

2018 SPARC Festival  
Poster and Lightning Talk Abstracts



SPARC

FESTIVAL

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# BIOCHEMISTRY

## JONATHAN A LUBMAN

### *Effect of a Investigational New Drug, DMS-612, on a Component of Cellular Metabolism, ATP Citrate Lyase*

**Mentor: Susan Mertins**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

Renal cancer has a very high mortality rate due its intrinsic drug resistance. Therefore, there is a strong need to develop new therapies aimed at renal cancer. One of those drugs is known as DMS-612. While DMS-612 was in clinical trials to study its safety and toxicity profiles, it was found to have some activity, specifically tumor regression, in a patient with cervical cancer. Presently, the mechanism of action is not known. The prevailing hypothesis that we wish to investigate is that DMS-612 decreases the levels of an enzyme called ATP citrate lyase, an important enzyme involved in the formation of cell membranes. Without this enzyme, the tumor's ability to form new cells is significantly compromised ultimately leading to the death of the tumor. This hypothesis was investigated through gel electrophoresis and immunoblotting of ATP citrate lyase extracted from HeLa cells, a cervical tumor cell line following varying doses of DMS-612. Because DMS-612 is thought to possess alkylating activity, another drug, busulfan, a known alkylating drug, will be utilized for comparison. If DMS-612 is confirmed to affect ATP citrate lyase, further research will allow us to understand why it affects only renal and cervical tumor lines.

## HUNTER CHISHOLM

### *Unfolded Protein response in stress treated Vero E6 cells*

**Mentor: Dr. Kathryn Dye**

**Lightning Talk, Wednesday 6:00 pm, Library, 1st Floor**

The cellular response to the increased abundance of proteins in the rough endoplasmic reticulum (ER) is well understood and can be a tool to study viral interactions with host cells. One way we can try to understand the multitude of effects viruses have on our bodies is by studying the unfolded protein response. My focus is on ER stress that leads to the activation of IRE1 and the cryptic intron splicing of mRNA of XBP1-(U) to form mRNA XBP1-(S). When there is ER stress the unfolded protein response of a cell is activated to return to ER homeostasis. This causes the chaperone BiP to disassociate from IRE1, which undergoes auto-phosphorylation to become active and able to splice XBP1 mRNA. XBP1 (S) then leads to enhanced chaperone production and protein degradation leading back to homeostasis. I am to detect XBP1 mRNA splicing to identify viruses that induce the UPR. To replicate the UPR I stress treated Vero E6 monkey kidney epithelial cells (VE6) with tunicamycin (Tm). To begin the testing these processes I started with isolating and quantifying RNA, performing reverse transcription cDNA reactions, and as a check of the quality of the cDNA I performed PCR using primers specific to BiP and  $\beta$ actin. Then, to detect XBP1 mRNA splicing, I performed PCR using primers that flank the cryptic intron; this yields two PCR products that differ in size by 26bp. After this I can use this stress/XBP1 splicing detection assay to test whether virus infection of cells induces the UPR. Many enveloped viruses force cells to utilize the exocytic pathway and create viral entry proteins within the ER. Ultimately, I will ask whether specific viruses induce the UPR and whether optimal virus production requires the UPR.

### **KATHERINE ROLLINS**

#### ***C/EBP $\delta$ as a downstream effector on HMGB1 signaling during Neuroinflammation***

**Mentor: Dr. McCauslin**

**Lightning Talk, Wednesday 6:15 pm, Library, 1st Floor**

The molecular pathway for neuroinflammation is not currently understood, but is linked to many diseases such as strokes and neurodegenerative diseases. Glial cell activation plays a major role in the inflammatory pathway of the central nervous system. High Mobility Group Box protein 1 (HMGB1) is a protein typically found in the nucleus of glial cells and is involved in DNA scaffolding and regulating transcription. During a necrotic event however, HMGB1 is passively released into the extracellular matrix where it acts as a cytokine to initiate inflammation. CCAAT/enhancer binding proteins (C/EBP) have also been demonstrated to be involved in the neuroinflammatory pathway. In this study, we focus on the C/EBP family protein, C/EBP $\delta$ . C/EBP $\delta$  is a transcription factor that has been shown to upregulate many genes involved in the immune and inflammatory response and it is observed at elevated levels in patients with neurodegenerative diseases such as Alzheimer's or Parkinson's. Because of the demonstrated roles of C/EBP $\delta$  in inflammation, and because of HMGB1 is an activator of inflammation, we hypothesize that C/EBP $\delta$  is a downstream effector of HMGB1 signaling. We also are extending this research to investigate other receptor proteins (TLR2, TLR4, and RAGE) that have been demonstrated to play a role in inflammation in order to determine if they are aiding HMGB1 signaling for upregulated C/EBP $\delta$ .

### **CHRISTOPHER MICHAEL HOMICK**

#### ***Validating candidate targets of the *C. elegans* miRNA mir-124.***

**Mentor: Dr. Michael Turner**

**Lightning Talk, Wednesday 6:30 pm, Library, 1st Floor**

MiRNAs are single stranded RNA molecules that regulate the translation or degradation of gene expression for mRNA by binding to it. MiRNA recognize their target mRNA through nucleotide base-pairing interactions. The biological role of miRNAs is directed by the mRNAs that they target. MiRNAs do not perfectly base-pair with their target mRNA. The experimental goal is to determine what miRNA genes attach to which mRNA and the nucleotide sequences that are interacting. The greatest task is to experimentally establish rules for mRNA biological interactions. This validation lacks experimental evidence so it is important to find commonalities of how they interact and to record successful targets. By validating mRNAs, it will enable closer analysis of miRNA and mRNA interactions. This experiment will first predict miRNA binding sites of mir-124. The candidate target will be identified using bioinformatics and further cloned into reporter constructs for ligation, PCR, cell transformation, and restriction enzyme digestion. The plasmid will be analyzed with fluorescence for the presence or absence of mir-124. By validating target mRNAs, the biological field will benefit from having experimentally verified miRNA/mRNA interactions. This research will aid in the further experiments done with RNA, including; leukemia, uveal melanoma, and neurodegenerative diseases, and if well studied it can further human knowledge of these diseases.

### **JOHN OWENS**

#### ***Evaluation of vitamin D3 levels in two different brands of milk with LC-UV analysis***

**Mentor: Garth Patterson**

**Lightning Talk, Wednesday 6:45 pm, Library, 1st Floor**

Vitamin D3 is a fat-soluble vitamin added to milk voluntarily by companies. For my major lab

project in Instrumental Analysis, I used Reversed Phase Liquid chromatography (RP-HPLC) on numerous samples from two different brands of milk to isolate vitamin D3 from them. UV-Vis spectroscopy was used to quantify the amount isolated from each sample. In my lightning talk, I will explain the basic principles behind HPLC and UV-Vis and present my results from this experiment. By seeing graphs of vitamin D in each brand's samples and comparing the standard deviations of each data set, it will be clear at the end of the talk how accurate the labeled values of vitamin D per 8oz glass really are on a per-brand basis.

## BIOLOGY

**KEZIAH ADABRAH, JULIETTE LACOSTE, MACKENZIE TATE, AND SHANNON ZAVETZ**

*Effect of Soil Moisture on Pill Bug Locomotion*

**Mentor: Dr. Rosie Bolen**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

*Armadillium vulgare*, more commonly known as the pill bug, is an isopod that has been introduced to environments all around the world. These organisms have gills, but are not aquatic, due to a have a respiratory system that consists of pseudotracheae that supplements the gills and makes breathing on land possible. Pill bugs still need for moisture for respiration, so they are often found in dark and damp environments. With this characteristic in mind, this experiment sought to determine if pill bug locomotion is affected by the level of moisture in their environment. Ten pill bugs were subjected to three distinct types of potting soil: baked, normal and wet, for five minutes. During this time the organisms were observed for locomotion events. After ten trials of each treatment, the results showed that pill bugs spent significantly less time moving in the wet environment compared to the dry and control ( $H=10.668$ ,  $df=2$ ,  $n = 10$ ,  $p= .003$ ). These results are supported by the basic model of kinesis, which is a non-directional response to a stimulus. The model states that animals will stay longer in good conditions and leave in bad conditions. This is a possible explanation for the lack of movement in the wet trials compared to the excessive movement in the dry and controlled trials. A wet environment is a good condition for pill bugs, because they need moisture to breathe.

**SAM DANTON, RACHEL DAY, DYLAN HOLDEN AND ERIKA LIPFORD**

*The Effect of Moisture on Locomotion Behavior in Armadillidium vulgare*

**Mentor: Dr. Bolen**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

*Armadillidium vulgare*, also known as the pill bug, is a terrestrial isopod commonly found in damp environments and moderate temperatures. For optimal respiratory function, the pseudotracheae require moisture. Based on this, we wanted to test whether *A. vulgare* are more active in an optimal moist environment or in a less optimal dry environment. We hypothesized that pill bugs would be more active in dry environments, possibly in an attempt to seek out more suitable levels of moisture. To test our hypothesis, we placed 20 pill bugs in petri dishes with filter paper on the bottom. Pill bugs that began in one environment were immediately tested in the other environment. Half of the pill bugs started in the moist environment, comprised of a damp filter paper in a petri dish, while

the other half started in the dry environment, comprised of a wet filter paper in a petri dish. We then placed a grid of 7 x 7 1.5 cm squares over the petri dish and measured the level of activity of the pill bugs in each environment. The level of activity was determined by the average number of grid lines crossed per minute over a five minute period. There is no significant difference in the level of activity of *A. vulgare* in a dry environment compared to a wet environment ( $T=91$ ,  $n=20$ ,  $p>0.05$ ). It is possible that the pill bugs were not left in the dry environment for a long enough period to elicit a different behavioral response.

### **ASH GOGINENI**

***LGR5, A G-protein Coupled Receptor, maybe Induced in an In Vitro Model of Cancer Stem Cells***

**Mentor: Dr. Susan Mertins**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

The purpose of this study was to confirm if SC-1 increases levels of LGR5, a G- protein coupled receptor which is thought to be a marker in cancer stem cells (CSC). CSC are an interesting area of research as they may be responsible for tumor heterogeneity and are presumed to be drug resistant. However, CSC are limited in number, can change after culture, and are not well defined meaning markers do not always serve to identify CSC. A model, SC-1 was developed to overcome these barriers. SC-1 is a small molecule that was discovered when researchers were attempting to identify on that which maintains embryonic stem cell self-renewal. Colon tumor lines were treated with SC-1 to advance the understanding of the SC-1 model. Cell lines HCT-116 and HT29 that were treated with SC-1 showed similar characteristics as the CSC phenotype. These characteristics include tumorigenicity, clonogenicity, sphere formation, and induction of certain surface markers. Through a preliminary evaluation of protein expression, the HCT-116 and HT29 cell lines in subpopulations showed increased LGR5 levels when treated with SC-1. However, in an effort to confirm these findings, western blots were run for the HT29 and HCT-116 cell lines, there were no results. This could have been due to problems with the antibody concentration. Understanding the SC-1 model, is an important area of study because of the critical nature of CSC and their contribution to tumorigenesis, possibly lead to discovering a good molecular via pathways that might control CSC, and novel therapeutic agents.

### **JANAI HEISE**

***Endogamy's Effect on cM values***

**Mentor: Abigail Kula**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Endogamy, the practice of marrying within a specific group or population, leads to inbreeding in that population. These marriage practices result in values greater than norm relatedness values for generational timelines. When applying endogamy to genetics genealogy research, endogamy creates a significant impact on the degree of relatedness individuals appear to have. Endogamy occurs because of several motives, increases centimorgan values in populations, and can have many impacts on genetic genealogy research. Data from some members of sub-populations like Ashkenazi Jews are virtually indistinguishable from one another after four generations due to endogamy. Worldwide, inbreeding is a significant factor in determining people's pedigrees. Pedigree determination has been enhanced by incorporating genetic genealogy into the current body of genealogical research. Genetic genealogy is the use of DNA testing and historical records to determine relationships between people. Several DNA testing companies have developed programs to assist the general public in performing commercial genetic genealogy research, but algorithms for endogamy

have not been fully incorporated into the data analysis. The Catoctin Furnace Historical Society is working to identify descendants from the first family that owned the Furnace in hopes that it will help identify many undocumented remains recovered when a highway encroached on a cemetery near the furnace. Their goal is to determine if any of the unidentified remains match individuals from the Johnson family. To aid this effort, known Johnson descendants are being identified and their DNA analyzed in order to provide comparison for the remains.

### **CAITLIN MCCORMACK, ALAINA OWEN, SHURRELL HESTER AND ALYSSA GALLAGHER**

*Does the Type of Substrate Affect the Moisture Preference of Armadillidium vulgare?*

**Mentor: Dr. Bolen**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

This project investigated the effect of substrate on moisture preferences in *Armadillidium vulgare*, the common pill bug. The purpose was to test whether substrate type affects pillbug preference for inhabiting a moist environment over a dry one. A total of 179 pillbugs were tested. For each experimental trial, ten pillbugs were placed in a Ward's Four Quadrant Animal Behavior Tray for five minutes and allowed to navigate freely between the four treatment zones. The treatment zones included dry sand, dry rock, wet sand, and wet rock. At the end of the trial period, the number of pillbugs in each treatment area was recorded. A pillbug's natural environment is soil because it retains moisture which is needed for the proper functioning of their pseudotracheae, and provides protective cover. Thus, we expected the pillbugs to prefer the rocky treatment because of the spacing that allows for protection similar to soil and for more pooling of the water in comparison to the porous sandy environment. The wet rocky environment retains more water, making it more attractive to the pillbugs than both the dry treatments and the wet sand because there is a less apparent difference between the wet and dry sand. The results indicated that the pillbugs have a significant preference for a moist environment over a dry alternative, and for the rocky environment over the sandy one, but the substrate has no effect on their moisture preference. This paves the way for future research to investigate whether other substrates with similar porosities to those of the rocky treatments would affect pillbug moisture preference.

### **MADELINE Q. SMITH**

*The Effects of Nicotine on Muscle Contraction in C. Elegans*

**Mentor: Dr. Angy Kallarackal**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

Nicotine has an agonist effect on ACh receptors. Acetylcholine is the neurotransmitter released during MSC contraction. If this release is mimicked by a drug, the contraction of muscles will increase. In this experiment we are measuring the effects that the amount of nicotine has on muscle contraction in *C. elegans* in petri dishes. We expect that an increase in nicotine dosage will cause a decrease in thrashing by the *C. elegans*. This is significant in testing the effects of dosage dependence from nicotine on muscle contraction.

### **PAUL WELTE, SACHI SHAH, ASH GOGINENI AND CHRIS ST. ANGELO**

*Locomotion of Armadillidium vulgare on Wet and Dry Peat Moss Substrates*

**Mentor: Dr. Rosie Bolen**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

Our research question asked whether the common pill bug, *Armadillidium vulgare*, exhibits greater



locomotion on wet or dry peat moss. Pill bugs are terrestrial crustaceans with respiratory organs called pleopods that contain pseudotracheae that aid in gas exchange and must be kept moist to function. We predicted that pill bugs will exhibit greater rate of locomotion in a dry environment in an effort to locate a moister environment. To test our hypothesis, we measured the duration of locomotion in pill bugs in eighteen five-minute trials in wet and dry environments. Our results showed that pill bugs had greater locomotion in wet environments than in dry environments ( $u=297$ ,  $n_1=n_2=18$ ,  $=p < 0.05$ ). Therefore, we reject our null hypothesis that substrate moisture has no effect on locomotion. Furthermore, our initial prediction that pill bugs will exhibit greater locomotion on a dry substrate is not supported. This suggests that the pill bugs may be reacting to the inhospitable dry environment by reducing their movement and thereby reducing water loss. Conversely, pill bugs may be more active in wet environments because desiccation poses less of an immediate hazard.

### **JANAI HEISE**

#### ***The Pollination Project***

**Mentor: Abigail Kula**

**Lightning Talk, Wednesday 7:00 pm, Library, 1st Floor**

Honeybees (*Apis mellifera*) are an extremely important insect. Seventy out of the top 100 human food crops, which supply about 90 percent of the world's nutrition, are pollinated by bees. Bees are being threatened by several factors which are causing them to rapidly decline in a phenomena which has sometimes been called Colony collapse disorder (CCD). Due to the fact that we are extremely dependent on honeybees for our food supply, it is imperative that we ensure the survival and thriving of these insects. Pollen is the main food source of honeybees. Honeybees often travel up to 5 km away from the hive to collect pollen. Both adult and young honeybees require this food in order to survive and develop. The question that this presentation will be answering is: Is there a preference or diversity in specific plant pollen for bees in our area? This research project was proposed to increase awareness of honeybee importance and honeybee numbers over time. Over the course of the summer, several pollen samples were collected from honeybee hives located in Washington County, Maryland. These samples were then analyzed by weight and pellet morphology to determine species richness.

### **MERCEDES L NIELD**

#### ***Effects of Pollen Donor/ Recipient Distance on Common Milkweed (*Asclepias syriacca*) Seed Pod Production***

**Mentor: Dr. Kula**

**Lightning Talk, Wednesday 7:15 pm, Library, 1st Floor**

Monarch butterfly populations have decreased as much as 80% in the past twenty years. Milkweed is a crucial plant for monarch larvae because it is the only plant monarch larvae can eat. Expanding our knowledge of milkweed plants will allow for better management and protection of their habitat, which, by extension, allows for better protection of the iconic monarch butterfly. In addition to the fact they play a critical role in the Monarch butterfly lifecycle, milkweed studies are important due to their complex breeding system. Milkweed are self-incompatible because at the molecular level, the pollen DNA is too similar to the plant's DNA to produce an offspring. Therefore, inbreeding depression can occur when individuals that share a large proportion of their genetic make-up suffer lowered reproductive output. Outbreeding depression may also occur, and this happens when individuals with many differences in their genes also suffer a reduction in reproduction. Inbreeding and



Outbreeding depression are thought to cause a bell curve in the pod production rate over geographic distance. Increased habitat fragmentation can induce inbreeding and outbreeding depression, so a better understanding of inbreeding and outbreeding depression of Common Milkweed will assist in proper land management for conservation efforts. It was hypothesized that distance between pollen donor and pollen recipient affects pod production, and in particular, that plants pollinated at an intermediate pollen donor-recipient distance will be most likely to produce a seed pod. Short and long donor-recipient distances should result in lower probability of seed pod production. Hand-pollinations of naturally-occurring common milkweed plants in Virginia, Pennsylvania and Kansas were conducted to test this prediction. Though no seed pods formed from the hand pollinations, the methods and errors of this project were able to be refined.

