for attaching radio frequency identification (RFID) tags to honey bees in order to monitor their movement to and from the hive. To validate that our methods are effective we ran an experiment tagging ten bees from each of two adjacent hives. We were interested in how often we might see bees from one hive enter the other. We placed RFID sensors at the entrance of each hive to monitor this drifting behavior. We found that drifting between these two hives was virtually non-existent, however, we did show that our methods for tag attachment and data collection were effective. We were able to collect usable, meaningful data which gave us information about things like average foraging times, peak foraging hours, and expected survival rates of tagged bees. It is our hope that this study opens the door for further research with RFIDs and honey bees.

Refsland, Kayla

*The Effects of Physical Activity on Academic Motivation as Moderated by Body Satisfaction* (Poster)
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

This study looked at, the effects of physical activity integrated into classroom lessons moderated by body satisfaction on academic motivation in college students. A total of 31 participants from the University of Wisconsin- River Falls’ Health and Human Performance major volunteered for this study. The participants were randomly assigned to either a physically active lesson group or a seated lesson group. They were then quizzed on information from the lesson, and filled out a questionnaire regarding academic motivation and a
questionnaire regarding body satisfaction. The results found that the participants who participated in the physically active lesson showed higher levels of interest and enjoyment in learning the lesson. However the results regarding the other categories in academic motivation were insignificant, as well as the results of body satisfaction as a moderator. These results suggest that physical activity incorporated into classroom lesson create a more interesting and enjoyable way for students to gain the information.

Reh, Coty

**Sustainability from Field to Classroom: the Knowledges and Values across the Rural to Urban Spectrum** (Poster)
Faculty Mentor(s): Dr. Rich Wallace, Sociology, Criminology and Anthropology

This study asks if within the population of students taking a course discussing sustainability, do students from different family backgrounds have different sets of values and knowledge regarding sustainability? Conversely, it pays attention to how sustainability is taught across different college departments. This study will test the hypothesis that students from agricultural family backgrounds will have a distinct set of social, economic, and environmental values compared to the total study population.

Riley, Keaton

**Social Media and Student Productivity** (Poster)
Faculty Mentor(s): Dr. Rich Wallace, Sociology, Criminology and Anthropology

This presentation will discuss the findings of surveys done with UWRF students. The survey attempts to answer the question: are we less productive because of the distraction of social media outlets?

Sacher, Grace

**Illustrating Medicine** (Artwork)
Faculty Mentor(s): Jeannine Kitzhaber, Art

A visual collection on the history and practice of both mainstream and alternative medicine.

Salgado, Yazzaret

**The role of women in Spain during the 16th century**

**El rol de la mujer en España durante el siglo XVI** (Poster)
Research Collaborator(s): Maria Dwyer
Faculty Mentor(s): Dr. Daniela Goldfine, Modern Language

During the 16th century, women in Spain had very few choices for their lifestyle. After la Reconquista, a lot of women decided to either be a housewife and take care of their homes, or join a convent and dedicate their lives to God. In reality these were the only options that were presented to women, as well as the most honorable and common at the time. Women in this era didn’t have the same rights as women today, back then it was not allowed for women to go to school, and they weren’t respected by men who at the time had all the power. Those who chose to become a housewife had to dedicate themselves to their husbands and obey to anything they said, as well as take care of their children. Those who chose to become a nun, had the opportunity to become educated and possibly have more liberty as well. The conflict between these options was big because although these women didn’t have many choices, the ones they did have were very different and affected their lives in distinct ways.

En el siglo XVI, España tenía pocas opciones para el tipo de rol que una mujer podía escoger para su vida. Después de la Reconquista muchas mujeres se casaron y se hicieron cargo de sus casas, otras decidieron ir a un convento y dedicar sus vidas a Dios. En realidad, estas dos opciones eran las pocas que se presentaban en la vida de estas mujeres, eran las opciones más honorables y comunes que había en España en estos tiempos. La mujer en esta época no tenía los mismos derechos que tiene una mujer hoy día: antes no estaba permitido que las mujeres fueran a la escuela, ni tampoco eran respetadas por los hombres quienes tenían mucho más poder. Al escoger la vida de esposa, tenían que dedicarse completamente a su esposo, obedecerlo en todo lo que mandaba y también cuidar a sus hijos. Si escogían la vida de monja, tenían la oportunidad de educarse y tener un poco más de libertad también. El conflicto entre estas opciones era grande porque, aunque las mujeres no tenían bastantes elecciones, las que tenían eran muy diferentes y afectaban sus vidas de formas muy distintas.

**Schmidt, Kirsten**

*Trash Accumulation on UWRF Campus* (Poster)
Research Collaborator(s): Kalley Swift
Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

UWRF prides itself on sustainability and leaving a greener footprint. One obstacle that stands in the way of maintaining a green campus is the accumulation of trash. This study was designed to assess how well UWRF can live up to its promise of being a clean and eco-friendly environment. Trash, recycling, and their perspective dumpsters were mapped with GPS receivers and spatial analysis was performed to assess which areas on campus could be improved. Through two weeks of data collection, 888 pieces of trash were
observed and mapped. Our analysis suggests that there are an adequate number of trash containers placed throughout the entirety of campus. The trash problem observed seems to be a cultural problem. It appears that both students and faculty can be careless and blind to the effect that their trash can make. We also didn’t intend to discover, yet found, that UWRF leaves a footprint of illegal activities through cigarette, alcohol, drug, and firework paraphernalia throughout all of campus.

Schmidt, Kirsten

The Effect of Stratification on Seed Bombs of 5 Species of Native Plants (Poster)
Faculty Mentor(s): Dr. Kim Mogen, Biology

Declining pollinator populations have been an ongoing problem thus efforts to restore their habitats by planting native plants are underway but it is unclear which plant species require stratification. The purpose of this project is to study the effect of temperature on various seed germination from seed bombs provided by Plantables, and the rate of plant growth afterwards. My approach was to plant 28 seed bombs of 5 native prairie species in fall 2015 and 28 in spring 2016 and in summer compare growth and germination rates. Seed bomb locations were chosen using a randomized block design. I collected data 3 times per week, once compiled I performed quantitative analysis. Results were 17 germinations and 16 of the 17 germinated were from stratified seeds. The only spring planted plant was had significantly less vigor than stratified plants. This was expected assuming native species are adapted to Wisconsin’s climate, utilizing winter stratification for better growth. Conclusions are that planting native plant species in winter will yield a higher success rate in germination and growth in the spring.

