Research, Scholarly & Creative Activity Day

Thursday, April 18
12:00 - 2:00 PM

Riverview Ballroom, University Center
Research, Scholarly and Creative Activity Day

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April 18, 2013

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Economic Impacts of Energy Dependency across Wisconsin Communities
Poster

Presenter(s): Jabez Meulemans
Author(s): Jabez Meulemans and Dr. Kelly Cain
Faculty Mentor: Dr. Kelly Cain, Sustainability

A macroeconomic study estimating the amount of money leaving our communities due to dependency on out-of-state fossil fuel resources for energy production. How much of this money could we be capturing in our local economies if we invested in localized renewable energy projects?

Organic Agronomic Production Systems
Poster

Presenter and Author: Loretta Ortiz-Ribbing, Plant and Earth Science

The Sustainable major and minor options require or suggest students in this area take an organic production course. The existing Organic Production course has not been taught since 2006, and focused heavily on animal production. Since I am responsible for this course and my background is crop production, the redesigned course focus is now on production of food crops for animals and humans. The redesigned course compliments another animal science course that provides sustainable animal production methods. To reflect this focus change, the redesigned course was named Organic Agronomic Production Systems by the Plant and Earth Science curriculum committee. Even though the changes were not approved by the University Curriculum Committee until February 2013, I taught the redesigned course in fall 2012, to six UWRF students. In addition to using a lecture format to deliver materials and teach concepts, students visited with producers and toured five organic farm business models: a vegetable farm run as a CSA (Consumer Supported Agriculture), a
vegetable farm using season extension (high tunnels); an urban garden; a livestock and feed operation, and an organic grain farm. Furthermore, four speakers, working within the organic profession (certification, marketing, animal husbandry, and soil health and nutrition), came to speak with the students. Course grades were determined by three exams, and a three-part project: each student had to plan their ‘ideal’ organic farm, develop a crop rotation plan and then determine the steps necessary to certify their ‘ideal’ organic farm. A written, final class evaluation showed students strongly agreed that the farm tours were an asset to the class, and that the guest speakers were a valuable addition for bringing real life expertise to course content. Students mildly agreed that the ‘Ideal’ farm project helped them learn real-life organic concepts, the value of crop rotation, and the certification process.

**A Pond of Unmeasurable Growing Potential**

Poster

Presenter(s): Danielle Peterson

Author(s): Michael Sikorski, Danielle Peterson

Faculty Mentor: Dr. Kelly Cain, Sustainability

River Falls, Wisconsin is a small, city found near Twin Cities (MN). The University of Wisconsin River Falls Campus is nestled near downtown River Falls. The South Fork of the Kinnickinnic River (South Fork) runs directly through campus. Where a small (250ft x 90ft) pond just south of the stream. This Pond was created as a detention basin for runoff from crop fields, which have since been replaced by intramural athletic fields. The South Fork is a cold water stream. These are fragile ecosystems of declining numbers. To classify as a cold water stream the water temperature ranges from 21 to 25 degrees Celsius without much variation. A spike in the temperature due to run-off can cause the sensitive water temperature to rise, affecting the sensitive species including naturally occurring Brook Trout. As the temperature rises and the native species decrease non-native and unnatural warm-water fish species increase, ultimately destroying the natural cold-water ecosystem. Ways people fight the destruction of cold water streams from runoff include the use of green infrastructure means using soil, plants, and other natural processes to remove and reduce chemical, sediment, and temperature increases in bodies of storm-water that run into natural bodies of water. Storm-water management is not a new process but has become very popular in the past few years. With the
use of newly developed ideas in waste water management like green
infrastructure we plan to restore and modify the existing conditions of the
pond to better protect the South Fork of the Kinnickinnic River. Existing
conditions include a leaking berm, rusted-out culvert and a damaged water-
directing ditch. We propose a design in which the berm would be fixed by
the removal of trees that have root systems creating water channelization;
implementation of an outdoor classroom for use by all student and faculty
with educational intentions or personal viewing interest. This use will help
keep the soil compacted, stopping water from flowing through the soil into
the stream. Replacement of the old culvert with a new water control
structure will give faculty and students the ability to do water testing,
manipulation, and other field research of such green infrastructure. The
control structure will be placed underground to help cool the water as it
travels seventy five feet to the stream/ Fixing the damaged ditch will
include a buffer to slow down incoming water flow, reducing erosion of the
ditch walls. Within the pond basin we will plant naturally thirsty plants and
implement more absorbent soil to create a rain garden where the water will
be naturally detoxified, and cleared of sediment. The ultimate goal is to
allow the cleaned waste water back into the stream without damaging it or
any of the ecosystems.

Paternal Parent Identification of Seedlings of a Rare
Hermaphroditic Rosa setigera
Poster

Presenter(s): Megan A. Smith

Author(s): Megan A. Smith and Dr. David C. Zlesak

Faculty Mentor: Dr. David C. Zlesak, Plant and Earth Science

*Rosa setigera* is native to eastern North America and is the only dioecious
(separate male and female plants) rose species. Rose rosette disease is a
devastating viral disease effecting cultivated roses, but *R. setigera* has
exhibited strong resistance. Preliminary crosses between *R. setigera* and
cultivated roses have been only partially compatible due to reproductive
barriers. Most rose species rely on a gametophytic self incompatibility
system to prevent self-fertilization and promote outcrossing, unlike animals
that rely on gender differentiation. Our research focuses on understanding
and ultimately overcoming barriers imposed by dioecy in this valuable rose
species. A rare male *R. setigera* clone (1967-0317-2) with hermaphroditic
tendencies was found to bare a limited crop of fruit in 2008. Seedlings were raised and are planted at UWRF. In order peek under the blanket of dioecy we isolated DNA to ascertain if seedlings were from self-fertilization of the hermaphrodite or were outcrosses with another male. DNA fingerprinting was accomplished through ISSR and RAPD primers to look for polymorphic bands between the seedlings and potential paternal parents. Data suggests most seedlings are a result of self-fertilization and that the self-incompatibility system common to diploid roses has broken down in light of dioecy.
Life experience of people from two very different social and political systems
Prezi Presentation

Presenter and Author: Sohana Afroz Badhon
Faculty Mentor: Rhonda Petree, English

The purpose of this oral history project was to compare the life experiences of two people living in two very different social and political systems. For this project, I interviewed elderly individuals from the United States and Bangladesh. Through the interviews, I found that there are many similar life experiences for ordinary people in both of these countries. Significant events of their lives are presented in an interactive Prezi presentation.

Using light to trap and study water droplets
Poster

Presenter and Author: Wesley M. Barnes
Faculty Mentor: Dr. Lowell McCann, Physics

A laser was used to trap a salt water droplet in air. Transitions between multiple stable positions of the droplet were examined to verify a relationship between laser power, droplet size, and droplet position. Droplet position was measured directly using a digital camera. Droplet size was found using cavity enhanced Raman spectroscopy.

