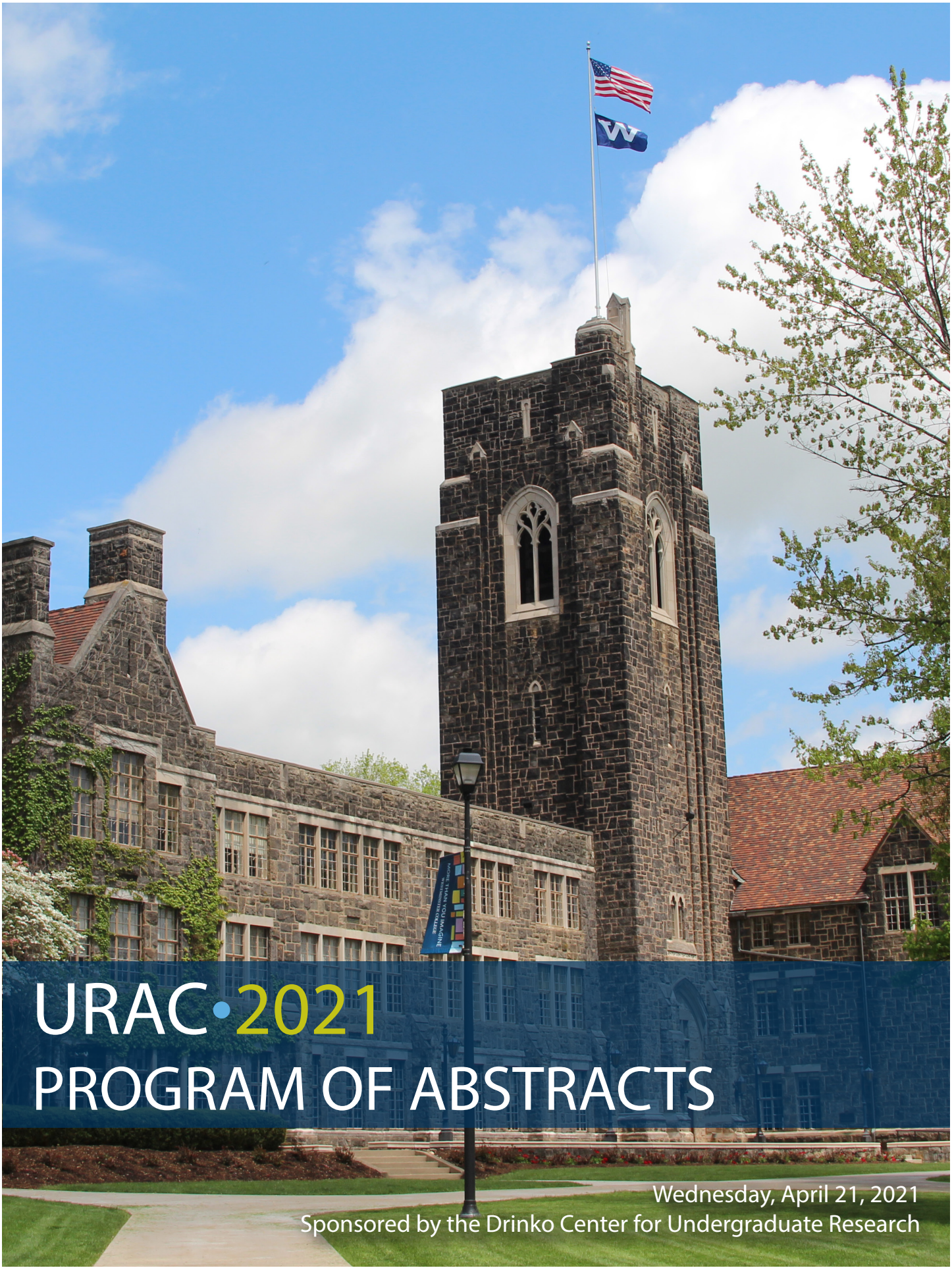


URAC • 2021
PROGRAM OF ABSTRACTS

Wednesday, April 21, 2021
Sponsored by the Drinko Center for Undergraduate Research

WELCOME to URAC 2021!

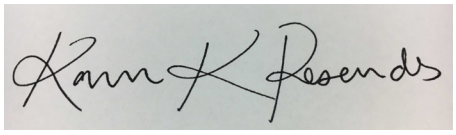
Westminster College is proud to host the 2021 Undergraduate Research and Arts Celebration. After the abrupt need to cancel URAC 2020, I am absolutely ecstatic for the return of this signature event to the Westminster College Campus. Today, approximately 300 students will present their research and creative projects in person and virtually through oral presentations, research roundtables, poster sessions, videos, performances, and art displays. Nearly every academic program on campus is represented in the outstanding work being showcased today, and students at all levels, from first years to seniors, will be engaged in the activities of the day.

The Westminster College mission statement includes eight essential outcomes: to reason logically and evaluate critically; to communicate effectively; to think creatively and appreciate aesthetic expressions; to demonstrate intellectual curiosity; to acquire knowledge of self, society, human cultures, the natural world, and human relationships to God; to apply knowledge to contemporary issues; to demonstrate moral and ethical commitments to neighbor, society, and the natural world; and to demonstrate commitment to lifelong learning and the acquisition of skills for careers and responsible service as world citizens. The student work being presented, performed, and displayed today embodies all of these outcomes and is a testament to the value of a Westminster education.

Our 2021 URAC participants are excited to share their work with the community today. Much of what you will see today is the culmination of years of study or countless hours of rehearsal. For some students, URAC 2021 will be their first formal presentation in college, and for others, participating in URAC 2021 is a final milestone before graduation. I am enormously proud of all of the students sharing their work today.

Today's artists, performers, and scholars were supported in their endeavors by Westminster College faculty, staff, administration, and campus offices, as well as by parents and friends. I would like to thank everyone for providing this support and helping Westminster students to shine. Special thanks go out to the members of the Undergraduate Research Advisory Council; their efforts made URAC 2021 possible.

I hope you enjoy today's events! Thank you for attending the Undergraduate Research and Arts Celebration.



Karen K. Resendes
Director, Drinko Center for Undergraduate Research

ABSTRACTS

Samuel Accordino
Neuroscience
Faculty Sponsor: Deanne Buffalari
Poster Session
Funding received from the Drinko Center for Undergraduate Research

The Effects of Acute Nicotine Exposure on Anxiety-like Behavior in Rats Chronically Exposed to Methylphenidate.

Consistent nicotine use through smoking is common among those diagnosed with attention-deficit hyperactivity disorder (ADHD), with upwards of 75% showing moderate to high use. The explanation for the observed connection between ADHD diagnoses and smoking has yet to be fully explained in the literature, but one potential partial explanation is that nicotine may relieve anxiety in ADHD patients. It is known that the treatment of ADHD with stimulant medication, particularly methylphenidate (MPH), produces anxiogenic effects in rodents and is associated with increased smoking in humans. This study investigates how chronic methylphenidate exposure and acute nicotine use affects anxiety-like behavior in rodents. All rats were tested for anxiety-like behavior prior to and following nicotine exposure to assess differences. It was hypothesized that anxiety would be elevated in MPH-exposed rats prior to nicotine exposure and reduced to levels similar to controls following.

Samuel Accordino
Neuroscience
Faculty Sponsor: John Robertson
Co-authors: Abby Steinbeck
Poster Session

A One Way "Shot" to Normalcy? Yes Please.

The global effort to mitigate the spread of COVID-19 through vaccine development has been a major focus of research throughout the past year. Recently, one vaccine that has been deemed efficacious against SARS-CoV-2 and approved for emergency use is the vaccine (Ad26.COV2.S) produced by Johnson & Johnson. This vaccine encodes the SARS-CoV-2 spike-protein that is normally responsible for viral binding and entry via the ACE2 receptor common to respiratory and cardiovascular cells. Upon administration of a single dose, over 90% of recipients express antibodies, which can bind to the virus to prevent future disease. This vaccine is one of the first adenovirus-based vaccines that has shown a significant immune response in humans. Typically, humans are innately immune to most adenoviruses from childhood exposure and will not develop antibodies when immunized. Thus, this breakthrough in vaccine research could potentially assist in protecting humans against other future infectious diseases.

Alexis Allen

Accounting
Faculty Sponsor: Robert Zullo
Poster Session

Environmentally Trendy

Now more than ever it is essential to take a stance and protect the environment. But can you protect the environment in your clothing choices? Brands like Patagonia, People Tree, H&M, and Levi's have broken the barriers and found ways to protect the environment and stay trendy. This presentation will highlight how these four companies combine fashion and the environment so that you can be environmentally conscious by choosing the proper brand.

Alexis Allen
Accounting
Faculty Sponsor: Jesse Ligo
Co-authors: Megan Ratay, Clay O'Dell
Oral Session

The Keys To Your Home

Owning a home is a life goal that many people strive to achieve. At what point in your life is it best to purchase your first home? We are going to highlight the key steps and factors to becoming a home buyer, and the process to secure a loan and achieve your goal of owning your first home. This presentation will provide the necessary steps and planning that need to take place during the ages of 18 and 30 to gain the house of your dreams. Many do not think that it is possible to purchase a home, but if you take the proper steps, purchasing a home will be an easily attainable dream.

