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The Committee gives deepest thanks to
Ms. Jill Lynott and Ms. Grace Morrissey
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Empathy in BSW students

Empathy is an important value for a social worker as they establish a helping relationship with clients. Although there is an insufficient amount written in social work literature about specific activities which aide in the development of empathy, particular meditations have been found to be useful strategies for improving psychological function in interpersonal relationships (Kristeller, J. L., & Johnson, T., 2005). This project utilized a Loving-Kindness meditation to see if students who engaged in reading this meditation showed elevated levels of empathy as compared to a control condition. Students who were enrolled in Social Work Quantitative Research were randomly assigned to either condition X, which was to read the meditation then an assigned poem, or condition Y which was to read the poem then meditation. After six weeks of reading these works, no consistent impact was found to be associated with these conditions. A limitation included lack of fidelity to the intervention. If future research were to be conducted, suggestions included recording stress levels in addition to empathy levels throughout the study.
“Got No Love To Be Someone”:
The Hyperreality of Millennial Sexuality

This research project examines millennial sexuality in the context of Jean Baudrillard’s theory of hyperreality. Using data from media analysis, PEW social surveys and cultural productions such as Youtube videos, I demonstrate that millennial sexuality can be seen as being portrayed in a continuum—on one end there is pervasive hookup culture, and on the other there is rape. My research looks at how our generation both consumes and produces these depictions of sexuality in the media - ultimately resulting in an analysis that both uses Baudrillard as a foundation while also demonstrating a practical application of the social theory. Because I am a millennial, I use my own social location within this context in order to describe it, in effect humanizing the experience. Interspersed throughout the paper are fictional vignettes meant to present some of the aspects of millennial sexuality that would otherwise seem to only be discussed in third party conversations. This is important because not only does it depict a more honest relationship between millennial students and the research, but it also exemplifies the blending of fact and fiction into a hyperreality, where experience is lived. My poster will include an overview of the project with examples of the analysis I have completed. I will discuss the research, as well as my own position in relation to the subject, in my poster presentation.
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**Matthew Sowka**  
*Sponsored by Dr. Craig Johnson*

*Water and Life*

The purpose of this is to explain the significance of water in the evolution, and survival of life as we know it. Included are planetary bodies that may have water, exo-planets that may have water, and what we should look for when we are trying to find water. Specific attention is given to Mars, Europa, and Titan. For Mars the attention will be focused on the history, and the possible future of its atmosphere, along with the history of water on Mars in the distant and recent past. For Europa, the attention will be focused on the water that exists beneath the icy surface of the moon. Titan, though it doesn’t possess water, nor is it believed that it has ever had life on it, it is the only moon that possesses a dense atmosphere. Despite there being little belief for life on Titan, there are photochemical processes taking place in the atmosphere which may result in organic molecules.

**Melissa Williams**  
*Sponsored by Dr. Lisa Antoniacci*

*Phosphorylation of Mps3 and Elg1 by Cdc5 in Saccharomyces Cerevisiae*

In yeast cells, Mps3 is a nuclear envelope protein that functions in the insertion and duplication of spindle pole bodies, sister chromatid cohesion, DNA damage repair, and the formation of telomere bouquets during meiosis. Additionally, Mps3 physically interacts with the three large subunits of the Replication Factor C (RFC) complexes. One of these subunits, Elg1, functions in sister chromatid cohesion, and is involved in telomere homeostasis. Cdc5 is a polo-like kinase that is active during the cell cycle. During meiosis, Cdc5 assists in DNA damage adaptation. During mitosis Cdc5 regulates the shape of the nucleus and size of the nuclear envelope. Previously our lab has identified a physical interaction between Mps3 and Cdc5 and Elg1 and Cdc5. Here, we investigate the potential of both Mps3 and Elg1 as substrates of Cdc5 kinase activity.
Overexpression of Krüppel-like Transcription Factor, KLF-2 May Be Toxic to Caenorhabditis Elegans

This study is part of a multi-institutional collaboration in which the goal is to understand the consequences of abnormal fat deposition and its importance in the treatment of human obesity, diabetes, and cardiovascular disease. To investigate this fat storage problem we use *Caenorhabditis elegans* as our model system. We are interested in the *klf-2* gene, a member of the Krüppel-like Transcription Factor family. The other two members of the KLF family, *Ce-klf-1* and *Ce-klf-3*, have been shown to be integral factors in *C. elegans*’s ability to regulate fat. Our aim is to examine *Ce-klf-2* and determine its connection to lipid metabolism in *C. elegans*. Herein we report that over expression of *klf-2* gene through microinjection of construct pHZ336 [5’ flanking genomic sequences (~ 2 kb) from *klf-2* ATG and the full coding sequences covering all its 4 exons fused to GFP] may be be toxic to *C. elegans*. Single-worm PCR analysis indicates that the *gfp* gene is present in the microinjected worm’s F3 generation transformed progeny, but the GFP protein itself is not being expressed. Additional tests are underway to determine the mechanism of *klf-2* gene toxicity in *C. elegans*.
Mps3 is a nuclear envelope membrane protein that has a single transmembrane domain and is necessary for spindle pole body duplication, as well as for meiotic bouquet formation, sister chromatid cohesion, and telomere-led rapid prophase movement. Telomeres will localize to the nuclear envelope and anchor via Mps3. This interaction has identified Mps3 functioning in telomere clustering. Htz1 in yeast is the histone variant mutation of H2A.Z, which takes place of H2A in nucleosomes and has been known to promote DNA repair and chromosome stability. Mps3 is known to physically interact with Htz1. Based on this physical interaction and some of the known overlapping functions of the two proteins we hypothesize that Htz1 may also be involved in telomere clustering. Our lab used an Htz1 deleted yeast strain to determine its function in telomere clustering.
Full Hydroxylation of a C$_{60}$ Fullerene with Antimicrobial Testing of the Produced Fullerol

First discovered in 1985, fullerenes are carbon molecules that can form a variety of shapes, from hollow spheres to hollow tubes and many shapes in between. When in the spherical shape they are called buckyballs. The first buckyball molecule discovered, C$_{60}$, was appropriately named buckminsterfullerene after Buckminster Fuller whose famous geodesic domes it resembles. Since their discovery, there has been interest in possible medical applications for fullerenes from the prospect of antioxidants to the caged delivery of cancer drugs. In this experiment, the antimicrobial properties of a hydroxylated fullerene (fullerenol) will be tested against several types of pathogenic bacteria. Taken from the buckminsterfullerene state, the molecules will be fully hydroxylated and then purified before being administered to the bacteria.