Inhibition of the malaria parasite Plasmodium falciparum by targeting a phosphatidylinositol 3-kinase
Poster

Presenter(s): Kyle Bereswill
Author(s): Kyle Bereswill and J. Alfredo Bonilla

Faculty Mentor: Dr. J. Alfredo Bonilla, Biology

Phosphoinositide lipid kinases (PIKs) generate specific phosphorylated variants of phosphatidylinositols (PtdIns) and are potent second messengers in signaling and cellular membrane remodeling. In Plasmodium falciparum, the causative agent of the most severe form of human malaria, a novel phosphatidylinositol-3-kinase (PfPI3K) has been previously shown to be exported to the host erythrocyte and involved in hemoglobin transport and digestion in the parasite. Because PIKs are an important, emerging class of drug targets for many therapeutic areas including cancer, inflammatory and metabolic diseases, the antimalarial potential of targeting PfPI3K in P. falciparum was investigated. We used a dual phosphatidylinositol 3-kinase/mammalian Target of Rapamycin (mTOR) inhibitor NVP-BEZ235, and other PIKs inhibitors, and demonstrate successful inhibition of parasite growth targeting the pathway. Specific effects at different time points of the parasite’s asexual life cycle are discussed. There is an urgent need to develop new antimalarial chemotherapies, and PfPI3K represents a viable drug target that should be further investigated.

*Gettin' on the Spin like Rumpelstiltskin*

Artwork

Presenter and Author: Rosemarie Bermudez

I will be presenting the spinning fiber at RSCA. When one thinks of spinning, they may reflect back to their childhood and the story of Rumpelstiltskin from Grimm’s Fairytales and when he spun straw into gold. Many don’t realize the true magic and beauty of real spinning, or how it even works. I will present the mechanics and process of spinning on a spinning wheel: how the wheel works as well as the transformation of wool into yarn (like magic!). I’ll be leaving the straw to Rumpelstiltskin, however, and use wool for this demonstration.
**A Mystic Thing**  
Artwork

Presenter and Author: Tucker (Lindsey) Block

Using the face of an owl, the horns of a ram, and the shark of a tail, I combine three of my favorite animals together to create my piece. The result ended with it looking as a mystical creature. So in turn, I thus named it "A Mystical Thing".

**Finding Comfort**  
Film

Presenter and Author: Emily Boettcher

Faculty Mentor: Dr. Karla Zhe, Communicative Studies and Theatre Arts

“Finding Comfort” started as a dance piece I created and performed while in a dance composition class in the fall. It was originally about the loss of someone close, but after more thinking about how I felt while choreographing the piece, I realized it was more about finding peace with who you are after losing support from others and even losing faith in one’s own strength and abilities. I then lengthened the original piece, added a second piece of music, and used reoccurring themes in movement to display isolation, discomfort, seclusion, and doubts about self-worth, but eventually overcoming judgment and finding independence and acceptance. My ultimate message is that before acceptance is gained from others around you, you must first find happiness within yourself. I believe this piece speaks to many people who feel judged because of disability, belief, ethnicity, sexual orientation, or upbringing.

**Raw and Unguarded**  
Dance

Presenter(s): Emily Boettcher, Kylie MacLeod, Marcus Dryer, Chris Adam, Lisa Miske, Vanessa Agnes, Jenna Odegard and Logan Arneson
Author(s): Jordann Juris with dialogue excerpts written from Alexander Abbe's "Youth in Asia" and Robert Montgomery's "Billboard Poetry"

Faculty Mentor: Dr. Karla Zhe, Communicative Studies and Theatre Arts

The inspiration, development and presentation of "Raw and Unguarded" explored the questioning of societal pressures in relation to one's own personal passions and aspirations. Relevance of peer judgment concerning "failure" and "expectations" in one's life were also investigated. Dancers were constantly encouraged to reflect upon the difference of accomplishing something based on the assumption of what one "should" be doing versus accomplishing something based on an inner drive or desire.

**Health and the Global Environment**

Poster

Presenter and Author: Dr. J. Alfred Bonilla, Biology

Human health is dependent on the relationship between society and the environment. Healthy ecosystems with species abundance and biodiversity play a critical role in providing food and fuel, and help control the spread of infectious and non-communicable diseases by providing natural purification of air, land and water. The loss of species as a result of human activity and the degradation of ecosystems around the world deteriorates the planet’s physical environment and leads to an increase in susceptibility to disease. The proposed course can be categorized as a sustainability-focused course for science and non-science majors with an emphasis on the role of the environment in human health. The course will consist of three primary modules. The first module aims to provide students with an understanding of a) the concepts of exponential growth and sustainability, b) overpopulation, over consumption and the biosphere's carrying capacity and c) the connections between humans and the natural environment. The second module aims to provide students with an understanding of regional and global pollution, with an emphasis on existing practices in water treatment and disposal that exacerbate stress on the ecosystem and affect human health. The third module aims to provide students with an understanding of the role of biodiversity on the ecology and transmission of disease, and its impact on societal health. The sustainability-focused course will provide students with an understanding of global examples of sustainable and unsustainable practices currently impacting human health.
**Current Patterns of Urban Migration: The Twin City Region**

Poster

Presenter and Author: Jacob Boyd

Faculty Mentor: Dr. Charles Rader, Geography and Mapping Sciences

This project examines the migration and distribution of residents located within the Minnesota metropolitan area. My hypothesis is that due to current economic conditions and trends that urban migration will increase. Recent studies have documented that people are relocating to urban areas in the U.S. In examining migration for the Twin Cities metropolitan area, the evidence is contradictory. People are continuing to leave rural areas toward the more dense urban; however the central core areas continue to lose population.

**Untitled**

Artwork

Presenter and Author: Cassandra Brandt

Faculty Mentor: Asako Nakauchi, Art

Made in the 2012-2013 fall term in the University of Wisconsin's Studio sculpture course taught by professor, Asako Nakauchi. The project was to make a sculpture using multiples of one thing. The bases of the sculptures consist of two foam manikins salvaged from the university theater department. The first has been covered in overlaying milkweed pods that look like scales and the second has been covered in sticks that are organized side by side to accentuate the form of the manikin.

I found inspiration for this project from the works of the artist Andy Goldsworthy. Goldsworthy creates sculptures in nature by stalking and arranging objects in nature. His sculptures do not over power the natural beauty of nature but rather promote the view to appreciate nature. My goal as an artist is to create art that does not overpower its environment but enhances it.
The sculptures represent the things that they are made from; they bring the viewer attention to a part of nature that would be easily looked over. It’s hard to say that an average person would consider the milkweed pod and think of a twig as anything more than a twig. Because the sculptures are bodices they promote the viewers to think about their relationship to nature.