Benjamin Antal
Business Administration
Faculty Sponsor: Robert Zullo
Co-authors: Tanner Dudek, Mari Clark, Antwon Jones
Poster Session

Extra Guac to Save the World

Companies have been moving towards more eco-friendly business practices to reduce greenhouse gas emissions. One of these companies is Chipotle, the very popular fast-casual burrito chain. Chipotle has done a lot to please their customers in terms of sustainability, but the launch of Real Foodprint takes it to another level. It allows their consumers to see exactly what they are doing for the environment with each burrito they order.

Frank Antuono
Sports Management
Faculty Sponsor: Robert Zullo
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Athletic Sponsorships in Division III Athletics – Exploring the Unknown for Titan Nation

For the summer of 2020, I engaged in a Summer Research Fellowship examining corporate sponsorships. A list of potential business categories was created and then was further developed with examples of area businesses from the surrounding areas of New Castle, Hermitage and Grove City. These businesses could serve as potential sponsors at home athletic events providing value to the businesses in terms of promoting their brands, products and services. Though we are a smaller Division III school, these businesses could support Westminster College and try to reach our students, staff, faculty, families and alumni as potential customers. The research project examines the policies and procedures needed to be in place and addresses some of the logistical issues that occur with sponsorships into Division III athletics. However, the pros include additional revenue, the potential for decreases expenses and the possibility of giveaways and prizes to attract more students to home athletic events
Travis Ball

Accounting
Faculty Sponsor: Jesse Ligo
Co-authors: Ashley Chorney, Jason Turcol
Oral Session

Do You Really Need That?

Coffee, dining out, gym memberships, and other amenities are perceived as important components of a modern lifestyle; however, these expenses are maxing out many American's discretionary spending budgets. Discretionary spending is the leftover income individuals spend after their essential expenses have been covered. Over a span of a year, Americans discretionary spending is a significant portion of their yearly budgets. Our research will represent the average American's top discretionary expenses compared to their spending on essential items.

Josephine Barnhart
Biology
Faculty Sponsor: Joshua Corrette-Bennett
Co-authors: Megan Steele
Poster Session

The effect of cortisone on the expression of msx2 during limb regeneration in axolotl (Ambystoma mexicanum)

Ambystoma mexicanum are an exceptional model organism for studying regeneration. They have the ability to completely regenerate many tissues. Specific genes are expressed during regeneration of most vertebrates, one of which is the homeobox gene msx2. Cortisone is a corticosteroid that suppresses proliferation during wound healing and tissue repair. The primary aim of this study was to ascertain msx2 expression levels during axolotl limb regeneration following exposure to various levels of cortisone. RNA was isolated and quantified from axolotl limb

tissue at (T0) and 24 hours (T24) after cortisone exposure. RNA from limb tissue was converted to cDNA and then msx2 selectively amplified using PCR. Levels of msx2 expression in T0 and T48 tissues exposed to low and high concentrations of cortisone were compared to a control group using gel electrophoresis. We predict increasing concentrations of cortisone will cause a decrease in msx2 expression and rate of regenerating axolotl tissue.

Stephen Barr
Financial Economics
Faculty Sponsor: Jesse Ligo
Co-authors: Marcella Dias Dias
Oral Session

Staving Off Starvation in Your Seventies

Investing is an issue that many students feel too nervous to start on while in school. Unfortunately, this means they miss out on substantial rewards later in life that would have been relatively easy to obtain with even a minor understanding of the field. We hope to provide students with both the motivation to start investing in their futures by explaining the results they can achieve and the basics on how they can do so.

Brock Barrett
Marketing and Professional Sales
Faculty Sponsor: Eric Gaber
Co-authors: Selena Thomas, Madillynn Kerr, Aaron Iler
Oral Session

Client Diversification Services

Bradigan's has been serving the Armstrong and surrounding counties with quality petroleum products and services since 1952. Since then, they have become the leading distributor of petroleum products within Armstrong County. The goal of the WEC group working with Bradigan's is to determine what it would take for the company to branch out into the electrician industry.

Casey Barton
Molecular Biology
Faculty Sponsor: Kristen Amick
Poster Session

The Genetic Diversity of Odocoileus virginianus in Pennsylvania

A wildlife population may undergo a population bottleneck due to human activities like urbanization and hunting. Odocoileus virginianus (white-tailed deer) in North America suffered a severe population decline in the early 1900s. Hunting restrictions and translocations were implemented to rescue the at-risk deer population. Translocations introduce new individuals to increase numbers in the population and decrease the likelihood of inbreeding. Post-translocation, the deer population surged, but the level of genetic diversity within the population is unknown. Using fragment analysis, DNA microsatellite loci were assessed from a collection of Pennsylvania white-tailed deer to investigate the level of genetic diversity. The analyzed samples contained heterozygous and homozygous alleles at the two loci surveyed. Results suggest there are multiple alleles contributing to the gene pool, but additional state-wide sampling must be conducted for a comprehensive estimate of genetic diversity.

Ryan Beard
Accounting
Faculty Sponsor: Keith Bittel
Co-authors: Josh Collins, Jace Ebbitt, Ricky Gralish
Oral Session

Enactus - Bottle Caps to Furniture

Our team decided to focus on finding ways to promote reusing plastics. Our goal is to spread awareness on the importance of finding alternative solutions to recycle plastics. Recycling can be an inconvenience to people, and there are few economic benefits to recycling. To help spread awareness on reusing plastics in a creative way, our team set out to develop a solution. Our solution is to make a piece of furniture out of bottle caps. We are in the process of collecting bottle caps and we will then take those caps to make a bench or stool. While this takes large amounts of plastic, our goal is not to replace all furniture with plastic furniture. We believe that by creating a piece of furniture out of plastic we will inspire others to think of creative ways to reuse plastics. By having a piece of furniture on campus, all students that come across it will be reminded of not only how much waste we produce but also to think outside the box before throwing their plastics into the garbage.

Angela Birckbichler
Biology
Faculty Sponsor: Marosh Furimsky
Poster Session

Bisphenol F treatment results in pericardial edema and delayed hatching in zebrafish embryos.

BPA and bisphenol F (BPF) are chemicals found in plastics. BPA is an endocrine disrupting chemical (EDC) which led to the use of other analogs, such as BPF. Research suggests that BPF functions as an EDC and negatively effects the reproductive and cardiovascular systems. Our understanding of the effects of BPF is limited, however, studies in zebrafish have shown that it can produce cardiac edema, spinal malformation, and delayed hatching. To examine the effects on development, we exposed zebrafish embryos to BPF two hours post-fertilization and observed development over 72 hours. We found that BPF significantly affected overall developmental and cardiac development, where higher BPF concentrations produced severe cardiac edema, delayed pigmentation, and delayed hatching. As there is limited research on developmental effects of BPF, it is important to conduct research to understand the risks of exposure in zebrafish and to model the effects of exposure in human embryonic development.

Matthew Bollinger
Computer Science
Faculty Sponsor: John Bonomo
Oral Session

Multi-User Blog Website Application

Blogs today are extremely common and are a tool that people can use to express themselves to various people. These blogs can be anything from talking about the environment to current entertainment and more. This project's goal is to develop a blogging website that allows for a wide variety of authors and topics on the platform. This website, titled "Blogs for Everyone", makes use of a variety of JavaScript APIs and frameworks in order to make it easy to write, publish, and view blogs on any device. Along with this is an emphasis on authorization and search engine optimization. The project makes use of the following software to achieve these goals: HTML, CSS, Bootstrap, ReactJS, and NextJS for the design of the user experience as well as NodeJS, MongoDB, and ExpressJS for the server and database interaction.

Jessica Booher
Mathematics
Faculty Sponsor: Natacha Merz
Oral Session

Recommender Systems in Python

This independent study utilizes linear algebra, machine learning concepts, and a public dataset from the Information Retrieval Group in order to create a useful music recommendation system for LastFM users in Python. We outline background information about recommender systems, linear algebra topics employed in creating simple recommender systems, applicable definitions and theorems, similarity learning, and the ways in which Python is used for this research.

Allison Brombacher
Individual Interdisiplinary
Faculty Sponsor: Kristen Amick
Poster Session

Estimating the frequency of root tags on naturally shed cat hair and the diversity of mitotypes in the cat population of Alaska

Shed animal hair is often collected as evidence. The frequency of root tags on such hair is unknown. If absent, nuclear DNA cannot be recovered and mitochondria DNA (mtDNA) must be used for forensic analysis. Relative to nuclear DNA, mtDNA is maternally inherited, which means unrelated individuals can have identical mtDNA sequences, or mitotypes. To estimate the evidentiary value of a mtDNA match, databases of mitotype frequencies must exist. To further the field of feline veterinary forensics, we investigated the frequency of root tags on naturally shed cat hair and determined mitotype frequencies in the previously unsampled Alaskan cat population. A root tag was absent from 98% of the shed hairs collected. This low prevalence means that mtDNA should be used when shed hair is recovered as evidence. The distribution of mitotypes in the Alaskan cat population was found to be similar to known pattens from the contiguous United States, supporting no need for a separate database.