### **JOSHUA OKLETEY**

*Validating Target Genes of let-7 in C. elegans genome*

**Mentor: Dr. Michael Turner**

**Lightning Talk, Wednesday 7:30 pm, Library, 1st Floor**

The 1993 discovery of small regulatory RNAs in *C. elegans* has paved ways for the description of a large family of short, single-stranded RNA molecules, now known as microRNAs (miRNAs). Shown to be versatile regulators of gene expression, these short non-coding RNA sequences achieve their regulatory function by targeting mRNAs. MicroRNAs imperfectly bind to their target messenger RNAs triggering a disruption in translation processes, ultimately leading to the silencing of mRNA. While it has been shown that microRNAs bind to certain target mRNAs, the knowledge of these interactions is however incomplete. With the aid of computer algorithms, it is possible to generate theoretical outcomes of target genes within the *C. elegans* genome to which a selected microRNA could bind to. This theoretical list can then be experimented with to determine which target genes a selected microRNA would actually interact with to induce silencing. For a microRNA such as *let-7* which is largely conserved across a wide range of species, there are abundant theoretical target genes. Knowing the sequence of *let-7*, fourteen selected theoretical target genes will be experimented with to empirically prove which target genes microRNA *let-7* actually binds with and induces silencing. Following the extraction of target genes from *C. elegans* genome, we will amplify, purify and transfect these genes into a vector containing a luciferase gene. A Dual Luciferase Assay will then be used to measure the expression and/or silencing of the luciferase gene in the presence of *let-7*.

### **DEBORAH UKAEGBU**

*Validation of miRNA 125 target sites in the ace-3 and nhr-34 3'UTR regions.*

**Mentor: Dr. Michael Turner**

**Lightning Talk, Thursday 6:30 pm, Library, 1st Floor**

I am working with Dr. Turner to develop improvement strategies (troubleshooting) for an unsuccessful research done by Jianne Castelo De Raya that focuses on validating two putative targets *ace-3* and *nhr-34* of *LIN-4*, a worm orthologue of human miRNA 125. As a single-stranded non-coding RNA, miRNAs are known to play a vital role in post-transcriptional gene regulation. Such regulation is possible because of miRNAs ability to nonspecifically bind to the 3'UTR regions of the target mRNA which in turn inhibits translation. While there is a general understanding of the binding of miRNAs and its targets, accurately predicting a miRNA binding site is quite difficult since binding is usually imperfect. Validating miRNA 125 putative targets *ace-3* and *nhr-34* 3'UTRs- miRNA 125 is associated with p53 tumor suppressor protein in breast cancer- will aid

future oncogenic studies.

## CHEMISTRY

### **JAMEELA BUCHANAN AND AARON SLIFER**

#### *The Effects of Various Oils on Saponification*

**Mentor: Dr. Patty Kreke**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

Saponification is the process of how soap is made. Liquid oil or solid fat reacts with a base to form the soap, which consists of glycerol and the salt of fatty acid. Our project focuses on the effects of various oils on the products of soap. The purpose of our experiment is to determine whether different types of oils (Olive oil, coconut oil and vegetable oil) used in saponification affect the quality of soap. This is important to create awareness of the different soaps in stores that contain the oils that work best to clean. Our hypothesis is that the extra virgin oil will be the best because the oil has a lighter and more smooth texture compared to the unrefined coconut oil and vegetable soybean oil. We will test the three oils by doing three trials for how well the soap cleans based on fabrics and on subjects hands. Subjects will rank the soap from 1 being the worst to 10 being best quality. Also on a piece of cloth to see how well the soap cleans a stain. From their rankings and testing on the cloth, we will conclude which type of oil soap is best for cleaning and the smoothest texture during and after washing hands.

### **DYLAN HOLDEN AND LEO RODRIGUEZ-SEGURA**

#### *Development and Reliability of a Novel Arduino Microcontroller-Based Thermal Desorber and Controller for Application to Griffin-Series GC/MS*

**Mentor: Garth Patterson, Ph.D.**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

A temperature control and desorption system was developed to assist in collection of vapor phase samples for GCMS analysis. The GCMS utilized for this experiment (Griffin 450) incorporates a direct vapor collection system that bypasses the traditional injection port. Vapor pressure is largely temperature dependent, so an external thermal stabilization system and desorber was constructed using a Raspberry Pi 2 mini-computer and Arduino microcontroller to quickly and accurately control the temperature of samples before transfer to the head of the GC column. Temperature control and stabilization allow for certain chemicals to be vaporized that would not normally be present at meaningful concentrations during ambient room temperature analysis. To achieve this, the system utilizes a braided cartridge heater, a 40 mm DC fan, and an analog temperature sensor that work via negative feedback to reach and maintain the selected heating temperature. Software was programmed in Arduino-variant C/C++. The system was able to reach temperatures of up to 320 C with an average error of  $\pm 1.5$  C from the selected input temperature. An aluminum heat sink was constructed to house the sample, heating probe, and temperature sensor. The accuracy of the desorber's heating capabilities in vapor analysis was tested against known standards. A custom 3D-printed case is currently being constructed for increased durability and portability. Future work will be concerned with improving upon the current user-interface for increased ease-of-use in terms of temperature selection and control.

**SOPHIA LOOKINGBILL AND ERICK O'BRIEN*****Chemistry's Favorite Cookie: NMR Analysis of Sweet Snack Foods*****Mentor: Dr. Kreke****Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Fatty acids in several sweet snacks by the popular food brand NABISCO are subjected to solvent extraction and evaluated through NMR. Three different types of fats will be determined and analyzed during this experiment: saturated, monounsaturated, and polyunsaturated fats. First, the fat content per serving of each snack food will be gravimetrically determined. Each sample will then undergo a transesterification process in preparation for analysis through  $^1\text{H}$  NMR Spectroscopy. To ensure that the data collected is accurate and the experiment is replicable, each trial will be done in triplicates.

**BRADLEY OWEN AND JOHNATHON JOHNSON*****Making Drugs (Again) to Ease the Pain of O Chem*****Mentor: Dr. Kreke****Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

This experiment was conducted to determine the effect 15 minutes, 30 minutes, and 1 hour of reflux time have on the synthesis of acetaminophen. The purpose is to determine the least amount of time necessary for the solution to sit in reflux, and its effects on the purity and yield of the product. Before this experiment, it was hypothesized there would be more product with the 1-hour reflux time. Also, the product that is refluxed for 1 hour would be purer than the product of the 15 minutes of reflux time. This was determined because of the effect of the unreacted reactants increasing the amount of byproducts present in the final solution. This synthesis was conducted by placing 4-aminophenol, distilled water, and acetic anhydride in a round-bottom flask. The solution was refluxed for 15 minutes, 30 minutes, and 1 hour and vacuum filtered. The resulting product was recrystallized. A melting point, expected at 169 degrees Celsius, and IR spectrum were taken to test the purity. As this project is ongoing, the results are not conclusive. There has been one attempt with a reflux at 15 minutes in which about 0.1g of product crystallized while recrystallization was induced. This was likely due to not enough heat in reflux or not enough time heating in the reflux apparatus. This is compared to a 30-minute trial in which more product recrystallized. These trials support the hypothesis while showing the necessity for more data.

**HAYLEY MARUSKIN*****Detection of Nitrotoluenes in Canine Fur Samples Using GC-MS/PSI-Probe*****Mentor: Dr. Garth Patterson****Lightning Talk, Thursday 6:15 pm, Library, 1st Floor**

Hair has been accepted as a viable medium for adsorbing ingested drugs, poisons, etc. and is widely used for toxicological purposes in forensics. In order to further investigate the adsorptive properties of hair, canine fur samples were analyzed following exposure to nitroaromatic explosives. This technique for fur sample analysis minimized sample prep and eliminated the use of solvents. Canine fur samples were exposed to Trinitrotoluene (TNT) degradation products 2,4-Dinitrotoluene (DNT) and 2-Amino-4,6-Dinitrotoluene (Amino-DNT) for variable amounts of time (ranging from 1 to 60 days) and analyzed using Gas Chromatography-Mass Spectrometry (GCMS) coupled with a PSI probe (Prepress Sample Introduction Probe) accessory to determine their adsorptive ability. Samples were cut and loaded directly into the instrument (via PSI probe) after exposure time was complete. Both DNT and Amino-DNT were detected using this technique after an exposure period

of 24 and 48 hours respectively. A significant trend was observed relating exposure time and nitrotoluene peak intensity for samples exposed to DNT. Several fatty acids were detected in varying intensities across samples including Tetradecanoic acid, Hectadecanoic acid, Octadecanoic acid, Phthalic and Isophthalic acid. The impact of fatty acid content on adsorptive properties was also investigated. Data obtained in this study was consistent with previous research involving hair sample analysis; canine fur was found to be a viable medium for accumulating and retaining explosives residues upon exposure.

### **ONENEEOBARI LOVETTE NWOGU**

#### ***The Synthesis and Polymerization of Gold Nanoparticles***

**Mentor: Dr. Kreke**

**Lightning Talk, Thursday 6:45 pm, Library, 1st Floor**

The use of gold nanoparticles has gained popularity in biomedical fields due to their potential in cancer cell drug therapy. The production of gold nanoparticles is a three-step process consisting of the incubation, addition of MUD, and polymerization. This project aimed to perfect the protocol of the incubation and the addition of the MUD steps that were developed through prior research at Mount St. Mary's University. Several trials were conducted at 20°C, 25°C and 37°C. The trials conducted at 25°C were considered a control due to past experiments that produced viable results. The trials conducted at 20°C and 37°C produced gold nanoparticles, however, the removal of the oleylamine and addition of the MUD proved more challenging. Temperature has proven to be vital through the incubation step in the formation of gold nanoparticles, and is required to be maintained at 25°C. The addition of MUD to the nanoparticle was completed through the addition MUD and ethanol, which resulted in the formation of a thiol capped gold nanoparticle and the removal of the oleylamine. The polymerization of the gold nanoparticles, which is still being researched, utilizes a twenty-four-hour reflux in an oil bath with the addition of PCL.

### **SCOTT KORTE**

#### ***Green Chemistry: Taking Ether Out of the Lab***

**Mentor: Dr. Kreke**

**Lightning Talk, Thursday 7:00 pm, Library, 1st Floor**

Green Chemistry involves adjustment and replacement of lab procedures so that they result in the use and production of fewer harmful or toxic chemicals that human beings and the environment can be exposed to, as well as reduce the overall environmental impact of chemical industry and experimentation. From the viewpoints of economics, sustainability, and stewardship, Green Chemistry is a worthwhile practice for any department to invest in.

In our experiment, we sought to reduce the amount of the chemical used in the synthesis of benzoic acid, a common procedure used during the Organic Chemistry cycle. In the experiment, all reagent masses or volumes initially used were reduced by 25%. While the amount of a single use may not be greatly reduced, across several lab groups at a time over multiple hours and multiple lab periods a week, this reduction, if successful, will be both environmentally and economically beneficial to the University.

To be successful, the yield and purity of the synthesized benzoic acid will be sufficient to proceed with subsequent experiment in the semester. If unsuccessful, the trials will be conducted with a reduction smaller than 3/4 until a product of viable mass is yielded.

**SHANNON ZAVETZ AND GIANNA POMYKACZ***The Esterification of Benzoic Acid on the Micro-scale***Mentor: Patricia Kreke****Lightning Talk, Thursday 7:15 pm, Library, 1st Floor**

In the spring semester, students in the MSMU organic chemistry complete a three-step sequence experiment to reinforce laboratory skills. The second step of the sequence is the esterification of benzoic acid. Currently, adjustments are being made to have the experiment be conducted on a microscale to limit amount of reagents being used to decrease the amount of chemicals being used. We are experimenting with aluminum heat blocks and amounts of the starting reagents to optimize product yield and purity. To do these experiments, micro-sized glassware is used, and microscale procedures are used to ensure the reagents being used are refluxing properly. Current trials utilize reagent-grade benzoic acid, subsequent ones will utilize in-lab synthesized benzoic acid as done in the sequence experiment.

**MEAGAN SUCHEWSKI***Design of electron-rich ligands for zinc reduction photocatalysis***Mentor: Dr. Isaac Mills****Lightning Talk, Thursday 7:45 pm, Library, 1st Floor**

My project focuses on the design of large aromatic Schiff base ligands and the luminescence properties of their zinc complexes. Our research is interested in experimenting with electron rich ligands to make these photocatalytic complexes. Aromatic ligands with rich electron densities successfully bind to zinc and luminesce while aromatic ligands with poor electron densities bind to zinc, but are not photocatalytically active. To this end, my project focuses on designing eight different highly electron-rich ligands to make complexes for photocatalytic zinc reductions.

## COMMUNICATION

**RYLA VESSELS***African American Political Pioneers***Mentor: Dr. Brian Gilchrist****Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

How have African Americans in politics used their political power to fight and advocate for African Americans? President Barack Obama, Frederick Douglass, and Amelia Boynton are examples of people that used their political influence to fight and raise awareness for systematic issues surrounding African Americans. President Barack Obama was the first African American President the United States ever had and he did the best he could to advocate for issues surrounding minorities while being overruled by a mostly Republican House of Representative Party. It is important to highlight Barack Obama's Presidency because this was a significant change in the dynamic of Politics after 9/11. Also, his campaign was surrounded by the idea of "change" which needed to happen after the Presidency of George W. Bush. Frederick Douglass was an eminent human rights leader in the anti-slavery movement and the first African-American citizen to hold a high U.S. government rank. Amelia Boynton Robinson was a civil rights pioneer who championed voting rights

for African Americans. In this paper I will identify 3 major African Americans theories, then I will identify and explain how these pioneers have affected Black society and culture, finally I will connect the African American theories to the pioneers. This paper will imply that African Americans struggle within the system of politics, therefore, they need voices within the system in order to create change and ultimately gain equality. Keywords: African American/Black, Colorism, Social Categorization, Whiteness, Minority

### **HANNAH CHENARD**

*Michelangelo's Media: A McLuhan Analysis of the Renaissance Artist*

**Mentor: Dr. Brian Gilchrist**

**Lightning Talk, Thursday 1:00 pm, AC 215**

Abstract The paintings on the ceiling of The Sistine Chapel provide a visual to the message of God and the book of Genesis specifically. This paper addresses the following question: how can the media theories of Marshall McLuhan influence the way people interpret the meaning behind the message produced by a major work of art? Michelangelo's Sistine Chapel Ceiling presents the story of Genesis with a different meaning if the paintings are analyzed through Marshall McLuhan's theories on media and its message. First, the theories of McLuhan are addressed, which sets up the relationships between the art and the meaning. Second, the fundamentals of the Sistine Chapel and the painting themselves is explicated, which notes the stories and messages that are behind the art. Third, the art and the McLuhan theories are analyzed, which suggests that meaning can be different depending how it is looked at. Michelangelo, Genesis, and Michelangelo's paintings invite further conversations about the media effects of paintings about the word of the Lord. Thus by explaining the content of each message received by viewers might allow for combining of thoughts and opinions which could change the meanings of the paintings and scriptural passages depicted.

### **DEVON HUTCHINS**

*Compete Like a Man, Look Like a Lady*

**Mentor: Dr. Kumar**

**Lightning Talk, Thursday 1:15 pm, AC 215**

My project looks at how coverage, framing, and the portrayal of female athletes contributes to the acceptance of women in sport. I then break down the three topics and display how they all attribute to the treatment of female athletes. This stereotype of the female athlete is then emphasized and encouraged in films such as the Sandlot and various others that will be discussed in the presentation

## **COMPUTER SCIENCE**

### **JAKOB CONRAD HILD**

*"The Rising of the Rose Ocelot": Creating and Selling a Video Game*

**Mentor: Professor Scott Weiss**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

A colleague and I had worked together on a project in our Computer Gaming and Design class. We ended up making a retro action game where you carry on to fight a boss at the end of 5 different



Worlds. The Project, (called “The Pink Panther” at the time) took lots of management, those main positions that had to be filled are Engine Programmer, Enemy and Boss Programming, World Designer Player Designer and much more that were important to the actual functionality of the game. Everything needed to work well together. After showing it to the class, I had much more feedback to work with, and then the game turned into a passion project over Winter Break and went under its finished title, “The Rising of the Rose Ocelot.” I’d decided to take on a more interesting plot with multiple endings, and secrets hidden within the game and much, much more. I designed the game to what I liked and I took to the Steam Direct Service, which is a platform which would allow me to sell my game. I still had to worry about how I’d actually receive payment. There was also the difficulty of Advertising the Game. Even more, I had to figure out how I must display the game in their store and how much to sell it for. Since it’s release date on February 2nd, (as of March 7, 2018) I have sold a little more than 50 copies of the game.

### **JIAHAO LIAN**

#### ***Android App for Firearm Investigation***

**Mentor: Scott Weiss**

**Lightning Talk, Thursday 8:45 am, Library, 1st Floor**

For my senior project, I created an Android app that allows patrols to lookup procedures for specific type of firearm investigations, and allows patrol to operate general evidence collecting on the application. I will discuss the process I went through developing app, and explain key functions of the app. At the end of my presentation, I will show a live demonstration of the app.

### **ROBERT JONES II**

#### ***Track Affirmations Web App***

**Mentor: Prof. Weiss**

**Lightning Talk, Thursday 9:00 am, Library, 1st Floor**

The head coach for the Mount St. Mary’s Track team wants a way to allow peer to peer reviews between his players after each semester. He has requested that I make a program that is easy for his players to complete their assessments, allows him to view player’s progress easily, and is only available to students who played on the track team during that year.

I plan on making a program that acts as a forum for his players where they can anonymously type reports about each player, based off a set criterion established by their coach. The forum will be accessible via internet as a web-based app where the players are able to log into this program with their laptops or cell phones so long as they are connected to the internet.

The players will be able to read these responses on their own personal “my progress” page. There will be no names near the messages, just anonymous quotes about from their teammates’ affirmations. The coach can read all the form responses as they are sent, with names attached of who sent the form and whom the form is about as well as pull up any information on each player when necessary.

### **NATHANAEL SAUNDERS**

#### ***K-Elementary Student Manager***

**Mentor: Professor Scott Weiss**

**Lightning Talk, Thursday 9:15 am, Library, 1st Floor**



Some primary school teachers still use the “sign the paper and scan in” method for handling student information throughout the school year. The hassle of yearly sending out of papers, getting them signed and returned (not to mentioned the misplaced or new copies needed) creates a stressful environment for teachers trying to keep track of these documents. My project is a web based application that tracks students and manages their documents that can be upload to the student’s profile. Utilizing front-end and back-end developing knowledge in a full stack environment, I created a student manager web application for teachers of the primary school level to manage information regarding students. The software includes a log-in page that will be directed to a home page listing the teachers name, class, students and a few interactive buttons. There is a student creation page where a teacher may submit a form to be stored into a database creating the basics of the student. Once that is done the teacher, back on the home screen, may select the students name and then will be directed to the student’s profile. This will show the files submitted for each category along with what is missing and slots for more files to be uploaded. The overall objective was a student management web application to track student files and their information looking to eliminate the need for physical papers to be sent home, signed, and returned.