Sheldon, Matthew

Mechatronics and Control Theory: Ball and Plate (Interactive Display)
Research Collaborator(s): Adam Hendel
Faculty Mentor(s): Dr. Glenn Spiczak, Physics

This project was to research control theory algorithms to be used in a two axes ball and plate system. Two separate proportional, integral, derivative controllers operate independently to manipulate the position of a steel ball on a flat surface.

Smith, Rebecca

River Falls Chamber of Commerce Promotional Video Project (Short Film)
Faculty Mentor(s): Erik Johnson, Stage and Screen Arts
Working with the River Falls Chamber of Commerce I created three promotional videos for them to use to promote their work in the community, by planning, filming, and editing two short commercials and one video for their website.

**Spivey, Rashad**

*Safety for Probation Officers* (Poster)
Faculty Mentor(s): Dr. Rich Wallace, Sociology, Criminology and Anthropology

This research will be about the safety of Probation Officers from the Western part of Wisconsin and The Twin Cities area. Probation Officers from those counties will participate in a survey asking them about how safe they feel at work.

**Stage, Michelle**

*Correlation Between Casual Sex and Self-Esteem of Undergraduates* (Poster)
Research Collaborator(s): Alec Budge
Faculty Mentor(s): Dr. Melanie Ayres, Psychology

The purpose of this experiment is to study how people perceive the frequency of casual sex taking place on the UW River Falls campus, participants’ personal attitudes toward casual sex, participants’ casual sex behavior, and how self-esteem is correlated with these variables. An online survey was provided to participants in order to gain an understanding of casual sex on campus, and understanding participants’ self-esteem. In total there were 70 UW River Falls undergraduates students that participated. After providing consent, each participant completed an online survey assessing their casual sex behaviors, attitudes, and perceptions. Some items used in the survey originated from the Sociosexual Orientation Inventory – Revised (Penke & Asendorpf, 2008) to access casual sexual attitudes and behaviors. We adapted a Descriptive Peer Norms item to access participants’ casual sex perceptions (Van De Bongardt et al., 2013). Self-esteem items were taken directly from the Rosenberg Self-Esteem Scale (Rosenberg, 1965) to access participants’ self-esteem. Attitudes toward casual sex and casual sex behavior were positively correlated as expected. Contrary to expectations, casual sex behavior and self-esteem were not correlated. The effect of congruence between attitudes and perceptions on self-esteem was also explored.

**Strickland, Rebeccah**

*The Influence of Music on Moral Decision-Making* (Poster)
Research Collaborator(s): Brandon Westholm
Faculty Mentor(s): Dr. Melanie Ayres, Psychology
Our research builds off of previous research and looks at the direct connection between music and decision-making. Through further research we narrowed down our conditions of music as well as using a decision-making task that focuses on moral decision-making. Our participants were undergraduate psychology students (Mean age=19.96 , SD=2.828, 11=males, 37=females) from multiple different psychology courses across the department. All of our participants were offered extra credit through their individual psychology courses for participating. Our participants completed a moral decision-making task while listening to one of the four music conditions. These four conditions were pop music with lyrics, pop music without lyrics, classical music, and no music. Additionally, participants were asked if they knew the song that was being played for their condition. We ran a one-way ANOVA and found no main effect for condition on performance on the decision-making task, $F(3,47)=0.485, p=0.694$. We also ran a t-test which found no main effect for music familiarity on the decision-making task $t(47)=0.006, p=0.996$. Our results show that there was no statistical significance for the main effect of music condition or the main effect of music familiarity on the score of the decision-making task. Further research should continue to research this and look at specific characteristics of music such as tempo or genre, as well as the utilization of different decision-making tasks.

**Strohbeen, Gary**

*Mapping Geological Features with Drone Technology* (Poster)

Research Collaborator(s): Brett LaCoy and Rachel Potter

Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

3D imaging is important in the field of geology and physical geography. The goal of our project was to map two quarries near River Falls where we took aerial photographs. Through the use of a Phantom 3 drone and the Drone Deploy software, we collected images along predetermined transects. These images were then processed to create a georeferenced air photo overlay, a 3D model, and elevation data for each transect we created.

**Suemitsu, Aina**

*Oral History Project* (Slide show presentation)

Faculty Mentor(s): Alexander Hatheway, English

The purpose of the ESL 311 Research Writing Oral History Project was to learn about life mid-20th century in both the U.S. and international students’ home countries. Specifically, the students’ goal was to understand historical, social, and/or economic events.

Through this project, people could compare life in the mid-20th century to today. Additionally, they could know how society and life developed. As a result,
they could have the opportunity to consider their own life. It was important to share the stories of ordinary people in the 20th century, because it was a time of social progress, technological development and economic growth as well as the beginning of the global era.

First, the class researched politics, economics, and technology of the U.S. and their home countries in the 20th century. My home country is Japan, so I researched Japan and the U.S. Second, the class prepared interview questions for each person to expand on their research. Next, the class conducted phone interviews with an older person in their home countries, and visited a local senior living center to conduct in-person interviews with the residents. Afterward, the class summarized each interview and compared the experiences of the interviewees. The students created timelines and presented their findings to their fellow students and facility members.

Through the stories of their elders, the students could learn the background in the mid-20th century in the U.S. and their home countries. One finding was that young people had more responsibility in society in the past. More specifically, workers were younger than now. Another finding was that personal connections were strong, and it was not so hard to get a job at that time. People could get jobs through family or friends. Through this project, the students could reconsider their own lives and society.

**Swift, Kalley**

*Trash Accumulation on UWRF Campus (Poster)*

Research Collaborator(s): Kirsten Schmidt

Faculty Mentor(s): Dr. Mathew Dooley, Geography and Geographic Information Science

UWRF prides itself on sustainability and leaving a greener footprint. One obstacle that stands in the way of maintaining a green campus is the accumulation of trash. This study was designed to assess how well UWRF can live up to its promise of being a clean and eco-friendly environment. Trash, recycling, and their perspective dumpsters were mapped with GPS receivers and spatial analysis was performed to assess which areas on campus could be improved. Through two weeks of data collection, 888 pieces of trash were observed and mapped. Our analysis suggests that there are an adequate number of trash containers placed throughout the entirety of campus. The trash problem observed seems to be a cultural problem. It appears that both students and faculty can be careless and blind to the effect that their trash can make. We also didn’t intend to discover, yet found, that UWRF leaves a footprint of illegal activities through cigarette, alcohol, drug, and firework paraphernalia throughout all of campus.