**Beetverdillo**

Artwork

Presenter and Author: Zak Branham

Faculty Mentor: Asako Nakauchi, Art

From the ashes rises a creature hardened by time.
Women shriek and babies wail.
The blood red of his pinchers and head warn of his potential danger.
His rustic body is reminiscent of the gravel which he rose from.
Be warned, none will survive.

**Orbital cradle**

Artwork

Presenter and Author: Emily Calhoun

Faculty Mentor: Asako Nakauchi, Art

Using the elliptical orbit and the cradle counter balance system, small marbles can go around on kinetic energy for a few rounds.

**A Study of the Effects of Urbanization on Civil War Battlefield Parks**

Poster

Presenter and Author: Christopher Collins

Faculty Mentor: Dr. John Heppen, Geography and Mapping Sciences
This poster illustrates the encroachment of urban sprawl upon Civil War Battlefield Parks. Narratives on the causes of sprawl, maps, and photos of the Battle of Franklin, Tennessee, and Battle of Wilderness in Spotsylvania County, Virginia illustrate how sprawl affected these areas. A discussion of preservation efforts is presented in conclusion.

**Efficiently Satisfying the Water Needs of the United States: Routing, Supply, Demand and Cost Analysis**

*Poster*

**Presenter(s):** Charles Collins, Laura Rogers, Amanda Finke

**Author(s):** Charles Collins, Laura Rogers, Amanda Finke

**Faculty Mentor:** Dr. Kathy Tomlinson, Mathematics

We developed a mathematical model that can be used to determine an effective, feasible and cost-efficient method for use in the United States to transport water from its natural sources to areas in need for various purposes. Our exponential model resembles oil delivery systems and postal distribution. End users minimize costs by using calculus to find critical points in the model.

**Knight of the Night**

*Artwork*

**Presenter and Author:** Darielle Dahnke

**Faculty Mentor:** Asako Nakauchi, Art

This is a metal sculpture of an anamorphic animal that combines the features of four different animals the horse, lion, bat, and wolf.

**Teapot Figure**

*Artwork*

**Presenter and Author:** Maisey Doheny

**Faculty Mentor:** Randy Johnston, Art
This piece celebrates the female form, but also makes a statement about objectification and over sexualization of women. The sculpture depicts a woman sitting in a position to form the shape of a teapot. Her legs form the spout, and her arms are placed behind her to form handles. Her head is replaced by a lid which is fixed to the top making this a non-functional, sculptural piece.

"Gelid Ascent" by of Montreal (Music Video)
Film

Presenter and Author: Shane Donahue

Faculty Mentor: Erik Johnson, Communication Studies and Theatre Arts

"Gelid Ascent" is a music video by the band of Montreal that gives an abstract exploration about the effects of the human psyche in connection to a 'higher being'. The video itself is jarring, stylized, and utilizes non-realism at every possible point.

"Focus On U" March 21st Episode
Film

Presenter(s): Shane Donahue, Hallie Raisanen

Author(s): Shane Donahue, Hallie Raisanen, Jon Lyksett, Trevor Semann, Rebecca Aanerud, Kevin Holmes, Tyrel Zimmerman, Alexander Carr, Katelyn Sather, Sydney Howell, Ben Porten, Sam Armstrong, Amanda Webster, Jade Kaczmarski, Chad Retterath

Faculty Mentor: Erik Johnson, Communication Studies and Theatre Arts

"Focus On U" is a talk/variety show at UWRF ran entirely by students. "Focus" is meant to educate and entertain the student body through interviews, segments, wacky humor, and musical acts. This episode features Erik Johnson for the 48 Hour Film Fest, and musical guest The Picture Perfect.
"Actor" - A Short Film
Film
Presenter(s): Shane Donahue

Author(s): Shane Donahue, Daniel Tyler, Erica Englebert, Brittany Oberstadt

Faculty Mentor: Erik Johnson, Communication Studies and Theatre Arts

"Actor" is a very short film about depression, failure, and no hope for rebuilding. The tale follows an actor who cannot find his spot in the starlight. Rampant drug and alcohol abuse seem to be his only salvation left in the world, bringing him closer to his breaking point every day.

Anthropogenic Effects on Ponderosa Pines in the Black Hills
Poster

Presenter and Author: Shelby Dupre

Faculty Mentor: Dr. Charles Rader, Geography and Mapping Sciences and Dr. Ruth Baker, Geography and Mapping Sciences

Ponderosa Pine is threatened by the increasing populations of Mountain Pine Beetles within the Black Hills of South Dakota and Wyoming. Mountain Pine Beetles have become an epidemic to Ponderosa Pines killing millions of acres of forest. Recent anthropogenic climate change has created preferable conditions for the Mountain Pine Beetle.

The Effects of Access to Food and Consumption
Poster

Presenter(s): Andrea Ecklund, Maddie Erb, Hannah Klimek, Kelsey Eckstein, Danielle Lehman

Author(s): Andrea Ecklund, Maddie Erb, Hannah Klimek, Kelsey Eckstein, Danielle Lehman
Faculty Mentor: Dr. Stacey Peterson, Psychology

Previous research has shown that environmental factors such as bowl and utensil size and food variety have a significant influence on eating behaviors. The current study extended research in this area and examined whether food accessibility influences a person’s tendency to consume. An independent group posttest experiment was run with one of the conditions having easy access (open bag of chips) and the other restricted access (closed bag of chips) to food. All participants watched a video clip as a distractor task and answered recall questions. An independent samples t-test demonstrated a significant difference between the groups, in that participants in the open bag condition showed an increased tendency to consume the food. This suggests that whether people engage in eating behaviors is influenced by the ease of access to food and has implications for dietitians.

**Bike Minneapolis: A study of where cyclists live, ride, and crash**

Poster

Presenter and Author: Tim Emahiser

Faculty Mentor: Dr. Charles Rader, Geography and Mapping Sciences

Using Minneapolis as a study area, this project explores the relationship between the location of bike paths, trails, and lanes and the distribution of bicycle crashes. In addition, the bicycle commuting population as it relates to total population and how those populations interact with bike paths are examined.

**Diversity of Deformed Wing Virus Isolates in Regional Honey Bee Apiaries**

Poster

Presenter: Ashley Fischer, Hannah Space, Nicole Quiney

Author(s): Ashley Fischer, Hannah Space, Nicole Quiney

Faculty Mentors: Dr. Brad Mogen, Biology; Dr. Kim Mogen, Biology; and Dr. Karen Klyczek, Biology
Honey bees are a keystone species that play a critical role in everyone’s day-to-day life, even though most don’t realize it. Approximately one third of our agricultural crops depend on honey bee pollination, amounting to economic impact of approximately $15 billion nationwide. Since 2006 there has been a major decline in the number of honey bees, which currently has no definitive cause (USDA 2008), but virus infections appear to play a central role.