Kaylee Brosius
Political Science
Faculty Sponsor: Brittany Rowe-Cernivicus
Poster Session

A Rhetorical Analysis of the Inaugural Address of Joseph Biden

Inauguration ceremonies have become a tradition among American politics, and they serve as a central part of the transition of power among American presidents. These addresses give the president-elect their first opportunity to address the nation and assure them of the future. As research and analysis on this topic continue, inaugural addresses have proven to be a category among their own in rhetorical communication. These addresses are theorized to have a few main objectives that are always featured as well as containing other common elements. Every modern inaugural address is said to contain the common components as well as utilize rhetoric that is specifically tailored for this genre of communication. Using Bitzer's notion of The Rhetorical Situation, this study analyzes President Joseph R. Biden's inaugural address. This study has numerous implications for the fields of public relations and political science.

Andrius Burnelis
Physics
Faculty Sponsor: Craig Caylor
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Introducing Hydrodynamics to Better Model Galactic Mergers

We implemented hydrodynamics code from the AMUSE framework to improve an existing model of galactic collisions by including a gas component. This project focuses on a small satellite disk galaxy merging with a larger disk galaxy. We are interested in the timescale for the merger, in particular how long the stars and gas from the smaller galaxy show distinct kinematics from the host. We set up the model with varying initial parameters such as relative orientation, direction of orbit, starting distance, etc. We then look at how long it takes for the centers of mass of the two galaxies to converge, and we analyze a plot of the orbital speed of stars and gas as a function of position to see how long the plot of the small galaxy is distinct from the large galaxy.

Zoe Cable
Neuroscience
Faculty Sponsor: Jeffrey Bersett
Oral Session

Maternal Morbidity and Mortality in Relation to the Economic and Social Status of Women in Central America

Maternal morbidity and mortality statistics are widely used to monitor maternal health around the globe and to evaluate the effectiveness and quality of women's reproductive care. Generally, disparities in maternal mortality and severe maternal morbidity exist between countries of low, middle, and high income. Low and middle-income nations such as the countries in Central America bear most of the world's burden for maternal mortality and severe maternal morbidity. This presentation will draw comparisons between various Central American countries that fall at different points on the poverty scale in order to identify the factors that influence maternal mortality and morbidity and demonstrate a better understanding of the much-needed improvements in social, economic, and public health infrastructure needed to improve it.

Zoe Cable
Neuroscience
Faculty Sponsor: Deanne Buffalari
Poster Session

Differences in Susceptibility to Nicotine Dependence Based on Adolescent Stage in Female Rats

The use of nicotine products is a primary cause of preventable death and disease. This is especially alarming as nicotine use is increasingly popular among middle and high school students, which can lead to an increased likelihood of continued use later in life. Previous research has indicated that female adolescents are the most susceptible to nicotine dependence of any age or sex group, yet it is unclear which stage of adolescent female development is most susceptible to the risks of early nicotine exposure. In order to determine this, females in early and late stage adolescence were exposed to nicotine, and subsequent preferences for nicotine-paired environments were tested using conditioned place preference. By quantifying the effect nicotine has on adult behavior after adolescent exposure, we hope to better understand the lifelong consequences of nicotine use in young people and determine which adolescent group, if any, is at a greater risk of experiencing them.

Julianna Capo
Biology
Faculty Sponsor: Sandra Webster
Co-authors: Sam Ferguson, Alexa Ransom, Mike Condron
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Influence of Camera Activity on Affect Experienced during Virtual Meetings

This study examines the effects of having the camera on during virtual meetings. We will be studying this using Zoom Video Conferencing on a computer. 80 subjects will be divided into 8 groups of 10. Subjects will be asked basic introductory questions from a set script for 30 minutes by a moderator with his/her camera on, with each subject required to answer. Subjects will then be sent a variation of the Positive and Negative Affect Schedule- Expanded Version (PANAS-X) via LimeSurvey. Subjects in the control group will keep their cameras off during the meeting and survey, while subjects in the experimental group will keep their cameras on. We expect that participants asked to keep their cameras on will experience greater negative affect. Knowing how having the camera on during virtual meetings influences participant affect could change the way virtual meetings are held to better participant affect.
Julianna Capo

Biology
Faculty Sponsor: Joshua Corrette-Bennett
Oral Session
Funding received from the Drinko Center for Undergraduate Research

The effect of biotinylated siHybrids on suppression of the ica operon

S. aureus is a leading cause of bacterial infections because it forms biofilms, enabling it to resist the immune system and antibiotics. Biofilm production is upregulated by the sarA gene product. Our goal is to determine if biotinylated siHybrids targeting sarA mRNA are effective at suppressing biofilm. S. aureus cultures were incubated in 96-well microtiter plates with biotinylated or nonbiotinylated siHybrids. Following a 20 hour, 37?C incubation, samples were stained with crystal-violet and analyzed with spectrophotometry. Two wells from each treatment were analyzed with RT-PCR to quantify sarA mRNA. Expression levels were analyzed for significance using ANOVA. We predict that biofilm will be reduced in siHybrid treated cells compared to untreated S. aureus due to destruction of sarA mRNA. We also predict that biotin addition will increase siHybrid uptake into cells, resulting in increased biofilm suppression compared to nonbiotinylated siHybrids.

Elaina Chapnell
Mathematics
Faculty Sponsor: Natacha Merz
Oral Session

Using Machine Learning to Identify Diabetic Retinopathy

Diabetic retinopathy is an eye disease common in individuals with diabetes. If not detected and treated properly, this disorder can lead to severe vision loss and possible blindness. We investigate a method to detect this disease using machine learning. We use the programming language Python to create a model which can differentiate between images of normal eyes and eyes with grade 3 diabetic retinopathy. The final model has the ability to detect diabetic retinopathy with 83% accuracy.

Paige Copenhaver
Biology
Faculty Sponsor: Diana Ortiz
Poster Session
Funding received from the Drinko Center for Undergraduate Research

Borrelia burgdorferi pathogen detection in Ixodes scapularis using DNA extraction and nested PCR

Pathogens that cause disease in humans can be transmitted through disease vectors, such as ticks. The focus of this study was on Borrelia burgdorferi, the spirochete that causes Lyme disease in humans. A molecular detection method was used to detect presence of B. burgdorferi in Ixodes scapularis (black-legged tick). Ticks were collected from Ursus americanus (wild black bears) and were identified by species, sex, and condition (number of days fed). DNA was extracted from each female I. scapularis that fed for 3-4 days. Flagellin B and Outer Surface Protein A were amplified using nested polymerase chain reaction. Gel electrophoresis was performed to detect the amplicon banding for each sample. Banding for both proteins confirms the presence of B. burgdorferi. Tracking pathogen presence by location will allow for a larger database of pathogen prevalence among ticks within the region.

Emily Cornman
Biology
Faculty Sponsor: Jamie Chapman
Oral Session
Funding received from the Drinko Center for Undergraduate Research

The Unique Experiences of the Sandwich Generation

Due to the changing age structure of society, it is becoming increasingly common for adults to simultaneously care for their elderly parents and their young children; this demographic is referred to as the sandwich generation. Adults in the sandwich generation must balance many responsibilities, which tend to conflict. Using twelve in-depth interviews, I collected data on the specific experiences of sandwich generation caregivers, focusing on role strain, caregiver stress, and the relationship dynamics between different family members. My findings expand upon current literature to enhance our understanding of the challenges, relationships, and work/family spillover faced by the sandwich generation.

Emily Cornman
Biology
Faculty Sponsor: Joseph Balczon
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Evaluating Wine to Water ceramic silver-impregnated pot and candle filters as a sustainable solution for the global water crisis

An alarming portion of the world lacks reliable access to clean water. Over 785 million people worldwide lack any type of clean water source, and approximately 2 billion people use a drinking source that is contaminated with feces. The most immediate solution to reduce infection risk is to use household water filtration systems such as ceramic filters. The non-profit Wine to Water (WW) produces ceramic filters for humanitarian relief – but there is no published data on their performance or how they compare to other well-known filters.

Kailey Costabile
Business Administration
Faculty Sponsor: Robert Badowski
Oral Session

Mental Health Awareness: Educating the Educators

Today, students report more mental health issues and seek help more frequently. In response to the rising rates of students experiencing mentally ill health, campuses have adopted a gatekeeper training program for faculty and staff.

Lindsay Cotton
Neuroscience
Faculty Sponsor: Sandra Webster
Co-authors: Nathan Hughes, Olivia Ledbetter
Oral Session
Funding received from the Drinko Center for Undergraduate Research

How Does Age of an Animal Influence Happiness?

It is important to study possible factors that could increase happiness and positive affect in order to aid in the prevention of depression and other mental illnesses caused by the pandemic (Solé, 2021). The present study aims to investigate whether people will report experiencing a more positive affect when shown images of juvenile verses adult aged animals. Participants for the study were gathered through MTurk. Each of the 200 participants were shown the same 18 images consisting of adult and juvenile cats, dogs and humans, in random order for 5 seconds. After 5 seconds, participants were prompted to measure 5 different emotions using a Likert scale (Myrick, 2015) 1-5. We expect to see participants having a greater positive affect when they are shown infantile images compared to adult images due to the BSE (Glocker, et al., 2009). We also expect that women in childbearing ages will report higher scores of positive affects to images of infantile animals (Blaauboer & Mulder, 2010).