**Thao, Bee**
**Molecular and Cellular Characteristics of the Cardiac Degeneration Caused by Arbutin** (Poster)
Faculty Mentor(s): Dr. Cheng-Chen Huang, Biology

About 6.6 million people in the U.S. are diagnosed with heart failure and it is one of the leading causes of death. There are medications and treatments, but no cure. Zebrafish embryos are low cost models that are studied for drug discovery and toxicity. Aristolochic acid (AA) is known to cause cardiac defects in zebrafish embryos, similar to human heart failure. Arbutin is a compound found in Bearberry plant and commonly used in cosmetics. From previous research, β-arbutin has shown toxicity to developing heart, so we want to run more tests to study the toxicity. α-arbutin is more effective for skin lightening than β-arbutin, therefore, we want to test if there are any cardiac toxicity. We tested different concentrations and found that in 300 mM β-arbutin, it showed expected lighter skin color, cardiac edema, and poor blood circulation. In 6 mM α-arbutin, most of the heart were normal. Furthermore, we ran quantitative polymerase chain reaction to test for the cyclooxygenase-2 (COX-2), an enzyme that is positively associated with inflammation. The inflammation levels in AA and β-arbutin treated embryos were about the same, indicating similar toxicological mechanisms of arbutin and AA in the heart.

**Till, Jakob**

**Phys Con Trip** (Poster)
Research Collaborator(s): Peter Jacobs, Joshua Hunt, Gabrielle Chapin, William Anderson, Jacob Hanson-Flores, and Robert Phipps
Faculty Mentor(s): Dr. Earl Blodgett, Physics

Presentation about what the quadrennial physics convention is like. Sharing personal experiences while at the convention and discussing what kind of speakers are at the convention.

**Tubre, Travis**

**The Influence of Conformity to Masculine Norms on the Earnings Expectations of Seniors at UW-River Falls: A Preliminary Analysis** (Poster)
Research Collaborator(s): Dr. John Walker, Economics; Dr. Travis Tubre, Psychology; Dr. June Li, Accounting and Finance

This study uses data collected on seniors in the College of Business and Economics (CBE), the College of Education and Professional Studies (CEPS), and Psychology majors from the College of Arts and Sciences (CAS) at the University of Wisconsin-River Falls (UWRF) to examine the influence of conformity to masculine norms on their earnings expectations. Preliminary ordinary least squares (OLS) total sample estimates indicate men who embrace the masculine
norm winning expect higher beginning salaries and higher earnings after ten and twenty years. College estimates indicate positive effects for winning in expected salary estimates after ten and twenty years (CBE) and for beginning salaries and after ten years (CEPS which includes the Psychology majors). Risk-taking has a positive effect on total sample estimates that pool women and men for expected beginning salaries and expected salaries after ten and twenty years. The masculine norm self-reliance has an unanticipated negative effect on expected earnings after ten years in total sample estimates that pool women and men, in the separate estimate for women, and within the CEPS. We suggest the negative effect of self-reliance in expected salary estimates reflect an awareness that this norm reduces earnings from conflicting with a workplace culture that emphasizes cooperation and teamwork. Further analysis is needed to determine the extent to which gender differences in expected returns to winning are evident within the CBE and CEPS. In addition, the degree to which gender differences in expected returns to risk-taking will be explored. Also, within the CEPS, whether there are gender differences in expected earnings after ten years with regard to self-reliance. Finally, preliminary regression results do not support the human capital hypothesis that those planning fewer years of full-time work expect a flatter earnings profile. (J16, J22, J24)

Vruwink, Kate

*Without A Roof: A Journalistic Study of Homelessness Across Wisconsin* (Poster)

Faculty Mentor(s): Andris Straumanis, Communication and Media Studies

Without A Roof is comprised of a combination of print and audio stories that highlight the faces of homelessness in a variety of towns and cities across Wisconsin. Each story includes a brief overview of a shelter, the directors thoughts on homelessness, and the stories of the homeless temporarily residing there.

Wang, Xiaoqi

*Typical English In-class Writing Errors of UWRF International Students* (Slide show presentation)

Faculty Mentor(s): Dr. Douglas Margolis, English

Second language learners face a double challenge by in-class essay exams. In a short period of time, students must generate ideas to answer a content question, while also navigating foreign words and grammar structures to articulate an appropriate response. As a result, international students face disadvantages compared to native speaker students during in-class essay exams. A number of studies have examined formal paper writing, but this type of writing permits extended processing time, opportunity for revision, and access
to assistance for proofreading. In class writing, however, requires immediate processing and offers few supports. It is not uncommon for international students to be the last to finish essay exams, many with great answers that end abruptly because the student ran out of time to finish. This presentation, therefore, reports findings of research that examined and analyzed 42 in-class writing samples from international students over the course of a semester. The samples are from a freshman English course for international students from three different tests: pre-test, midterm exam and final exam. The researchers analyzed the samples for both strengths and weaknesses, as well as the trajectory of progress over time. In addition to reporting these findings, the presenters will provide participants with strategies and techniques for improving writing fluency.

Wang, Lin

*Academic Conversations: A Language Research Project* (Poster)
Faculty Mentor(s): Rhonda Petree, English

This research looks at Academic Conversations: A Language Research Project. My research questions are "How do teachers ask questions to students in 5th-grade classes?" This research draws upon primary response collection from three sources: a self-observation, a participant observation, and a non-participant observation. I recorded four of my own interactions in English for two days. For the participant and non-participant observation, I used the SPEAKING Framework. Results showed that questions that teachers ask students are based on student learning skills and lesson plans.

Wang, Hsin-Ya

*Formal Presentations: A language research project* (Poster)
Faculty Mentor(s): Rhonda Petree, English

This Language Learning Project is based on three observation ways, including self-observation, a participant and non-participant observation and two formal presentations on-campus. Related to my journalism major, this research focuses on how people give presentations in a formal setting. Data was gathered from observation: including a self-observation, a participant and non-participant observation, and two formal on-campus presentations. Findings show that native English speakers use common general gestures and body language when delivering speeches.

Westholm, Brandon

*The Influence of Music on Moral Decision-Making* (Poster)
Research Collaborator(s): Rebeccah Strickland
Faculty Mentor(s): Dr. Melanie Ayres, Psychology
Our research builds off of previous research and looks at the direct connection between music and decision-making. Through further research we narrowed down our conditions of music as well as using a decision-making task that focuses on moral decision-making. Our participants were undergraduate psychology students (Mean age=19.96, SD=2.828, 11=males, 37=females) from multiple different psychology courses across the department. All of our participants were offered extra credit through their individual psychology courses for participating. Our participants completed a moral decision-making task while listening to one of the four music conditions. These four conditions were pop music with lyrics, pop music without lyrics, classical music, and no music. Additionally, participants were asked if they knew the song that was being played for their condition. We ran a one-way ANOVA and found no main effect for condition on performance on the decision-making task, F(3,47)=0.485, p=0.694. We also ran a t-test which found no main effect for music familiarity on the decision-making task t(47)=0.006, p=0.996. Our results show that there was no statistical significance for the main effect of music condition or the main effect of music familiarity on the score of the decision-making task. Further research should continue to research this and look at specific characteristics of music such as tempo or genre, as well as the utilization of different decision-making tasks.