Deformed wing virus (DWV), an indicator of bee decline, is a positive, single stranded RNA virus spread by the parasitic varroa mite (Varroa destructor), the primary vector for the virus. It has previously been shown that a high population of mites results in more virulent, but less diverse, viral populations. The objective of our research is to sequence multiple DWV cDNA fragments to evaluate viral diversity in western Wisconsin. The polymerase chain reaction (PCR) was used to amplify a defined region of the DWV cDNA. Fragments were cloned into the bacterial vector pCR2.1-TOPO, and transformed into One Shot TOP10 competent bacterial cells. Colonies that grew on antibiotic-containing plates were screened by PCR to assure that they contained the correct DNA fragments. After verification, DNA sequences were purified for subsequent DNA sequencing by a facility at the University of Minnesota.

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**Shibori Arashi: A Brief History and Demonstration**  
Poster/Artwork

Presenter and Author: Lauren Forsythe

Faculty Mentor: Morgan Clifford, Art

The technique of Shibori is considered a staple in traditional Japanese textiles. The meticulous act of carefully wrapping, binding, and hand-dying fabric is often unappreciated in our western culture. During my presentation, I will provide a brief history of Shibori, demonstrate the Shibori technique of Arashi, and present a few of my finished large-scale Arashi wall hangings.
**Booze on Blocks**

Poster

Presenter and Author: Lindsay Fox

Faculty Mentor: Dr. Mathew Dooley, Geography and Mapping Sciences

This project examines whether most crimes occur close to bars in Minneapolis. Distance from crime to bars, how many crimes were within a one block buffer of bars, and if census blocks with more bars had more crimes were analyzed. The research concludes that there is not a significant relationship between the location of crimes and bars.

**Real voices: Japan and America in the 1950s**

Prezi Presentation

Presenter and Author: Miho Fukuoka

Faculty Mentor: Rhonda Petree, English

This oral history project examined the lives of two elderly people, one from Japan one from the U.S. A Timeline of their lives illustrates important events that affected their lives. Information presented in a Prezi presentation compared their lives from social, political, cultural aspects in two different countries of the same generation. These two stories depict the lives of inspiring people.

**Contemporary Embroidery: Drawing with Thread**

Artwork

Presenter and Author: Alicia Gensch

Faculty Mentor: Morgan Clifford, Art

Embroidery has long been a means of embellishing fabric, but in the contemporary art world, it is a medium all its own. Melding drawing with a historical practice, contemporary embroidery blurs the line between tradition and innovation.
In my work I combine hand embroidery, free-hand machine stitching, and textile manipulation to build up a surface rich with emotion and imagination. I chose to use portraits in my work to show that small stitches - environment, family, self - builds the whole individual.

**Mississippi Water Levels Hindering Barge Traffic**

Poster

Presenter and Author: Adam Geurkink

A research project showing the relationship of water levels affecting barge traffic on the Mississippi River from St. Louis, MO to Cairo, IL.

**Pyrography Block Prints**

Artwork

Presenter and Author: Jazmin Goire

Faculty Mentor: Morgan Clifford, Art

The art form that I work in is known as Pyrography. Pyrography is the art of decorating wood or other materials with burn marks resulting from the use of a heated object such as a wood burner. The pieces I have made are essentially wooden stamps that when inked and applied to paper or fabric, create a block print. In printmaking this art is known as a relief print. My inspiration for the pieces was the art of the Pacific Northwest Coast Native Americans. What is unique about my pieces is the use of bold colors, and the combination of crisp lines and sporadic wood grain texture.

**Breaking the Chain**

Artwork

Presenter and Author: Christopher Gray

Faculty Mentor: Asako Nakauchi, Art

I come from three generations of smokers and this is my chance to break tradition.
**An Examination of Evil in “The Hunger Games”**
Poster

Presenter and Author: Jaime Haines

Faculty Mentor: Dr. Jennifer Willis-Rivera, Communication Studies and Theatre Arts

In the Hunger Games trilogy, many readers find the Capitol citizens' ignorance and placidity understandable and even forgivable. Others argue that the Capitol citizens cannot be coddled as mere innocent, ignorant people because there are timeless evils that every person can recognize as wrong, no matter what their upbringing. This paper examines how the concept of killing as an evil act is socially constructed as acceptable in the Hunger Games trilogy. Using specific definitions of “evil” taken from philosophy, I analyze how the concept of killing as an evil act is developed. I then take those same concepts and apply them to culture in the United States to recognize the implications of United States' citizens' actions. This research is important because we often draw our own understandings of concepts like evil, not only from our own experiences, but from the media as well. Given the popularity of the Hunger Games trilogy, this is an important set of texts to examine.

**Architect of the Future Brownie Pan**
Poster

Presenter(s): Tyler Hefty, Laura Kleppe, Jackie Trepanier

Author(s): Tyler Hefty, Laura Kleppe, Jackie Trepanier

Faculty Mentor: Dr. Kathy Tomlinson, Mathematics

We developed a mathematical model to create a perfect brownie pan, one that produces evenly cooked brownies and maximizes the number of brownies than can be baked simultaneously. To produce evenly cooked brownies, we studied the distance between the radius and the apothem among different shapes of brownie pans, all with the same area. Next we analyzed the number of brownies that could be produced simultaneously using these different shapes of pans. We conclude that a circular pan provided the best solution for the two problems.
**Testing Torque and Efficiency of Three Grades of Gasoline**

Poster

Presenter(s): Tyler Jacobson and Danica Alvarez

Author(s): Tyler Jacobson and Danica Alvarez

This experiment was designed to test the performance of three different octanes rated gasoline fuels. We tested these different gasoline types in terms of their torque and efficiency. All tests were done on a single piston four stroke gasoline internal combustion engine. We did find that there are small differences in the way each fuel performed as far as fuel consumption, RPM, and load applied.

**Confined**

Artwork

Presenter and Author: Jacqueline Johnson

Faculty Mentor: Dr. Karla Zhe, Communicative Studies and Theatre Arts

I created and preformed a dance piece titled “confined” for the Dance Theater spring concert. This piece was about inner conflict and struggle, and how abusive we can be on ourselves. Through movement I really tried to emphasize the abuse and the want to escape. Emotionally and physically, this piece was very tiring because it demanded a lot of dramatic movement and feelings.

**Preserve**

Artwork

Presenter and Author: Kathleen Johnson

Faculty Mentor: Asako Nakauchi, Art

This piece stems from a variety of influences in my life. The left behind washer traces on the outside represent the tangible and intangible marks that oneself accumulates over time; however, the marks have the possibility to fade through time. Peering in, the washers are repeated in their form
representing moments and memories that one will carry with for the rest of their life; everlasting. Some marks harvest pain and sadness while others exert timeless beauty and happiness. The butterfly in the center represents continuous preservation of the human soul through all of this.