John Daniels
Music Education
Faculty Sponsor: Melinda Crawford Perttu
Oral Session
Funding received from the Drinko Center for Undergraduate Research

A Brief History of the Double Bass

W The Foundation of an Orchestra, the double bass, is an instrument vital to the success of a professional symphony, jazz ensemble, and any other group that welcomes it to its ranks. A question arises, like much in our world, "How did this come to be?" I saw to answer that question, because unlike many others, it was not common knowledge to know the origin of this instrument. Spending time through the Drinko Center's Summer Research Fellowship, I was able to retroactively dive into centuries of Music History, to link what the double bass is today, to what brought it to be. I interviewed several Double Bass Scholars and even traveled across several states to talk with professionals in this area. I frequently corresponded with a Bass-specific historian, Paul Brun, who guided me in the direction to find the predecessor of this instrument. It is now my duty to educate my peers on its origin and use throughout time, so that we may have a better understanding of this ensemble cornerstone.

Iris Davis Hall
Public Communication and Leadership
Faculty Sponsor: Randy Richardson
Co-authors: Gabrielle Lucas, Peyton Mackinlay
Research Round Table

Gender and Political Rhetoric Roundtable

The 2020 presidential campaign cycle offers several glimpses into gendered political campaign rhetoric. Three student papers from COM 405 (Political Communication) in the Spring Semester of 2020 addressed issues related to gender and political communication in the current political context. Gabrielle Lucas explored the rhetoric of Senator Warren's presidential campaign in her paper, "'That's What Girls Do': Elizabeth Warren's Use of Feminine Style in her Presidential Campaign Rhetoric." Peyton Mackinlay waded into new political and rhetorical waters with his study, "Chastening Presidential Spousal Campaign Rhetoric: Chasten Buttigieg's Social Media and the Rhetoric of Republican Motherhood." Iris Davis Hall analyzed the rhetorical appeal of President Trump's appointee to lead the White House Faith and Opportunity Initiative, in her paper, "White's Faith in the White House: Parental Argumentative Style as Rhetorical Form in Paula White's Prosperity Gospel Rhetoric." .

Marissa Decker
Nursing
Faculty Sponsor: Joni Darby
Co-authors: Brittany Burns, Alex Caruso, Christina Kopnitsky, Alazia Greaves, Megan Parker, Jensen Houston, Allison Hampton, Gabrielle Diamond, Claudia Kamenski
Research Round Table

Quality Improvement Research in Nursing

In Nursing, quality improvement (QI) is the framework used to systematically improve ways that care is delivered to patients. Many QI projects lead into larger research projects that have far-reaching implications to nursing practice and health policy. Using the Plan-Do-Study-Act (PDSA) approach, a QI project begins with identifying a clinical practice problem, gathering benchmarking data, researching evidence-based practice (EBP), developing recommendations for change, implementing the EBP changes then re-measuring data to determine if a change in the outcome occurred. As part of the NUR 601 Nursing Capstone RN-BSN Course at Westminster College, senior nursing students are required to participate in a QI project. Examples of projects this year include "Reducing Surgical Site Infections in Normothermic Patients in the Operating Room", "Discharge Instruction Accuracy Following Same-day Surgery", and "Door to IV Thrombolytic Administration in the Emergency Room".

Grace Deschand
Accounting
Faculty Sponsor: Robert Zullo
Co-authors: Jason Hall, Baylee Horvath, Brock Lindsey
Poster Session

Clean and green is our perfect hotel dream

Whether you're traveling east or west, checking into a green hotel is the best. Each of the following hotel groups has made big strides over the past few years to make their group the most environmentally friendly. Providing power for sustainable driving and recycling materials such as soaps are just two of many different methods of sustainable marketing within hospitality. We have decided to investigate the following four hotels on their sustainability marketing; The Ritz-Carlton, The Hilton, The Four Seasons, and The Holiday Inn. Prices and qualities may vary, but the hotel industry is striving for the same goal, reducing the carbon footprint!

Marcus Diniaco
Biochemistry
Faculty Sponsor: Erin Wilson
Poster Session
Funding received from the Drinko Center for Undergraduate Research

The Effect of Molecular Crowding on the Function of Fetuin

The fascinating world of proteins has been the subject of a great deal of study, but these in vitro analyses may not accurately reflect the function of the protein in vivo. The goal is to determine how the function of fetuin, a protein that inhibits mineral deposition within the bone matrix, is impacted by the presence of crowding agents. In this experiment, the crowding agents are carbohydrate-based polymers. Performance will be measured by determining pH and calcium electrode concentration, and IR, TEM, and SAD will provide more information on the minerals that were formed.

Tiffany Eaton
Psychology
Faculty Sponsor: Sandra Webster
Co-authors: Tyler Dickson, Tiffany Eaton, Lindsey Oliver, Kaylee Stillwagoner
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Effects of Gender-Typed Advertisements on Memory and Purchase Intention

This experiment assesses the effect that gendered advertisements has on the memory of viewers. We predict that participants will recall less of an advertisement's content after viewing the gendered advertisements as opposed to the neutral stimulus. Three hundred participants will be evenly assigned to three conditions, in which each condition views three advertisements either stereotypically masculine, feminine, or neutral. Advertisements will be less than one minute in length and will feature razors, jeans, or yogurt. Participants will be assessed on free recall and cued recall of the advertisements, alongside their implicit gender roles. Participants will also be asked about their likelihood to purchase the products. We expect that the neutral group will have a greater recollection of the advertisements. These findings may show that gendered advertising is not as effective as intended. If companies want to sell more products, then a neutral advertising strategy should be used.

Hannah Fell
Mathematics
Faculty Sponsor: Natacha Merz
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Digital Forensics Labor Analysis for DHS and Law Enforcement

Cyberattacks are the fastest growing crime in the U.S. and they continue to grow in size and sophistication. The increase in these attacks across the nation has made digital forensics an important component of the criminal justice system. However, it can be challenging for professionals to manipulate, store, access, and use data in courtroom settings. To help avoid these challenges, digital forensics professionals should be properly trained and receive relevant certifications.

Hannah Fell
Mathematics
Faculty Sponsor: Natacha Merz
Oral Session

The Wedding Table Problem

Graph theory is a branch of mathematics that is very applicable to problems and situations of everyday life, since vertices typically represent objects and edges represent the relationships between them. What is known as the wedding table problem gets its name from issues that arise when seating people at weddings. Naturally, there will be conflicts between some guests, and it would be ideal to not seat those people at the same table. This research explored how to minimize conflicts between people based on a number of seating arrangements. The graphs or table arrangements that were researched include complete, star, friendship, wheel, and triangle grid graphs. First, each graph's chromatic number was determined, and then formulas were derived to determine the minimum

Breanna Ferguson
Neuroscience
Faculty Sponsor: Sherri Pataki
Oral Session

The Effects of Running on Stress and Academic Motivation during COVID-19 Pandemic

This research examined runners perceived stress level, academic motivation, and the perceived benefits of a single run during the COVID-19 pandemic. 16 undergraduate students were randomly assigned to a pre-run or post-run condition. All participants were asked to report their current level of stress, motivation, and reasons they participate in running activities. Paired samples t-tests showed that immediate benefits are present in the post-run condition versus the pre-run condition. This suggests that immediate benefits fade over time. These findings provide evidence that exercise is a valid way to reduce stress levels. Other findings show the post-run condition experienced higher scores for running motives than the pre-run condition. It will also contribute new information regarding sports and mental health during the COVID-19 pandemic.

Montana Ferita
Mathematics
Faculty Sponsor: John Bonomo
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Not Your Normal Fibonacci Sequence

The Fibonacci sequence is perhaps the most well-known sequence in the field of mathematics. In the Fibonacci sequence each element in the series is the sum of the previous two numbers. We will denote the first two numbers in the series as "a" and "b", where "a" is less than or equal to "b". Given a number "n" we seek to find the smallest positive value "b" such that "n" appears in the Fibonacci series starting with "a" and "b". One can determine "a" and "b" given "n" by performing an exhaustive search for various combinations of "a" and "b". We investigate quicker methods than this brute force approach for "n" values with certain properties.

Montana Ferita
Mathematics
Faculty Sponsor: Natacha Merz
Poster Session
Funding received from the Drinko Center for Undergraduate Research

An Agent-based Model of Pollen Competition in Arabidopsis thaliana

In 2016, Swanson et al. showed that when an Arabidopsis thaliana stigma is pollinated with equal amounts of pollen by two accessions, Columbia and Landsberg, Columbia pollen sire disproportionately more seeds. Previous experiments have investigated nonrandom mating by examining how pollen performance traits such as proportion of pollen germinated, time to germination, and pollen tube growth rates differ between these two accessions. In addition, bioenergetics, such as the energy supplied to pollen tubes from the pistil during fertilization, likely also magnify competition. Using an agent-based model, we aim to identify the traits that cause pollen from one accession to sire more offspring than pollen from another accession and to what extent these traits contribute to this process. We calibrate our model against a number of parameters from empirical data to observe the output of seed siring proportions from mixed pollinations; we compare these values to those found in the literature.

Garrett Garlock

Political Science
Faculty Sponsor: Michael Aleprete
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Terrorism's Impact on Individual Participation In African Civil Society

Every year more people die from terrorism in Africa than anywhere else in the world. Some of the most notorious terrorist organizations and attacks have occurred in Africa. Terrorist attacks throw communities into disarray and severely impact the individual victims of a community. Previous research suggests that victim's behavior after traumatic events such as terrorism can vary greatly. My research strives to understand how individuals participate in civil society after experiencing terrorism. Utilizing a linear regression model, analysis of the 2016/2018 Afrobarometer data set suggests, individuals who experience high levels are terrorism are more likely to participate in civil society.