Yang, Touhmong

Qualifications based on a Name: Hiring through Resume Reading in Ethnic Minorities (Poster)

Faculty Mentor(s): Dr. Melanie Ayres, Psychology

This study aims to assess how a person’s race and gender affect their qualifications for a certain occupation. Specifically, how will ethnic minority males and females be perceived and judged when looked upon in hiring via resume reading. The comparison will be made between Asian American and African American males and females. According to King et al. (2006) and Bodenhausen (2000), Asians are considered the model minority amongst ethnic minorities. Alongside that, Beal (1970) and Berdahl & Moore (2006) found that minority women typically face a double jeopardy of being a woman and ethnic minority. Following King et al., this study is expected to find that Asian Americans will fare better than the other races. Also following Beal and Derdahl & Moore, minority females will be at a disadvantage because they face a double jeopardy.
College of Business and Economics

Albright, Mason

*Gender Differences in Earnings: A Statistical Analysis* (Poster)
Research Collaborator(s): Alexander Miller, Kathryn Skalicky, and Evan Caye
Faculty Mentor(s): Dr. John Walker, Economics

This study examines the determinants of the earning differences between men and women in the United States during the years 2000 and 2010. This study used a statistical evaluation of the available data examine the issue more closely. The results suggest that there are several key factors that have a significant effect on the causation of the difference in earnings. Along with these key factors, in the pooled estimate with all variables held equal men still earned more than women leading to the idea discrimination may be a factor in the difference in earnings.

Anderson, Rachel

*Amerack Design, LLC.* (Poster and display)
Research Collaborator(s): Emma Waschbusch, Michael Lant, Adrianna Cranston, Allison Schroyer, Kathryn Theisen, and Carter Jacobson
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Nitrogen Refrigeration System

Beatty, Brittani

Veg Out (Poster)
Research Collaborator(s): Sarah Snyder, Jackie Stark, Kimberly Stickfort, Matthew Stauner, and Alison Raduenz
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Veg Out is a healthy fast food option featuring a drive-thru that partners with local farmers and focuses on creating a sustainable and eco-friendly culture.

Bergh, Jeffrey

*Inflation and Unemployment: The Phillips Curve* (Poster)
Research Collaborator(s): Kelsey Hancer and Blake Durbahn
Faculty Mentor(s): Dr. John Walker, Economics
This study examines the relationship between inflation and unemployment. We tested to find if there was a stable inverse relationship between the two in order to determine if policy makers should use active or passive monetary policy to try and affect unemployment by targeting inflation. Our conclusion was that they should be cautious using active policy and lean towards passive policy because active policy could lead to higher inflation as well as higher unemployment.

**Bethke, Kirstin**

*Why Participate in the UWRF Accounting Society?* (Slide show presentation)
Research Collaborator(s): Jarret Peterson and Ryan Doner
Faculty Mentor(s): Dr. Dawn Hukai, Accounting and Finance

Our group will discuss the benefits accounting and finance students receive from participating in the UWRF Accounting Society.

**Bigjohn, Jesse**

*Report of Independent Registered Accounting Firm* (Poster)
Faculty Mentor(s): Dr. Dawn Hukai, Accounting and Finance

Audit Plan

**Books, Mitchell**

*Recursion Programming and the Tower of Hanoi* (Poster)
Research Collaborator(s): Jerrett Feyereisen, Robert Vanderarde, William Weller, Alexander Schulte, and Mark Steffl
Faculty Mentor(s): Dr. Ruxin Dai, Computer Science and Information Systems

We are going to demonstrate programmatic approaches to solving the Tower of Hanoi.

**Broten, Tanner**

*Remix Blend Bar* (Poster)
Research Collaborator(s): Mackenzie Meier, Cody Wagner, Kyle Mogren, Teresa McCullen, and Jacob Guthridge
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Repurposing imperfect fruit/vegetables.

**Buckley, Devin**

*The Spread Stick* (Poster)
Research Collaborator(s): Mikaela Wilson, Alee Xiong, Justin Stanger, Kyle Hunter, and Braden Watschke  
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

The Spread Stick is an innovative way to apply a variety of spread onto different foods.

**Caye, Evan**  
*Gender Differences in Earnings: A Statistical Analysis* (Poster)  
Research Collaborator(s): Mason Albright, Alexander Miller, and Kathryn Skalicky  
Faculty Mentor(s): Dr. John Walker, Economics

This study examines the determinants of the earning differences between men and women in the United States during the years 2000 and 2010. This study used a statistical evaluation of the available data examine the issue more closely. The results suggest that there are several key factors that have a significant effect on the causation of the difference in earnings. Along with these key factors, in the pooled estimate with all variables held equal men still earned more than women leading to the idea discrimination may be a factor in the difference in earnings.

**Cranston, Adrianna**  
*AMERACK Design, LLC.* (Poster and display)  
Research Collaborator(s): Emma Waschbusch, Rachel Anderson, Michael Lant, Allison Schroyer, Kathryn Theisen, and Carter Jacobson  
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Nitrogen Refrigeration System

**Dale, Quentin**  
*dosEZ* (Poster)  
Research Collaborator(s): Andrea Stang, Lisa Haugen, Sam Murphy, Brent Stockwell, and Lauren Kiefer  
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Working to ease the process of taking medication in the proper dosage.

**DeRosier, Elizabeth**  
*Do Generational Differences Exist? Management Best Practices* (Poster)  
Faculty Mentor(s): Dr. Claire McCarty, Management and Marketing
The workplace has changed dramatically in the last century. Extended workplace participation into late adulthood has increased the age range of the workforce, with as many as four generations often working side-by-side. Stereotypes suggest that distinct generational differences exist in the workplace, but academic research suggests otherwise: De Meuse and Mlodzik (P. 3 2010) state that, “the current body of peer-reviewed research does not support the popular media proclaiming a workplace crisis due to vast generational differences.” I created a cross-sectional study of 100 participants employed at a local chain grocery store who were then sorted into four generations, broadly grouped as Traditionalists, Baby Boomers, Generation X, and Millennials. Participants took a 26-question survey assessing perceptions on management best practices. The surveys asked participants to rank their preference of management methods as if they were starting a new job and were able to choose the management practices. Based upon previous research I expect to find little or no effect of generational differences on preferences of management practices.