**Scanning Tunneling Microscopy Study of Self-Assembled Monolayers**

Poster

Presenter(s): Rory Jones

Author(s): Rory Jones, Nuri Oncel

This research describes a scanning tunneling microscopy study of the physical properties of thin films of porphyrin molecules adsorbed on highly oriented pyrolytic graphite (HOPG) at solid-liquid interfaces. The Fe (III) meso-Tetra (4-carboxylphenyl) [Fe-TCP] and meso-Tetra (4-carboxylphenyl) [TCP] porphyrins were dissolved with phenyloctane or octanoic acid and deposited on bare HOPG to examine the self-assembly of these monolayers. 5-octadecyloxy isophthalic acid (5-OIA) was added to provide directional hydrogen bonding sites on the surface for the porphyrin molecules. The research focus is on controlling the surface morphology of a porphyrin film by co-adsorbing them with chain-like molecules.

**Shielded Dragon**

Artwork

Presenter and Author: Pat Kaempf

Faculty Mentor: Asako Nakauchi, Art

This dynamic steel sculpture depicts a mythical creature created from the combination of two different animals. The resulting animal has the flowing body of an Asian dragon and the ridged shells of a turtle. The shells rest effortlessly upon the back of this rare beast as it travels across the earth.
**Polar Tooth**  
Artwork

Presenter and Author: Jessop Keene

Faculty Mentor: Asako Nakauchi, Art

The Polar Tooth (Ursus-Felis) is a hybrid hunting machine. A cross between a polar bear and a saber tooth tiger, it is the superior species of the arctic region. Happily living on a diet of mostly seals and humans, the Polar Tooth roams the Arctic Circle and the UWRF campus in search of food and mates.

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**A Model of Monetary Policy Shocks for Financial Crises and Normal Conditions**  
Poster and PowerPoint Presentation

Presenter(s): Logan Kelly

Author(s): John W. Keating, Logan Kelly and Victor J. Valcarcel

In their classic 1999 paper, _Monetary policy shocks: What have we learned and to what end?_, Christiano, Eichenbaum, and Evans (CEE) investigate one of the most widely used methods for identifying monetary policy shocks of its time. Unfortunately, their approach is no longer viable, at least not in its original form. The primary problem is that key variables in the model, in particular the Fed Funds rate and non-borrowed reserves, have not been well-behaved since the recent financial crisis. We develop a new identification scheme that remedies these difficulties but maintains the basic CEE framework. A major innovation in our work is to use Divisia M4, the broadest monetary aggregate currently available for the United States, as the policy indicator variable. We obtain four major results that support the use of a properly measured broad monetary aggregate as the policy variable. First, policy shocks in our model have a significant impact on output and on the price level, even when an interest rate is included in the model -- contradicting the New-Keynesian argument that monetary aggregates are redundant. Second, our model is not subject to output, price or liquidity puzzles that are common in this literature -- contradicting the view that using the interest rate yields more reasonable responses to a policy shock. Third, during normal conditions the policy shocks from our
model have remarkably similar effects on variables as CEE’s Fed Funds model of monetary policy, and when these are different the model with Divisia M4 obtains results that are more consistent with economic theory. Finally, our specification produces sensible monetary policy responses in samples that both include or exclude the financial crisis.

**Giant Squidapede**

Artwork

Presenter and Author: Phillip King

Faculty Mentor: Eoin Breadon, Art

Both giant squids and centipedes are elusive creatures, one lurking deep below the ocean, the other dwelling within the cracks and crevices of our walls. This abstract combination is my interpretation of these animals through the use of metal rod and acrylic paint. I chose to solely use rod and welding techniques because they are reminiscent of working with molten glass in slow motion.

**Effects of Media Thinness Cues on Eating Behavior**

Poster

Presenter(s): Ray Klahr, Laura Olean

Author(s): Ray Klahr, Laura Olean, Tina Staszak

Faculty Mentor: Dr. Travis Tubre, Psychology

We examined the influence of television content on women’s eating behavior. Forty female college students were offered both healthy (carrots) and unhealthy (cookies) food choices while watching either a thinness-promoting show (America’s Next Top Model) or a thinness-avoidance show (documentary clip on starvation). Participants in the idealized body condition consumed higher levels of food, particularly for the healthy food choice.
**Using a High-Powered Laser for Machining**  
Poster

Presenter and Author: Andrew Klitzke

Faculty Mentor: Dr. Lowell McCann, Physics

The control interface, software, power generation, and electronics for controlling a CO2 laser are designed and implemented. This computer-controlled laser is capable of precise laser machining, engraving, and cutting. It has potential applications in semiconductor and thin-film research and design, microfluidic study, circuit board etching, and acrylic machining. We will report on the progress of going from creating a CAD drawing to cutting a finished product.

**Sustainable Practices and Environmental Health**  
Poster

Presenter and Author: Dr. Lisa Kroutil, Chemistry

A new multidisciplinary course “Sustainable Practices and Environmental Health” was developed as a project for the UWRF Sustainability Faculty Fellows Program. This course will be offered Fall 2013. This course examines what makes a practice sustainable, examining all aspects of the practice including economics, environmental, societal, and health considerations. Students will consider the importance of considering the full life cycle of a product including manufacture, use, and disposal. Students will learn how to evaluate epidemiology and toxicology evidence and reports. The course will also address educating the public and implementation of policies and regulations.
Recent Asian Settlement in Twin Cities Metropolitan Area
Poster

Presenter and Author: Rhianna Leach

Faculty Mentor: Dr. Charles Rader, Geography and Mapping Sciences

The purpose of my study is to analyze settlement patterns of Vietnamese, Hmong, and Indians in the two most populated Twin Cities counties, Ramsey and Hennepin. Mapping, describing, and analyzing where these groups have settled and an explanation of why they have settled there are presented.

Misinformation and Social Media
Poster

Presenter and Author: Elise Lundequam

This study set out to examine misinformation and social media. Misinformation is defined as the distortion of memory that occurs as a result of inaccurate information attained after an event. We compared the impact of misinformation delivered either via a twitter feed or a traditional news article. We had no set hypotheses given the lack of previous research, but generally expected to find misinformation effects that may or may not be amplified as a result of social media. As social media becomes more prevalent this study may help us to better understand how social media can influence news acquisition and belief.