Jackson Gastmeyer
International Studies
Faculty Sponsor: James Rhoads
Poster Session

Partisan Over Individuality: An Investigation Into The Influences of Symbolism

In this research involving political psychology, focus groups and Q methodology were utilized to determine feelings and extract opinions and positions on participants regarding symbolism and partisanship. Research was directed at examining the source of this division and one likely source of that was the pattern of individuals deferring to their party for a position on an issue and adopting that position rather than that individual relying on their own independent conclusions and decision-making. The influence of symbols was included as well, due to the significance they have in society. Following the focus groups and analysis of the data provided, Q methodology was used. A Q sample was made, derived from the various statements made during the focus groups, to reveal the polarity of stances and viewpoints of participants. The results allow for speculation and examination into the sources of this polarity, with the driving force of symbols being the essential undertone in the study.

Emily Gellatly
Political Science
Faculty Sponsor: Angela Lahr
Co-authors: Emily Gellatly, Hannah Westwood, Kendal Ashman, Rob King
Research Round Table

Issues of the 1977 National Women's Conference

The National Women's Conference in Houston in 1977 was a major milestone in the development of the Women's Liberation Movement. Like other political conventions, delegates at the National Women's Conference debated a platform of issues. This roundtable will address some of those issues, which included the Equal Rights Amendment (ERA), lesbian rights, employment rights, and the National Plan of Action that resulted from the conference. Emily Gellatly will describe the ERA and lead discussion about its merits. Hannah Westwood will lead discussion about the lesbian rights issues addressed at the conference. Kendal Ashman will lead a conversation about employment rights as they were debated at the conference, and Robert King will discuss the National Plan of Action.

Alexandru Georgescu
Computer Science
Faculty Sponsor: John Bonomo
Performance

Implementing Voice Recognition and Object Detection through Deep Learning on a 3-wheeled Robot

Deep Learning is an relatively new and rapidly growing field of Machine Learning. It has been used in multiple application areas, whether it be through extremely effective online advertising to self-driving cars. My presentation will showcase the implementation of Voice Recognition and Object Detection Deep Learning models which will be embedded into a tri-wheeled robot. The robot will be able to execute basic commands and recognize certain objects. Additionally, I will discuss my methodology and expound upon ways to try to improve the performance of the algorithms.

Morgan Gossard
Biology
Faculty Sponsor: Marosh Furimsky
Oral Session

Observing the Role of Cocaine Hydrochloride on the Behavioral Development of Zebrafish Larvae

Cocaine is a strong, highly addictive stimulant that binds dopamine & serotonin neurotransmitters, causing these hormones to remain in the synaptic cleft for extended periods of time. Because of its stimulant nature, it can trigger periods of hyperactivity in a user & cause unusual behavioral responses. To study this hyperactive response to cocaine, a study was conducted using zebrafish as the model organism to observe their behavior in response to cocaine hydrochloride. 96 zebrafish embryos were divided into four different cocaine hydrochloride treatment groups to determine their behavioral responses to external stimuli. Four different assays were used to produce data from each treatment group for tactile responses, light responses, swimming patterns, and environmental preference. Results indicate that cocaine decreases zebrafish light response & irregulates swimming patterns but does not significantly affect tactile response & environmental preference.

Morgan Gossard
Biology
Faculty Sponsor: John Roberston
Co-authors: Angela Birckbichler
Poster Session

Spironolactone Might Just Spare Your Heart… And Your Face!

In 2020 in the United States, there were 6.2 million adults with heart failure and nearly 108 million adults with high blood pressure. Spironolactone is a diuretic that leaves potassium in the blood and has been shown to reduce morbidity and mortality in individuals with congestive heart failure. It can be effective in treatment of high blood pressure in individuals who are unresponsive to traditional blood pressure medications. Spironolactone is also prescribed off-label for treatment of persistent acne in adult females who have not responded to traditional antibiotic and topical treatments. Spironolactone may reduce acne lesions by decreasing growth of oil producing cells and inhibiting oil production. The objectives of this review are to educate about the functions and clinical applications of spironolactone for treatment of cardiovascular diseases including congestive heart failure and high blood pressure, as well as persistent acne in adult females.

John Granahan
Sports Management
Faculty Sponsor: Robert Zullo
Co-authors: Ben Romah
Poster Session

“That Ball is Going, Going, Green!”: Sustainability in the MLB

In the 21st century, sustainability should be at the front of several companies and industries priorities, including professional sports. According to the MLB, the league are frontrunners of sustainability in American professional sports. This study will focus on four MLB teams (the San Francisco Giants, the Seattle Mariners, the Los Angeles Dodgers, and the Washington Nationals) and what they have been doing to help our planet. From water conservation to carbon emissions to energy efficiency, we will study how these teams are doing their part in proper sustainability. Our analysis of these teams and their facility sustainability will provide an insight on the current efforts of the league and potentially proposing these ideas to other franchises to set the bar for what needs to be done to make our world a much better place. Visit our poster to learn more.

Bailey Griffith
Psychology
Faculty Sponsor: Jessica Rhoads
Co-authors: Hannah Roddy
Oral Session

Self-Concept and Peer Relationships as Possible Mediators for the Relationship Between ADHD and Drinking

Attention-Deficit/Hyperactivity Disorder (ADHD) is associated with more frequent and problematic alcohol use in adolescence and adulthood. This study aims to assess the relationship between ADHD and drinking, specifically looking at self-concept and peer relationships as possible mediators. Participants will include college students (ages 18-25) recruited through an online crowd sourcing website, Mechanical Turk. They will complete self-report measures that assess ADHD symptoms, executive functioning, impairments, peer relationships, self-concept, and drinking habits. It is hypothesized that a) college students with symptoms of ADHD will abuse alcohol more frequently, b) self-concept will mediate the relationship between ADHD symptoms and alcohol use, and c) peer relationships will mediate the relationship between ADHD symptoms and alcohol use. Results from the present study will inform prevention and treatment strategies for alcohol-related difficulties among individuals with ADHD.

Jason Hall
Business Administration
Faculty Sponsor: Eric Gaber
Co-authors: Brooke Powell, Dino D'Alesio, Tyler Dahlkemper, Nathan Kraus
Poster Session

3D Printer Business Diversification Research

Juggerbot 3D is a company out of Youngstown, OH that builds and sells industrial 3D printers for companies of various industries. The students within this group spent over a month working on marketing research for the business, which included scouting in different states for potential new clients.

Amir Hassan
Biology
Faculty Sponsor: John Robertson
Poster Session

Student Analysis of Septic Shock- "Its About Time"

The objective of this work is to understand the life-threatening dysfunction of persistent hypotension known as septic shock. Originally defined in 1914 by the German physician Hugo Schottmuller as "Septicemia - a state of microbial invasion from a portal of entry into the blood stream which causes sign of illness," our knowledge of the exact nature of sepsis/septic shock has expanded. We now know septic shock as the result of excessive activation of host defense mechanisms, rather than the direct effect of microorganisms, as once thought. All serious bacterial infections at any site in the body usually result in considerate changes, but an important distinction is that shock manifests as inadequate perfusion to major organ systems, eventually progressing into organ failure if not treated. Reviewing current literature, it is blatant that the public is naïve to the dangers of septic shock. With a 40% hospital mortality rate, it is crucial this work clearly surmises this shadowy menace.

Amir Hassan
Biology
Faculty Sponsor: Marosh Furimsky
Poster Session

Effects of Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA)

The objective of this work is to understand the life-threatening dysfunction of persistent hypotension known as septic shock. Originally defined in 1914 by the German physician Hugo Schottmuller as "Septicemia - a state of microbial invasion from a portal of entry into the blood stream which causes sign of illness," our knowledge of the exact nature of sepsis/septic shock has expanded. We now know septic shock as the result of excessive activation of host defense mechanisms, rather than the direct effect of microorganisms, as once thought. All serious bacterial infections at any site in the body usually result in considerate changes, but an important distinction is that shock manifests as inadequate perfusion to major organ systems, eventually progressing into organ failure if not treated. Reviewing current literature, it is blatant that the public is naïve to the dangers of septic shock. With a 40% hospital mortality rate, it is crucial this work clearly surmises this shadowy menace.

Bryce Hayes
Engineering Physics
Faculty Sponsor: Craig Caylor
Poster Session

Two-Dimensional Heat Flow Apparatus

Using a metal apparatus composed of a grid of temperature sensors, we quantitatively measured the real-time two-dimensional flow of heat and compared it to a simulated model of the same initial conditions. Real-time temperature data was collected by an Arduino Uno, and our simulated model was written in Python.

Michaela Hays
Computer Information Systems
Faculty Sponsor: John Bonomo
Poster Session

A Data Analysis of Allegheny County COVID-19 Data

We consider data from the Western Pennsylvania Regional Data Center from March-October of 2020. We examine the data to visualize trends in COVID-19 testing across neighborhood municipalities and test results across various ethnic groups. In addition, the visuals created will be subject to usability testing. We will analyze the data gathered from usability testing to determine the efficiency, usefulness, and functionality of the visuals.

Mary Henningsen
Marketing and Professional Sales
Faculty Sponsor: Keith Bittel
Poster Session

How Covid19 has affected the Sports Industry Economically?