Alisha Pitchford
Sponsored by Dr. Craig Johnson

Examination of Extremophiles and Possible Niches in the Solar System

The field of astrobiology takes a multi-faceted approach to the examination of the origin, evolution, and distribution of life in the Universe. Of key importance in this study is knowledge of the extremes that life not just survives, but thrives here on Earth. These appropriately named extremophiles have allowed astrobiologists glimpses of how life as we know it might be lurking in some of our solar system neighbors. Research of analogues on Earth for some of these solar system bodies (Mars, Europa, Titan, and Enceladus) can give us reasonable hypotheses and redefinition of searching for life outside our own planet. This project’s goal is to bring these analogues and extremophiles to light and further the proposal that space exploration is not just fanciful, but a necessary part of our philosophy as humans.

Amanda Hinkel
Sponsored by Dr. Linda Partridge

Transcending the Simplicity of Form: An Exhibit

I discovered simplicity of form is not necessarily simplicity of experience while curating Transcending the Simplicity of Form, an exhibit derived from my senior independent study based in contemporary art. As an Arts Administration and Art History dual major, I chose to curate an exhibit because of my curiosity in curatorial practices and desire to further my knowledge in contemporary art; specifically in minimalist, post minimalist, and abstract expressionist artists. Utilizing The Maslow Collection and The Maslow Study Gallery for Contemporary Art gallery space, I carefully selected pieces with the purpose of exemplifying how artists with roots from minimalism can provide a transcendent experience through systematic and uncluttered spaces. The question of a deeper, spiritual experience through contemporary art has long been debated. My research stemmed through my study of Agnes Martin, an artist with spiritual ties and minimal designs, and grew into the question: can the process of making and viewing art be a spiritual experience? I believe it can, but I challenge you to look beyond the simplicity of the forms and decide for yourself. Transcending the Simplicity of Form will be on display through April 26 in the Shields Center for Visual Arts in The Maslow Study Gallery for Contemporary Art.
Edward Hopper’s Anomaly: Light Battery at Gettysburg

American artist Edward Hopper is best known for his scenes of American life in the 1930s and 1940s. However, upon preliminary investigation of Hopper, I discovered that the artist created two paintings depicting Civil War troops at Gettysburg, Pennsylvania during his career. Though scholarly literature notes that Hopper had an interest in the Civil War, Matthew Brady’s photography, and he had traveled to various Civil War sites in 1929, including Gettysburg, these images are anomalies in the greater context of his work. Hopper created his two Gettysburg canvases in 1934 and 1940. Light Battery at Gettysburg, the second of these two paintings, is almost completely absent from the scholarly literature pertaining to Hopper. After interviewing experts at Gettysburg National Military Park, The Adams County Historical Society, and The Civil War Trust, as well as examining files on farmhouses in and around the Gettysburg area, I discovered that the farmhouse depicted by Hopper in this painting is not identifiable in Civil War photographs or as a structure that stood at Gettysburg, either in the 1860s or in 1929. This is also unusual, because Hopper was known for rendering architecture so precisely that scholars have been able to locate the exact buildings he depicted. Moreover, the re-visititation of this distinctly American imagery both in the early years of World War II and again before America’s entry into the war is of particular intrigue. This project investigates Light Battery at Gettysburg and hypothesizes the choices that Edward Hopper made in the context of his life at the time of its creation.
Astrobiology is a growing field in the present world. The definition of life has changed throughout the years as more research has been done on different samples of we as humans have been able to gather from outside this planet. The purpose of this research and presentation is to further advance the knowledge of astrobiology. My presentation and research will provide details on the beginning part of Earth's life cycle and analyze the conditions that once existed here, such as the extreme conditions that organisms known as extremophiles were able to thrive in. This gives us a better understanding on how life first originated here on Earth and can be used to hypothesize that life on other planets is more of a possibility. This will be used as a comparison when researching life among other plants that are being looked at, such as Mars, Titan, Europa, etc., as a viable option to harbor life. My project goal is to showcase the extreme conditions that once existed on Earth and how life was still able to flourish in an attempt to better grasp how other planets might be harboring life as the research continues.

The treatment process that children undergo for a life-threatening medical diagnosis can command and sometimes paralyze a child’s mental, physical, and emotional development. Throughout and following treatment, complementary therapies, such as art therapy, are encouraged for children to provide a sense of familiarity and a voice during their treatment. Studies conducted within the past few decades conclude that art therapy is an effective and beneficial therapeutic intervention for pediatric oncology patients. Upon examining specific interventions utilized with this population, it appears as though metaphorical interventions may produce profound positive effects on children who developmentally may not yet have access to full verbal expression. In addition, the use of imagination and metaphor may enhance a sense of safety by distancing the patient from the frightening experience of treatment and hospitalization through indirect expression of their feelings. Creative treatment modalities employing use of the metaphor come in many forms including bibliotherapy. My personal contribution intended for pediatric oncology patients is provided in the format of an interactive coloring book with accompanying text revolving around the hospitalization experience of a young teddy bear. The book is designed with both art therapy and bibliotherapy in mind. Its effectiveness is rooted in the combination of art making and verbal expression as part of a bilateral process, a harmonious connection of the two brain hemispheres, which is vital to an individual’s sense of self. The prototype encourages children to bring color to the story, which they may find relates to their own feelings and personal experiences.
From Wednesday, March 11th to Saturday, March 14th, the four students listed above who work with Marywood University’s student-run newspaper, *The Wood Word*, traveled to New York City to take part in the College Media Association’s annual conference. There, they took part in several sessions, and even presented two of their own. Satara and Patrick, the respective future editor-in-chief and managing editor of *The Wood Word*, presented on how dual leadership makes the production process smoother. Kelsey and Alex, design editor and assistant multimedia editor respectively, presented on how it is easier than one would expect to quickly write a news story, and led an activity on how to write a story in an hour.