Investigating Restricted C-N Bond Rotation
Poster

Presenter(s): Ashley McDonald

Author(s): Robert Nelson, Stacey A. Stoffregen, and Karl P. Peterson

Faculty Mentors: Dr. Stacey Stoffregen, Chemistry and Dr. Karl Peterson, Chemistry
While single bonds in organic molecules can often freely rotate, certain molecules exhibit restricted rotation of their single bonds. The meta- and ortho- derivatives of anisidine, where we prepared. Spectroscopic analysis (1H NMR) of the synthesized materials suggests that the C-N bond of the ortho- derivative exhibits restricted rotation. Using computational chemistry methods, the barriers of rotation for both structures were calculated. A larger energy barrier to rotation was observed for the ortho-derivative and is therefore supportive of the spectroscopic evidence for restricted rotation. To further investigate restricted rotation over a series of related molecules, a halogen (either F, Cl, Br, and I) atom is being placed on both derivatives in the meta- and ortho- positions and the -OH is being replaced with a H atom. The structures are being synthesized and 1H NMR of the derivatives is being collected at various temperatures. The barrier to rotation is being calculated for all structures.

**Promoting Sustainability**

Poster

Presenter and Author: Tracy O'Connell, Marketing Communications

A course, Promoting Sustainability, was developed and first offered through the Marketing Communications program Spring, 2013. In it, students addressed the many lenses through which an organization might be considered sustainable, with attention to the triple bottom line of economic, environmental and human impact. Students explored current topics in manufacturing, agriculture, natural resources and retail sales, and delved in-depth into a local business to see how it measured up in its environmental commitment, and how those successes could be promoted to the organization's target markets.

**Needle Felting**

Artwork

Presenter and Author: Briana Olson

Faculty Mentor: Morgan Clifford, Art

To make a needle felted sculpture first I create an armature out of wire and foam, precisely the size and shape of the figure. I then take wool roving or any type of fiber and cover the form in small patches, then using a special
barbed felting needle I repeatedly poke the wool about a half inch deep. Using this process I can color and sculpt features of my creature. The finished product is soft, light and bendable. Needle felting is a great skill for the crafter and the artist.

**Prevailing Stereotypes: Disney's Effects on Communication and Culture**

**Poster**

Presenter and Author: Courtney Pearson

Faculty Mentor: Dr. Jennifer Willis-Rivera, Communicative Studies and Theatre Arts

Young children routinely grow up watching Disney movies. It is the stuff of childhood in the United States, and in many other countries. However, these movies are not all “happily ever after”; such movies can give children the impression of an idealistic culture with predisposed roles for men and women in society, and may also show racial stereotypes. This paper uses a thematic analysis to examine how Disney casts gender roles in many of their movies. Showing the “princesses” in very structured gender roles creates a hegemonic understanding of gender and many these films contain portrayals that may inadvertently continue misconception of race and gender. To examine this assertion, I will look at previous research conducted to see how Disney movies have evolved over time to be more racially conscious, yet still contain traditional gender roles. I will also look at the movies Song of the South and the Disney Princess movie line, particularly Pocahontas, The Princess and the Frog, and Beauty and the Beast to see how gender is constructed throughout the movies. From the themes deduced, I will show how these popular children’s films continue to portray traditional gender roles in society, though overt racial stereotypes within Disney movies have all, but disappeared, covert one still remain.

**PCR Detection of the “Zombee” Honey Bee Parasite**

**Poster**

Presenter(s): Nicole Quiney, Hannah Space

Author(s): Nicole Quiney, Hannah Space
Faculty Mentor: Dr. Kim Mogen, Biology

The honey bee, Apis mellifera, is valued for its honey but more importantly for its ability to pollinate the wide variety of agricultural plants we use for food. There has been a staggering world-wide decline in the population of honey bees and other native pollinators. First documented in the US in 2006, the syndrome was termed Colony Collapse Disorder (CCD). As no single cause has been found, experts believe multiple environmental hazards are working together to threaten the pollinators. This study examined a newly discovered biotic threat to honey bees that may have an impact in CCD. A tiny fly, Apocephalus borealis, is known to parasitize native pollinators such as bumble bees and wasps by laying eggs into their abdomens. Honey bees are not native to the US and so should be resistant, but parasitized honey bees were recently discovered in California. The infection changes honey bee behavior, giving rise to the name “zombees.” Researchers at San Francisco State University (SFSU) detect infection by watching a honey bee for up to seven days and waiting for A. borealis larvae to emerge, thus killing the bee. We wanted to see if we could detect infected honey bees by polymerase chain reaction (PCR). Phorid fly-exposed honey bees were sent to us from SFSU. The frozen bees were crushed in DNA extraction buffer and PCR was done using primers specific for A. borealis. Phorid fly DNA was detected in 90% of the tested bees. Using similarly-exposed bees, researchers at SFSU saw an emergence rate of 40%. This suggests that emergence assays may significantly undercount the number of infected bees. Naturally occurring “zombees” have not yet been found in Wisconsin.

**Design and Synthesis of TRPM8 Antagonists; Tools for the Investigation of the Cold Receptor**

Poster

Presenter and Author: Jennifer M. Rang

Faculty Mentor: Dr. David Rusterholz, Chemistry

The purpose of this project was to prepare a series of new chemical compounds that were designed to interact with the TRPM8 receptor. The TRPM8 receptor is a protein that is found in many tissues in the human body (and the cells of many other living systems). In 2002 the TRPM8 receptor was identified as the major mechanism by which our nervous system detects the sensation of cold. Not very much is known about its
function in living systems, other than its mediation of a cold sensation. Through the creation of chemical agents that have the ability to either selectively activate or antagonize the actions of this protein, its role in various biological systems may be revealed.

During the course of investigation of analogs of the cold-sensation producing compound icilin (1), several amide derivatives of meta-nitrocinnamic acid (2) were created. These compounds were found to have significant antagonist action at the TRPM8 receptor. The purpose of the research reported here was to prepare a series of cinnamamide derivatives to delineate the structure activity relationships (SAR) for TRPM8 antagonism in these derivatives. A series of 19 such derivatives was created and evaluated for TRPM8 antagonism. The synthesis and the results of the biological testing of these compounds will be presented.

**Thick Blooded Americans**
Artwork

Presenter and Author: Phil Reed

Faculty Mentor: Asako Nakauchi, Art

The average American diet is less than ideal. From fast food to processed, there are many ingredients we could cut down on or completely cut out. Salt is just one we could do with less.

**Geography of Rugby**
Poster

Faculty Mentor: Dr. Charles Rader, Geography and Mapping Sciences

Presenter and Author: Daniel Reinbold

Geography of Rugby-This project is an attempt to explain success in the Rugby World Cup. I obtained data on every Rugby World Cup, and looked at how distance traveled by the participating team affected there records and how many countries the country was away from the origins of rugby in Rugby, England.
**Database Query Optimization**

Poster

Presenter and Author: Lisa Rosenthal

Optimizing relational algebra queries using join allows the computer to execute the queries in a more efficient way, reducing the execution time and expense. In this project I made progress towards optimizing execution time of relational queries by analyzing the relational algebra associated with each query, with a focus on the join operator. I evaluated different algorithms and strategies using parse trees by incorporating relational algebraic laws to find more efficient ways of manipulating algebraic expressions associated with a variety of queries. By applying the strategies and laws to a query, I was able to reconfigure the parse tree repeatedly until no strategies or laws could be applied, resulting in an optimized tree. This leads to a more efficient query, which ensures a faster execution time. The optimized relational algebra queries were implemented using SQL (Structured Query Language) with an Oracle database.