How did the Covid19 affect the Sports Industry economically? The global pandemic has affected multiple industries especially the sports industry, on both professional and amatuer sides. My goal of my research is learn and conclude on how the sports industry has been affected economically and to find a way to help solve the problem.In my research I will be researching how the Business side of the Sports Industry has been affected economically by the global pandemic. For my research I will be using articles written about how the sports industry has suffered due to the pandemic and records and reports of financial findings of the past year. Within in my research I hope to identify the a potential solution to the problem or way to help companies or organization regain their financial stability through my research.

Timothy Hering
English
Faculty Sponsor: Deborah Mitchell
Oral Session

Jammin' with Langston Hughes: A Symphony of Truth in Black America

This combined English and Music Capstone explores how Langston Hughes integrates jazz into the sociopolitical discourse in his poetry, not only as a lyric but through the jazz aesthetic and as a recognizable form of music. The project traces Hughes's evolution as an art poet from the 1920s through the Civil Rights Movement by looking at his works, "The Weary Blues," "Fine Clothes to the Jew," "Montage of a Dream Deferred," and "Ask Your Mama:12 Moods for Jazz using a cultural frame. Hughes often wrote about lynching, oppression, and white supremacy, and the creative portion of this project uses his life and his works as inspiration. It explores themes of ageism, racism, and homophobia in works of poetry, prose, a screenplay that envisions a world where Hughes had been born in the twenty-first century, and a multimedia presentation inspired by the Black Lives Matter movement that includes a flugelhorn performance of Billie Holiday's song "Strange Fruit."

Caroline Hess
English
Faculty Sponsor: Trisha Cowen
Oral Session

Miracle Writers: Evolution, Influence, and Purpose of Magical Realism

Due to European colonialism, the canon of literature used in academia has historically been comprised of works by white men, thus erasing the stories of colonized cultures. Yet in the early twentieth century, Latin American authors developed the narrative form of magical realism, and the style has since been adopted by writers around the world as they attempt to explore the effects of colonialism. Through textual analysis of The House of the Spirits (1982), One Hundred Years of Solitude (1967), and Midnight's Children (1981), this paper will attempt to discover the relationship between oppression and imagination and determine how this style can be used by authors writing in diverse cultures. Ultimately, analysis of these three novels proves that magical realism allows audiences to engage on a deeply emotional level with modern political conflicts and understand them from a post-colonial point of view.

Faith Howell
PreK-4 Early Childhood Ed/PreK-8 Spec Ed
Faculty Sponsor: Sararose Lynch
Co-authors: Taylor Young, Amanda Vickless, Erin Kennedy
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Does Pretty Mean Productive?

Due to a rise in the use of one-to-one technology devices, educators are turning to online learning platforms to utilize in their classroom instruction. It is essential that teachers examine the educational value of the resources rather than rely on popularity and aesthetics. This session will share the results of a study examining the cognitive demand of online learning resources for elementary teachers and inform educators how to apply this process in their own classroom.

Hannah Hunter
Biochemistry
Faculty Sponsor: Jessica Sarver
Oral Session

Purification of Alpha-Synuclein Protein for Membrane Binding Studies

Alpha-synuclein (aSyn) is a small, disordered protein that undergoes large conformational changes when bound to lipid membranes. It has been observed that aSyn binds to vesicles by interacting with the hydrophilic heads of lipids. However, much about the mechanism of this process remains unknown. In ESR spectroscopy, a spin label is attached to a cysteine in the protein, and the mobility of that label is measured. This allows us to gain structural information about the protein. In order to prepare aSyn for spin label attachment, it must be mutated to contain a cysteine, expressed in E. coli cells, and purified using an affinity column. aSyn expression and purification in the Sarver lab has decreased over the years, and my research aims to identify the cause of this problem.

Mackenzie Hupp
Psychology
Faculty Sponsor: Randy Richardson
Co-authors: Evan Brochinsky, Izayah Bojanac ,Iris Davis Hall, N/A Dunn, Anna Grimenstein, Lexi Koslosky, Kiana Miles, Lindsey Oliver
Perfomance

Public Exhibition Parliamentary Debate

Parliamentary Debate is a civil style of debate generally associated the British Parliament. It features an extemporaneous style which means the debaters are not aware of the topic to be debated until approximately 20 minutes before the debate. Students in the HON 204, Argumentation & Advocacy class in the Fall of 2020 learned the practice of parliamentary debating. They are joined by two students from the Westminster Speech & Debate Society in providing a public exhibition debate. The contest will feature a topic that emphasizes some aspect of academic life in ur contemporary context.

Mackenzie Hupp
Psychology
Faculty Sponsor: John Roberston
Co-authors: Lexi Radinick, Emma Bradley
Poster Session

An Analysis of Student Knowledge of and Attitudes Toward COVID-19 Vaccinations

The Center for Disease Control and Prevention estimates more than 500,000 Americans died from the SARS-CoV-2 virus. In 2020, this virus lacked an immunization to effectively combat the antigen, but recently, scientists developed vaccines that may help reduce the virulence and transmission of the virus. With conflicting scientific statements about the virus, public confusion persists. This study will aim to examine Westminster campus knowledge regarding the virus and its immunizations. To analyze the extent of knowledge and personal views, we will create an online survey, which will be administered via email. The survey will investigate demographics, knowledge of COVID-19 symptoms, knowledge of the current available vaccinations, and scales measuring individual attitudes toward immunizations and pandemic-related behavior on campus. We hope this study will provide data that supports a relationship between accurate knowledge of the virus and the support of SARS-CoV-2 vaccinations. ow to apply this process in their own classroom.

Nicholas Iregui
Business Administration
Faculty Sponsor: Robert Zullo
Co-authors: Romano Veneziano
Poster Session

The Three Pillars of Sustainability: Pitch, Pint, and the Premier League

Soccer has been the world's most popular sport for decades, and England, having the most popular league in the world, has been there from the beginning. Knowing this, they have decided to take the lead in European soccer sustainability tactics and lead the movement towards a greener sport. The four clubs at the top of this movement are Tottenham, Arsenal, Liverpool, and Southampton. These four clubs have adopted sustainability as a main idea that they follow in their stadiums, practice facilities, and travel procedures. This has catapulted a global movement for other clubs to join the fight to stop climate change and have shown tremendous growth over the last few years with more yet to come. Our poster will examine these clubs in greater detail.

Antonino Itri
Accounting
Faculty Sponsor: Jesse Ligo
Co-authors: Cameron Mika, Paull Midili
Oral Session

Insurance 101: Plan Now, Thank Yourself Later

The researchers are going to study the best way to plan insurance for life after graduation. The researchers will help hypothesize the best financial and logistical insurance plan for post-graduate individuals. This presentation will encompass all types of insurance ranging from auto to life insurance. Researchers will collect data by analyzing different insurance companies, plans provided by companies, and the cost benefits of each plan. The purpose of this presentation will be to enlighten individuals on insurance needs and options that will be available to them at affordable prices. This presentation will be geared towards individuals that do not receive employer insurance benefits and have to purchase their own types of insurance. Researchers will display the importance of each type of insurance and specifically which types of insurance are necessary for post-graduate individuals heading into the workplace.

Antonino Itri
Accounting
Faculty Sponsor: Keith Bittel
Co-authors: Cameron Mika, Jack Quinn
Oral Session

Recycling: Do Your Part, Help Others

Across the country, communities have severely struggled with creating efficient and feasible ways to recycle plastic waste. ENACTUS' plastic lid recycling project is bringing awareness to the lack of plastic waste recycling. The researchers are going to study the best ways to increase plastic recycling, and find new economically viable uses for plastic waste. Researchers want to find a way to promote plastic recycling within the New Wilmington community. The researchers hypothesize that the lack of availability to recycle has emphasized the minimal participation by community members.

Paul Gonzalez
Business Administration
Faculty Sponsor: Robert Badowski
Co-authors: Tyler Greene
McKelvey Campus Center Witherspoon, 12:30-1:30 p.m.

Aggression between Majors

The research will measure aggression among Westminster students, comparing student's aggression between different majors. Research will be conducted through the Buss Perry Aggression Questionnaire, where aggression will be measured in five different categories: Mental, Verbal, Hostility, Anger, and Physical. Researchers will collect quantitative data and differentiate which major is inclined to have students that are more aggressive than others.

Constantine Kallaur
Individual Interdisciplinary
Faculty Sponsor: Bradley Weaver
Video Session

Imagine a Quest

For this presentation, I will be screening my trailer for "Imagine a Quest". This is the name of my capstone short film that will be in production over the summer and throughout the fall semester. The story that will be featured in this short film is about a young boy named Peter who's older brother Ethan leads him and his friends on imaginary adventures in the woods. When Ethan passes away, Peter leaves the imaginary adventures because of the loss. His friends will help him deal with the grief and help him return to the adventures because there is one left that Ethan created.

Sophia Kaplan
Neuroscience
Faculty Sponsor: John Robertson
Co-authors: Olivia Droese, Bailey Kurdys
Poster Session

Knowledge and Attitudes of College Students of Human Papillomavirus Infection and Immunization

Human Papillomavirus Infection (HPV) is a common sexually transmitted infection that can be contracted by individuals of any age group but is especially prevalent among adolescents. The CDC estimated that around 48 million individuals became infected with HPV in 2018 in the United States alone. HPV can lead to health issues such as cervical cancer in females and other forms of cancer in both male and female individuals, as well as other lesser symptoms such as the development of genital warts. An effective way to prevent HPV infection is to receive a vaccination which is recommended by the CDC for individuals between the ages of 11 and 26. This study will explore the existing knowledge and attitudes of college aged individuals surrounding the topic of HPV and the HPV immunization. Data will be collected through an online survey and will be analyzed in the hopes of providing a foundation for further research and/or education on this topic and specific age group.