**Doner, Ryan**

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**Durbahn, Blake**

*Inflation and Unemployment: The Phillips Curve* (Poster)
Research Collaborator(s): Jeffrey Bergh and Kelsey Hancer
Faculty Mentor(s): Dr. John Walker, Economics

This study examines the relationship between inflation and unemployment. We tested to find if there was a stable inverse relationship between the two in order to determine if policy makers should use active or passive monetary policy to try and affect unemployment by targeting inflation. Our conclusion was that they should be cautious using active policy and lean towards passive policy because active policy could lead to higher inflation as well as higher unemployment.

**Feyereisen, Jerrett**

*Recursion Programming and the Tower of Hanoi* (Poster)
Research Collaborator(s): Robert Vanderarde, William Weller, Alexander Schulte, Mark Steffl, and Mitchell Books
Faculty Mentor(s): Dr. Ruxin Dai, Computer Science and Information Systems

We are going to demonstrate programmatic approaches to solving the Tower of Hanoi.

**Grebner, Wil**

*Money Demand: Money Demand Stability Over Time* (Poster)
Research Collaborator(s): Jack Thomas and Brandon Hall
Faculty Mentor(s): Dr. John Walker, Economics

We searched to find the answer as to whether money demand is stable or unstable. Our research used a money demand model based upon nominal interest rates and gross domestic product (GDP); we assumed that if money demand is positively correlated with GDP and negatively correlated with interest rates, then the money demand is stable. We hypothesized that money demand would be stable, although stability would be dependent on the measure of money demand used. Given our regression results with a money measure of MZM, we found our hypothesis to hold true. Therefore, the Fed can trust the stability of money demand and implement a monetary policy to reach employment and inflation objectives.

**Guthridge, Jacob**

*Remix Blend Bar* (Poster)
Research Collaborator(s): Teresa McCullen, Kyle Mogren, Tanner Broten, Mackenzie Meier, and Cody Wagner
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Repurposing imperfect fruit/vegetables

**Hall, Brandon**

*Money Demand: Money Demand Stability Over Time* (Poster)
Research Collaborator(s): Wil Grebner and Jack Thomas
Faculty Mentor(s): Dr. John Walker, Economics

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**Hancer, Kelsey**

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**Haugen, Lisa**

dosEZ (Poster)
Research Collaborator(s): Andrea Stang, Sam Murphy, Quentin Dale, Brent Stockwell, and Lauren Kiefer
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Working to ease the process of taking medication in the proper dosage.

**Hoglund, Trevor**

*Midwest Instruction and Computing Symposium 2016 Programming Contest* (Poster)
Research Collaborator(s): Geoffrey Maiden Mueller and Joseph Opseth
Faculty Mentor(s): Dr. Ruxin Dai, Computer Science and Information Systems; Dr. Jacob Hendricks, Computer Science and Information Systems; Mary-Alice Muraski, Computer Science and Information Systems

The MICS 2016 programming contest presented eight creative programming problems for teams to solve in three hours using Java or Python. We discuss these problems and the methods used to solve them.

**Hunter, Kyle**

*The Spread Stick* (Poster)
Research Collaborator(s): Braden Watschke, Devin Buckley, Mikaela Wilson, Alee Xiong, and Justin Stanger
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing
The Spread Stick is an innovative way to apply a variety of spread onto different foods.

**Jacobson, Carter**

**AMERACK Design, LLC.** (Poster and display)

Research Collaborator(s): Emma Waschbusch, Rachel Anderson, Michael Lant, Adrianna Cranston, Allison Schroyer, and Kathryn Theisen

Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Nitrogen Refrigeration System

**Kiefer, Lauren**

**dosEZ** (Poster)

Research Collaborator(s): Andrea Stang, Lisa Haugen, Sam Murphy, Quentin Dale, and Brent Stockwell

Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Working to ease the process of taking medication in the proper dosage.

**Lant, Michael**

**AMERACK Design, LLC.** (Poster and display)

Research Collaborator(s): Emma Waschbusch, Rachel Anderson, Adrianna Cranston, Allison Schroyer, Kathryn Theisen, and Carter Jacobson

Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Nitrogen Refrigeration System

**Li, June**

**The Influence of Conformity to Masculine Norms on the Earnings Expectations of Seniors at UW-River Falls: A Preliminary Analysis**

(Poster)

Research Collaborator(s): Dr. John Walker, Economics; Dr. Travis Tubre, Psychology; Dr. June Li, Accounting and Finance

This study uses data collected on seniors in the College of Business and Economics (CBE), the College of Education and Professional Studies (CEPS), and Psychology majors from the College of Arts and Sciences (CAS) at the University of Wisconsin-River Falls (UWRF) to examine the influence of conformity to masculine norms on their earnings expectations. Preliminary ordinary least squares (OLS) total sample estimates indicate men who embrace the masculine norm winning expect higher beginning salaries and higher earnings after ten and twenty years. College estimates indicate positive effects for winning in expected
salary estimates after ten and twenty years (CBE) and for beginning salaries and after ten years (CEPS which includes the Psychology majors). Risk-taking has a positive effect on total sample estimates that pool women and men for expected beginning salaries and expected salaries after ten and twenty years. The masculine norm self-reliance has an unanticipated negative effect on expected earnings after ten years in total sample estimates that pool women and men, in the separate estimate for women, and within the CEPS. We suggest the negative effect of self-reliance in expected salary estimates reflect an awareness that this norm reduces earnings from conflicting with a workplace culture that emphasizes cooperation and teamwork. Further analysis is needed to determine the extent to which gender differences in expected returns to winning are evident within the CBE and CEPS. In addition, the degree to which gender differences in expected returns to risk-taking will be explored. Also, within the CEPS, whether there are gender differences in expected earnings after ten years with regard to self-reliance. Finally, preliminary regression results do not support the human capital hypothesis that those planning fewer years of full-time work expect a flatter earnings profile. (J16, J22, J24)

**Maiden Mueller, Geoffrey**

*Midwest Instruction and Computing Symposium 2016 Programming Contest* (Poster)
Research Collaborator(s): Joseph Opseth and Trevor Hoglund
Faculty Mentor(s): Dr. Ruxin Dai, Computer Science and Information Systems; Dr. Jacob Hendricks, Computer Science and Information Systems; Mary-Alice Muraski, Computer Science and Information Systems

The MICS 2016 programming contest presented eight creative programming problems for teams to solve in three hours using Java or Python. We discuss these problems and the methods used to solve them.