**Internal Migration: The Real Reasons We Move**

Poster

Presenter and Author: Zachary Rossow

Faculty Mentor: Dr. Charles Rader, Geography and Mapping Sciences

The U.S. has experienced high internal migration rates since the founding of the nation. Internal migration is at one of the lowest levels in thirty years with millions still moving. The U.S. Census has identified seventeen categories people move. Marital status or economic factors are the main drivers. This study examines variations in factors for states with high immigration to determine if they share common characteristics.

**Trichome Formation and its Role in Glucosinolate Metabolism**

Poster

Presenter and Author: Britta Rued
Faculty Mentor: Dr. Ross Jilk, Chemistry

Glucosinolates are secondary metabolites in plants that act as essential defense compounds and play a role in thiosulfur metabolism. We hypothesized that trichome formation in Arabidopsis thaliana is linked to glucosinolate metabolism. Our hypothesis was tested by comparing glucosinolate levels in wild type and glabrous (non-producing trichome strain) A. thaliana. Glucosinolates were isolated via alkaline isolation procedure utilizing centrifugation and heating. This produced the breakdown product 1-thioglucose from the glucosinolates present in A. thaliana, which could subsequently be measured via detection procedures based on an assay utilizing the reduction of ferricyanide and UV-Vis spectroanalysis at 420 nm. All results were compared to a standard curve based on sinigrin. The results were also compared to Brassica oleracea and Armoracia rusticana as positive controls, and a blank with no sample as a negative control. Previous research has demonstrated the potential linkage between glucosinolate concentration and trichome formation.

*Development of a Novel Classification Method for Unknown Phages*

Poster

Presenter(s): Britta Rued, Robert McCabe

Author(s): Britta Rued, Robert McCabe, Students in the BIOL 295 Phage Hunters Class

Faculty Mentors: Dr. Karen Klyzeck, Biology; Dr. Kim Mogen, Biology; and Dr. J. Alfred Bonilla, Biology

Bacteriophages are viruses that infect bacteria, and they are ubiquitous throughout the environment. With the enormous number of new bacteriophages being discovered, there is a need for a protocol in which phages can be classified accurately in the absence of a complete genome sequence. Our goal is to develop a method that utilizes PCR techniques and immunity testing with lysogens to identify novel phages.
**Red River of the North - Seasonal Flooding Comprehension**

Poster

Presenter and Author: Nathan Schilling

Faculty Mentors: Dr. Charles Rader, Geography and Mapping Sciences and Dr. Ruth Baker, Geography and Mapping Sciences

This project studies seasonal variation and characteristics of the Red River of the North. Physical processes are examined to explain the causes for the Red River to experience drastic annual spring time-flooding. Human-environmental relationships are examined further to illustrate the impacts of flooding for urban areas along the river.

**Armored Predator**

Artwork

Presenter and Author: Jamison Schlotte

Faculty Mentor: Asako Nakauchi, Art

The mixing of very different creatures renders this new animal flightless and slow. A bird of prey becomes the prey, and the prey becomes a defense for the helpless hawk out of its element.

**Felis aves**

Artwork

Presenter and Author: Trista Schrader

This piece is a combination of cat features and bird features from various different types of birds. The body, ears, and tail were primarily cat inspired, the flippers were penguin inspired, the beak cockatiel, and the legs flamingo.
Changing Climate, Changing Health

Poster

Presenter and Author: Brie Simon

Faculty Mentor: Dr. Charles Rader, Geography and Mapping Sciences

This project examines the impact of anthropogenic climate change on human health, safety, and survival. Research, reports and data on climate change and its impacts are discussed in order to understand the effects on human health, security and survival in the developing and developed world.

Beyond an Honors Seminar: Art, Math, History, and Science in the Palm of Your Hands

Poster, Artwork, PowerPoint Presentation, Film

Presenter(s): Elizabeth Stolte

Author(s): Elizabeth Stolte (Class Participants: Emma Beasley, Ruth Tucker, Ashley White, Morgan Trunkel, Kelley Sobczak)

Faculty Mentors: Dr. Michael Miller, Associate Vice Chancellor for Academic Affairs and Nanette Jordahl, Assistant Vice Chancellor for Academic Affairs

Hold onto a piece of history and art in one hand and science and math in another as you pick up your yarn and hook. Take an adventure through time to learn how crochet has been used over the years as a cure for bad behavior, boredom, and even previously unanswerable scientific and mathematical questions. Go ahead; let your hands do the talking as you take an opportunity to learn this valuable and creative skill for yourself!

Body Armor

Artwork

Presenter and Author: Corrine Swett

Faculty Mentor: Asako Nakauchi, Art
Materials Used: Steel Sheet Metal and Rivets

**Peacock Horse**

Artwork

Presenter and Author: Cassie Tessier

Faculty Mentor: Asako Nakauchi, Art

This sculpture is mainly a peacock with the mane and legs of a horse. The rubber caps on the head were found objects. The spray paint on the body is meant to show the blue to green change on a peacock as you move around it. The tail feather colors were meant to represent a peacock feather as a whole.

**Mapping the Mob: Discovering the Spatial Pattern of Organized Crime in Modern-day Japan**

Poster

Presenter and Author: Rozlyn Tousignant

Faculty Mentor: Dr. Charles Rader, Geography and Mapping Sciences

My research project examines the spatial pattern of organized crime in Japan. The primary research questions are: is there an identifiable spatial pattern organized crime and how has this pattern changed over time. Data from the Japanese National Police Association are mapped and analyzed in this project.

**Views of life: Vietnam and America**

Prezi Presentation

Presenter and Author: Halan Tran

Faculty Mentor: Rhonda Petree, English

The purpose of this oral history project was to compare two different views of life from two different parts of the world - the United States and Vietnam. After interviewed my grandmother's sister and my host grandfather, I
compared significant events in their lives and presented the information in a timeline in an interactive Prezi presentation.

**Oral History Project**
Prezi Presentation

Presenter and Author: Yiyan Wu

Faculty Mentor: Rhonda Petree, English

This oral project explored the history of China and America during the late 20th century by interviewing two elderly women. From this project, we learn how eastern culture varied in this time period from western culture. Significant events of the women's lives is presented in an informative timeline using Prezi.