### **RACHEL MEYERHOFER**

#### ***3D Printing a Tool for Understanding the Law of Reflection***

**Mentor: Professor Scott Weiss**

**Lightning Talk, Thursday 9:30 am, Library, 1st Floor**

The goal of the project is to create a 3D printed object that demonstrates the Law of Reflection. The Law of Reflection states that a ray of light bounces off a mirror at the same angle that it initially hit the mirror at. This project is specifically to help Middle School teachers, who would be teaching the Law of Reflection. The object would provide a visual and tactile representation of the Law of Reflection, giving teachers an aide for demonstrating the concept to their students beyond simply visual references or lectures. The work was done in the program Fusion 360, produced by Autodesk. The printing was done using the Form 2, an SLA printer that uses UV light hardened resin. The tool itself was designed in multiple pieces for two reasons. The first is that it allowed for easy adjustments to the design; a small change could be made to one piece without disrupting any of the other pieces. The second reason is that it allows for a greater size range. The printer that was used has a small maximum print size and breaking up the piece meant that each piece could use the maximum size and create a larger overall tool. The tool incorporates only two non-printed things: the mirror and the light source.

### **EMILY GIPE**

#### ***Inventory App***

**Mentor: Professor Weiss**

**Lightning Talk, Thursday 9:45 am, Library, 1st Floor**

My project is an app that can scan stickers, similar to QR codes, in order to keep track of the electronic inventory within John Ruhrah Elementary Middle School. The inventory within the school is comprised of different types of technology such as: computers, projectors, document cameras, smart boards, video cameras, copiers, printers, and tablets. I have coded the app in Swift which is a language used for iOS apps and I chose this language because my client primarily uses apple products within the school. The app is designed to scan a QR code and allow the user to input a teacher name, room number, id number, and the item that is being scanned and that information is then saved within a database to keep track and use again. Every time after the first scan the app will

display the information that was entered the first time unless the item being scanned is new. The app will have the ability to allow the user to enter the number on the item if there is no QR code to scan and the user will be able to view the database through the app. This project is being done so that my client will have the ability to scan each item to compare with a master list to identify if there are any missing items. If items are missing a message will appear indicated what is missing and if there are no items missing another message will appear indicating that everything is accounted for.

### **BRIANA THEZARD**

#### ***Lightning Talk***

**Mentor: Scott Weiss**

**Lightning Talk, Thursday 10:00 am, Library, 1st Floor**

**General Overview** This project is a website that is designed to educate students on Human Trafficking, specifically sex trafficking. This app will be created in order to show video, statistics, and various facts on Human trafficking. Resources such as the process of starting campaigns, and nonprofits will be provided in this app for students to play a part in fighting against human trafficking. This application will be catered to students and give them the opportunity to learn about sex trafficking outside of class.

**Rationale** The reason why Dr. Kohler's Found of Sociology class would like this website to be built is due to the section on sex trafficking only being taught in class for about a week. The issue on sex trafficking cannot simply take only a week to learn. By having this site, students can learn more about what sex trafficking entails along with the ways that they can take part in ending it. Sex trafficking is a topic that does not get much media coverage and many people are unaware of what sex trafficking is. About 100,00 children a year are entered into the sex trafficking trade, yet this issue is not being widely taught in classes as well as getting media attention. This statistic can be lowered through educating students on this issue. By having this website, students who are not even enrolled in this class can learn about human trafficking. Unenrolled students will know about this app due to the client and mentor advertising it to other students in the department.

### **SANDRA BILKU**

#### ***Student Worker Tasks Website***

**Mentor: Professor Weiss**

**Lightning Talk, Thursday 10:15 am, Library, 1st Floor**

The website that I decided to make for my senior project is a task manager website for the Psychology and Math/CS department. Student workers go into work usually around one to two hours a day and are given tasks to do. These tasks range from copies to making the boards that are in the hallway of the first floor of the Science building. This website will give Mrs. Shorb and professors the ability to log on and put new tasks for the student workers to do and also check the status of all the tasks that are currently being worked on. They will also be able to select which student worker to do a specific task and when they need it done. The rationale for this project is to make the office environment more organized and for tasks to get done in a timelier manner. This website will allow the student workers to update Mrs. Shorb on what they are doing during their time at work and what they have finished. The other problem is that student workers only work around 2 hours a day so sometime the task that was given to them does not get finished. Student workers will be able to update the tasks status as at the end of their shift. This allows the next student worker to keep the task going by just looking at the website to see where the last student worker has left off.

**DANIELLE BEAUCHAMP*****Alert Notification System*****Mentor: Scott Weiss****Lightning Talk, Thursday 10:30 am, Library, 1st Floor**

The goal of my project is to create a notification management system for three people (Dave, Mike and Greg) in the IT office. This notification system would be an app that ran on directly on each persons' phone. My app would gather all the notifications relating to university IT services from their emails and then consolidate them into an app. This app would then send reminders to each person until one of the three handles the alert. So, the alerts would increase in frequency and time the longer it takes for someone to answer it. This alert would be sent to all three of the men and IT so that everyone knows an alert is received. Once an alert is worked on it is then cataloged or archived into that day's records. Then if needed there is a record of when the alert arrived, when it was completed and who completed it. Lastly, an additional goal of mine is to direct specific alerts to specific people. So, everyone would receive the alert but it would be given higher priority for specific people. For instance, David handles more networking issues so, if a networking problem arose this alert would be specified that David is likely the best to handle it. But, if David was out of the office or working on another problem he could defer this project to Mike or Greg. The problem facing the Office of Information Technology is that they get a lot of notifications about their technology every day. The current system is that notifications are left in the email and each person handles one when they get to it. This can lead to many problems since no one knows what alert is being worked on unless they vocalize or text it, alerts can be forgotten or accidentally deleted as they sit in the email, and it can take too long for alerts to be handled. The app hopes to alleviate this problem by putting all notifications in a centralized location that everyone has access to. Also, anyone can see who is working on what alert at any time. Lastly, the alert that sounds with each new notification is hard to ignore or forget about.

**ANDREW MCDONALD*****Bitcoin Grapher*****Mentor: Scott Weiss****Lightning Talk, Thursday 10:45 am, Library, 1st Floor**

My senior project will be a web application centered around the visualization of live bitcoin transactions. Bitcoin transactions can be monitored via a public bitcoin API. These are transactions going across the network, all provided in real time. The API provides much information, but the criteria I am looking for is limited to the transaction ID, hash of the account giving the bitcoin, hash of the account receiving the bitcoin, and the amount of bitcoin that is being transferred. With this information, I can graph the transactions in real time.

**ANGELA RAYMOND*****Interactive GradeBook*****Mentor: Scott Weiss****Lightning Talk, Thursday 11:00 am, Library, 1st Floor**

This project is a user-friendly gradebook web application created specifically for a music elementary school teacher in the Hagerstown area. This online gradebook is designed to help my client to easily input and save information of each of his students using a user-friendly interface very similar to an excel spreadsheet but is created on an online platform so is easily accessible anywhere.

**AUSTIN MCGINTY*****Typing Practice Program*****Mentor: Scott Weiss****Lightning Talk, Thursday 11:15 am, Library, 1st Floor**

The project that I put together is a typing program that allows students to learn how to type. The teacher can grade and manage her student's process, but only available on the network it is being used on. This will have a teacher and student applications to it where the teacher can have administration tools that will track how each student is doing and can add additional tasks to be completed for more advanced students. This will also have an area the teacher can organize her grades for the class in a much easier format. There will be courses that will be pre-made for the students to complete and be tracked by the teacher. The students will basically have a version on their computers that only allows them to work on the courses and not be able to create or change anything. The student's computer will update at the beginning of class time to allow all the courses for that day to be posted to their computer for use during class and cannot be accessed later or outside of class time. This is mainly for advanced students who have typing experience and the teacher adds in special courses to be done. Plus, since the teacher is the server the students will only connect for a short time to allow the update to complete then will not be able to connect to the computer again and only allow the program to update when manually done and when the program closes, so the students can't mess with the teacher's computer. The server will take a connection from a student, and it will send the data of their progress to the teacher and this will only take as long as it needs to send the data of the students completed information.

**TIMOTHY MOTHERWAY*****Making Specialized Schedules Without The Hassle*****Mentor: Dr. Frederick Portier****Lightning Talk, Thursday 3:15 pm, Library, 1st Floor**

The idea for this project is based around helping sort presentation times for students who sign up for Lightning Talks or Poster Presentations during the SPARC festival. Currently done by hand, a program is desired to be able to sort the students based on certain criteria. The program takes input based on the information given by the students when they register for presenting a Lightning Talk or a Poster. This information includes the student's name, their academic field, and their times for when they can present. The program should build an optimal schedule by sorting the students based on a certain criteria to aid the manager of the Lightning Talks and Poster Presentations.

**JESS ESTIBEIRO*****App development using Android Studio*****Mentor: Scott Weiss****Lightning Talk, Thursday 3:30 pm, Library, 1st Floor**

The following lightning talk will be about developing software. For my senior project I was tasked with making a simple attendance app for Dr. Michael Miller of the philosophy department. The talk will cover the challenges associated with app development. My progress and timeline will be discussed including how I built it. There will be a short demo of my app and what I've accomplished so far.

**PATRICK MASTRORILLI*****Learning Services Room Scheduler*****Mentor: Professor Weiss****Lightning Talk, Thursday 3:45 pm, Library, 1st Floor**

Learning services has had to schedule the rooms that all the test takers get in the learning services building. The main factor for their room selection is time, and the availability of the room. By time I mean the time that the test taker will be taking the test. So, the program would have to look through all the rooms and select an open time slot for the test. The program will take a big Excel list of tests that need to be scheduled, the test taker, and the time of the time slot required for the test. Overall, the program will be fully automating the room/time selection process for learning services.

**TYLER GLASS*****Making Volunteering Simpler*****Mentor: Scott Weiss****Lightning Talk, Thursday 4:00 pm, Library, 1st Floor**

As of now there is no easy way to find people to do things like volunteer for events during the SPARC festival. To help alleviate some of the headaches that go along with finding volunteers for events I am building a web application, which people could use to go online and volunteer for different opportunities. Users would be able to see various opportunities for volunteer work in one simple, easy to read area. The application would take care of notifying volunteers with updates, changes, and notifications about opportunities in order to streamline and simplify this process.

**MAYNARD MCALPIN*****Sporcle African Quiz*****Mentor: Dr. Heinold****Lightning Talk, Thursday 4:15 pm, Library, 1st Floor**

For my SPARC festival presentation, I am going to program my own version of the Sporcle African quiz game. In this game, the player has a set time to list as many African countries that they know off the top of their head. When the player correctly enters an African country into the textbox the countries will be highlighted on a map and labeled. Once the timer ends, the player enters all the correct countries, or the player clicks the give up button, the game will end and a message will appear with the percentage they got right. When the give up button is clicked the countries that were not guessed will be labeled on the map highlighted in red. Their score and time will be presented to them and saved and which will be shown in a leaderboard to track their progress along with their average score. I will be using a combination of HTML, CSS, JavaScript, PHP, and AJAX to create this program. HTML will be used to design the game. CSS will be used to enhance the appearance of the game. JavaScript and PHP will be used to handle the when player types something. AJAX works to coordinate the interaction between the server running PHP and the client running JavaScript. PHP is also used on the server to maintain the leaderboard and scoring.

# CONFLICT, PEACE, AND SOCIAL JUSTICE

## **BRIANA THEZARD**

### *Human Trafficking in The U.S*

**Mentor: Dana Sauers**

**Lightning Talk, Thursday 1:45 pm, AC 215**

This presentation will explain how the issue of forced labor and sex trafficking are affecting communities all across the U.S. Both Michael Abraha and Briana Thezard will conduct this discussion. The audience will learn how to see the signs of trafficking, various scenarios, and what they can do to help end this issue. If able, a police officer will be present to explain his or her experience with sex trafficking and will answer any questions that attendees pose.

# CRIMINAL JUSTICE

## **CAITLYN E. CAMPBELL**

### *The Social and Cognitive Development of Children from Divorced Parents*

**Mentor: Dr. Denise Obinna**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

For my project, I decided to research how divorce effects children and their upbringing. I decided to do this, because I am a child of divorced parents and I wanted to learn and understand how having divorced parents effected cognitive development. While researching, I found many articles and journals that state how there are many negative effects on children who have divorced parents. I used the Structural-Functional theory, the Symbolic-Interaction theory and the Social Conflict theory, to analyze the effects of divorce on children. I continued to do research and I compared how children who's parents are still married with children who come from divorced parents, to determine and show that there is a difference on how both these children feel and think about life. I found a lot of research regarding how children who come from divorced parents treat others and how having divorced parents can effect their relationships, their social settings, and also their academics. While, my main focus was how children are effected, I also researched how the divorce effects the parents and their relationship and how the relationship between parents and children are effected throughout the divorce process and after the divorce is final. For my research, I used the Analysis of Variance also known as ANOVA, because I am comparing children who have divorced parents and those who do not. I was able to narrow down the behavioral aspects of the divorce and see how divorce truly affects the emotional aspect of a child. I was also able to view a wide range of data by comparing the behavioral and cognitive development of these children since their parents divorce.

## **JORDAN CARPENTER**

### *Left for Dead; Health Services Offered in Prisons*

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**



The improper treatment of inmates has started to become an issue within today's criminal justice system. The purpose of my research is to show that inmates do not receive the proper health care and nourishment they need when they enter the system. Often times, individuals enter the system with a pre-existing condition, or they develop one over time and are not seen by a professional. There are many instances where lack of proper care has caused major medical issues once an inmate is released. For my research, I used a survey that was conducted by the Inter-university Consortium for Political and Social research, which focused on state institutions. Their survey consisted of asking 14,499 inmates what services were offered in that institution and if treatment was available. I ran descriptive statistics on the variables of my choice. I used chi square to conduct individual tests on the medical-related variables to display what services are offered. I was also able to test whether or not an inmate's race or gender had an effect on the treatment they receive. In conclusion, some variables tested were statistically significant while others were not.

### **CHARLES DEHAVEN**

#### ***The Effects of Gun Control on Gun Crime***

**Mentor: Dr. Obinna**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Guns are a major part of American culture. Guns are a part of everyday life considering it is an American right to own firearms; it is even mentioned in the Constitution. It then comes with no shock that guns play a large role in criminal action; whether it be robbery, assault, homicide, or mass shootings. As of late, the response from state and federal government seems to be to create new legislation to ban weapons or, at the very least, make them harder to purchase. While this may seem to be the logical reaction to such events, it may not prove to be an effective means of reducing gun related crime. After reading through a variety of research and articles about gun control and legislative actions to prevent gun related crime, it can be determined that gun related crime heavily influences how laws are altered surrounding the present issue of gun control. In this paper, using support from a multitude of academic journals and government sources, the question of whether there is a correlation between gun control legislation and gun related crime will be answered.

### **QUENTIN DUMERVE**

#### ***Effect of Body Cameras on Police Conduct***

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

I researched the effect that body cameras would have on police conduct. I decided to research the effect that body cameras have on police officers' conduct. I chose this topic to research because of how often it is that I hear about the police shooting someone who may be unarmed or I hear a story about how the police mistreated someone and got away with it. I decided to research this to see if body cameras caused a decrease in police shootings or the amount of cases there would be where police are mistreating citizen. While researching, I compared the number of police shootings and mistreatment by police with body cameras compared to the amount of police shootings and mistreatment by police that occurred without body cameras. While conducting this research, I discovered that body cameras do influence police conduct as there was far less police shootings and cases of mistreatment from police officers who were equipped with body cameras. I also discovered that the use of body cameras creates a sense of transparency between the community and the police. This sense of transparency results in citizens being more compliant and trusting police officers and being less likely to escalate the situation when they have an encounter with



a police officer. Through my research I concluded that body cameras do have an effect on police conduct. When police are equipped with body cameras they are more conscious and careful of their actions since their actions are being recorded and there is more solid evidence of their interaction with citizens that they could later be penalized for.

### **MARIA DUVALL**

#### ***Blurring the Lines of Criminality***

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

Convicted criminals in the United States are disallowed from reentering into society as a result of the American public's failure to accept them post-sentence through ignorance, a lack of self-awareness, and the failure of the Corrections System in preparing an offender for life after punishment. Americans often fail to see their own behaviors as criminal, furthering the divide between Americans with a history of conviction and those who have none. In this study, two groups, convicted Americans and non-convicted Americans, are tested using Chi-square statistical modeling with three variables: history of traffic tickets, history of arrest, and opinion of spanking children. As a result of this test, it is concluded that convicted Americans are more likely to be ticketed and arrested than those who have never been convicted, with the majority of the two groups having been ticketed and also never arrested. No statistical significance was found in terms of spanking children, though the majority of respondents favored it in the sample. To draw from these results, more studies must be completed directly comparing violent criminal behavior to everyday violent actions taken by the everyday American in order to better relations between criminals post-conviction and the everyday non-convicted American.

### **YEMESRACH FIKRE**

#### ***Beating the stereotypes***

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

My research project examines the relationship between race and interpersonal violence because racism is still an issue today and interpersonal violence is an interesting topic which led to combining the two ideas for this project. In my research, interpersonal violence is defined as "hitting, kicking or slapping someone". There are different ways to define interpersonal violence, but for this project, it was simplified to these specific phrases. The existing data that was used was collected by the National Longitudinal Study of Adolescent to Adult Health, or Add Health for short. The research examines specifically Wave III in the data set. The data was collected by conducting an in-home questionnaire with questions ranging from what is your race, what are the origins of one's family, and how often had your parents or adult care-givers slapped, hit, or kicked you. The method used was chi-square to conduct the test and I found that the results are not statistically significant. Hopefully more research will be conducted for this because it is an interesting topic and that it will interest others to think more deeply about this topic.