In the sessions performed by others, the four students learned various new skills and techniques to bring to *The Wood Word* in order to increase quality. Some of these new techniques involved graphics, such as increasing the page count of the newspaper to make the paper more visually appealing, while others dealt with text content, such as how to write a better editorial or perform better interviews.

The poster will include pictures from the conference, along with text detailing the changes that will be coming to *The Wood Word* in response to the new information learned at the College Media Association conference.

Hospital acquired infections have become an increasing problem because of factors such as hospital overcrowding and antibiotic resistance. *Methicillin-resistant Staphylococcus aureas* (MRSA) and *Escherichia coli* (E. coli) are two ubiquitous microorganisms prevalent in hospital infections. In operation rooms, sanitization methods are taken to protect patients and doctors, however, a more effective solution is needed to protect against microorganisms in hospital settings. The basis of this project is to develop antimicrobial formulations to be atomized and sprayed in hospital operation rooms. Formulations that will be developed consist of different concentrations of Benzalkonium chloride (BAK) and a binder consisting of either guar gum or gum Arabic, as well as ammonium sulfate and urea. Five concentrations of each formula will be prepared and sent to Dr. Jun Ling, PhD, a microbiologist at The Commonwealth Medical College to evaluate antimicrobial effectiveness against MRSA and E. coli. It is our hypothesis that some of these formulations will be able to successfully kill the microorganisms and continued studies will be performed to obtain consistent coverage of smooth surfaces from the atomizer.
Paul Kraycer  
Sponsored by Dr. Christopher Brey

**Caenorhabditis elegans Krüppel-like Transcription Factor Family**  
**Genetic Analysis: Examining klf-2 and klf-3 Double mutant**

The free-living nematode *Caenorhabditis elegans* is a model organism that contain genes in the Krüppel-like Transcription Factor family (*klf*) that are homologues to *klfs* found in humans. *klfs* are important in the storage of lipids in the intestines of *C. elegans* and play a major part in the formation of adipose cells. Their control over adipose cells causes them to be linked to predisposition to obesity and type-2 diabetes in humans. Studies have shown that the *klf*-2 and *klf*-3 genes are both important in the storage and utilization of fatty acids within the intestine by promoting fatty acid β-oxidation, little research has been done examining the interaction between these two transcription factors. The goal of this study is to create a double mutant *klf*-2/*klf*-3 strain of *C. elegans*. *klf*-3(RB1603) hermaphrodites were mated with male CA151 mutant worms using standard genetic crosses to produce heterozygotes. Male heterozygotes were then mated to *klf*-2 (RB1081) hermaphrodites. Single worm PCR was utilized to confirm the presence of the cross. With a double mutant strain we will be able to examine if the genes enhance or suppress one another by examining fat deposition levels (o-red- stain), fecundity and morphological differences.

Amelia DeMasi  
Sponsored by Dr. Bruce Wisenburn

**Systematic Review of Treatments for Dysphagia**

**Purpose:** This systematic review is to objectively analyze research regarding the efficacy of different possible treatments for patients suffering from dysphagia (swallowing disorders due to neurological injury). These treatments include thermal-tactile stimulation, neuromuscular stimulation, oral motor exercises, the chin tuck maneuver, Mendelsohn maneuver, and the effortful swallow maneuver.

**Method:** An in depth search of electronic data bases turned up 11 journal articles which studied the effects of the different treatments. All articles were examined for quality using the method described by Cherney, Patterson, Raymer, Frymark, and Schooling (2008). The effect size (a measure of the amount of gains made in therapy) was calculated for all studies to see the improvement in swallowing over the course of treatment.

**Results:** Of the eleven articles which met the inclusion criteria, two studies evaluated thermal-tactile stimulation, five articles analyzed neuromuscular stimulation, three looked at oral motor exercise, one article tested the chin tuck maneuver, two studies pertained to the Mendelsohn maneuver, and two articles studied the effects of the effortful swallow maneuver.

**Conclusion:** Few reviews have been done comparing the efficacy of different treatments for dysphagia. The results of this review show that the various therapies have evidence of efficacy for helping patients to improve their swallowing function.
A Systematic Review of Reading Therapies for Aphasia Patients

**Purpose:** To systematically review the literature examining the effects of various reading therapies for people with aphasia (a language disorder due to a neurological injury) who are suffering from poor reading comprehension.

**Method:** A thorough search of the literature was conducted to find studies that examined therapy methods to improve reading comprehension due to aphasia. For studies that met the requirements, an effect size was calculated. An effect size is a measure of the amount of gains made in therapy from the baseline period to the end of therapy.

**Results:** Numerous articles were found that examined the efficacy of reading therapy for aphasia. The effect sizes showed that various treatment approaches could be useful to improve reading skills after a neurological injury.

**Conclusion:** It is important to research therapy methods to further develop the quality of therapy for patients. This research provides evidence for efficacy of treatment methods for individuals with reading comprehension deficits due to aphasia.