**Original play 'Private Tutoring'**
Poster

Presenter and Author: James Michael Zappa

Faculty Mentor: Jim Zimmerman, Communication Studies and Theatre Arts

Wrote original full length play 'Private Tutoring'. Research included structure of a full length play, the subject matter of sexual abuse, characteristics of sex abusers, and short/long term psychological effects of victims.
**Possibility of Stability of the Phillips Curve Model in the Long Run versus Short Run**

Poster

Presenter(s): Amanda Jacobson, Sage Johnson, Michael DeMatties

Author(s): Amanda Jacobson, Sage Johnson, Michael DeMatties

Faculty Mentor: Dr. John Walker, Economics

Those involved in implementing monetary or fiscal policies are always searching for yet another accurate way of predicting changes in the economy, as they should. At first glance, inflation and unemployment seem relatively unrelated, although in 1958 A.W. Phillips recognized that they generally did not coexist, thus suggesting an inverse relationship, and so the Phillips Curve model was created. More specifically, the rate of unemployment has a negative effect on inflation, making unemployment the independent variable, and inflation the dependent variable. However, the Phillips Curve has been challenged and revised since then, and thus the additional independent variables include: expected inflation, and supply shocks, plus the rate of unemployment is instead the unemployment gap, meaning the actual rate less the natural rate. Why is all of this important? Clearly, inflation and unemployment affect everyone in the economy, and if there is a model that predicts inflation accurately, it will not only better prepare policymakers for changes in the economy, but also the general public. In this research, considering the ambiguous nature of specified variables, such as supply shocks it was hypothesized that this relationship may be stable in the short-run but not in the long-run. This research uses the software STATA to look more closely at this relationship using data from FRED and the BLS website, taking into consideration long and short term effects in the form of standard regression analysis. The results of the analysis relate closely to the original hypothesis in the sense that although the relationship is present in the long run, the relationship in the short run is far more evident. The effect of the supply shocks variable on inflation was also questioned due to its lack of significance in the regression.
**Estimating the Phillips Curve**

Poster

Presenter: Sage Johnson, Amanda Jacobson, Michael Dematties

Author(s): Sage Johnson, Amanda Jacobson, Michael Dematties

Faculty Mentor: Dr. John Walker, Economics

Those involved in implementing monetary or fiscal policies are always searching for yet another accurate way of predicting changes in the economy, as they should. At first glance, inflation and unemployment seem relatively unrelated, although in 1958 A.W. Phillips recognized that they generally did not coexist, thus suggesting an inverse relationship, and so the Phillips Curve model was created. More specifically, the rate of unemployment has a negative effect on inflation, making unemployment the independent variable, and inflation the dependent variable. However, the Phillips Curve has been challenged and revised since then, and thus the additional independent variables include: expected inflation, and supply shocks, plus the rate of unemployment is instead the unemployment gap, meaning the actual rate less the natural rate. Why is all of this important? Clearly, inflation and unemployment affect everyone in the economy, and if there is a model that predicts inflation accurately, it will not only better prepare policymakers for changes in the economy, but also the general public. In this research, considering the ambiguous nature of specified variables, such as supply shocks it was hypothesized that this relationship may be stable in the short-run but not in the long-run. This research uses the software STATA to look more closely at this relationship using data from FRED and the BLS website, taking into consideration long and short term effects in the form of standard regression analysis. The results of the analysis relate closely to the original hypothesis in the sense that although the relationship is present in the long run, the relationship in the short run is far more evident. The effect of the supply shocks variable on inflation was also questioned due to its lack of significance in the regression.
**Essentials of Business Law, a textbook**

Artwork

Author(s): Suzy Rogers

Display Only

*Essentials of Business Law* is an undergraduate textbook published by Bridgepoint Inc.

**Consumption Function**

Poster

Presenter(s): Lucas Bradshaw, Andrew Wohlfeil, Zachary Rossow

Author(s): Lucas Bradshaw, Andrew Wohlfeil, Zachary Rossow

Faculty Mentor: Dr. John R. Walker, Economics

The consumption function has been a major topic of economic conversation for almost 100 years. Consumption is the largest factor of aggregate demand; however, no renowned economist can agree exactly on its specific definition, variables, significance, or implications. This study based on classical and contemporary literature utilizes income, consumption, housing, and financial data from a variety of sources to display the significance of each variable, in an effort to better determine their role in policy decisions.
Estimating the Money Demand Curve

Poster

Presenter(s): Nathaniel Schroeder, Tyler Bryer, Elizabeth Ahneman, David Moteelall

Author(s): Nathaniel Schroeder, Tyler Bryer, Elizabeth Ahneman, David Moteelall

Faculty Mentor: Dr. John R. Walker, Economics

It is important to find if money demand is stable or not. That way the central bank can plan and implement effective monetary policy. We have found that there is a stable relationship between GDP, interest rates, and Money Demand.

The difference in Black White male earnings.

Poster

Presenter(s): John Stromquist, Matthew Jordan, Keenan Neitzel, Melanie Currey

Author(s): John Stromquist, Matthew Jordan, Keenan Neitzel, Melanie Currey

Faculty Mentor: Dr. John R. Walker, Economics

Our study examined the difference in weekly earnings between black and white males. Using data from the March supplement of CPS data over the years 2002-2006. Human capital earnings regression indicates that controlling for education, occupation, and other background characteristics black males earn 13% less than white males.
Dysphagia is a swallowing disorder that can affect the oral, pharyngeal, and/or esophageal phases of deglutition. Dysphagia can lead to aspiration which can result in respiratory illness, dehydration, malnutrition, overall weakness, and muscle atrophy. To minimize the risk of aspiration, patients are often prescribed a modified diet including thickened liquids. In order to establish standardization in viscosity of these thickened liquids, the National Dysphagia Diet (NDD) was created. Currently, the products that can be purchased by patients with dysphagia include pre-thickened liquids and powders/gels that can be added to beverages. Pre-thickened liquids can be expensive and inaccessible for patients and powders/gels can change the taste of the liquid and cause an increase in viscosity over time. These factors negatively affect patient compliance which increases the risk of health problems associated with dysphagia.

The purpose of this research was to identify products currently found in supermarkets that meet NDD standards of nectar-like liquids that would offer patients more accessible options for thickened liquids in order to increase compliance and minimize medical complications associated with dysphagia.

Viscosity testing was conducted on thirty-three different beverage products. Testing was conducted using a Brookfield cone plate viscometer with a number 41 spindle at 50 RPM. The centipoise (cP) values of each trial were recorded for each sample. The viscosity of each product was tested over different temperatures to determine reliability. The density for each sample was measured by using a Mettler Toledo scale and a 100 mL volumetric flask.
Results revealed, at both room and chilled temperatures, thirty-two products met the cP requirement for nectar-like. Results confirm there are a number of products on the market that meet the NDD requirement for nectar-like liquids that are accessible for patients with dysphagia.