**Malecha, Alexandra**

*Package Protector System* (Poster)
Research Collaborator(s): Jasmine Wilmes, Katie Pant, Ashley Wright, Meagan Weissahhn and Rebecca Woitas
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Front door security system that includes a weighted mat and a heat sensitive camera to take videos of people walking up to a person's front door and connects to an app to allow consumers to view the videos and watch for stolen packages.

**McCullen, Teresa**
Remix Blend Bar (Poster)
Research Collaborator(s): Kyle Mogren, Tanner Broten, Mackenzie Meier, Cody Wagner, and Jacob Guthridge
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Repurposing imperfect fruit/vegetables

Meier, Mackenzie

Remix Blend Bar (Poster)
Research Collaborator(s): Cody Wagner, Tanner Broten, Kyle Mogren, Teresa McCullen, and Jacob Guthridge
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Repurposing imperfect fruit/vegetables

Miller, Alexander

Gender Differences in Earnings: A Statistical Analysis (Poster)
Research Collaborator(s): Kathryn Skalicky, Evan Caye, and Mason Albright
Faculty Mentor(s): Dr. John Walker, Economics

This study examines the determinants of the earning differences between men and women in the United States during the years 2000 and 2010. This study used a statistical evaluation of the available data examine the issue more closely. The results suggest that there are several key factors that have a significant effect on the causation of the difference in earnings. Along with these key factors, in the pooled estimate with all variables held equal men still earned more than women leading to the idea discrimination may be a factor in the difference in earnings.

Mogren, Kyle

Remix Blend Bar (Poster)
Research Collaborator(s): Tanner Broten, Mackenzie Meier, Cody Wagner, Teresa McCullen, and Jacob Guthridge
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Repurposing imperfect fruit/vegetables

Murphy, Sam
dosEZ (Poster)
Research Collaborator(s): Andrea Stang, Lisa Haugen, Quentin Dale, Brent Stockwell, and Lauren Kiefer
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing
Murphy, David

*Comparative Analysis and critique of Neoclassical, Keynesian, and Austrian theories of Money Demand.* (Poster)

Faculty Mentor(s): Dr. John Walker, Economics

The paper explains the theoretical frameworks of the different schools of thought with emphasis on money demand and then discusses the relative strengths and weaknesses of those frameworks. The presentation will succinctly lay this out on a poster board.

Opseth, Joseph

*Midwest Instruction and Computing Symposium 2016 Programming Contest* (Poster)

Research Collaborator(s): Trevor Hoglund and Geoffrey Maiden Mueller

Faculty Mentor(s): Dr. Ruxin Dai, Computer Science and Information Systems; Dr. Jacob Hendricks, Computer Science and Information Systems; Mary-Alice Muraski, Computer Science and Information Systems

The MICS 2016 programming contest presented eight creative programming problems for teams to solve in three hours using Java or Python. We discuss these problems and the methods used to solve them.

Pant, Katie

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Research Collaborator(s): Ashley Wright, Meagan Weisshahn, Rebecca Woitas, Alexandra Malecha and Jasmine Wilmes

Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Front door security system that includes a weighted mat and a heat sensitive camera to take videos of people walking up to a person's front door and connects to an app to allow consumers to view the videos and watch for stolen packages.

Peterson, Jarret

*Why Participate in the UWRF Accounting Society?* (Slide show presentation)

Research Collaborator(s): Ryan Doner, Kirstin Bethke

Faculty Mentor(s): Dr. Dawn Hukai, Accounting and Finance
Our group will discuss the benefits accounting and finance students receive from participating in the UWRF Accounting Society.

Raduenz, Alison

*Veg Out* (Poster)
Research Collaborator(s): Brittani Beatty, Sarah Snyder, Jackie Stark, Kimberly Stickfort, and Matthew Stauner
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Veg Out is a healthy fast food option featuring a drive-thru that partners with local farmers and focuses on creating a sustainable and eco-friendly culture.

Schroyer, Allison

*AMERACK Design, LLC.* (Poster and display)
Research Collaborator(s): Emma Waschbusch, Rachel Anderson, Michael Lant, Adrianna Cranston, Kathryn Theisen, and Carter Jacobson
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Nitrogen Refrigeration System

Schulte, Alexander

*Recursion Programming and the Tower of Hanoi* (Poster)
Research Collaborator(s): Mark Steffl, William Weller, Mitchell Books, Jerrett Feyereisen, and Robert Vanderarde
Faculty Mentor(s): Dr. Ruxin Dai, Computer Science and Information Systems

We are going to demonstrate programmatic approaches to solving the Tower of Hanoi.

Skalicky, Kathryn

*Gender Differences in Earnings: A Statistical Analysis* (Poster)
Research Collaborator(s): Evan Caye, Mason Albright, and Alexander Miller
Faculty Mentor(s): Dr. John Walker, Economics

This study examines the determinants of the earning differences between men and women in the United States during the years 2000 and 2010. This study used a statistical evaluation of the available data to examine the issue more closely. The results suggest that there are several key factors that have a significant effect on the causation of the difference in earnings. Along with these key factors, in the pooled estimate with all variables held equal men still earned more than women leading to the idea discrimination may be a factor in the difference in earnings.

Skalicky, Kathryn

*Gender Differences in Earnings: A Statistical Analysis* (Poster)
Research Collaborator(s): Evan Caye, Mason Albright, and Alexander Miller
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Snyder, Sarah

*Veg Out* (Poster)
Research Collaborator(s): Jackie Stark, Kimberly Stickfort, Matthew Stauner, Alison Raduenz, and Brittani Beatty
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Veg Out is a healthy fast food option featuring a drive-thru that partners with local farmers and focuses on creating a sustainable and eco-friendly culture.

Stang, Andrea

*dosEZ* (Poster)
Research Collaborator(s): Lisa Haugen, Sam Murphy, Quentin Dale, Brent Stockwell, and Lauren Kiefer
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Working to ease the process of taking medication in the proper dosage.

Stanger, Justin
The Spread Stick (Poster)
Research Collaborator(s): Kyle Hunter, Braden Watschke, Devin Buckley, Mikaela Wilson, and Alee Xiong
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

The Spread Stick is an innovative way to apply a variety of spread onto different foods.

Stark, Jackie

Veg Out (Poster)
Research Collaborator(s): Kimberly Stickfort, Matthew Stauner, Alison Raduenz, Brittan Beatty, and Sarah Snyder
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Veg Out is a healthy fast food option featuring a drive-thru that partners with local farmers and focuses on creating a sustainable and eco-friendly culture.