Nicholas Kearney
Biology
Faculty Sponsor: Joseph Balczon
Poster Session
Funding received from the Drinko Center for Undergraduate Research

Antibiotic susceptibility of Escherichia coli isolated from Amish and industrialized dairy cattle

Subtherapeutic levels of antibiotics in agricultural animal feed has allowed multi-drug resistant (MDR) bacteria to emerge within livestock, which proliferate into humans and the environment. Our objective was to determine whether Escherichia coli (E. coli) isolates from industrialized dairy cattle had lower susceptibility to tylosin, penicillin G, and doxycycline compared to isolates from Amish farms. Diluted fecal samples were inoculated onto eosin methylene blue (EMB) agar, and E. coli colonies were identified. A quadrant streak was performed to obtain a single colony for susceptibility testing. A disk-diffusion was conducted, and viable counts were analyzed on antibiotic EMB plates. No significant differences in susceptibility between sites were detected. Monitoring MDR of pathogenic microbial species in agriculture will allow for targeting of resistant species at the source, as well as an effective strategy for larger sampling within agriculture and the surrounding environment.

Christian Keegan
English
Faculty Sponsor: Deborah Mitchell
Oral Session

Buried Between the Lines: The Binary Lives of Elizabeth I and Mary, Queen of Scots in Letters

Queen Elizabeth I of England and Mary I of Scotland had a dynamic, tumultuous, and complicated relationship that played out in a series of letters. Having never met in person, and their relationship continually being shrouded in mystery and conspiracy theories, my research uncovers some essential truths of their relationship as well as three main binaries, buried in their letters, that are key to understanding who they were in comparison to one another. The two women never met in person, despite some popular adaptations in film and on the stage, and their letters are handwritten relics of a relationship so important and surprising. Combining their letters and both historical and social contextual elements of England and Scotland at the time, my research dives into the pressures, both political and personal, that plagued the two women and exposes 3 binaries that shine a new light on their fascinating relationship.

Cheyenne Keith
History
Faculty Sponsor: Patricia Clark
Oral Session

Immortality of Louis XIV

Immortality is often a foreign concept because no person can truly live forever; however, people can live through their accomplishments well after being pronounced dead. Through this process these people will become idolized and almost god-like. The French Monarchy is no stranger to immortality. Their Kings strongly believed they were immortal and in return the monarchy will last forever. The creation of Louis XIV's image and his actions heavily implicate this concept. By demolishing the carefully curated image of the Sun King through analysis of myth and paintings of Louis XIV; an insight into Louis XIV's public persona will be provided. The comprehension of Louis' image stems from elements in cultural anthropology painting and political analysis. These elements will provide the necessary information for a theatrical interpretation of the immortality of Louis XIV. To hopefully allow us to better understand the man behind the image.

Collin Kelly
Sports Management
Faculty Sponsor: Robert Zullo
Co-authors: Bre Tetirick
Poster Session

Green Madness: Marching into a Game Day of Sustainability

Sustainability is becoming increasingly important, not only among businesses, but also in the world of collegiate athletics and their facilities. Several universities, including Texas A&M, UCLA, and Bentley University are taking initiative in creating and maintaining sustainable facilities to host their athletics. This could limit carbon-producing transportation of teams and fans, food consumption, and waste production. Schools could benefit financially from investing in sustainable facilities, allowing them to have deeper connections among the fans and provide a safe environment for both the players and spectators. Their goal is to promote environmental awareness while protecting athletics and their future, providing a safe environment for players, coaches, and fans to enjoy athletic events. These universities utilize their football, basketball, baseball, and hockey facilities to shape the future of sustainable entertainment and college sports. Visit our poster to learn more.

Julie Kerlin
History
Faculty Sponsor: Russell Martin
Oral Session

The Women of the Virus Research Laboratory: The Hidden History of the Salk Vaccine through the Women who worked with Dr. Jonas Salk in Pittsburgh, PA from 1947 to 1955

Dr. Jonas Salk is known as an American hero who saved the nation when he developed the polio vaccine. His achievement was announced to the world on April 12, 1955. Dr. Salk was rightfully and universally praised, receiving the Presidential Medal of Freedom in 1977. But Dr. Salk did not work alone. Few of his coworkers were credited by Salk, at the time or in the wake of the announcement, and as a result the media and the public knew next to nothing about the eight-year-long collaborative efforts in Salk's Virus Research Laboratory (VRL). His coworkers and assistants were unknown then and have remained unknown for the last 65 years. This presentation, "The Women of the Virus Research Laboratory," brings to light the story of the unsung women who worked in the VRL and who were among the first major group of female scientists in American medicine. This prosoprographical study utilizes a range of unpublished and previously unknown material as a key source base to reconstruct the composition of the staff that worked in the VRL between 1947 and 1955. It identifies the women on the staff and their roles in the VRL and in the discovery of the so-called Salk Vaccine. This research retrieves these women from obscurity and shines an appropriate light on their work, arguing that the place of women in science in this country is, despite some popular perceptions, long, substantial, and worthy of discrete study.

Kelsey Kraft
Chemistry
Faculty Sponsor: Helen Boylan
Poster Session

Analysis of Cannabinoids in Over-the-Counter Hemp Products Using Reverse-phase Liquid Chromatography and Commercially Available Presumptive Tests

Recent government deregulations have provided an outburst of new hemp products in the consumer market. Regulations restrict the amount of tetrahydrocannabinol (THC) to under the limit of 0.3%, but there are no current requirements regarding cannabidiol (CBD) content. The purpose of this research was to test a wide variety of hemp products (oils, protein powder, gummies, lotion, and shampoo) and to verify CBD and THC concentrations. Analyses were performed using high-performance liquid chromatography (HPLC) using a C18 column and a gradient mobile phase of 0.1% formic acid in nanopure water and 0.1% formic acid in acetonitrile with UV detection. Presumptive test kits, based on colorimetry, were used to indicate the presence of THC and/or CBD in each product sample. Results demonstrate an extensive range of cannabinoid concentrations in these commercially available hemp products.

Emily Krinos
Biochemistry
Faculty Sponsor: Peter Smith
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Asymmetric Robinson annulation-epoxidation sequence

By way of a one-pot Robinson annulation-epoxidation sequence catalyzed by benzyltrimethylammonium hydroxide (Triton B), the (+)-octalone derivative, epoxydecalone (1), has been synthesized under mild reaction conditions in moderate yield. 2-Methylcyclohexanone and ethyl vinyl ketone were reacted under inert atmosphere at room temperature to obtain (+)-octalone. Simple computational studies indicate this intermediate is thermodynamically favored, but to further understand this stereoselectivity, mechanistic studies are ongoing. Tert-butyl hydroperoxide was then added to the (+)-octalone to accomplish the stereoselective epoxidation. The structure and absolute configuration of this product were verified by X-ray crystallography.

Bailey Kurdys
Biochemistry
Faculty Sponsor: Patrick Lackey
Poster Session

Cloning and Purifying Histone mRNA's Stem-Loop Binding Protein

Histone mRNA is the only known metazoan RNA that ends in a conserved stem-loop rather than a poly(A) tail. Histone proteins, transcribed from histone mRNA, are responsible for tightly compacting newly synthesized DNA into chromosomes during mitotic division. Bound to the 3' end of the stem loop, the stem-loop binding protein (SLBP) is required for the export, stability, and translation of mature histone mRNAs. SLBP must be bound to histone mRNA to initiate all steps in metabolism, regulating synthesis and degradation. To further understand SLBP's role in histone mRNA metabolism, SLBP's RNA binding domain (RBD) can be expressed for use in studies with histone mRNA and its degradation intermediates. SLBP's RBD can be cloned into an expression vector to utilize a histidine tag for SLBP's purification through a nickel column.

Kara Kutsch
Biology
Faculty Sponsor: Kerri Duerr
Poster Session

American kestrels vs. European starlings: Kestrels win when competition for nest sites is reduced

The American kestrel, a falcon, is experiencing population declines in Pennsylvania potentially because of direct competition for nest sites with the invasive European starling. To determine whether competition with starlings limits kestrel population density, we performed a field-removal experiment of starling nests during 2019-2020 using 50 nest boxes. We eliminated starling nests from boxes before egg incubation began, and tracked whether kestrels initiated clutches in boxes where starlings were removed within each year. In both years, kestrels used about 30% of boxes and starlings used about 50%. Turnover from starlings to kestrels was low in both 2019 (3 boxes) and 2020 (4 boxes). Starling removal likely benefited kestrels who attempted clutches early in the season elsewhere and failed, or inexperienced, late-breeding individuals, indicating that intervention to remove competition could help increase numbers of kestrels recruited into the regional population.