Analysis of Chlorogenic Acid in Green Coffee Bean Extract by Liquid Chromatography/Mass Spectrometry

Chlorogenic acid is the principal constituent found in green coffee bean extract. This compound is prevalent in unroasted beans that are extracted by organic solvents and is destroyed by the coffee roasting process. Chlorogenic acid has been reported to have a number of beneficial health effects, including a decrease in fasting blood glucose, and is currently available as a nutritional supplement. Our research group is planning to initiate a placebo controlled clinical trial using green coffee bean extract in pre-diabetic patients to determine whether there is a change in oral glucose tolerance after 12 weeks of treatment. We would also like to determine the plasma concentrations of chlorogenic acid in subjects taking a standard 800 mg dose. We developed a liquid chromatography/mass spectrometry method for chlorogenic acid in order to begin assay validation to do the pharmacokinetic analysis. This involves extraction of the plasma samples to purify and concentrate the chlorogenic acid, followed by analysis by LC/MS. This is a sensitive and specific method for the analysis of compounds in the ng/mL range.
Analysis of Water Samples Near Areas of Hydraulic Fracking Violations in Northeast Pennsylvania

Northeast Pennsylvania has become a concentrated area for hydraulic fracturing for the purpose of extraction of natural gas. The positive economic implications of this process have many in favor of this method of extracting natural gas; however, the environmental implications of this process are a topic of heated debate. The hydraulic fracturing process requires large volumes of water containing many chemicals, and the safety of these chemicals in the short and long term has not been adequately evaluated, particularly if they enter the waterways in the surrounding areas. We sampled stream water from several sites in the area, including areas which are known to have 20 or more cited violations to areas which have very few cited violations for the fracking process. We compared the water quality to determine whether there is a significant difference in pH, acid content, or ions. Careful studies need to be conducted to determine whether the hydraulic fracturing process can affect our water sources and wildlife in this area of the state.

Genetic Interaction of klf-2 and klf-3 Genes in Caenorhabditis Elegans

Coordinated regulation of fat storage is essential for fat metabolism and any disruption is associated with metabolic syndromes such as cardiovascular disease and type-2 diabetes in humans. A key family of Krüppel-like transcription factors (klfs) are important in maintaining proper fat balance. In this study we explored the genetic interactions of klf-3 and klf-2 by producing a double a mutant through RNA interference. KLF-3 (ok1975) homozygous recessive mutant worms were microinjected with klf-2 double stranded RNA. The microinjected progeny were collected and assayed for fat deposition through Oil-red-o staining. By studying these progeny worms, insight into the effects and causes of abnormal fat accumulation can be learned, and this information can be extrapolated to the metabolic diseases in humans that are linked to obesity.

Construction of Identity in Neil Gaiman’s The Sandman

Neil Gaiman is known as one of the most influential authors in contemporary fantasy literature. His ten volume, 75 issue comic book series The Sandman is perhaps the most powerful example of how he earned this status. One of Gaiman’s main points of contention throughout the series is how much of identity is self-constructed versus how much identity is constructed through encounters with others. This study examines the manner in which Gaiman discusses the construction of identity throughout the work. Ultimately, the study argues that through the characters of the Endless, Gaiman shows that identity must be self-constructed to achieve peace with one’s self. The poster contains a summary of the main points of the study, using the interplay of text with the visual nature of graphic novels. This includes such things as the physical representation of the Endless, the appearance of the words they speak, and the relationship between the perspective of the reader and the events on the page.
Krista Capelli  
*Sponsored by Dr. Ellen Payne*

**Small Intestine Laceration in High School Football Player**

**Background:** An 18-year-old male football player received a direct blow to his abdomen from an opposing player’s helmet. The athlete was lying supine with his knees and hips flexed and his feet planted. He was able to roll onto his hands and knees and was assisted and removed from the field. His primary complaint was pain with back extension. The athlete was given ice to relieve the pain. The athlete was transported to the emergency room. **Differential Diagnosis:** Abdominal contusion, ruptured organ, intestinal hemorrhage, abdominal muscle spasm. **Treatment:** The MRI revealed a minor laceration to his small intestine that caused slight internal bleeding. He was admitted to the hospital for 3 days, and put on pain medications and a strict liquid diet. He was asked to follow this diet for 4 days following discharge. His family and the athletic training staff monitored him for 2 weeks. **Uniqueness:** Organ lacerations are infrequent in athletics. The most common organs affected in sports injuries are the spleen, kidneys, liver and pancreas. Intestinal lacerations are normally caused by a penetration. The significance of this case was to illustrate that the force of another player’s helmet can cause this type of injury to the intestines. **Conclusions:** Intestinal lacerations are life threatening. It can result in serious bleeding as well as a possible cause for infection. The right decision was made to send the athlete to the emergency room immediately before returning him to play and before the condition became any worse. He went back to eating solid foods again within a month.

Bernardine Lomema  
*Sponsored by Sr. Mary Ann Zimmer, PhD*

**Zairean Rite, A Paradigm of Liturgical Enculturation**

This paper explores the history of Christianity in the Democratic Republic of Congo (DRC) - a period lasting from the fifteenth century to the twentieth century. The paper first focuses on the history of the ancient Congo known as the kingdom of Kongo with its religion. The second part investigates the interaction of the DRC’s religion in the inter-religious encounters with Christianity since Christianity’s introduction in the DRC. The finding is that while the work of the Catholic missionaries has positively influenced the lives of people and the development of both the church and the nations in DRC, the Congolese traditions, culture, values and beliefs were not always given consideration. Christianity in the first evangelization phase that was introduced by the Portuguese missionaries in the fifteenth century was in a sense enculturated. However, one cannot conclude that indigenous religion was fully accepted by the Western missionaries.

The Congolese traditional religion was by no means different from other African traditional cultures that were marginalized under the power of the Christianity introduced by Western missionaries especially those who came later during colonization in the nineteen century. In 1989 after a long time of reflection and dialogue, the Catholic Church in the DRC developed with the Roman Missal for the Dioceses of DRC, a liturgical celebration that integrates forms, symbols, and rituals that are suitable for her local culture and integrates them into the Roman rite in order to have a liturgy that is authentically African (Congolese) and really Christian and Catholic.
Effects of Facial Cues on Face Recognition

Face recognition plays a pivotal role in everyone’s life almost every day. You rely on your ability to recognize faces in order to prepare yourself for social interactions as well as environmental awareness. But what is it exactly that allows us to recognize a face? Facial cues, the recognized facial appearances of an individual, are what allow us to distinguish and recognize familiar faces. Our experiment focuses on testing for recognition of faces through the different types of facial cues: the eye region, the nose region, and the mouth region. This will be done by distributing 4 tests of images that have these certain facial regions blacked out. We expect to find the eye region to be the main facial cue used by the participants to recognize a face.