Stauner, Matthew

Veg Out (Poster)
Research Collaborator(s): Alison Raduenz, Brittan Beatty, Sarah Snyder, Jackie Stark, and Kimberly Stickfort
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Veg Out is a healthy fast food option featuring a drive-thru that partners with local farmers and focuses on creating a sustainable and eco-friendly culture.

Steffl, Mark

Recursion Programming and the Tower of Hanoi (Poster)
Faculty Mentor(s): Dr. Ruxin Dai, Computer Science and Information Systems

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Stockwell, Brent

dosEZ (Poster)
Research Collaborator(s): Andrea Stang, Lisa Haugen, Sam Murphy, Quentin Dale, and Lauren Kiefer
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Working to ease the process of taking medication in the proper dosage.
Theisen, Kathryn

**AMERACK Design, LLC.** (Poster and display)
Research Collaborator(s): Emma Waschbusch, Rachel Anderson, Michael Lant, Adrianna Cranston, Allison Schroyer, and Carter Jacobson
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Nitrogen Refrigeration System

Thomas, Jack

**Money Demand: Money Demand Stability Over Time** (Poster)
Research Collaborator(s): Brandon Hall, Wil Grebner
Faculty Mentor(s): Dr. John Walker, Economics

We searched to find the answer as to whether money demand is stable or unstable. Our research used a money demand model based upon nominal interest rates and gross domestic product (GDP); we assumed that if money demand is positively correlated with GDP and negatively correlated with interest rates, then the money demand is stable. We hypothesized that money demand would be stable, although stability would be dependent on the measure of money demand used. Given our regression results with a money measure of MZM, we found our hypothesis to hold true. Therefore, the Fed can trust the stability of money demand and implement a monetary policy to reach employment and inflation objectives.

Vanderarde, Robert

**Recursion Programming and the Tower of Hanoi** (Poster)
Research Collaborator(s): William Weller, Alexander Schulte, Mark Steffl, Jerrett Feyereisen, and Mitchell Books
Faculty Mentor(s): Dr. Ruxin Dai, Computer Science and Information Systems

We are going to demonstrate programmatic approaches to solving the Tower of Hanoi.

Wagner, Cody

**Remix Blend Bar** (Poster)
Research Collaborator(s): Mackenzie Meier, Tanner Broten, Kyle Mogren, Teresa McCullen, and Jacob Guthridge
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Repurposing imperfect fruit/vegetables

Walker, John
The Influence of Conformity to Masculine Norms on the Earnings Expectations of Seniors at UW-River Falls: A Preliminary Analysis
(Poster)

Research Collaborator(s): Dr. John Walker, Economics; Dr. Travis Tubre, Psychology; Dr. June Li, Accounting and Finance

This study uses data collected on seniors in the College of Business and Economics (CBE), the College of Education and Professional Studies (CEPS), and Psychology majors from the College of Arts and Sciences (CAS) at the University of Wisconsin-River Falls (UWRF) to examine the influence of conformity to masculine norms on their earnings expectations. Preliminary ordinary least squares (OLS) total sample estimates indicate men who embrace the masculine norm winning expect higher beginning salaries and higher earnings after ten and twenty years. College estimates indicate positive effects for winning in expected salary estimates after ten and twenty years (CBE) and for beginning salaries and after ten years (CEPS which includes the Psychology majors). Risk-taking has a positive effect on total sample estimates that pool women and men for expected beginning salaries and expected salaries after ten and twenty years. The masculine norm self-reliance has an unanticipated negative effect on expected earnings after ten years in total sample estimates that pool women and men, in the separate estimate for women, and within the CEPS. We suggest the negative effect of self-reliance in expected salary estimates reflect an awareness that this norm reduces earnings from conflicting with a workplace culture that emphasizes cooperation and teamwork. Further analysis is needed to determine the extent to which gender differences in expected returns to winning are evident within the CBE and CEPS. In addition, the degree to which gender differences in expected returns to risk-taking will be explored. Also, within the CEPS, whether there are gender differences in expected earnings after ten years with regard to self-reliance. Finally, preliminary regression results do not support the human capital hypothesis that those planning fewer years of full-time work expect a flatter earnings profile. (J16, J22, J24)

Waschbusch, Emma

AMERACK Design, LLC. (Poster and display)

Research Collaborator(s): Rachel Anderson, Michael Lant, Adrianna Cranston, Allison Schroyer, Kathryn Theisen, and Carter Jacobson

Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Nitrogen Refrigeration System

Watschke, Braden

The Spread Stick (Poster)
Research Collaborator(s): Devin Buckley, Mikaela Wilson, Alee Xiong, Justin Stanger, and Kyle Hunter
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

The Spread Stick is an innovative way to apply a variety of spread onto different foods.

**Weisshahn, Meagan**

*Package Protector System* (Poster)
Research Collaborator(s): Rebecca Woitas, Alexandra Malecha, Jasmine Wilmes, Katie Pant, and Ashley Wright
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Front door security system that includes a weighted mat and a heat sensitive camera to take videos of people walking up to a person's front door and connects to an app to allow consumers to view the videos and watch for stolen packages.

**Weller, William**

*Recursion Programming and the Tower of Hanoi* (Poster)
Research Collaborator(s): Alexander Schulte, Mark Steffl, Jerrett Feyereisen, Robert Vanderarde, and Mitchell Books
Faculty Mentor(s): Dr. Ruxin Dai, Computer Science and Information Systems

We are going to demonstrate programmatic approaches to solving the Tower of Hanoi.

**Wilmes, Jasmine**

*Package Protector System* (Poster)
Research Collaborator(s): Katie Pant, Ashley Wright, Meagan Weisshahn, Rebecca Woitas, and Alexandra Malecha
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Front door security system that includes a weighted mat and a heat sensitive camera to take videos of people walking up to a person's front door and connects to an app to allow consumers to view the videos and watch for stolen packages.

**Wilson, Mikaela**

*The Spread Stick* (Poster)
Research Collaborator(s): Alee Xiong, Justin Stanger, Kyle Hunter, Braden Watschke, and Devin Buckley
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

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**Woitas, Rebecca**

*Package Protector System* (Poster)
Research Collaborator(s): Alexandra Malecha, Jasmine Wilmes, Katie Pant, Ashley Wright, and Meagan Weisshahn
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Front door security system that includes a weighted mat and a heat sensitive camera to take videos of people walking up to a person’s front door and connects to an app to allow consumers to view the videos and watch for stolen packages.