### **BENJAMIN FISHER**

#### ***Racial Bias and Lack of Training With Police Incidents***

**Mentor: Layton Field**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

This project will be looking at police departments across the United States to determine if police

incidents with civilians are racially motivated or if the incidents are from a lack of training in the department. The project will focus on the race of the officers and the number of incidents by each, If the officer had gone to college or not, and if male or female officers had more use of force incidents. There is no direct or right answer on if it is racially motivated or a lack of training. In fact it is a little bit of both. A trend within the research also shows us that officers with more training and a college degree tend to have lower use of force incidents. This shows us what police departments to do to help limit use of force incidents by their officers. Examining these things can help improve the tension between the community and the police.

### **MARK FRIEDLY**

#### ***Disparate Justice***

**Mentor: Professor Field**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

Is the United States criminal justice system fair? We all would like to think so because this system is in charge of keeping the peace and punishing those who disturb it. However, this is not always the case in fact by the age of twenty-three forty-nine percent of black males experience an arrest compared to the thirty-eight percent that white males experience according to the Crime Prevention Research Center. One might argue that these numbers are due to the fact that black males commit more crimes than whites. However, this is not the case no study has shown that blacks commit more crimes than whites or are somehow more criminally active because of their race. This discrimination causes major problems with our society and hinders the effectiveness our criminal justice system. This paper/presentation will focus on one of those forms of discrimination called disparate justice. Disparate justice is when people who have committed the same or similar crime get two different sentences based upon nothing more than that person's physical or economic characteristics. This paper will address how a person's characteristics can affect the severity of their sentencing and how these sentences affect these groups as a whole. By personal characteristics I mean sex/gender, age, race, nationality, ethnicity, and socioeconomic status.

### **LUKE GIANCOLA**

#### ***Education and Crime***

**Mentor: Dr.Obinna**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

The purpose of this research is to see if there is a correlation between the amount of education an individual has and the type of crime they commit. This is to see if education influences if a person will commit white collar crime or blue collar crime. White collar crime usually takes place in a company or workplace environment. usually these are employees that are in a place of authority and got there because of some type of higher education. While blue collar crime is more street crime where the education level is lower. However while this is a common conception people with higher education still commit blue collar crime and people with less education still commit white collar crime.

### **JOSEPH GRAHAM**

#### ***Four Main Correlates to Crime Across the U.S.***

**Mentor: Layton Field**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Contrary to the media claims that crime rates have been on the rise, crime has been steadily decreas-

ing since about 1993. The estimated United States population in 2014 was roughly 318 million. Although the U.S. is not the most heavily populated country, it leads the rest of the developed world in incarceration rates. This study seeks to examine the relationship between the variables of age, education, ethnicity, and income to the crime rates of the year 2014. Aimed from a macro-theoretical conflict perspective that views human behavior as attempts to avoid being dominated and to dominate others, the hypothesis has been shaped that one variable will most correlate as an indicator that someone will commit a crime. Using crime rate and variable data provided by the Rural Atlas, this study will use Pearson's Correlation Coefficient to establish which variable has the strongest relationship to crime. This study will assess the evidence and its implications of the way crime is viewed, in hopes of establishing a preemptive indication of who is most likely to commit a crime and why. Such results play an important role of the understanding of crime and geographical culture in a broader scale.

### **SARAH HARMON**

#### ***The Educational Performance of Immigrant Students in American Schools***

**Mentor: Dr. Obinna**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

In recent years many immigrants have been migrating to the United States for a better life for themselves and their families. This project focuses on the educational performance of immigrant students in American schools looking at different factors. Different factors include their native country, sex and the generation of the immigrant for example either a first generation immigrant or a second generation immigrant. There are three theories that I will be looking at that shows different aspects of immigrants which are, straight-line assimilation, segmented assimilation theory and symbolic interaction theory. In my data and methods section I will be looking at the 3 surveys over the course of the study which started in 1992 and how each participant was when those studies took place. The parent survey of half the participants will also give a clear idea of how many immigrant parents wanted a better future for their children's education. It also looks at how the individuals think and communicate with people based where they are from. Adaptation outcomes like language preference, ethnic identity, self-esteem and academic achievement were examined. The Children of Immigrants Longitudinal Study (CILS) has also given a clear understanding of certain factors that affect immigrants lives and their education performance.

### **ABIGAIL HARRIS**

#### ***A DISAPPEARING POPULATION How Technological and Societal Influences Have Redefined an Individual's Birth Outcome***

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Throughout the past couple of months, a social trend that has sparked conversation around the world is the decreasing number of individuals born with Down Syndrome. The purpose of this project is to address this very concern and look for data supporting my hypothesis that the rate of individuals with DS terminated before birth is an increasing trend. I compared data from a study done in Massachusetts that was collected over time to show the number of live births that resulted in an individual with DS and the number of terminated babies with DS who would have been born if they had not been aborted. Furthermore, I employ descriptive statistics to chart trends on the limited data that is available and connect empirical trends with key transitions in policy and medical procedures. My data suggests a rapid increase in terminations related to down syndrome as

pre-natal screening and abortion law shift over time. Much more data is needed on this subject.

### **JESSE LINSENMEYER**

#### ***Fitness fighting fatalism***

**Mentor: Doctor Layton Feilds**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

There are many circumstances such as unstable home/ family life, poor living conditions, poverty, mental health and poor levels of education that can lead to behavior describes as delinquent problematic among youth in the United States. This Juvenile delinquent behavior comes in forms of gang activity and drug abuse all over the U.S and is often intensified in poor socioeconomic areas or broken homes (NAP, UCR, NCVS). Juvenile Delinquency can be defined as when youth commits an act that would be considered a crime if they were an adult. There are three reasons why Juveniles go to the court system. These reason are delinquency, dependency, and status offender. It is upmost importance to surround this youth with positive outlets that makes today's youth feel good about themselves and provide them with everyday life skills that can shape their character rather than stigmatize them. These positive values can be found in different forms of fitness such as weightlifting, team sports, physical meditation, and so much more. Exercise has numerous positive effects on the brain that have been studied in John T. Ratey's and Eric Hagerman's Spark: The Revolutionary New Science of Exercise and The Brain (Ratey and Hagerman 2007). These positive effects include beating stress, sharper thinking, positive lifted mood, boosted memory, and much more to be discussed later in the report. Exercise is the best defense against addiction and mental illness according to this work. Most importantly exercise can be a whole lot of fun. If today's youth can apply fitness related activities in their lives it can help motivate them and protect them from ADHD, mental illness, drug abuse, and other deterrents. One might ask: How is exercise going to keep youth from getting involved in gang activity? The answer to this is simple facts that organized youth programs such as team sport leagues and different programs can keep children of the streets. Whenever youth programs keep the five Cs in as the foundation of their work, then these programs can succeed. These five Cs are defined as: "competence, confidence, character connections, and compassion/caring" (Thomas, Cote, Janice 2005). A great example of this is a non-profit Inner City Weightlifting in a rough part of Boston, MA. ICW's mission was to disrupt the system that leads to urban street violence and replace segregation and exclusion with economic assistance and social inclusion through symbolized through love of weightlifting. ICW claims that "85% ICW students avoided Incarceration in 2015 and 96% of students report increased hope for the future" (ICW 2017). The love of sports or different type of exercising like weightlifting or cross training can be the hook, while it teaches these children life skills like discipline and working well with others. These skills children learn can help others in the job force one day too. Studying the relationship between fitness in youth and delinquent behavior in youth is important for a lot of reasons. Are youth is the future and they need proper support to succeed. Many children are obese and lack proper nutrition. With health problems on the backseat there is tons of gang activity and even drug addiction occurring in today's youth. Their simply too young to fall victim to fatalism. The positive effects of fitness through various different activities can be fun as well as motivating.

### **BRYAN MULLIGAN**

#### ***Music as a Distraction***

**Mentor: Layton Field**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

This project analyzes how music may act as a distraction to students studying. It takes a look at some college students to determine how they study, kinds of music they listen to and how often. Through lengthy face-to-face interviews and surveys information was gathered to determine if in fact music is seen as a distraction or if it is an effective way to stay concentrated. The goal was to determine what types of things make it harder for people to get school work done in a timely manner. The projected results of this project is that different genres and sex may determine how a student gets distracted while they do homework. It also was interesting to see the correlation between different genres and how many hours per week that they study. The data collected could help students determine what types of music contribute to more successful and efficient study habits.

### **DANIELLE POLETTI**

#### ***Gender, Age, and Recreational Drug Use***

**Mentor: Dr. Obinna**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

Recreational drug use is a growing epidemic across the United States. More and more drugs are being purchased, distributed, and abused. This issue is happening in all areas, of all different social classes, all over the country. All social groups in society are contributing to this expanding issue. Meaning, recreational drug user's come from all social classes from low to high, and also range over all ages. There are certain trends we are seeing in drug use with regards of which types of drugs are more regularly abused and growing in popularity among users. Males and females are contributing to this drug problem in different ways. So when diving into deeper aspects of drug use we will look at how males have different variations of behavioral patterns than women. Recreational drug use is not only affecting users and drug dealers male or female; it is evident in the influence of other society members lives who have family members or friends who are using, or drug issues in their neighborhoods and the list goes on, which is why this issue needs attention. In this paper I will highlight some of the issues and research on drugs. The goal is to find out if there is a relationship between gender, age, and drug use. I acquire firsthand examination of the factors that contribute to illicit drug use more heavily than others, this issue is important to study because drug use has expanded so much in the recent years. Through studying this information, the want is to achieve clearer insight on which gender is having more issues with heavy drug use and at what age are people most vulnerable to drug use.

### **MICHAEL REMPE**

#### ***The Death of Cash***

**Mentor: Layton Field**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

In the modern context the functionality of common place constructs are challenged on a continuous basis by concepts that advance the structural operation and efficiency of society as a whole. This notion can clearly be expressed in the sociological paradigm of structural functionalism, which seeks to divide the progression of a society into its many parts to better identify those that support the systematic operation of the society as a whole. In the consideration of commerce, the function of representative currency supports the macro-operationalization of society as a whole, allowing for an ease in exchange of goods and services. However, in the wake of the digital era and the subsequent introduction of cryptocurrencies, the efficiency and performance of paper currency in have been called into question in the progression of society. This inquiry required a further investigation into any possible correlation between the implementation of cryptocurrencies and the sentiments

of society towards cash based mediums of exchange to better understand the problem at hand under this social theory. To achieve such an understanding the compilation and assessment of data relating to the social and economic value of cryptocurrencies was conducted and evaluated with the attitudes of society concerning digital trends in commerce and cash based systems. The expected results of this comparison is the revelation of a direct correlation between the increasing implementation and value placed in cryptocurrencies coupled with the decreasing social desire for a cash dominate system

### **AMBER ROANE**

#### ***Police Brutality in America***

**Mentor: Layton Field**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

The purpose of my project is to reveal the underlying cause of police brutality in America. History from slavery to now does not teach kids that this is wrong. This results in more brutality happening and the way America perceives hate crimes which affects how we solve them. The methods of the data I used helped clarify misunderstandings of the cause of violence against African Americans. What I have found is that we have yet to come to a realization of the depths of racism in the Rodney King incident. Going forward, we can combat racism in America against African Americans.

### **JACK SPERA**

#### ***Technology: An Unknown Cause of Sexual Assault on College Campuses***

**Mentor: Layton Field**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

The purpose of my study is to unearth another possible reason for the increase of sexual assault on college campuses in the last decade or so. Many people simply point to the issue of alcohol but I fell as though I have found another reason. This reason is the dependence that the millennial generation has built with technology. Growing up in the age of the technology boom and the dependency that we now have with our cell phones and other types of tech have conditioned our generation to treat others like we treat technology, with a very one-sided relationship. I will be drawing comparisons between the years of specific technological releases and the sexual assault numbers from those respective years. I will also be looking at some specific apps and how they have desensitized our generation to sexual images and caused specific personality traits to be installed on our generation that would prove to be catalysts for the increase in assaults.

### **MOLLY STOCKER**

#### ***Forensics in Criminal Justice***

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

The goal of this project is to see the role of forensic science in the criminal justice system and how it has changed and effected the system over time. Mainly, I looked at the advancement of DNA analysis. To do this, I took a group of cold cases that each took at least five years to be concluded and went over the evidence found at the initial crime scene and what new technology was able to find. After doing this I also looked at a few death penalty appeal cases and how new technology has helped inmates get off death row. I was also able to look at a few current cases that were solved solely based on forensic evidence. By doing this, I was able to show how the criminal justice system has changed in the last decade with DNA analysis playing a key role. The time it takes to



solve cases has decreased and the amount of death penalty appeals has increased. This can show that, without modern technology, the number of innocent people either imprisoned or put to death is also decreasing. It is important to know that not every inmate is guilty so there can be a process for getting them out of prison. On the downside of this, a CSI affect has been created where people think there is always going to be forensic evidence when there is none. There needs to be a balance between actual technological developments and what is made up for television.

### **JOHN SYKES**

#### ***Rehabilitation reduces Recidivism***

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Recidivism is when a criminal is released from prison and then reoffends sending that criminal back to prison. The solution to this problem is rehabilitation, which is the act of facilitating someone to have a better life through treatment based on the needs of an individual. Rehabilitation will reduce the rate of recidivism because it will reintegrate criminals back into society, it will help drug addicts stay clean, and it will improve the correctional system. My results have indicated that within the first two years a prisoner has been released they are much more likely to be arrested again but the longer the prisoners have been released they less likely they are to recidivate. Therefore my hypothesis is only true when a prisoner gets arrested within the first two years they have been released once they get reach past two years they are less likely to recidivate.

### **TRAVIS MILLER AND JIAHAO LIAN**

#### ***Gun Crime Investigation App***

**Mentor: Professor Vince**

**Lightning Talk, Thursday 4:00 pm, AC 215**

Gun crime is on the rise in the United States, and law enforcement need new tools to help them with their investigations. Specifically, police officers need to become better equipt for these contemporary crimes. With our project we brought new technological means into the equation. We began developing an application geared toward gun crime. This app would provide vital information to police officers while on and offsite. Officers would be able to cross-reference previous cases, check and create new cases. Liam and I have spent the past two semesters helping to develop this application for the CJ department. Liam was in charge of coding the application, and I was in charge of graphic design. Both of us had a hand in user experience design. This talk will showcase what we developed over the past two semesters.

## **ECONOMICS**

### **PATRICK AQUINO**

#### ***Are NBA Players being paid efficiently?***

**Mentor: Dr. Canadas**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

I created a data set of NBA players' salaries from 1991-2015 and each player's (advanced) statis-



tics. I used this data set to analyze whether NBA players are being paid efficiently based on their production on the court. I also created a model to try predict on how much each player should be paid based on their production last season.

### **ANDREW MARCHESSEAU**

#### ***Marxism and Extremism: How Are They Related?***

**Mentor: Dr. Alejandro Canadas**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

For this project, I plan to examine the Marxist roots of political extremism on both sides of the political spectrum, both right and left. I also plan to relate this to classical liberal ideals and the libertarian ethos espoused by the likes of Friedrich Hayek. Marxist political thought is heavily based in the idea of the ingroup/outgroup dynamic, although Marx himself likely would not have used those words. Essentially, those in the “ingroup” (the proletariat, women, the white race) are incapable of doing any wrong, and those in the “outgroup” (the bourgeoisie, men, non-white races) are incapable of doing anything good. This dynamic, as referenced above, is part and parcel of much of the current political extremism, particularly in radical social justice and white supremacy. Radical social justice tends to hold the position that all men are inherently evil because of their insidious hold on the inner power circle of the world. Women, in contrast, are held back and oppressed by those in power. In a strikingly similar way, white supremacists believe that the Jews run the world through a global cabal of political and economic power, hell-bent on oppressing the innocent white race. Both of these ideologies are heavily mirrored in Marxist thought.

### **SHARON PHAM**

#### ***Economic Entropy: Connecting Economic Theory to the Second Law of Thermodynamics***

**Mentor: Alejandro Cañadas**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

At first glance, physics and economics are two entirely different subjects. The hard science, physics, stems from controlled experiments and a more solid mathematical foundation. One example would be testing gravitational forces at different locations on the planet. On the other hand, economics is a soft science because experiments and data come from observable and rarely controlled environments. Experiments dependent on reported human behavior and choice are types of soft science testing-like surveying different individuals’ opinions on if they prefer ham or turkey on their sandwich. Connecting the two types of sciences can help develop a deeper understanding of the natural world. Using the second law of thermodynamics and economic theory, the parallels between the two fields should demonstrate natural human reasoning as an economic driving force and patterns in budget constraints.

### **ANGELA SAMPSON**

#### ***The Social Gospel Movements influence on Economic thought, Free Will, and Civil Society***

**Mentor: Dr. Larrivee**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

The Social Gospel Movement emerged during the second half of the 19th century, concerned with solving the crisis by saving the individual. With the human person being a dualistic being, in order to be saved, both the body and the soul must be fixed/ The Social Gospel leaders believed that the individual person was greatly affected by industries, with evil industries causing individuals to be evil. They believed that the only way to fix the crisis was to save the people. To do this, both the

soul and the body of the individual must be fixed. According to the Social Gospel leaders the only way to fix the body is through Christian inspired institutions, and the gospel is the only way to fix the soul.

### **ANGELA SAMPSON**

#### ***Hormones and Economic Behavior***

**Mentor: Dr. Cañadas**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

Hormones effect social behavior, by directly influencing the nervous system. My research further analyzes the extent that hormones influence decision making, by analyzing hormones through behavioral economics. Specifically, the research analyzes the effect of Oxytocin, Testosterone, Stress Hormones, Dopamine, Serotonin, and Gender specific hormones on behavioral economics. Ignored to analyze the effects of hormones on the economy, the research takes a materialist view, setting aside the power of ideas in order to understand the biological effect on the markets.

### **ZACHARY SHIFFLETT**

#### ***An Economic Analysis of Bitcoin***

**Mentor: Canadas**

**Lightning Talk, Thursday 9:00 am, AC 215**

On January 3, 2009 Bitcoin was launched by an unknown creator. The creator using the pseudonym “Satoshi”, launched the system as an alternative to the current fiat currency system. This new entity was dubbed “cryptocurrency” after the use of cryptography in the currency network. Since then several interesting developments have occurred in the “alternative currency” market. These developments include market manipulation, legality, classification issues, and others. Because of the contemporary developments in the alternative currency market, cryptocurrency (more specifically Bitcoin) has spurred the attention of economists. This study will use several economic disciplines to form an economic lens to analyze just what bitcoin is, the existing contemporary issues, and how the financial market, as well as the macroeconomy has reacted to it.