Past and Future Missions: Looking for Life

Astrobiology deals with the study of the beginning of life in the universe, advancement of life, and the outlook of life on other planets. This research project looks at a few of the major past and future space exploration mission which examines for previous or present life of the planet. These space crafts have special instruments which are equipped to do chemical and biological tests with the soil and air to assess if there was previous or present life. Some of the tests that are performed are the pyrolytic release experiment, the gas exchange experiments, and the labelled release experiment. Each of the experiments tests for various factors for evidence of life. One of the previous major space crafts is the Viking and one of the current missions happening right now is the New Horizons. Through research and discovery in this field, scientists can study what elements are necessary for life to start on another planet.
Bisecting Envelopes of Convex and Concave Polygons

An area bisector of a polygon is a line which passes through the figure and divides it into two polygons of equal areas. The bisecting envelope of a polygon is a union of curves to which all area bisectors of a polygon line tangent. Similarly, any line tangent to these curves is an area bisector. Beyer and Swarts did work on finding the bisecting envelope for triangles which turns out to be a cusped figure composed of three hyperbolic segments. All of the bisectors lie tangent to one of these curves at their midpoint and pass through the two sides of the triangle that are asymptotic to this curve. Beyer and Swarts generalized their work to tetrahedral and n-dimensional simplexes. In this paper we generalize the process for finding the 2-dimensional envelope to all convex polygons. We show that the bisecting envelope for an arbitrary convex polygon is made up of hyperbolic segments and single points.

Marybeth Steinhart
Emily Perruso
Sponsored by Dr. Joshua Dobias

Unhealthy Food Choices in Stressed Individuals

Several studies have been conducted that suggest that individuals experiencing higher levels of stress, be it through employment, education, family, or otherwise, tend to choose unhealthier dietary habits than those who experience lower levels of stress. According to previous studies, this finding is true even when individuals are presented with equal opportunity for both healthy and unhealthy options. In this study, we took a sample of undergraduate Marywood students and presented them with the options of either a healthy snack, an unhealthy snack, or neither. After choosing, the participants were asked to fill out the Holmes-Rahe Stress Inventory Scale and the Personal Healthy Habit Inventory Scale. The results remained anonymous, and were analyzed against each other in order to determine if there was in fact a correlation between elevated stress levels and unhealthier habits. The results corresponded to our predictions and the findings of the previous studies in that the participants that reported higher levels of stress consistently chose the unhealthier, fatty foods presumably as a form of familiarity and comfort. One possible cause for this finding is that those who dwell in levels of higher stress tend to binge eat their guilty pleasures as a way of quick relief. More often than not, pleasure foods are synonymous with unhealthy foods. Their choices could also reflect their socioeconomic statuses. Those with lower incomes are more inclined to buy less healthy food simply because it is less expensive, and individuals tend to remain with what is familiar. Conversely, those with lower stress levels might not need those feelings of comfort and familiarity and could be more inclined to try something new. It is also a possibility that individuals on the lower end of the stress spectrum have a higher income and less stress monetarily, allowing them to guiltlessly purchase healthier, more expensive options.

Susan Durand
Sponsored by Dr. Dhanapati Adhikari

The Historical Development of Geometry

The discipline of geometry is one of the oldest branches of math. As such, it has gone through many developmental changes, which have lead to our modern day form of geometry. There are a wide variety of historical events, as well as a number of mathematicians, which have had an immense effect on this field, and the discipline of mathematics as a whole. This poster outlines several of these major people and events. It examines the culture and historical context that surrounded them, which allowed them to have an impact on the field of geometry. It follows the major stages of development in geometry, the influences that helped bring about these stages, and how they eventually lead to our modern concept of geometry. Resulting is a summary of the history of geometry offering a better understanding of the functioning of modern geometry, and places the developmental stages into their historical context, ultimately portraying how geometry has developed within the field of mathematics as a whole.
Music, Film, and Their Effects on Human Anxiety

Each and every day individuals are affected by stimuli that can often have a great impact on their mental and physical states of being. Of the many distractions that the human mind receives throughout a typical day, media and advertisements have a profound effect on one’s anxiety, level of relaxation, or other various states of emotion. While it can be confirmed by many researchers that music and film have significant effects on the body’s physical, mental, and emotional states, it is unclear by most as to which factor is more influential in determining such states of mind. This research project aims to draw a clear line between music and film, and to determine which one of the two is the greater factor in fluctuating one’s heart rate. The poster for this research project will include an introduction to our research project, with a brief history of related studies conducted by fellow scholars. It will include a methods section, results section, and a discussion section. In the methods we will outline the procedures for conducting the study. The results will include the data collected throughout the research process. The discussion section will simply be an interpretation of the results. This project is very important because it may clearly distinguish between music’s effect on heart rate, and film’s effect on heart rate. By knowing this, we may be able to implement such findings in other aspects of everyday life. That means being able to know what methods are going to lower the heart rate of a panicking man in an emergency room so he can be more relaxed, or increasing the heart rates of football players in the locker room before a big game. In conducting this experiment we have learned that an individual’s heart rate can be manipulated in a positive way, however individual differences amongst participants pose an array of complications when determining what methods are most efficient in raising or lowering one’s heart rate.