**Wright, Ashley**

*Package Protector System* (Poster)
Research Collaborator(s): Meagan Weisshahn, Rebecca Woitas, Alexandra Malecha, Jasmine Wilmes, and Katie Pant
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

Front door security system that includes a weighted mat and a heat sensitive camera to take videos of people walking up to a person’s front door and connects to an app to allow consumers to view the videos and watch for stolen packages.

**Xiong, Alee**

*The Spread Stick* (Poster)
Research Collaborator(s): Justin Stanger, Kyle Hunter, Braden Watschke, Devin Buckley, and Mikaela Wilson
Faculty Mentor(s): Dr. Joy Benson, Management and Marketing

The Spread Stick is an innovative way to apply a variety of spread onto different foods.
College of Education and Professional Studies

Hastings, Katlin

Investigating "The Nature’s Classroom Institute" and the Benefits of a Nature Based Classroom (Poster)
Research Collaborator(s): Madeleine Pemberton
Faculty Mentor(s): Dr. Molly Gerrish, Teacher Education

Research focused on determining the impact the “Nature’s Classroom Institute” nature based teaching practices have on student learning. The purpose of this study is to evaluate the effectiveness of the “Nature’s Classroom Institute’s” use of the outdoors as a classroom setting, and the use of nature in the indoor classroom, in order to determine specific benefits of nature-based learning. Through this research, different teaching methods were identified that can be translated into traditional classroom settings. Techniques and reasons to incorporate nature into any classroom were found. Areas identified for study included: approaches to learning; health and safety; social and emotional development and relationships; language and communication; and behavior management. Data was collected through teacher and student interviews, which were analyzed for recurring themes. Triangulation was provided by both qualitative and quantitative evidence including researcher observations at the “Nature’s Classroom Institute” and school data. Evidence reflected that nature based learning was benefitting students in every learning domain. Analysis of data supported the effectiveness of the “Nature’s Classroom Institute” teaching methods including incorporation of the outdoors as a classroom setting and use of nature indoors, and provided strong overall support for nature-based learning for children.

Pemberton, Madeleine

Investigating "The Nature's Classroom Institute" and the Benefits of a Nature Based Classroom (Poster)
Research Collaborator(s): Katlin Hastings
Faculty Mentor(s): Dr. Molly Gerrish, Teacher Education

Research focused on determining the impact the “Nature’s Classroom Institute” nature based teaching practices have on student learning. The purpose of this study is to evaluate the effectiveness of the “Nature’s Classroom Institute’s” use of the outdoors as a classroom setting, and the use of nature in the indoor classroom, in order to determine specific benefits of nature-based learning.
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Russell, Shane

*Examing the feasibility of the Omaha System in western Wisconsin Child Protective Service agencies* (Poster)

Faculty Mentor(s): Dr. Tammy Kincaid, Social Work

This is an examination of how CPS agencies in western Wisconsin counties evaluate an individual's case level progress with a particular emphasis on how specific interventions are evaluated. The purpose behind this study is to determine if evaluations are being conducted, what, if any, types of evaluations are being utilized, and how consistent the evaluation techniques and processes are. With the information collected, an understanding of how feasible the Omaha System would be to implement in CPS agencies in Wisconsin is to be gained.
URSCA Mentors

We would like to acknowledge the efforts of Faculty and Staff Mentors, whose dedication allows our campus URSCA to thrive. We deeply appreciate their contributions in support of the university’s commitment to undergraduate research, scholarly and creative activity. Thank you!

Below is a comprehensive list, by college, of all of the URSCA Mentors who have students presenting projects at 2016 URSCA Fall Gala.

College of Agriculture, Food and Environmental Sciences

Dr. Casie Bass, Animal and Food Science
Dr. Tim Buttiles Agricultural Education
Dr. Jill Coleman Wasik, Plant and Earth Science
Dr. Holly Dolliver, Plant and Earth Science
Michelle Farner, Animal and Food Science
Dr. Terry Ferriss, Plant and Earth Science
Dr. Kevyn Juneau, Plant and Earth Science
Dr. Sylvia Kehoe, Animal and Food Science
Dr. Natasha Macnack, Plant and Earth Science
Dr. Sonja Maki, Plant and Earth Science
Dr. Dean Olson, Agricultural Engineering Technology
Dr. Joel Peterson, Agricultural Engineering Technology
Dr. Brian Smith, Plant and Earth Science
Dr. David Trechter, Agricultural Economics
Dr. Kurt Vogel, Animal and Food Science
Dr. Jim White, Agriculture Economics
Dr. Ian Williams, Plant and Earth Science

College of Arts and Sciences

Dr. Davida J. Alperin, Political Science
Dr. Melanie Ayres, Psychology
Dr. Earl Blodgett, Physics
Eoin Breadon, Art
Dr. Keith Chavey, Mathematics
Dr. James Cortright, Psychology
Dr. Mathew Dooley, Geography and Geographic Information Science
Dr. Daniela Goldfine, Modern Language
Alexander Hatheway, English
Dr. Cheng-chen Huang, Biology
Erik Johnson, Stage and Screen Arts
Brett Kallusky, Art
Dr. Cyndi Kernahan, Psychology
Jeannine Kitzhaber, Art
Dr. James Madsen, Physics
Dr. Douglas Margolis, English
Dr. Lowell McCann, Physics
Dr. Paige Miller, Sociology, Criminology and Anthropology
Dr. Brad Mogen, Biology
Dr. Kim Mogen, Biology
Robin Murray, Stage and Screen Arts
Rhonda Petree, English
Dr. Surujhdeo Seunarine, Physics
Dr. Glenn Spiczak, Physics
Andris Straumanis, Communication and Media Studies
Dr. Travis Tubre, Psychology
Dr. Rich Wallace, Sociology, Criminology and Anthropology
Dr. John Wheeler, Biology
Rhonda Willers, Art

College of Business and Economics

Dr. Joy Benson, Management and Marketing
Dr. Ruxin Dai, Computer Science and Information Systems
Dr. Jacob Hendricks, Computer Science and Information Systems
Dr. Dawn Hukai, Accounting and Finance
Dr. Claire McCarty, Management and Marketing
Mary-Alice Muraski, Computer Science and Information Systems
Dr. John Walker, Economics
College of Education and Professional Studies

Dr. Molly Gerrish, Teacher Education
Dr. Tammy Kincaid, Social Work

Off-Campus Mentors

Dr. Alyssa Shiel, Geology and Geophysics (Oregon State University)
Questions?

For additional information about upcoming events, grant funding, trainings, and presentation opportunities, visit the URSCA webpage at www.uwrf.edu/URSCA/ or contact the URSCA Office by phone at 715-425-3902 or email at ursca@uwrf.edu.

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