### **MICHAEL ABRAHA AND JEREMY GUZMAN**

#### ***The Politics behind Crypto Currencies***

**Mentor: Christine Adamow**

**Lightning Talk, Thursday 9:15 am, AC 215**

Blockchain Tech and Cryptocurrencies have disrupted the global economy and emerged rapidly within the past decade. Even though this technology is not new, it has become more relevant now more than ever. People around the world have different views of blockchain and cryptocurrencies, and they all can be categorized by their knowledge. A major issue that blockchain faces is a lack of education the world needs. Not all users of blockchain and cryptocurrencies truly understand the potential and we plan on explaining how it is used, why it’s important, and who major players that affect the blockchain realm are. This study seeks to educate people that have a range of understanding on crypto currencies and block-chain. Analyzing institutions and governments, people’s behavior, and economic incentives will explain how block-chain will continue to change how the world and its systems function. This will allow readers to understand how block-chain is implemented in our society, and what the future holds. A qualitative research will be conducted on a select few of crypto currencies that are using block-chain and the technologies these organizations plan on implementing. We will be able to explain which specific governments are placing

regulations or restrictions on crypto, identify the select crypto currencies' technology, and analysis their growth over time based on socio-economic impacts. Analyzing institutions, governments, people's behavior, and economic incentives will explain how block chain will continue to change how the world and its systems function. This will allow readers to understand how block-chain is implemented in our society, and what the future holds.

### **KATIE OLSON**

#### ***Economic Impact of Government Regulation***

**Mentor: Dr. Canadas**

**Lightning Talk, Thursday 9:30 am, AC 215**

My topic of interest is regulation and how it can impact markets, essentially answering the question "how do legal regulators create markets?". This topic explores a number of fields including finance, law, and history. The reason I want to do an analysis on this topic is because I am interested in law and I am looking to go to law school. Being able to know and understand regulation and how they impact markets will be beneficial to me. I also think it is important for anyone in Economics to know about because regulation is constantly changing. Being able to understand how this impacts markets is crucial. I will also explore how the government can sometimes create regulation in order to change how people spend their money and where the money goes. It is important to monitor how the government is regulating because they are always doing it for a purpose. That purpose could be to help businesses or to increase money supply through a tax.

### **JOHN MCMANIMON**

#### ***20th Century Fascism: A Nuanced Understanding of the Authoritarian Ideology***

**Mentor: Dr. John Larrivee, History of Economic Thought**

**Lightning Talk, Thursday 9:45 am, AC 215**

Given America's current political circumstances, we are now more divided than ever. It has never been easier for the average U.S. citizen to shut out dissenting views; with social media, the click of a button easily prevents any contrary information, that would otherwise injure people's sensitivities, from ever reaching a Facebook or Twitter feed. The NY Times editorial article, "We're All Fascists Now," says it all. The "Right" thinkers allege that Leftists are fascist statist who seek to infringe upon free speech and gun rights. The "Left" thinkers allege that Conservatives are fascist militants who despise civil liberties and love war. In addition, the Left has a particularly troubling idea brewing within its fringe elements: anyone who doesn't agree with me is a fascist. We hear this word thrown around so often: in comment sections, in news media, in everyday political banter; but what does it mean? With my presentation, I will give meaning to the economic ideology of "fascism," a word that has no meaning in today's society. I will reveal the Marxist roots of fascism by examining the life of the infamous Fascist dictator, Benito Mussolini. Along the way, I hope to offer some insight as to similarities and differences between fascist ideology and present-day culture.

### **JESSE UHLMAN**

#### ***Christianity and Western Advancement***

**Mentor: Dr. Larrivee**

**Lightning Talk, Thursday 10:00 am, AC 215**

My presentation is about how Christianity led the west to great advancements in areas such as capitalism and freedom. The presentation will give an explanation as to why religion played such

an important role in western success, as well as why other religions may have held back certain societies. In addition, the presentation will acknowledge counterarguments from various points of view. This is an important concept to look into, especially because of the division taking place in our country right now.

### **KATIE OLSON**

#### ***History of Government Engagement in Society***

**Mentor: Dr. Larrivee**

**Lightning Talk, Thursday 10:15 am, AC 215**

The Soviet Union was a prime example of how an economy can turn to be self-destructive. They were inefficient in multiple aspects including electricity, which cost 20 billion kilowatt hours annually. The government or “anarchy” involved itself in multiple huge projects that could never seem to get finished. So, the projects would remain unfinished and it drastically hurt the economy. The Bakil Amur Railway was interrupted in so many places from construction that there was nothing to be transported. The unfinished construction across the country lead to astronomic debt. Construction kept growing and it eventually lead to costing over 150 rubles. The solution to this was to reduce the average length of construction to eight and a half years. One of the worst paths that the Soviets took was their consideration of complete. They considered jobs completed, production quotas fulfilled, salaries paid, and taxes levied on the total physical volume of production regardless of whether anything was actually produced. In an assembly line some jobs were not being done as well as others because everyone had equal pay so the effort put in could be minimal. Not everyone wanted to put their all into their job so sometimes once a final car reached the end of production, it would fall apart. One critic said that production was about as efficient as the pyramids in Egypt. The economy was increasingly becoming more inefficient and the government was allowing the country to crumble. The most damaging aspect of the Soviet economy was how the negligence and waste of workplaces.

### **NATHANIEL F. BALD**

#### ***Pathway to Prosperity***

**Mentor: Dr. Sarah Scott**

**Lightning Talk, Thursday 10:30 am, AC 215**

Through multiple articles and studies concerning the state of various national economies, my research explored the negative and unforeseen effects that foreign aid and misguided foreign investment has on the economies of developing countries. At first, I explored the effects of both foreign aid and foreign investment as well as the false dichotomy that one is superior to the other. After discussing how both of these practices make developing countries more dependent on foreign nations, my research discusses the possible ways in which the developed world and encourage and mentor the developing word. I used Steven Covey’s Maturity Continuum to visualize the process and evolution of dependency, to independence, and finally to interdependence between self-sufficient countries. After illustrating the general concept of moving towards interdependency, I combined the false dichotomy with the Maturity Continuum to create a final visual that clarifies the necessary steps in guiding the developing world. Primarily, I suggest discerning between necessary aid and aid that can be phased out. Consequently, this leads to the second step in the process which is making developing countries self-sufficient. Self-sufficiency, or independence, should be done through empowering developing nations to take care of themselves. Only independent nations can become interdependent. Therefore, domestic ideas from domestic people to create domestic wealth

that can be traded and shared with the global community is the final step in creating interdependent nations. Finally, I suggest that it is the developed world's human responsibility to act as ambassadors of innovation, a term I came across during my research. This title implies that developed countries should not patronize developing nations. Rather, developed nations should be mentors and resources for developing nations that seek to grow genuine partnerships in the global economy.

### **ZACHARY SHIFFLETT**

#### ***Observing the Interaction Between Monetary and Fiscal Policy***

**Mentor: Emil Berendt**

**Lightning Talk, Thursday 10:45 am, AC 215**

Monetary and fiscal policy are two economic instruments used to foster a healthy economy. However, the relationship between these tools are an area that is seldom observed. Both of these policies are controlled by behemoth organizations who scarcely interact. Using historical evidence, previous studies, and contemporary analysis I have developed a stable theoretical framework. This framework was then built upon using empirical modeling. The combination of these elements has resulted in interesting discoveries such as: the confirmation of a relationship, the over-sized “ego” of government agencies, and the realization that a much more complex interaction between these two instruments exists. Research to better understand this relationship will provide a valuable new perspective in order to better observe macroeconomics.

## **ELEMENTARY EDUCATION**

### **PEYTON COURTNEY**

#### ***Third Grade Writing Development***

**Mentor: Dr. Ohanian**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

The question I am exploring through my Reflective Inquiry Project is as follows: How does practice with sentence expansion impact the length of students' sentences in assigned writing in third grade? Writing is an essential skill for students to have as they continue their educational career. Through this project, practice with sentence expansion is expected to have a positive impact on the length of students' writing during independent writing. In looking at the data from students' writing, I found that all students started to include more details in their sentences. Students had practice adding details to sentences both as a class and independently. As students added details, the transitions in their sentences improved. sentence. They also included contextual details. During the intervention, students had practice adding details to the beginning of their sentence. Students practiced using transitional words, and this was evident during students' independent writing. Another detail that many students included in their work was descriptive words. When practicing writing as a class, there was often a discussion on how the reader should be able to picture the sentence in their head. After these discussions, I found that students included more descriptive words in their sentences.

**MCKAYLA C JOHNSON*****Effects of Using Sight Word Intervention Strategies to Aid Students in Building Sentences*****Mentor: Barbara Palmer****Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

According to the Maryland Common Core State Standards, kindergarten students should be able to “count, pronounce, blend, and segment syllables in spoken words” by the end of the year (RF2 CCCS 2017), they should also be able to “isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (consonant-vowel-consonant, or CVC) words” (RF2.d). These two standards are shown by students practicing their memory words, which are high frequency words which are words written most frequently. The purpose of this study was to see which students have or have not met these objectives in kindergarten language arts. When they have ‘met’ this objective they must know and be able to use 50/50 memory words in writing sentences. This intervention included sight word repetition practice, sight word games, one on one instruction as well as small group, and writing and constructing sight words.

Students at Thurmont Primary have struggled to complete this task and have IEP goals that indicate they need to work on their letter sounds, letter blending, and phonemes; because of this a research study had to be put into place in order to implement a writing intervention to help students who are in special education in Thurmont Primary meet their goals with the IEP’s and with their Common Core Standards. The following study researched the question: How does implementing a writing intervention of phonics practice, repetition, memory games and other forms of practice aid students to recognize and repeat memory words to put together a sentence.

## ENGLISH

**KATHERINE STOHLMAN*****“What a Miserable and Painful Business!”: God’s Presence in the Face of Suffering in “The Power and the Glory” and “Silence”*****Mentor: Dr. Hinds****Lightning Talk, Thursday 2:15 pm, AC 215**

As the title indicates, my presentation compares two novels, Graham Greene’s *The Power and the Glory*, which takes place in 1930s Mexico, and Shushaku Endo’s *Silence*, set in 17th-century Japan. The presentation is a broad comparison of the novels; I begin by briefly summarizing them. Next I compare the two protagonists, Sebastien Rodrigues in *Silence* and a man only referred to as “The Whiskey Priest” in *The Power and the Glory*. Both are in similar positions at the start of their respective novels, as both are Catholic priests in countries where Catholicism has been banned, on the run from government officials. Yet the two have exceedingly different characters and fates. Additionally, I compare common themes in both novels, such as the portrayal of martyrs and martyrdom, prominent in both novels, and the questioning of the existence, presence, and level of influence of God. The latter theme especially is central to the novel *Silence*, and the book takes its title from it. And while these themes are significant in both novels, again, they are approached and treated quite distinctly. Finally, in discussing the themes and main characters of both novels, I touch on the endings and how they represent the Catholic Church. *The Power and the Glory* ends



on a glorious, hopeful note, and suggests that although Catholicism has been officially banned in Mexico, it lives on in secret and will re-emerge, victorious, sooner rather than later. Silence has a far more ambiguous and heavy-hearted ending. The presentation itself takes approximately ten minutes, with time for questions after.

### **TIMOTHY LYONS**

*The View From A Moleskine*

**Mentor: Dr. Jack Dudley**

**Lightning Talk, Thursday 2:30 pm, AC 215**

This presentation highlights the way in which poets during the first world war utilized the mechanics of poetry (specifically parataxis) to present to their readers the dichotomy that exists between the trauma of war for those who experienced it first hand and the horror of war for those who experienced it through their poetry. The presentation will focus heavily on the works of Siegfried Sassoon, Rupert Brooke, and their contemporaries; the presentation will as well touch on the research found regarding trauma theory in particular, and posit a possible connection between the works and the theory itself. As a final touch, the presentation will include photographs of war journals in order to present the differences between the poet's original drafts of their work and the final, published draft.

### **ELIZABETH BRENNAN**

*Grammar and Writing Instruction in a High School Setting*

**Mentor: Dr. Palmer**

**Lightning Talk, Thursday 2:45 pm, AC 215**

Careful observation of warm-ups, vocabulary activities, and writing prompts in my tenth grade Honors English classes has revealed that students are struggling to comprehend the major parts of speech and the proper construction of a complete sentence. Students in these classes struggle to distinguish between fragments, complete sentences, and run-on sentences within a sample of writing, despite their willingness to participate in classroom activities. These variations may stem from students' own backgrounds and experiences, including students who were raised speaking another language. They may also have developed through the use of "text talk" and frequent appearance and promotion of improper grammar through memes and popular media. However, the promotion of proper academic grammar in schools has also been excluded from the curriculum at both the middle and high school levels. The research conducted and synthesized for my intervention focused on strategies for teaching grammar, and how to use grammar to improve writing quality.

## **ENVIRONMENTAL SCIENCE**

### **JULIA BAER AND KRISTINA WINKELER**

*The Effects of Mycorrhizae and Fertilizer on Cucurbita pepo (Yellow Summer Squash)*

**Mentor: Dr. Abigail Kula**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Cucurbita pepo, or yellow summer squash, is an important agricultural resource with various health



and medicinal benefits. We asked, what effects do mycorrhizae, fertilizer, and both have on yellow summer squash growth and fruit production? On February 8, we planted squash seeds in trays in the greenhouse. Two weeks later, we transferred each of the 60 squash seedlings to a 4" pot. We established three treatments: 1) fertilizer (soil amended with one scoop of low phosphorus fertilizer, 15N-5P-10K), 2) mycorrhizae: (soil amended with commercially available mycorrhizal fungi, and 3) both fertilizer and mycorrhizae. We measured length of the stem, from soil surface to apical meristem and counted the number of leaves. Three weeks later we repeated the measurements and calculated the mean and standard deviation for stem length and number of leaves. We found that, on average, the plants with mycorrhizae and fertilizer were taller and had more leaves. Also, using the initial and second measurements, we found the average difference in stem length within each treatment and concluded that the plants with mycorrhizae and fertilizer grew more than those only mycorrhizae or fertilizer. Furthermore, we took note of plant health and appearance of plants. Three of our fertilizer-only (F treatment) plants died, and one of our fertilizer and mycorrhizae (M + F treatment) plants died. Overall, the plants with only mycorrhizae (M treatment) seemed to be healthier, and 11 began to produce fruit. Approximately five of the F treatment plants were unhealthy, with brown-edged leaves. Our data could be useful to farmers or gardeners in deciding what type of products to use for the best results. Although we have significant data, our experiment is still in progress, and we plan to take one more sample of data collection before concluding the experiment. After we have finished collecting data, we will run ANOVA tests on the data analysis program R to determine our final conclusions.

### **RACHEL DELBO**

#### ***Designing an Ecological Field Study: The Effect of Intraspecific Competition on *Daucus carota* Growth***

**Mentor: Dr. Abigail Kula**

**Lightning Talk, Wednesday 5:45 pm, Library, 1st Floor**

The Effect of Intraspecific Competition on *Daucus carota* Growth: This was an ecological field study exploring the relationship and observed trends between density as a measure of intraspecific competition and plant growth. Measurements were taken on stem height, flower count, and internode distance in high and low density plots of wild *Daucus carota* (Queen Anne's lace) plants on MSMU east campus to determine correlation between population density and growth. The collected data sets were tested for normal distribution and significant difference through parametric and non-parametric analysis using R code software. The experiment yielded significantly greater height in low density plots and lower height in high density plots indicating that there is a negatively correlated relationship. Intraspecific competition between individuals, as described by higher density, was found to have a negative effect on plant growth. The results will be presented and explained with possible causes, along with the relevance of this study to application in industry or further research.

### **NATALY CISNEROS HUACACOLQUI**

#### ***The Effects of Density and Morphology on the Phenotypic Characteristics of Plants.***

**Mentor: Abigail Kula**

**Lightning Talk, Thursday 7:30 pm, Library, 1st Floor**

This research project is a followup study of the relationship of density and morphology, which interact with one another to impact plant phenotypic characteristics. Two different strains of *Brassica rapa* (Carolina Biological) were used that differed in their stature. The standard plants have an av-

erage of fifteen centimeters. Different levels of density were achieved by manipulating the number of intraspecific competitors surrounding the target plant. It was hypothesized that this experimental design would result in differences in response of the target plant depending on the morphology of the neighbors compared to the target; standard neighbors may have less of a competitive effect on the tall plants than tall neighbors have on dwarfs. This was observed by measuring the size, reproductive measurements, and the biomass of the target plant.

## FINE ARTS

### LILY MAGNO

#### *White Clouds*

**Mentor: Caitlin Faas**

**Lightning Talk, Thursday 1:30 pm, Library 102**

The process of choreographing a dance is similar to that of the writing process. It follows the same steps in order to tell a story. By telling a story, the dancer(s) can relate to the audiences' emotions. There are stages in choreographing where brainstorming takes place, as well as editing and revising. Just like an good writer, it takes practice. It is an art form that shares passion and emotion with its audience. Dance is a means of communication where the dance is the message, portrayed through a channel like an auditorium, which is received by the audience, and then the audience gives feedback with applause etc. There can be interference such as a baby crying, a cell phone ringing, and so on. It is key to keep in mind the audience when choreographing a dance. I can present the ideas of how choreographing relates to the writing process and the communication process. I can also talk about how not only my experiences growing up dancing at home and here at the Mount, but also studying COMM have helped me grow in my understandings of creating choreography as a story telling mechanism. I received a special judges award at a collegiate dance competition at the University of Delaware. The award was for "Extraordinary Concept" based on my choreography and the story I told. This award and recognition was an artistic accomplishment for my dance choreography.

### GREG ALEXANDER

#### *Muse*

**Mentor: Nick Hutchings**

**Lightning Talk, Thursday 2:20 pm, Library 102**

My process is very natural. I write from emotion, and aim to deliver it in such a way that it captures those feelings. So the things I create are essentially a reaction or a story.

## FINE ARTS/COMM

### JEREMIAH PAIGE

#### PAIGE

**Mentor: Mary C Kennedy**

**Lightning Talk, Thursday 2:00 pm, Library 102**

Much thought is put into the lyrics of my songs and poems. The lyrics come before but often after the beat. I surf the web for beats and even make some myself. I then save money and record the tracks at professional studios where they mix the audio with the mp3 files. Next, I perform them I haven't gotten my tracks official mastered yet, but for songs I can monetize, full preparation will go into the tracks.

## GENDER STUDIES

### ABIGAIL COTTRILL

*A "Forgotten" Community and A Call For Change*

**Mentor: Denise Marjarum**

**Lightning Talk, Thursday 1:30 pm, AC 215**

A revolt has been on the rise for several years now. This revolt is bubbling in one of America's most often forgotten groups, the deaf. Among the deaf community there has always been a desire to detach from the English culture and language. This has resulted in several changes in the language of the deaf, American Sign Language, and deaf culture itself. However, one change not present is the progression of feminism and representation of equality in the gender signs. This research examines, in depth, gendered signs and how the placement of them is reflective of societal stereotypes. It also examines how feminist movements in both English culture and deaf culture have provided a demand for this change. This study provides support for the need for advancement of feminism in deaf culture and a continued change of the language. The deaf community and its youth are slowly beginning to make these changes and push forward, but there are still significant steps that need to be taken for true impact.