The Dietary Habits of the Adult Hispanic Population in North Eastern Pennsylvania (NEPA)

This study identified the dietary habits of the adult Hispanic population living in North Eastern Pennsylvania (NEPA). Twenty adults completed a Food Frequency Questionnaire (FFQ) during a mobile food pantry at a local elementary school. The FFQ assessed food consumption habits and the data was used to analyze the number of servings consumed in relation to the United States Department of Agriculture (USDA) recommendations. Six questions were asked to identify the dietary habits of the population: fruit and fruit juice; vegetable; meat, egg, and bean; milk, cheese, and yogurt; fat, oil, and sweet; and bread, pasta, and rice consumption in the adult Hispanic population. The results indicated that a majority of the population did not meet the USDA recommendations for a healthy diet. Based on the population daily calorie consumption in relationship to the USDA guidelines, 50% (10/20) of the population surveyed met the USDA recommendation for fruit and fruit juices; 55% (11/20) for vegetables; 10% (2/20) for meat, eggs, and beans; 15% (3/20) participants for milk, cheese, and yogurt; 0% (0/20) participants for fats, oils, and sweets; and 20% (4/20) for bread, pasta, and rice intake. These findings suggest the Hispanic population of NEPA is following a diet more similar to a traditional Hispanic diet: higher in fruits and vegetables and lower in meat. Although this is the case, it is necessary to assess and identify nutritional factors affecting the weight status of this population because the average BMI of the population, 26.35, is considered overweight. Therefore, further research with this population is important to identify specific nutritional behaviors that can be implemented to increase the overall health status of the population.
Privacy, Anonymity, and Autonomy in the Technological Age

We recently represented Marywood University at the Fleming Ethics Bowls held at DeSales University. Taking first place among eleven teams, we were presented with a case about a hypothetical company faced with an ethical dilemma. The following is a summary of the case and our presentation.

We represent Carlo Lavori, CEO of Fourcircle—an app with GPS micro-blogging technology. While our company has a prominent user base, we are operating at a loss. Our plan is to issue an Initial Public Offering, and become a publicly traded company. However, we need to find a way to ensure the future success of our business. An opportunity has presented itself to bid on a request for proposals issued by the Food and Drug Administration. The FDA would like to develop a microchip to track the location and health of GovCare patients (GovCare is the fictional equivalent in this case to the Affordable Care Act). While the microchip is not yet mandatory, it has the potential of becoming so in the future. With superior GPS tracking technology, we will likely win the bid. If we choose not to take the bid, there is a chance we could lose our job unless we come up with a different, equally or more lucrative idea.

We outlined the ethical dilemma that occurs when working with the government on this proposal, and how we intend to move forward as a company. We reject to offer a bid to the FDA, and instead, we have developed two proposals we present to you as FitFido, a GPS microchip equipped with a pet health app, and CityCircle, an urban planning app which collects and sells data to urban planning firms while maintaining customer, user, and company transparency and protecting, privacy, anonymity, and autonomy to the best of our ability by means of consent.

Relationship Between Self-Esteem And Physical/Non-Physical Activity

Feeling positively about one’s physical self is an important predictor of overall self-esteem. Participating in sports may serve as a protectant against self-esteem declines. Research suggests that children and adolescents who participate in sports report higher levels of self-esteem. However, there is research that suggests that it is not the physical activity that brings about positive well being and increased self-esteem, but rather the properties of a group are the key ingredient. The purpose of this study is to examine the relationship between the self-esteem of those who are physically active and those who participate in non-physical activities. Participants were asked demographic questions and questions about the physical or non-physical activity they perform at least once a week. Additionally, participants took the Rosenberg Self-Esteem Questionnaire. The findings of this study will be important because if the results suggest that physically active participants have higher self-esteem, then future college students may also be able to increase their own self-esteem by participating in physical activity. However, the results may suggest that those involved physically and those involved non-physically may have similar self-esteem ratings, which would infer that it is not the physical activity itself contributing to self-esteem but rather the involvement in any activity helps contribute to self-esteem.
Personal and Societal Acceptance of Homosexual and Interracial Couples

The purpose of the current study is to explore perceived personal and social prejudices against African American and Caucasian homosexual and interracial couples. The participants will come from a private northeastern university in the state of Pennsylvania. This study will use a Likert scale and pictures of African American and Caucasian homosexual and heterosexual couples as well as African American and Caucasian interracial couples all displaying three different types of public display of affection each: holding hands, hugging, and kissing. Participants will determine how socially and personally acceptable they find each couple. There are a total of twenty-four pictures shown to each participant showing the various couples. Research was found to support this study in a general sense, discussing possible causes of prejudice, characteristics prejudice people are prone to, and also legalization of homosexual and interracial marriages in the United States. This study has four hypothesis: (1) homosexual couples are more socially accepted than interracial couples, (2) interracial couples are more personally accepted than homosexual couples, (3) kissing African American homosexual couples will be least accepted of all, and (4) Caucasian female homosexual couples will be most socially accepted out of all homosexual couples. This study is important because it can help make one aware of any personal and/or social prejudices they may have. Knowledge about an issue is the first step to change.

Influence of Obsessive-Compulsive Symptoms on Disordered Eating Patterns: What is the Role of Emotional Intelligence?

The present study examined relationships among obsessive-compulsive symptoms (OC), emotional intelligence (EI), and disordered eating patterns. Previous research has indicated a relationship between obsessive-compulsive symptoms and eating patterns. The current study set out to confirm this relationship as well as to examine the construct of emotional intelligence as a potential moderator in the relationship between obsessive symptoms and eating behaviors. This study was correlational in nature and involved the completion of three survey measures; the Schutte Self Report Emotional Intelligence Test (SSEIT), the Vancouver Obsessional Compulsive Inventory (VOCI), and the Eating Attitudes Test (EAT-26). Data was collected from 102 male (N=18) and female (N=83) graduate and undergraduate students ranging in age from 18 to 50 years attending a small, religious affiliated, liberal arts university located in the northeastern region of the US. It was hypothesized that OC symptoms would be significantly positively correlated with eating patterns; this hypothesis was confirmed. Additionally, it was hypothesized that EI would act as a moderator between OC symptoms and disordered eating. While the first hypothesis was supported, no significance was found for the moderation of EI between OC symptoms and disordered eating. However, EI was found to be predictive of eating behaviors.
The Effects of Exercise on an Individual’s Psychological State of Mind

We performed an unsystematic experiment that tested whether exercise caused individuals to have less depression and higher self-esteem or if it had no effect on the person at all. There was a few different situations so that we could study whether a person was more satisfied with their state of mind or if they weren’t after leaving the gym and returning back to their place, and if the length of their workout could have affected their mood as well. Some of the questions that were answered was if physical exercise was benefitting students to have less stress, and higher self-esteem? Did students with more stress and worked out feel more self-worth? These were some of the questions that were answered in order to test out whether physical exercise does truly enhance a person’s outlook on life, and themselves. Our project was extremely important because it gave us the background information of how stressed our students on campus are. We also wanted to know how active our classmates were and whether they felt good about themselves by calculating their stress and depression levels. We learned that undergraduate students on campus are at a moderate level of stress all around even with moderate exercise daily. We already knew that college students were stressed to a certain extent but the stress of keeping themselves in shape was higher than expected.