## HEALTH SCIENCES

### KEIKO MARTIN

*Graston Technique*

**Mentor: Dr. Abigail Kula**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

The Graston technique is a manual therapy technique developed to mobilize soft tissue. Developed

by David Graston, the technique uses stainless steel instruments designed to massage and scrap the skin. Similar to Gua Sha an East Asian medical technique that involves using shaped stones or horns to scrape the skin. Graston is used to break down scar tissue and fascia formed from some sort of physical trauma. The tools come in shapes that naturally form to the curves of the body. The method of scraping is used against the grain of the scarred tissue causing small amounts of trauma. The scraping of the tissue causes slight inflammation, but in turn promotion of blood flow yields to the scarred tissue to heal faster. From the loss of inflammation yields to reduce of anti-inflammatory medications, reducing rehabilitation time, and decreasing the overall time of treatment. Not only does the technique promote healing but it also helps with identifying all the injured areas associated with pain. When performing the techniques injured tissue gives off bumps or ridges because the tissue is tight from trauma. Areas unaffected by trauma do not give of as much resistance to the scraping from the tools. The research that has been conducted on the technique has shown a high success rate for patients with chronic and acute pain. In order to be a practitioner for the Graston Technique it is a required training course taken in two modules. The first module is a twelve-hour course that teaches the basic techniques and background research. The second module is a fourteen-hour course showing utilization of motion and instrument treatment. Graston technique does not work for non-soft tissue injuries, as well as it does not work for everybody. However, the technique has a growing record of successes and is being increasingly used for treatment.

### **COURTNEY O'SULLIVAN**

*Internship at Carroll County Hospital*

**Mentor: Dr. Kula**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

Last summer I completed an internship at Carroll County Hospital to fulfill the BIOL 480 internship requirement for my major. As a Health Science pre-nursing major, this internship allowed me to gain experience working in a hospital setting. Although the hospital could only offer me a volunteer position because I am not enrolled in a certified nursing program, I was still able to gain experience in the field and work alongside hospital staff. Working as a volunteer at a hospital is a wonderful opportunity for Health Science majors, or anyone considering a career in Health Science to see what a job in the medical field is like. In my poster presentation, I will discuss the various things that I learned and observed while working as a discharge volunteer during my shifts at the hospital such as: learning how to navigate a hospital setting, learning how to communicate and interact effectively with hospital staff, and learning how to communicate and help patients during the discharging process. I will also discuss the training course that I was required to complete prior to starting my shifts as a discharge volunteer, and how my views on the nursing profession changed during my time at the hospital.

## **HISTORY**

### **DEVON HUTCHINS**

*Coming Up With a Common Narrative for Holocaust History in Museums*

**Mentor: Jamie Gianoutsos**

**Lightning Talk, Thursday 3:00 pm, AC 215**

Building a Holocaust memorial and museum in the United States was looked at as a challenge, because America, to many critics, had no reason as part of its national narrative to tell the history of the Holocaust. But where a museum would seem to not raise questioning would be the site of the Holocaust itself and the center of anti-Semitism which would be the Berlin Jewish History Museum. The United States Holocaust Memorial Museum varies greatly from its foreign complementary in which the American narrative given in the museum is focused on a view of America as liberator and good ally, which should be challenged due to America's failure to offer the support to recovering Jews needed after the Holocaust. The two museums both intend to educate the public in order to prevent anti-Semitism and discrimination. They go about this in different ways, however. To understand how the museums are breaking down the past to rebuild for future viewers, this presentation will be utilizing the three theories used by Gaynor Kavanagh in *Making Histories in Museums* to analyze these museum spaces. The museums serve a very important role to their respective societies, and teach the same lesson; that we do not need another Holocaust. But it is also relevant that we understand how we teach this very sensitive subject, and if not done correctly the attempt can be abysmal to the history.

### **AARON WEISEL**

*Reasonable Faithfulness: A Theory for Galileo's Recantation*

**Mentor: Dr. Carol Hinds**

**Lightning Talk, Thursday 3:15 pm, AC 215**

I put forth a theory as to why Galileo recanted his support of the heliocentric model in 1633 before the Catholic Church. Galileo, a fierce both as believer and scientist, faced a dilemma of a lifetime: hold to what is true, or stay "faithful" to Mother Church? I propose Galileo could have found a way out of the dilemma instead, being able to hold fast to scientific principles while being able to remain in communion with the Church. Additionally, I propose the "Letter to the Grand Duchess Christina" found in the *Western Imagination* course reader be moved to the *Symposium* course reader, as it displays the foundational principles of the Catholic vision of the human person.

### **MOIRA FREDERICKSON**

*Form and Content: Botticelli and Dante*

**Mentor: Gregory Murry**

**Lightning Talk, Thursday 3:30 pm, AC 215**

This presentation will discuss 3 of Botticelli's 92 sketches related to Dante's *Divine Comedy*. It discusses how the form and style of Botticelli's sketches directly correlate to the content of that specific sketch to the canto of the *Divine Comedy* it is from. The form of Botticelli's sketches and how closely they align with characteristics of a good renaissance painting is intertwined with the content of that sketch's book/canto of the *Divine Comedy*. This presentation will discuss Renaissance Art ideals and what makes a good painting and how these ideals correlate to the content of the *Divine Comedy* in Botticelli's sketches.

### **BRIAN MORAN**

*The Great Migration*

**Mentor: Thomas Bligh**

**Lightning Talk, Thursday 3:45 pm, AC 215**

This is a silent film, that tells the story of Pershing Foster. Doctor Foster was one of the many who migrated during the Great Migration in order to seek a better life for himself and his family. He

moved to California to seek better opportunities for himself and his career of being a surgeon. He struggles but eventually sees a positive result of his decision to leave and his hard work.

Also, file could not be uploaded since it was too big. So here is the youtube link to the video

<https://www.youtube.com/watch?v=9sYuS-7x-7A>

OTHER GROUP MEMBERS: James Courtney and William Fletcher

## MATHEMATICS

### CHRISTOPHER EVANS

*Sequence of Bipartite Graphs without Squares*

**Mentor: Dr. Portier**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

The sequence of numbers to show how many bipartite graphs possible on  $n$ -vertices without squares will be explored. The sequence is found to be:

1, 1, 1, 2, 3, 7, 12, 30, 64, 177, 457, 1403, 4327, 15024, 54730, 219311, 942908, 4426513, 22525015, 124896794, 752933593, 4938212176, 35190683416, 272266028155, 2284292635109

I will attempt to find a function that best correlates to this sequence, since it seems to be closely related to the function  $e^x$ . I will then determine just how accurate this function is for determining values in the sequence. I will also go into some explanation of what bipartite graphs are, what squares in a graph are, and help the audience better understand what exactly this sequence is attempting to find. After finding a function that can closely predict values of this sequence, I will go into explanation of how I reached this function, why I think it correlates to the sequence, and possible applications of this sequence. This will bring together two courses, Math Seminar II, where we are exploring various sequences, and Graph Theory, where we are exploring various graphs, techniques to use on graphs, and potential applications of graphs.

### JULIA REILLY-EDWARDS AND MICHAEL GUCKAVAN

*Exploration into  $n$ -nacci Numbers*

**Mentor: Fred Portier**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

In this project, we attempt to prove the number of real and complex solutions to a linear recurrence relation for certain  $n$ -nacci sequences is related to the power of the recurrence relation. In doing this, we will also explore the tendency of the ratio of consecutive  $n$ -nacci terms to converge on 2.

### JULIA REILLY-EDWARDS AND COLLEEN COLEMAN

*Exploration of the Solutions to Non-negative Linear Diophantine Equations*

**Mentor: Fred Portier**



### **Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

In this project, we examined different attributes of Non-Negative Linear Diophantine Equations, specifically looking at the sequences of solutions to these equations. We attempted to prove various conjectures about the nature of these solutions as well as create formulae to generate the number of solutions to any linear Diophantine equation of the form  $x_1 + x_2 + x_3 + \dots + x_n = x_k$ .

## **PHILOSOPHY**

### **AIMEE SOLANO**

*Shame on You, Shame on Me*

**Mentor: Dr. Justin Matchulat**

**Lightning Talk, Thursday 12:45 pm, AC 215**

Societies inflict shame on their citizens. They correct behaviors in both productive and unproductive ways, in an attempt to control social norms and reiterate societal standards. Shaming is a form of social control where one violates standards or norms of a society, and are consequently criticized or ostracized. Shaming has always been extraordinarily important—nearly everyone has experienced shame in one form or another, yet for the most part, we all continue to promulgate it. Shame has held incredible importance societally, and even legal systems have harnessed the power of shame in their own enforcement. This paper will explore whether or not shame ought to be used by societies through defining shame itself and considering if it serves as a benefit or a detriment to a thriving and healthy society. I will ultimately argue that shame, when used and received properly is essential to a flourishing society.

## **POLITICAL SCIENCE**

### **JILL GREENWALD**

*What factors have contributed to Turkey's centralization of political power around president Erdogan?*

**Mentor: Dr. Towle**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

About 53 percent of the world is ruled by authoritative regimes, making this the one of the largest challenges facing humanity. Turkey, a once-promising democracy, has fallen into the hands of authoritative leader, Recep Tayyip Erdogan. Characteristically, crumbling democracies all encompass similar patterns when diminishing. Additionally, their rulers share similar psychological traits and behaviors. This research examines generic authoritative qualities and applies them to Turkey's president Erdogan. It walks through a historical analysis approach and tracks major events that explicitly explain how Erdogan centralized so much power around himself. The factors that have led to Turkey's centralization of political power to president Erdogan began when Erdogan first stepped into the political spotlight, as the founder of Turkey's Justice and Development party (AKP). From

there on out, he has deceived Turkish citizens by advocating for freedom and liberty, only to oppress and imprison Turkish minorities who have conflicting views of his own.

## PSYCHOLOGY

### **ELIZABETH ARENSMEYER AND ISABELLA SLADIC**

#### *Temperature Priming on Perception of Personality*

**Mentor: Dr. Faas**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

This study examines the effects of priming with a warm object on first impressions based on a photo. Priming is the idea that environmental cues can influence future ideas and decisions even if the person does not realize that they were influenced (Kahneman, 2011). Past studies have shown that holding warm objects primes participants to rate others more warmly (Williams & Bargh, 2008). The participants in this study were asked to write five words to describe the personality of a woman shown in a photo. The control group wrote these descriptions with no form of priming, while the experimental group held hand warmers. Each group was given a paper with the instructions and five blank lines on which to write their descriptors. They were given this face down and told not to turn it over for two minutes. During this time the experimental group held onto the hand warmers. At the end of this time the photo was shown for two minutes while they wrote their descriptors. The hypothesis was that participants who held the warmers while describing personality traits would write more positive words than those who did not. If this hypothesis is correct, it would show that physical contact with warmth can positively affect how people perceive others, confirming the previous literature.

### **JOSEPH F AUKWARD**

#### *How Previous Questions Impact Future Answers*

**Mentor: Dr. Faas**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

Previous studies have found that participants that are asked specific (heuristic) questions before general (target) questions, respondents use their answers from the specific question to prime their answer for the general question (Schwarz, Strack, & Mai, 1991). When questions such as these are placed in sequence, the answers between the two tend to be very similar, a concept referred to in this case as “assimilation” (Strack, Martin, & Schwarz, 1988). A questionnaire asking participants about their overall happiness as well as their current financial situation was distributed. The target question that asks participants to determine their general happiness is more complex than the heuristic question that asks them to determine their satisfaction with their finances specifically. It is designed to determine whether or not the answers to a target question are directly affected by asking a heuristic question beforehand. It is hypothesized that this trend will continue in this study, leading students who first give negative responses to questions about their financial situation will also give similarly negative. If the results meet with the expectations of the researcher, then the implications of them suggest that people in their daily lives are often primed to feel unhappy in general when they are made aware of one area of their life that they are unsatisfied with. Because this occurs at an unconscious level, it could lead people to severe levels of unhappiness and depression

without them even being aware of it.

## **SYDNI BAVIS**

### ***Memory Span***

**Mentor: Dr. Faas**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

I conducted a mandatory experiment for my experimental cognition class. I studied the memory span of a college student and their recall performance (Nordvik, 2011). Memory span, defined as the longest list of items that a person can repeat back in correct order immediately after the presentation on 50% of the trials (Chein, 2011). This experiment is a within-subject design, meaning the participants are the same group for all three trials that I conducted. I had three trials which showed students three slides on a powerpoint consisting of three words, seven words and then 15 words. They looked at each slide for 15 seconds each and then recalled by writing down on paper what words they remembered seeing on each slide. My hypothesis is that college students will be able to recall the first trial slide that consists of three words, and will have a more difficult time recalling the slide that has 15 words. Long term memory is capable of storing around seven items at once, so I predict that more than half of the participants will be able to recall most of the words that are on the second slide that has seven words (Nordvik, 2011). If my hypothesis is confirmed, it says that college students have a difficult time recalling more than a few words at once.

C., M., & C. (2011). Domain-general mechanisms of complex working memory span. *Neuroimage*, 54(1), 550-9. doi:10.1016/j.neuroimage.2010.07.067

Groeger, J. A., Field, D., & Hammond, S. M. (1999). Measuring Memory Span. *International Journal Of Psychology*, 34(5/6), 359-363.

Nordvik, J. E., Schanke, A., & Landro, N. I. (2011). Errorless learning and working memory: The impact of errors, distractors, and memory span load on immediate recall in healthy adults. *Journal Of Clinical & Experimental Neuropsychology*, 33(5), 587-595. doi:10.1080/13803395.2010.543886

## **SIERRA BOUTHNER**

### ***Semantic Priming***

**Mentor: Dr. Caitlin Faas**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Humans are primed every day and that influences the decisions they make. Priming is when one stimulus influences a future stimulus without any conscious effort (Kahneman, 2011). Semantic priming is focused on the effects of how words can be primed. Past research has studied the effect of semantic priming as well. Konopka (2012) tested the relationship of recent memory influencing a person's linguistics. Joordens and Becker (1997), wanted to look at when given a pattern people subconsciously make a decision related to it. They gave the example of being given the word 'dog' followed by 'wolf' creates flowing pattern than 'shelf'. The purpose of the current experiment was to test whether priming is an influence on decisions people make specifically when given a phrase. My hypothesis was that those who received a primed word along with the incomplete word will be able to answer more phrases correctly compared to those who were not primed. My participants in the study were 20 college students at Mount St. Mary's University. The results from the data founded that the amount of words correct for the primed group was ( $M=9.3$ ,  $SD=1.34$ ) and

the non-primed group was a ( $M=3.9$ ,  $SD=1.37$ ). This shows that the primed group could get the correct answer easier than the non-primed group. This study helps confirm how semantic priming influences people decisions.

### **TAYLOR M. DAVIS**

#### ***Shining a “Halo” on the Famous: An Investigation of the Halo Effect on Celebrity Impressions***

**Mentor: Dr. Caitlin Faas**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

The “halo effect” is responsible for the ways in which all people, including celebrities, are seen by strangers. The ways in which people create first impressions has to do with the emotion that is attached to it, which creates the halo effect (Kahneman, 2011). Along with that, there tends to be a pattern that shows having a positive attitude or demeanor when meeting new people will cause a stranger to be rated higher, and the opposite effect can happen if someone has a negative attitude or demeanor (Nisbett & Wilson, 1977). This study investigates the effects that a positive and a negative story can have on the ways in which students at Mount St. Mary’s University view a worldwide-known celebrity like Justin Bieber. The students’ prior impressions of the celebrity and their impressions after reading the stories about them are both taken into consideration, and a possible relationship is examined between these two variables. I predict that the group that has a positive story will have higher ratings of Justin Bieber, and the group that has a negative story will have lower ratings of Justin Bieber. This means that even just a simple story about a person that is not known personally to millions of people can register emotion and then create a new impression of them. Results are forthcoming for this experiment.

### **LAUREN GULLICKSON AND THOMAS PITTS**

#### ***Serial Position***

**Mentor: Doctor Faas**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

Abstract Serial Position is when a person recalls the first and last items of a list, and the middle being the worst (Coleman, 2006). Because serial position functions are so commonly observed, they have played a major role in the development of memory theories. The results are typically in a U-shaped serial position function where the first few items in the series are well remembered (primacy effect), the last few items in a series are well remembered (recency effect), but mid-list items are not remembered nearly as well (Cengage Learning, 2018). An experiment was conducted using an undergraduate class of 20 students. The participants had to memorize one list of words, then recall them after seeing all of the words by writing them down in any order on an index card. Eight words were displayed at one second intervals in front of the classroom. It was hypothesized that the participants would recall the last few items best compared to the words displayed in the middle of the list. The results did not support the prediction that was made. The first few words the participants recalled had the highest average ( $M = 1.55$ ,  $SD = 0.60$ ) out of all three groups. The middle was recalled the second highest average ( $M = 0.75$ ,  $SD = 0.55$ ) while the last few words had the lowest average ( $M = 0.6$ ,  $SD = 0.60$ ). An implication of this study is to describe how the position of an item affects recall accuracy. Another implication would be our short term memory. It can only recall up to seven items, so this experiment can help future researchers come up with strategies to access our short term memory more effectively.

## KRISTINE HODGSON-TORRES

### *Cognitive Truth Illusion affect on Knowledge*

**Mentor: Dr. Caitlin Faas**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

Abstract A reliable way to make people believe in false statements is to expose them to frequent repetition of those statements (Kahneman, 2011). When things are familiar you are less likely to distinguish the truth behind the statement, this is also known as the cognitive truth illusion (Kahneman, 2011). Previous studies have shown that although educated people have prior knowledge telling them to know truth from false, participants still fell for the illusion (Dechêne, Stahl, Hansen, & Wänke, (2010); Fazio et al., 2015; Ozubko, & Fugelsang, (2011). This experiment goes further into the concept of the cognitive truth illusion, and how it affects educated people in a university setting. This study was conducted with 20 educated college students and one faculty member. The participants were given a document containing 12 statements of different variety. There were two sections that the statements fell under; there were 6 true statements and 6 false statements. They were asked to rate the statements on a scale from 1 to 5, 1 being very false and 5 being very truthful. This study hypothesized that the participants would mistake the repeated false statements as more accurate than the other groups. The data showed that the highest group was the true repeated statements ( $M = 4.16$ ,  $SD = 1.10$ ), the second highest group being false repeated statements ( $M = 3.04$ ,  $SD = 1.55$ ), the next group being true new statements ( $M = 2.55$ ,  $SD = 1.36$ ) and the lowest group was false new statements ( $M = 2.55$ ,  $SD = 1.33$ ). This implied that people are more likely to believe statements that are repeated to them throughout the course of their life, than those statements that they have never heard.

## KAYLA HUGHES AND TAYLOR CARHART

### *Font size and Recall Memory*

**Mentor: Professor Faas**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Font size is a key component when focusing on how much text one can remember. Smaller word font has been shown to aid in the ability to recall words better. This is due to the idea that looking at a smaller font enables you to use system 2 (Kahneman, 2011) in which is a harder working system. In comparison to system 1, system 2 allows us to remember and store more words. This effect is important because it highlights ways in which we can remember things more frequently in our day to day life. A study by Katzir, Hershko, and Halamish (2013) recently contradicted this theory as they had seen that there is no significant effect between large and small words. Recent research also defies this study by even introducing variables such as italics and still had also found no effect in size of text (Yang, Huang, & Shanks, 2018) In this study, we handed half the class a piece of paper with 15 words in a large font of 25, and the other half of class a different set of 15 words in a small font size of 10. We allowed each participant to study the given set of words for one minute. Then we collected each piece of paper and handed each participant a blank sheet of paper. We gave each participant one minute to recall any words they had remembered from the list. After this step was completed, we switched lists. Those who had small font now got large font and vice versa. The same steps were then repeated. In this study we found...(are doing it tomorrow so therefore we will put this in after)

### JESSICA LEE, BRIANNA RIZZO, JANAI PRICE, AND EMILY WOOD

#### *The effect of nicotine on C. elegans*

**Mentor: Dr. Kallarackal**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Nicotine prevalence in the world today affects many people's lives, resulting in illness and disease. *C. elegans* show a preference to nicotine, making them the perfect subject for this experiment. *C. elegans* that lack an AchR (*unc-29*) would alter locomotion speed that would be found in wild type *C. elegans*. To test this, we propose to create four groups: two control groups and two *unc-29* mutant groups. First, we will measure thrashes per minute in both groups without nicotine. Next, we will add a drop of nicotine and count the thrashes per minute after two minutes of being in the solution. We predict that worms in the control group have more thrashes per minute compared to *unc-29* worms. This study shows the effect of lacking an AchR's effect with nicotine, an AchR agonist.

### CAMERON LUMPKIN

#### *Numbers or Words, which do you remember better; A Cognition Experiment*

**Mentor: Dr. Caitlin Faas**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

This experiment was a test of memory span between digits and words and how well participants could recall the items shown. Memory is often defined as "internal record or representation of the prior event or experience" (Purdy, Markham, Schwartz & Gordon, 2001). Prior research shows that words are harder to keep in recall from our memory than digits. Previous studies showed with all age groups that digit-span has a slight superiority over word-span when being recalled (Crannell & Parrish, 1957). The participants in this experiment were students at Mount St. Mary's University. Participants (N=13) were asked to recall digits and words in a three-trial experiment with two phases in each trial there were two phases, phase 1 being digits and phase two being words. Each trial contained several items in each set five items in the first trial, seven items in the second trial and, ten items in the last trial. The results showed that digit-span were slightly superior to word-span but was not significantly different in any of the three trials. The second trial showed the most noticeable difference Digits (M=6.07, SD=1.20) Words (M=4.54, SD=1.15). The hypothesis was supported in that digits were recalled slightly better than words. The experiment shows just how much of a difference between how digits and words are used in our every day lives, this can be seen with phone numbers and why the number of items we use for everyday tasks are important for our memory.

### JUNE N. MUGO

#### *Everything is Right in Front of You: A Cognitive Experiment.*

**Mentor: Caitlin Faas**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

The Cognitive Load theory is a mental process of obtaining knowledge and understanding through thought. In simpler words, it processes things such as knowledge, attention and evaluating. (Atkinson & Shiffrin, 1968). For my experiment, I conducted an experiment with a group of 14 students. They were told the experiment was meant to test their knowledge of Mount St. Mary's. The experiment was a test on how well they can read directions, in the directions it stated to read the entire survey and skip to a certain number instead of actually completing the whole survey. I predicted the students who have the survey with the blue colored font, would follow the instructions, whereas the



students who have the black colored font would not read the directions. Unless there is a change in font, the students would not read the directions. The students displayed my hypothesis to be false, because even the controlled group (blue font) did not follow directions. This could lead to a high increase in low grade averages, because directions include what is needed to do well in class. Following directions is essential, not only for a classroom setting but for everyday life.

### **HABEEB OBISESAN**

#### ***Effect of drugs on the assessment of neuromuscular junction synapses in C.Elegans***

**Mentor: Angy Kallarackal**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

We are examining microscopic worms called *C. elegans* and their interaction with acetylcholine levels. Acetylcholine causes muscle contractions. Increased levels of acetylcholine such as would come with aldicarb, an acetylcholinesterase inhibitor, would increase muscle contractions. We will measure the contractions based on the number of thrashes per minute. Each level of the independent variable will consist of eight worms being studied. We expect that as the concentration levels of the aldicarb increases, the thrashes per worm will increase. We also expect that the higher concentrations of aldicarb will reduce the number of thrashes due to paralysis. This demonstrates the interactions between motor neurons and synapses on muscle fibers in a basic animal model.

### **DONNA M. SZAJDEK**

#### ***Serial Position Effect***

**Mentor: Dr. Faas**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

It is thought that a person's memory can only remember knew information in a small chunk. This is why phone numbers are only seven digits long. This study looks at if the position the words are presented in matters when remembering them in the same order. It is expected that the primacy and recency effect would be apparent. This means that the words presented at the beginning and at the end would be the most remembered words. This likelihood is known as serial position (Murdock, 1962). About twenty participants were used in this study. Using a Powerpoint, ten words were presented to the group for five seconds each. The words included paper, book, music, and shoes. After this presentation, the participants wrote down what they remembered in the order it was presented to them. The results showed that the first word was the most remembered word. There was a low dip of being remembered around the fifth word listed in the presentation. It is thought that the first words are better remembered because they make their way into the person's long term memory. The reason why the most recent words are also remembered rather well is because they are still in the person's working memory.

### **CHRISTOPHER VAN DER KAAY**

#### ***The Effects of Nicotine Withdrawal in Planaraians***

**Mentor: Dr. Slezak**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

Nicotine addiction is one the most common cases in our world today. Symptoms can be observed in individuals who are dependent on these sorts of addictive drugs. Impaired movement or locomotor ability is a common, observable symptom that we can track and measure. This experiment looked at the effects that different doses of nicotine had on the locomotor ability of Planarian and how this changed in relation to time exposed. Planarian were kept in a nicotine solution for times of 5

minutes, 1 hour, and 24 hours. After this pre-treatment, Planarian were observed on their locomotor behavior and then transferred over to a solution of water to observe withdrawal effects. This is a replication of a previous study done by Rawls et al (2011) and uses similar methodology.

### **BRIDGET VAUGHAN, SHEA MCFARLAND, JULIA COOL AND CINDY ABAH**

#### ***The Effects of Nicotine Withdrawal on the Neuromuscular Junction***

**Mentor: Dr. Kallarackal**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Nicotine can have multiple effects on an individual's body. In many cases nicotine use has shown to cause inhibition of activity in the neuromuscular junction. This study sought out to better understand the effects of nicotine and nicotine withdrawal on the neuromuscular junction. To do so we tested the neuromuscular junction of *C. elegans* by counting number of thrashes in their bodies following long term exposure to nicotine. This will give us insight into changes occurring in the synapse. We had two groups of *C. elegans*; one group who had been exposed to nicotine for their full lifetime and another who had been exposed to nicotine their full lifetime but was previously just taken off nicotine, this will allow us to see the effects of withdrawal. We hypothesized that the group who still had nicotine present in their system would have a significantly fewer number of thrashes than the withdrawal group. Through further investigation we will be able to see what changes of the synapse caused these effects in the neuromuscular junction of the *C. elegans*.

### **DREW WERTZ AND ALEC MUNNS**

#### ***Effects of Priming on Test Anxiety***

**Mentor: Dr. Faas**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

The purpose of this study was to see if heart rate was affected by a series of calming words before taking a math test. Participants were given instructions on how to check their own heart rate then asked to do so in order to collect a baseline heart rate. Half of the participants were then shown a series of six calming words (i.e., ocean and weekend) while the other half were not show any words. Both groups were then asked to take a simple addition test and to report their heart rate after completion of the test. The idea was that those presented with calming words would not be as anxious during the test itself while those who had no priming words would experience more anxiety. The anxious thought during the test is more detrimental than the emotional thought during the test in relation to the outcome of the test (Sarason, 1982). In another study and Implicit-Association test (IAT) test was used to determine association with meaning, and how adaptable the associations are (Greenwald et al. 1998). Those given calming words before taking the test had lower heart rates, after the test. The results of this test would have been able to help the participants of the study find a way to calm themselves through priming, and avoid test anxiety. This study can help future researchers to learn more about priming effects and stress. It can also be used to manipulate priming in order to affect stress and anxiety.

### **BRIDGET SHEPHERD**

#### ***Family Matters: Why Sibling Birth Order is Underdeveloped Across Disciplines***

**Mentor: Dr. Faas**

**Lightning Talk, Thursday 6:00 pm, Library, 1st Floor**

This talk will explore existing birth order research as well as take a multi-disciplinary approach for explaining why it is an understudied topic. The research on birth order is greatly limited and

outdated. Dr. Faas suggested that from a psychology perspective, it was not found to have a profound enough effect to continue studying. From a sociological perspective, Dr. Field offered this may not be as prominent in research now because people are having smaller families than they were 50 years ago. Dr. Vera believes from a theological perspective, if the findings were significant in other disciplines, theologians would then expand that research into ideas of family planning. One thing that has fueled public ideas of birth order's effect on personality is Sulloway's book (1997), which stated later born children were more likely to rebel. Since that publication, there has been a slight increase in research trying to confirm or deny this statement. Saroglou and Fiass (2002) found birth order effects exist within three children families where the eldest and youngest share similar personality traits while the middle child is typically the most rebellious. Gupta (2017) found similar results and then offered practical applications for parents. Paulhus et al. (1999) on the other hand, tested to see how birth order affected achievement within families and grouped all children born after the first as "later-born" to which they found that first-borns were more achieving and later-borns were more rebellious. These findings and related ideas will be discussed during my SPARC presentation.

## SOCIOLOGY

### ANDROY ALLEN

#### *Socioeconomic Effect on Crime*

**Mentor:** layton field

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

In order to challenge misconceptions that most crime only happens in poor neighborhoods. Data from the Federal Bureau of Investigation's Uniform Crime Report will be compared to the United States Department of Agriculture's Rural Atlas to show the positive relationship between the rise of income and violent and non-violent crime in American counties across the country.

### JOSUE AMAYA

#### *"Land of the free my ass!"*

**Mentor:** Dr. Layton Field

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

The issue of homelessness is a phenomenon that can be seen all over the world. My qualitative research focus' on asking those who are/were homeless questions geared towards self interpretation. The way I did this was by using a website called Reddit in which users join "sub-reddits" or groups and create posts that other users can comment or vote on. I focused on self interpretation of the homeless because the homeless tends to be a population that is never asked about how they see themselves. The insights gained from my research shows a lot of negative views on the self and reasons such as the cost of housing that lead to my respondents homeless situations.

### LE-ROY BATTLE III

#### *Is the Mount Ready to Talk About Race?*

**Mentor:** Dr. Field

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Over the past few years the percentage of students of color attending the Mount has greatly increased. This, along with America's political climate, seems to have put a spot light on prejudice based incidences and a racially insensitive culture at the Mount. One solution to help improve the Mounts culture that people often propose is to have more discussions about race. Often times however discussions about race can do more harm than good. So I have conducted interviews with Mount students to try and gauge if overall students would be able to have productive conversations with each other about race. Some of the things my interviews were designed to gauge is how comfortable students were when talking about race related topics, how open students would be to the other person's perspective, what preconceived notions they would have going into these conversations, and their knowledge about race related topics such as white fragility and implicit bias. From these interviews I found that both white and black students have preconceived notions about the other race that could very easily make them less understanding and more confrontational when having discussions. It appears that having discussions about race could possibly further damage race relations at the Mount. However, the study also showed that with properly trained facilitators, students would be able to have meaningful conversations that could lead to improved race relations at the Mount.

**DREW BONNER**

***How Food Deserts Impact Academic Success***

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

Healthy eating habits have been linked to longevity and well-being, and potential social opportunity. This research analysis will discuss food deserts and the relationship between access to healthy food and future educational success rates of adolescents. Conflict Theory is the sociological paradigm used to convey the relationship between these variables. The Food Access Research Atlas and the Children's Lifestyle and School-performance Study are used to analyze whether proximity to healthy food options impacts the performance of children and adolescents in schools. Chi-Square and T-test analyses were used to compare several variables that impact the student's diet quality, access to healthy food and educational success. An analysis of the data sets found an association with academic performance was observed, as Students with decreased overall diet quality were significantly more likely to perform poorly on school assessments. The study also found that race and income are statistically significant factors for determining whether a person will be impacted by living in a food desert. This research provides support for the improvement of nutrition in schooling systems and increased access to healthy food options for all citizens in society.

**BENJAMIN BURGOON**

***"Witches, Spies, and Super-Predators!" - Really?: A Review of Mass Hysteria and Ideological Panic***

**Mentor: Layton Field**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

Abstract Mass hysteria, or ideological panic, is a social phenomenon in which large numbers of people simultaneously accept the same narrow or dogmatic viewpoints, sometimes leading to collective action as a result. Examples of mass hysteria have been observed many times throughout history, and have occasionally resulted in tremendous social upheaval and violence. Hysteria requires several "prerequisite" social and psychological factors to develop in a given society, but is

always promulgated via demagogic rhetoric and imagery and under-girded by confirmation bias. Analysis of demonstrable cases of hysteria enables a cautious scrutiny of radical viewpoints, and comparison to some contemporary positions suggests that we may not be as far removed from it as we would like to think.

### **ANNA CARACCILO**

#### ***Religion and Parent-Child Relationships***

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

In order to understand where religion is going in society, we must look to the family, as parents have the most influence in religious transmission. This project aims to understand if religion leads to a stronger relationship between children and their parents. Using data from the National Longitudinal Study of Adolescent to Adult Health (ADD Health), I will be using Chi Square to compare religiosity and the satisfaction of parent-child relationships. Data was collected on various measures of religiosity, such as church attendance, using religion on a daily basis, and amount of time spent praying. The statistics suggest that there is little significance between religion and parent-child relationships.

### **RAYNE FIERY**

#### ***Islamophobia: Hate on the basis of Ignorance***

**Mentor: Dr. Field**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

Since 9/11, we see more individuals of Muslim background being attacked and made to feel alienated. Today, hate crimes against Muslims have spiked 91% over a year time span, our own President is banning traveling and travelers from a fair share of Muslim countries in hopes to “keep America safe”. Islamophobia has been thought to be a fear of Islam as a faith, when it is the stereotyping of Muslims. In my research, I will explain islamophobia and identify who harbors anti-Muslim prejudice in attempts to educate individuals on the consequences that derive from this social problem. Muslims have found themselves in fear they may be the next targets of unjust discrimination or possibly physical harm. My research also provides multiple sources that provide honest truths centered around this issue and teaching beyond Osama Bin Laden and 9/11 to avoid bias against Muslims. I will be using 2004 GSS data sets because that was the year the question about individual feelings towards Muslims was asked. My independent variables are age, sex, education, social engagement, and race. I am theorizing that higher education results in less prejudice, the hegemonic class is more prejudice than minorities, individual’s who are socially engaged with neighbors are less prejudice, and men are more prejudice than women. I will be running ANOVA and correlations to test the statistical significance of my variables in relation to my hypotheses, the results both proved and disproved my hypotheses.

### **EMILY FLAHERTY**

#### ***Liberation or Objectification?—The Effects of the Sexual Revolution on Women in Advertisements***

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

Have you ever wondered how the word “modesty” became taboo in our culture? This project seeks to understand the role of the Sexual Revolution in this cultural shift from the value of modesty to

the objectification of women. This is evident through the intensified sexualization of advertisements over the decades. This shift can be viewed through the lens of symbolic interactionism, in which sensualized symbols portray an increased emphasis on sensuality in the culture. Using content analysis, nine issues of Vogue Magazine, one for each decade between 1930 and 2017, were analyzed to observe the changes in modesty before and after the Sexual Revolution. Although the results found similarities in objectification in the decades before and after the Sexual Revolution, the three most recent decades, the 1998, 2008, and 2017 issues, show an increased emphasis on sensuality after the Sexual Revolution. Seeing as this objectification of women results in depression, eating disorders, low self-esteem, and increased porn usage, this project opens up the discussion of whether we would be better off in a society that promotes modesty as a way to avoid objectification and its negative effects.

### **TALIAH FRANCIS**

#### ***Socioeconomic Status and Teenage Pregnancy***

**Mentor: Dr. Denise Obinna**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

The purpose of this research is to draw a parallel in between teenage pregnancy and socioeconomic status. Activating factors like race, parental history, and education will help to discover if socioeconomic status affects teenage pregnancy rates. Data has been found by examination of different women in different countries. This research also aims to reveal some of the effects of teenage pregnancy. Girls who are teenage mothers often have difficulty finishing school, getting jobs, gaining support, attaining a healthy life, and more. Teenage mothers have difficulty finishing a high school education (let alone getting a college degree) because the demands of motherhood are strenuous and forces an expectation to care for, nurture, and seek the best for a life other than your own. Without a degree, the help of a man, parental support, and societal support, a teenage parent doesn't have an equal chance of attaining what an older single mother or a teenager pursuing a college degree may have. Societal standards and ideas also play a substantial role in the progression of young mothers. Young mothers are frowned upon by society and looked at as morally wrong. Certainly, people are free to have these opinions but, what is being done to help? It is for these reasons that it is paramount to delve into the issues that may further this issue like race, beliefs, and socioeconomic status.

### **JOHNSY GONZALES**

#### ***Eating Disorders***

**Mentor: Dr. Denise N. Obinna**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

The research found on this topic is being compared to both men and women and how both do not differ in their clinical presentation, psychological measurements and response to treatment. One argument has been that because eating disorders are very rare in males, the nature of this illness must be atypical in males. The other piece of information that was found on this research topic was that the second line of discussion has suggested that there must be something wrong with the male who develops an eating disorder. It will go on to show the relationships between social media and its impact on people, and how it can lead to someone to develop an eating disorder. The effects eating disorders has on a person's life and the negative impact between their loved ones and the person with the eating disorder.