Physical Activity and the Effects on Body Image Satisfaction and Overall Life Satisfaction

Evidence from previous research suggests that physical activity has effects on overall life satisfaction. Theorists state that satisfaction and happiness is a product of human activity and the sense of accomplishment. Physical activity provides that feeling of valuing one’s self and being proud with a sense of achievement. However, research done on physical activity and body image satisfaction is not as clear. There is shown to be higher levels of body dissatisfaction that is related to weight related issues, especially in females; however that may be related with decreased levels of physical activity. The hypothesis for our study is as followed: Increased levels of physical activity will have positive correlation with overall life satisfaction and have a negative correlation with body image satisfaction. Increased levels of physical activity should provide increased levels of life satisfaction however, increased levels of physical activity can be a predictor of body dissatisfaction. The experiment will be conducted using four surveys, which are: “Satisfaction with Life Scale,” “Subject Happiness Survey,” “Body Image Survey”, and a “Physical Activity Survey” made up of questions by the experimenters, which will include questions pertaining to the physical activity of the participants. The results of the experiment are hoped to correlate with our predicted hypotheses. The contents of our poster will include our materials, method, analysis, and results. What we found important in this experiment is that physical activity has a positive effect on both body image and overall life satisfaction. Physical activity is important for the overall well-being of an individual and our results reflect that.
**Animal Violence in Video Clips vs. Human Violence in Video Clips**

Humans react to countless actions. A reaction could occur from watching something humorous or depressing. Depending on the type of person he or she is, one might be more susceptible to watching and reacting differently to one over the other. The current project attempts to determine whether a participant, male or female, is more inclined to react in an empathetic way towards a video clip of a dog vs. human. Participants were randomized to viewing the dog vs. the human clip, each of which portrayed some type of violence. The poster presents results broken down by female, male, and age in terms of which participants were more prone to show empathy towards the dog video clip or the human video clip. Results suggest that more than half of participants show more empathy after watching a violent video. Further, results show that a majority of participants do show a difference in empathy after watching the video clip of the dog, suggesting that participants feel more empathy towards dogs than humans.

**The Difference Between Male and Female Imagery in Reading Scenarios and Image Association**

This study looks at the difference between males and females in the way that they create images from scenarios in order to determine which sex creates more prejudice and stereotypical images from reading the scenarios. The research uses a survey created by the researchers, which consists of three short scenarios, each followed by two different photos of people for the participant to circle the letter under the photo that looked closest to whom they imagined while reading the scenario. The poster will state the research hypothesis, explain the methods used to conduct the research, state the results and demonstrate the difference of prejudice in males and females in the type of image they create while reading scenarios using a bar graph. The findings are helpful in determining how males and females view things differently and how prejudice attitudes have changed over time for both genders. It has been a previous notion that males carried more prejudice attitudes and through the process of conducting this research, it seems that less people carry the same prejudice attitudes that have been common just a decade ago.
Body Esteem: Impact of Television Commercials on Body Esteem in College Students

Our experiment measured the effects of weight loss television commercials on college students. The goal was to discover whether viewing weight loss commercials had a direct impact on a student’s body esteem. Body esteem is a complex concept with many dimensions. The Body Esteem Five Point Likert Scale was used to measure physical attractiveness, sexual attractiveness, upper body strength, weight concern, and physical condition. The sample size consisted of approximately 30 undergraduate college students, both male and female. The majority of participants were female. Some of the participants were randomly selected to view the television clip while the remainder of the participants did not view the clip and are considered the control group. It is expected that the participants who view the clip of the television commercial will score lower on the body esteem survey as opposed to the control group. It is expected that the participants in the control will score higher on the body esteem survey. This study is important because the current generation is focused on the “ideal” body image, which is not necessarily a healthy body image. Weight loss commercials often demonstrate a body image that can be considered ideal, but is unrealistic. We expect that exposure to this type of media can cause distress in college students. Learned that there are many different variables that can lead to a person having negative body esteem. Our poster will contain graphs showing the results of our experiment as well as the methods we used to find our results and a conclusion.

Personality and Likelihood of Intervention in College Students

The present study was designed to gain a better understanding of how personality affects the likelihood that college students will intervene in certain situations. College students routinely encounter a variety of situations in which personality may influence whether or not students decide to intervene in a given situation. Participants were administered a personality test known as the Big Five Personality Test designed to determine percentages for five factors of personality: Agreeableness, Openness to Experience/Intelect, Conscientiousness, Extraversion, and Neuroticism. Participants were then asked to read five scenarios and to rate the likelihood that they would intervene in the given situation on a scale from 1 (“would never”) to 5 (“always would”). Correlations found between each factor of personality and the likelihood that the participant will intervene will be presented. The scenarios read by participants consisted of situations in which intervention was a positive action. As a result, those who are unlikely to intervene may benefit from education on how to improve their intervention skills. With better knowledge concerning which students are less likely to intervene in situations based on their individual personalities, a program or lesson could potentially be created to help students be more likely to intervene. As such, further research could explore how to improve the likelihood that college students will intervene. Further, a more detailed analysis of participants’ personalities may elicit narrowed findings that will be useful to educators and those affected by intervention in those situations in which intervention is both positive and helpful.
The Skinny on Being Skinny:  
What We Do Not Know About Being Underweight

Hundreds of years ago, the societal ideal for women was to be heavier in weight. This was a time when food was scarce, and being overweight meant having enough money for food. When a food surplus arose, the new ideal became slimmer women, the status that is still the ideal today. Women starve themselves and go to extremes to be thin, but do not realize the complications that arise when underweight. There are numerous physical, psychological, and social complications that are associated with underweight status that people are not aware of. In this current between-subjects study, college students filled out surveys regarding overweight and underweight status. Results showed that many participants held similar views and knowledge regarding overweight status, but there were scattered attitudes and less knowledge regarding underweight status. The results of this study implicate that this is a current societal education issue, and that unless people are educated about the complications associated with being underweight, they will continue to push their bodies to extremes to fit the societal ideal.