**COLBY JEWS*****The effects of mass incarceration on African American families*****Mentor: Denise Obinna****Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

In the African American community, there are a startling number of single parent households, specifically single mother homes. As a young African American male, this subject matter means a lot to me. Often there are stereotypes about not having a father or the stigma of living in a single parent home or having a parent in prison. In this research paper I will not be focusing as much on the how or why but more on the negative effects incarceration has on the Black family. My goal was to find out whether there was a significant relationship between mass incarceration rates among African Americans in the U.S. and the number of single parent homes. This project will use data from the National Longitudinal Study of Adolescent to Adult Health (Add Health). Major variables in the study include alcohol/drug use, family history of incarceration, social consequences for the respondent due to the incarceration of the parent(s), if the child had any problems with drugs/alcohol, and GPA. I intend to focus on the race/ethnicity of those interviewed and specifically look at the effects of having a parent incarcerated such as an effect on school work. The Add health dataset is large and follows the children from adolescence until they are adults. This will allow me to follow the trends of growth for the children and compare using the variables. In my research, I found that there is a correlation between the mass incarceration of Black parents and lasting negative effects on their offspring.

**MARK JOSEPH VAN DYKE*****College Athletes and Violent Crimes*****Mentor: Dr. Layton M. Field****Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

The research that I conducted for this poster presentation focused on examining the relationship between college athletes and violent crimes. A main reason I decided to conduct this study was because I was intrigued by the idea that college sports may lead athletes to more violent behavior. This was of special interest to me due to the high number of athletes at the Mount. As part of this study, I extracted pre-existing data from the Equity in Athletics Data Analysis (EADA) and Campus Safety and Security (CSS) data sets. These data sets aided in providing data on the number of student athletes in colleges/universities throughout the country, as well as information on the reported violent crimes that have occurred on these campuses. By gathering the data from these data sets, I can examine the colleges/universities with high rates of athletes and see if those same colleges/universities have high rates of violent crime. Although I have not finished my research, I expect to find that as the number of college athletes increases at these colleges/universities, so will the number of violent crimes. However, despite not yet finishing my research, I have already found that the two most reported violent crimes on these campuses are rape and burglary. I especially intend to look at these two crimes while conducting this research. Therefore, I intend to give a poster presentation on the research I have conducted examining the relationship between college athletes and violent crimes.

**ELISABETH LEVI*****The Impact of Media on the Self Esteem of Young Girls.*****Mentor: Dr. Obinna****Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

The purpose of this research project is to identify how social influences such as mainstream media promote an unhealthy standard of beauty that can drastically affect the well-being of young girls during developmental times in their lives, and how repeated exposure may ultimately lead to low self-esteem and high body dissatisfaction.

### **ALEXA LOUIS**

*Does the level of education influence the likelihood of marriage?*

**Mentor: Dr. Obinna**

**Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

Many years of research done by psychologists and sociologists have shown the preferences men and women have when it comes to forming relationships with one another. Specifically, these researchers have found out that the old saying “opposites attract” is not necessarily true, and people are more likely to marry within their race, social class, and similar education level. The more in common a couple has with each other, the more likely their relationship is to succeed. Although many times people who do seem to have little in common share special bonds that keep them together, ultimately, the more a couple can relate to one such as a similar level of education, has proven to influence a couple’s longevity. Are the chances of a person getting married less likely because of their education attainment? What are the rates at which women or men with college degrees get married? According to research done by Adam Isen and Betsey Stevenson in 2010, women with college degrees tend to have less kids, do not necessarily view marriage as a “financial security”, report higher rates of happiness in not only their marriage but family life in general, and least likely to divorce (Isen, Stevenson, 2010). Their research also mentions again the hypothesis that people marry others who have similar preferences, which includes education level. Specifically, women with higher education are getting married later.

### **AMANDA MARIE WRIGHT**

*The Relationship Between Extra-Curricular Activities and Academic Performance*

**Mentor: Dr. Obinna**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

This research paper uses past research to identify the relationship between extra-curricular activities and academic achievement. Based on the past research the purpose of this research is to prove that there is a positive correlation between these extra-curricular activities and academic achievement. The research previously mentioned has proved that even though students who are involved in extra-curricular activities achieve a higher academic status there is not a lot of information on how they benefit students in their academic studies. Though there are many research papers mentioned in this paper the Education Longitudinal Study of 2002 (ELS) is the main study used to support my thesis. The ELS has so many variables that deal with all levels of schooling and students from different backgrounds. Using this dataset allows me to have a more thorough investigation of the study to use for my own research.

### **NOAH MCELMURRY**

*Can Exercise Effect Grades*

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

I am conducting a research project on how a students activity and exercise routines may effect ones GPA, grades, and study habits. i believe that as one is more productive with their exercise routines,

they will be more productive in school. This increasing their study habits in a good way, and raising their GPA and grades. My Project is closely studying data sets taken on grades 9-12.

### **EMILY MYERS**

#### ***Modern Day American Perspectives of Clinical Depression***

**Mentor: Layton Field**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

The purpose of this research is to discover and analyze modern day perspectives of Clinical Depression, its origins, and its correlates. The existence and prevalence of mental illness within the United States today is more than just a black and white topic of discussion. Anxiety, Bipolar Disorder, substance abuse/addiction, Depression, and more consume the lives of many Americans. In terms of Clinical Depression, the Centers for Disease Control and Prevention reported 1 in every 20 Americans over the age of 12 as being diagnosed with Depression and/or having moderate to severe depressive symptoms. Over the years however, the conversation of Depression and other mental illnesses has seemed to increase exponentially. It comes into question then if actual Clinical Depression prevalence and diagnosis increased as well. It was predicted that Clinical Depression within modern day America has exponentially increased. In order to confirm or deny this hypothesis, this project looks into Clinical Depression overtime within the United States; moreover, its history, its prevalence in numbers, its corresponding correlates, etc. It was found that an increase in modern day Clinical Depression was apparent amongst the younger adult population. What about this generation is different from other age groups with Clinical Depression? Why are our young adults becoming more depressed? These questions and more should be analyzed and interpreted to better understand the overall existence of Clinical Depression.

### **JESSICA NINES**

#### ***Contributing Factors Of Criminality***

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

For my project, I examined the trajectory of individuals with ADHD and mental/social issues to see if their education and arrest status were directly affected by their diagnosis. The purpose as to why I consider this an important topic of discussion and analyze is because, many adolescences are diagnosed with ADHD and other mental/ social issues, these diagnoses can hinder their education, ultimately harming their process of integrating into adult life. This means, adolescences cannot figure out how to properly function in society which can be a contributing factor as to why some of them turn to a life of crime. For my research data, I used the ADD Health Wave 4 In-Home Questionnaire dataset. I configured the data into that of specific categories which benefited my research, running chi square charts comparing ADHD/other mental and social issues with academic underachievement and arrest status'. Most of my results were statistically significant. In found that more men are diagnosed with ADHD and also get arrested more often, concluding that ADHD diagnosis may be a contributing factor to arrest status. I have also found trends between negative emotions and individuals who have never even been arrested, this is significant because it says that the majority of the population does not feel content with their current situations. My most significant finding was linking academic underachievement as one of the most outstanding characteristics of those who have been arrested. Most of the individuals that have been arrested, have not completed their desired level of education. This data and my findings are important because they show real promise in the hunt for answers concerning why individuals turn to criminal behavior.

**KAYLA PAHL*****Cultural Shifts...or Shift Rehearsal?*****Mentor: Dr. Layton Field****Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

Defining culture is something that multiple sociologists have tried time and time again to do successfully. However, there seems to be no set definition, for culture hinges upon several factors that change under different circumstances. In an attempt of examining the definition of culture, I focused my research on proving shifts in culture over time evident through the medium of theatre. I have completed a content analysis of two works, *Our Town* and *Dear Evan Hansen*, where I searched for relationships between the construction of the societies within the works in comparison to the societies of the time period in which the work was written. This analysis led to further questions on possible causes of these cultural shifts. Utilizing the results, I was able to conclude that these works show an evident shift in culture was present from 19th century to 20th century America. However, it was determined that further research would need to be conducted in order to find causes of these shifts.

**DEAN PATRICK COLEMAN*****The Impact(s) of Legislation on Latino/a use of Healthcare in the United States*****Mentor: Dr. Denise Obinna****Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

The purpose of this research is to identify if the United States government is failing to supply adequate health care to legal and illegal Latino/a individuals in the United States. Studies conducted by research by Alex Ortega, Hector Rodriguez, et. al identify the problem of how mixed eligibility for health insurance by Hispanic families causes them to defer from obtaining healthcare. This eligibility is decided by federal and state government. This project plans to hopefully identify if state/federal administration makes obtaining health care seem more out of reach or unlikely available for Latino/a populations in the United States, or if there is no effect at all. Things such as the structure of the US health system and how it is engineered for English speakers is one of the many reasons Hispanics do not obtain healthcare. This structure is decided by US legislation.

**KRYSTEN PETERSON*****High School Dropouts: What is the Cause?*****Mentor: Dr. Layton Field****Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

In this project, my goal is to look at both minority (i.e. African Americans, Latinos, etc.) students in general and the effect race has on students' academic performance, specifically the high school dropout rate. I also want to find out what the causes are for the disparity between minorities and Caucasian students (could it be because of motivational impact and the environment they are exposed to?). I want to research this topic because I am very interested in getting deeper into the reasons why there continues to be problems in the education system. This is a social problem that I believe can be broken down, fixed (even though most social problems are unfixable) and rebuilt into a better education system. I have found my research data from the High School Longitudinal Study (HSLs) of 2009 which followed students from 9th grade through adulthood and focused on the decisions made to impact their high school paths. In my research I found that race and ethnicity is statistically significantly different when tested with enrollment status, motivation and expectation from parents, and school climate and engagement.

**JOHANN PONCE*****Opioid Epidemic in America: Pharmaceutical Over-Distribution of Opioids in Society*****Mentor: Denise Obinna****Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

Many often assume that today's drug problems originate from the lower socioeconomic class. The stereotype given to most drug addictions are associated with being poor. However, this is far from the truth. Evidence shows that students in wealthier neighborhoods are more at risk of binge drinking, marijuana, and cocaine abuse (Humensky 2010). Drug addiction in America is not only seen in just poorer socioeconomic class neighborhoods. Rather it is seen in all communities in society, no matter what social class you belong to. To understand why this phenomenon is occurring in our society, we first must understand drug use in the U.S. With the increase of drug use in the last century, there has been an increase in drug overdoses. In 2014, there was a total of 47,055 deaths from drug overdoses in the United States with a rise of deaths to 6.5% from the year prior (Rudd et al. 2016). Although, the number of people with drug use can be exponentially higher. The deaths from the drug overdose doesn't consider of the number of individual with drug use or addiction. With the increase in drug use in wealthier neighborhoods, many are asking, how is this possible?

**JOSEPH REMANIAK*****Relationships vs On-Call Career*****Mentor: Dr. Layton Field****Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

The purpose of this study is to gain an understanding of the effect being on-call has on first responders and military officers alike. I will establish whether or not being on-call for work has a positive or negative effect on that individual's relationship with those around them. Upon conducting qualitative interviews with three first responders and two military officers, I found that being on-call is extremely taxing on any relationship. Every aspect of one's life is affected due to the constant pull from their career. First responders and military officers spend limited time with their loved ones, causing further stress on themselves, and straining any relationship.

**TAYLOR REMSBURG*****Mount Women's Perceptions of Feminism: A Qualitative Study*****Mentor: Dr. Layton M. Field****Poster Presentation, Thursday 3:00-4:30pm, Patriot Hall**

My research serves to examine which variables affect how college-aged women form perceptions of feminism. My research is primarily interested in how women of various racial, ethnic, religious, socioeconomic, and educational backgrounds form negative perceptions of feminism. I use qualitative research in the form of detailed interviews to gather this data in addition to a snowball sampling method of recruitment. Female students at the Mount were asked, in twenty-minute increments, a series of questions regarding their familiarity with the concept of feminism, how they became familiar with the concept, which symbols most accurately represent the feminist movement and are these symbols positive/negative. In addition to these questions, women were asked which race/ethnicity, religion, social class, and educational class they identify with. Some of my major findings include the impact of differences in ethnicity on women's perceptions of feminism. Some women stated that their families did not discuss feminism and disapproved of some advances made by the feminist movement because of values associated with their ethnic background. In addition, public nudity serves as a negative symbol of the feminist movement that even women who

identified as feminists found to be distracting and hypocritical.

### **BRIAN SAGENDORF**

#### *Stories of the Combacks*

**Mentor: Dr. Layton Fields**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

My major research project is about a career ending injury. The career ending injury is known as Tommy Johns. This surgery is cased when ones throws an object while putting a great amount pf force on your elbow, then breaking the ligaments that hold it together. This surgery is mostly common in baseball pitchers and javelin throwers. There have been thousand of case where baseball players have comeback stronger than ever. But we never here about the javelin thrower who underwent this career ending surgery. Are the results the same? My project is about how these athletes went through a long and harsh rehabilitation stage to compete at the same level of competition as before. I underwent this career ending to pursue my dream to become an Olympic javelin thrower. The reason why I am doing qualitative work is because while looking from data I stumbled across a project that covered the comparisons between all over-head throwers. I decided to go out into the field and conduct interviews and get the behind the scenes. Throughout this research I came across many interesting stories like my own. Hearing each of the athletes and coaches' stories about their comeback are inspiring. This experience is truly rewarding because this is the first time anyone has done this type of research about his topic.

### **TODD SAMPSON**

#### *Relationship between room size and anxiety*

**Mentor: Dr. Obinna**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

The goal of this paper is to examine the relationship between dorm room overcrowding in colleges and the feelings of anxiety and depression in college students. In a recent study, research had noted that depression and feeling of anxiety have increased in recent years for young adults (Mojtabai et al 2016) ). This paper aims to discover if this increase in anxiety and depression stems from overcrowded college dorm rooms. Without compromising the integrity of the classroom by making classes easier, I believe that we as a society should strive towards making the college experience a positive and educational one. To do this, it is important to try to identify and minimize the sources of negative stress that can occur on a college campus. In this particular instance, if a relationship is discovered from this study, it could prove to be beneficial to the well-being of college students.

### **TIMOTHY J. WHITE**

#### *Premarital Sex and Marriage Stability*

**Mentor: Layton M. Field**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

The purpose of my research project is to analyze premarital sex and the affects it may have on marriage stability. By using the National Longitudinal Study of adolescent and adult health (ADD Health), a study initiated in 1994 and continued throughout 2008. I was able to analyze information on a sample size of 5,000 individuals. Specifically, analyzing the age of individuals first time of sexual intercourse, number of partners, and marital status as far as happiness, it is my goal to determine whether there is a correlation and what it is exactly. To test my hypothesis, I will be running Chi Square. This is because Chi Square will allow me to determine if my results are statistically



significant and because it can be calculated on variables from every level of measurement including nominal variables.

### **BELEN ROGERS**

*Disposal of the Food We Love: Get Bready for This.*

**Mentor: Dr. Kim Hansen**

**Lightning Talk, Thursday 4:15 pm, AC 215**

According to the Food and Agricultural Association of the United Nations, thirty percent of cereal, grain, products are disposed of every year (FAA 2018). In the United States, disposal happens most at the consumer level, in other words, when grain products are ready to consume in households/dorm-rooms, restaurants/dining halls, grocery stores, etc. This project presents reasons for which food is disposed of at the consumer level and presents preventive strategies for disposal in the broader analysis of how one's relationship with food influences one's perspective: behavior and attitude towards its disposal. I will discuss a mixed methods approach to learning about people's perspectives on the disposal of food through presentation of an interview from a baker, participant observation of handling bread products and describing food, and a literature review on people's relationship with food. Specifically, I will describe the use of this mixed-methods model to review cultural tendencies, institutional policies on bread, and people's perspectives on bread consumption, disposal, and preventive strategies to disposal. This presentation will be done through the lens of bread, exclusively; every mention of "food" will be through the example of bread. This will be done through a hopefully interactive presentation. This is part of a bigger project that not only investigates people's relationship with food as a preventive strategy to its disposal, but to people's (food insecure and secure) relationship with and perspective on others (food insecure and secure) as a preventive strategy for the disposal of food.

## **SPORT MANAGEMENT**

### **JENNA WEST**

*Is there an Scholarship and Academic pattern within NCAA Division One Athletics?*

**Mentor: Dr. Layton Field**

**Poster Presentation, Thursday 1:00-2:30pm, Patriot Hall**

The purpose of this study is to analyze Division One student-athlete academic performance within the NCAA. This is done by looking at the academic progress rates, eligibility rates, retention rates, and squad size through the 2013-2014 academic year. The next part of this study focuses on scholarships available for each men's and women's sports teams. This part of the study is to see if there is any relationship between scholarships, sport, gender, and academic performance. Lastly, this study will then take the findings from the entire NCAA and compare the numbers to the student-athletes here Mount Saint Mary's University. The data for this quantitative study was collected by the research staff at the NCAA. Using this data, this study is hoping to find if any, a relationship between which student-athlete does the best in school and which student-athlete earns the highest scholarships for their sport. An expected finding from this research is that there is an unequal distribution of scholarships given out to certain sports teams. Regardless of their grades, student-athletes who play certain sports get higher scholarships. Another expected finding, is that overall female athletes

do better in the classroom and male athletes still get rewarded with larger scholarships. The last major expected finding is that these potential trends across the NCAA are also similar trends here in our athletic program at Mount Saint Mary's University.

## THEOLOGY

### ALEXANDER MAGRI

*Does one's level of education affect their religiosity?*

**Mentor: Layton Field**

**Poster Presentation, Thursday 10:00-11:30am, Patriot Hall**

I decided to conduct my research on whether or not your level of education would make you more or less likely to be religious, and see if there is a relationship between the two. You often hear that many people "outgrow" their religious beliefs while pursuing secondary or post-secondary education, so I wanted to see if that was truly the case.

I am using data collected by the ESS (European Social Survey) from 2016 to analyze and interpret. I am going to do a comparison of multiple variables to show just how religious people are across five European countries measured against their levels of education, and see if there is a relationship.

The way that my results and analysis have been looking, I do not expect the results to be statistically significant, but that does not mean they are not important. It means that there is most likely not a direct correlation between being non-religious and educated, showing that many people do not actually outgrow their religion while becoming more educated.