The Effects of Parenting Styles on Eating Disorders

Our project is looking at the effects parenting styles on eating disorders and body image in young adults. What we are looking at is that parents who are too permissive or too authoritative with their child will cause them to have a negative view on their body later on in life and could cause a serious eating disorder. Our poster shows the overall trend of the information that we have gathered from our surveys. It will show how participants fell in the categories of overall parental care and affection; we will have separate visuals to show how mothers and fathers rated on this scale and how the participants view their body. This information is important because this will help to show that the way a parent acts towards their child can have long term and devastating effects. It is also important because we did not just look at how females viewed their body but how males did as well. This information will show how females and males are both subject to negative body views depending upon how they were raised. What we have learned in the process of this experiment and from other research in this field is that females are not only subject to seeing their body in a negative way. Males can also have negative views on their body as well.
Fear of Death: How Deep in our Subconscious

Human beings have pondered death and the process of dying for thousands of years. When discussing the subjects of death and dying fear often comes up. This study first examined how prevalent the fear of dying is on a day-to-day basis. Researchers also questioned how often people think about dying and if there were any circumstances they were being faced with that the fear of death maybe playing a role in their thoughts of the dying process. In this experiment a treatment group watched a short video about death and the meaning of death. That same treatment group the listed fears they may have. A control group made a brief list of fears without watching the video. The findings in this experiment were that, as human beings we are more consumed with everyday fears such as, heights, snakes, and bad test grades. The fear of death is, for the most part, a phenomenon that occurs when confronted with the thought of death, visiting a sick relative in the hospital or attending a funeral. The emotion of fear can act as a great motivator and/or inhibitor. It can drive us to do unexplainable things. The fear of death does not seem to be at the attention of the participants of this experiment. This is just a beginning, further research may be able to identify some of those fears that interrupt the life flow and how we may correct this problem.

Measuring the Relationship Between Family History of Mental Disorders and Substance Use

Heavy alcohol and consumption and illicit drug use among college students is a huge issue and growing epidemic in the United States. Prior research has shown that heavy alcohol and drug use is linked to family history of alcoholism and drug use. The purpose of this study is to find a link between positive family history of different mental disorders (depression, bipolar disorder, generalized anxiety disorder) and substance use and substance abuse in college students. I believe this study can help professionals and scholars further research in substance abuse. This can ultimately enhance treatment offered to addicts and indicate a better success rate for recovery.

I will send an e-mail to Marywood students inviting them to participate in my study. My study consists of a survey I created on surveymonkey.com at which the link will be placed in the e-mail for the students’ convenience. First, the survey asks about the student’s alcohol use and then drug use. The second part of the survey asks about family history of mental disorders and substance use. I am expecting to find a positive correlation between family history of alcohol or drug use with the student’s heavy drinking or drug use. I am hoping to find a positive correlation between the student’s heavy drinking or drug use and positive family history of mental disorders. My poster will consist of the background, my findings and data, results, and discussion.
The Effects of Power Posing on Risk Taking Behavior

There is little research on the effects of power posing and overt physical behavior. This study shows the importance of embodiment on risk taking behavior. A power pose usually takes up a maximum amount of space, thus making a person feel more powerful, while a non-power pose takes up as little space as possible. The project shows the connection between the physical body and the psychological experience of the individual. The project is important because it can show standing in these poses before challenging situations can alter brain chemistry therefore altering individuals’ decisions. We have learned that the college population proved more risky than previously sampled populations used in power posing research.

Celene Gilhooley
Kristy Ambroseccchia
Sponsored by Dr. Joshua Dobias

The Effects of Alcohol Use on College Students’ Grades

In this project, we were looking to see if there is a correlation between the amount of hours a week the average college student spends studying, and the amount of hours a week the average college student spends partying. Our participants for this study were Marywood University undergraduate students. To collect our data we asked our participants to fill out a survey answering questions about their daily routine, the amount of hours they spend doing school work, and partying. This study was important to find out if partying can have a serious impact on the life of the average college student. In the process of this project we have learned that alcohol consumption and partying in college students takes away from the time they spend studying or doing other school related work. This leads to skipping classes, lower grades, and even failure of classes. We hope to help by showing students that heavy alcohol consumption could affect their lives and grades.

The Role of Abstract and Disorganized Sound and Its Effect on Problem Solving and Concentration

To what degree do people perceive background sounds to be beneficial, and how much does sound affect our problem solving and concentration? Previous studies on this topic have produced mixed results using different styles of music, and the findings suggest that when a task is performed in the presence of familiar music the results are significant. The previous studies contradict each other thus, further research is required. This experiment attempts to determine what happens when we are faced with an unpredictable environment of sounds. This study adds two genres of sound which were previously overlooked. This experiment adds city and construction sounds, and abstract music consisting of random changes in tone and rhythm. This experiment also adds white noise which was obtained by the recording the sound of a household vacuum cleaner. Participants were exposed to five different genres of sound while being tested for concentration and accuracy. The subjects were tested in five different ways with various techniques, some techniques are derived from previous studies and some are unique to this experiment. The poster depicts the five tests performed in the experiment along with a list of the background sounds. The survey results are displayed in a bar graph showing the mean for participant preferred sounds. A correlation matrix displays the results of the testing and a multiple regression is performed on the strongest correlated pair. The results show sounds which are either predictable or unpredictable, participants who prefer a particular background sound perceive a benefit from its presence.