Mark Lanterman
Business Administration
Faculty Sponsor: Robert Zullo
Co-authors: Kyle Fenton, Dakota Hill, Andrew Allender
Poster Session

How the Alcohol Industry is Making your Drink Greener

When it comes to vodka a brand called Absolut Vodka is making your drink as green as possible and it wants its consumers new and old to know. Just recently Absolut came out with a vodka bottle for its 2021 series that was made of sixty percent of recycled glass. Making whiskey only takes a handful of hours, but the aging of the product can take years. Brown-Forman is finding ways to reuse rye for farmland, reduce wasting water, and cut back greenhouse gases by 15%. Anheuser-Busch is the premiere leader in greener beer. Through sustainability they have committed to protecting the environment across their entire supply chain, from seed to sip. Teremana Tequila is a small up and coming tequila brand. While still making a great tasting tequila this company has also pledged to be environmentally friendly. They have a water filtration system that reduces water waste and all left over agave is reused into compost. Come learn more about these green drinks by stopping by at our poster..

Carinna Lapson
Engineering Physics
Faculty Sponsor: Craig Caylor
Poster Session

Constructing and Comparing a Simple Wireless Charging Transmitter to a Commercial Model

Wireless charging has seen a dramatic increase in commercial importance within the past decade. Surprisingly, however, wireless charging from a transmitter to receiver is little more than an inductor in series with capacitors for both charging components. I built a wireless charger transmitter with “off-the-shelf” electronic components and compared its performance to a commercially manufactured transmitter by measuring the charging pad’s power transferred to a receiver unit.

Corrine Larson
International Business
Faculty Sponsor: Jeffrey Bersett
Oral Session

International Trade in Spain

International trade policies in Spain have evolved over the years from the Franco Period to the present. These changes have affected the country’s economy as well its social and political policies. When comparing trade policies between Spain and the U.S. it is clear that each country has its own regulations for international trade. During the Franco Period they were not worried about international trade as much, as they wanted to focus on their own country. However, after the Franco Period, Spain started to focus more on international trade to help increase its GDP. This presentation will examine these points, and show different regulations for international trade, such as customs and tariffs, can impact a country’s economy.

Riley Lewis
Sports Management
Faculty Sponsor: Robert Zullo
Video Session

An Interview with Dr. Maura Murphy, Associate Athletic Director for Development, Ohio State University

The interview will consist of a discussion with a female senior level athletic administrator from a major Big Ten Conference institution, exploring the challenges of being a woman in athletics. This will include conversation on the glass ceiling and how she has broken through that unseen barrier in a revenue generating role. She will also be talking about the impact of COVID-19 on her ability to fundraise. This includes the Big Ten Conference's initial decision to not play football as well as the conference permitting games to start in October 2020. Dr. Murphy will also discuss the process of how she earned her doctorate while balancing a full-time job in athletic administration at Ohio State University. This session will help inspire women interested in a career in sports business, especially within senior level positions in intercollegiate athletics. It will also share how COVID-19 impacted fundraising within a Power Five school.

Riley Lewis
Sports Management
Faculty Sponsor: Robert Zullo
Video Session

An Interview with Stephen Keener, President and Executive Director of Little League

This interview will explore how Little League is continuing to grow the game in an era when there are more sports and entertainment options for children and youth than existed in previous generations. The conversation also presents the opportunity to discern what steps Little League is taking to foster greater diversity opportunities in the game. Mr. Keener can also share insight into how Little League had to adjust to COVID-19, especially as it relates adhering to guidelines both domestically and internationally. Finally, he can share recent or future strategies Little League is utilizing to retain strong brand recognition and popularity. This session will present viewers the opportunity to learn more about a well-known and well-respected youth sports organization, especially as it has adapted to changing times, external factors and a global pandemic.

John Lima
Physics
Faculty Sponsor: Craig Caylor
Poster Session

Mechanics of Two Pendulums Connected by a Stressed Spring

From the notifications from your cell phone, to speech and music, and even all the way to temperature, vibrations rule our everyday life with their complicated dynamics. Taking a focused look at a simpler system such as one consisting of two pendulums connected by a stressed spring, we can gain a helpful insight in understanding motion in other coupled systems. Utilizing small angle approximations we theoretically describe this system's oscillations and compare our results to the physical system. Finally, we analyze the normal modes of this system and compare this physical system to a computational model.

Chris Lisella
Music Education
Faculty Sponsor: Timothy Winfield
Co-authors: Tim Hering, Hunter Hoag, Liz Galligan, Matt Claypoole ,Madison Mueller-Howell
Performance

Westminster College Trumpet Ensemble

The Westminster College Trumpet Ensemble will be Performing Various works Including: Destiny's Call by Dustin Williams for 6 Trumpets Antiphon for Trumpets by Stan Pethel for 6 Trumpets and other Trumpet Works

Chris Lisella
Music Education
Faculty Sponsor: Andrew Withington
Co-authors: Izayah Bojanac, Dan Horgan, Avery Glisson, Tanner Smith, Jake Tanner
Performance

Westminster College Barbershop Club

Barbershop Club will be singing various pieces including: MY WILD IRISH ROSE Floyd Connett SWEET AND LOVELY (THAT"S WHAT YOU ARE TO ME) Mac Huff And other popular Barbershop music

Alexes Loslosky
Biochemistry
Faculty Sponsor: Erin Wilson
Poster Session
Funding received from the Drinko Center for Undergraduate Research

Combining slippery liquid infused porous surfaces and quorum sensing inhibition to reduce biofilm formation of Pseudomonas aeruginosa

A microporous, poly(butyl methacrylate-co-ethylene dimethacrylate) (BMA-EDMA) coating with the addition of aspirin has been prepared to inhibit the biofilm formation of Pseudomonas aeruginosa. The BMA-EDMA coating alone increased the attachment of bacteria when tested against a clinical strain of Pseudomonas aeruginosa (PA14), opposing previous literature. The mixed results indicate a need for an additional approach to reduce biofilm formation. This research focuses on the addition of aspirin as a quorum sensing inhibitor into the BMA-EDMA co-polymer to reduce the surface coverage of biofilms using both anti-fouling properties and quorum sensing inhibition.

Anna Lutz
Biology
Faculty Sponsor: Joseph Balczon
Poster Session

Abundance of Algivorous Ciliated Protozoa Over Time in Artificial Microbial Communities

Algivorous ciliated protozoa are an important organism in aquatic ecosystems. They provide important nutrients to the aquatic food web. In this study, ciliates were collected using artificial substrates from a local water source over a period of 14 days to estimate the change in the number of algivorous ciliates colonizing over time. The feeding algivorous ciliates were compared to the total number of ciliates found in each sample. The goal of this study was to determine how the abundance of algivorous ciliated protozoa changes over time. The results of this study showed that the number of feeding ciliates increased during the ecological succession in the artificial microbial communities. There was a significant difference between feeding and nonfeeding ciliates after three days. This change could affect the structure of the subsequent algal community due to the high number of feeding ciliates and their effect on available nutrients and algae population within the community.

Nicole Mackenstein
Biochemistry
Faculty Sponsor: Patrick Lackey
Co-authors: Morgan Shine
Poster Session

Molecular dynamic simulations of folding and dimerization in mutations found in the s2m motif of SARS-CoV-2

SARS-CoV-2, the virus responsible for the COVID-19 pandemic, contains a highly conserved stem-loop within the 3' untranslated region called the s2m motif. Evidence suggests that the s2m motif plays a key role in replication and recombination of the virus. In SARS-CoV-2 we see slight differences in the s2m sequence from SARS-CoV-1, and the functional result of this mutation is unknown. We have also observed other mutations in the s2m motif commonly reported in COVID-19 patients in positions previously thought to be invariant. To better understand dimerization in the s2m region we used molecular dynamics simulations to analyze the folding of the mutant as monomers. Using AmberTools and NAMD, systems for the sequences were created, minimized, equilibrated, and then submitted for production. The results were aligned to the SARS-CoV-2 reference sequence using VMD and analyzed to find changes in thermodynamics, positions of the bases, and RSMD between the reference sequence and the mutants.

Kaylee Madey
Accounting
Faculty Sponsor: Keith Bittel
Oral Session

Climate Change

For my research paper and presentation, I will be completing further research climate change. Things that I will focus on with climate change is when and how it started, and things people can do to help stop it from making it worse. I will look at different articles to figure out different things people can do. I will compare and contrast different methods of reducing climate change, and analyse their benefits and drawbacks. This research is important because if we don't try to stop global warming from continuing, it can and will affect the world in so many different ways.

Dylan Magill
Marketing and Professional Sales
Faculty Sponsor: Eric Gaber
Co-authors: Bethany Edwards, Molly Frank, Nathan Kraus, Maya Steward, Madison Utiss
Poster Session

Market Research for Contagion Clear

Contagion Clear is a platform that is designed to help assess risk for yourself and people around you from possible contagion. The platform is transferable to any business with face-to-face human interaction. The students worked to help with research and development along with content creation for the company as a way to help businesses return to in-person functionality in a confident and safe manner.

Owen Meliander
Physics
Faculty Sponsor: Craig Caylor
Poster Session

Do You Hear What I Hear

For years, Orr Auditorium has contained the sound of its performers to the stage area instead of reflecting the sound out and into the audience. To combat this, the addition of sound-reflective fabric across the roof of the stage has been proposed. In this project, we tested the acoustic properties of a commercially produced fabric made for this purpose and compared it to other common fabrics to determine if the addition of this material would be a worthwhile investment.

Casey Mezerkor
Engineering Physics
Faculty Sponsor: Craig Caylor
Poster Session

Analyzing the Taylor-Couette Flow: A Demonstration that Appears to Break Entropy

Analyzing the Taylor-Couette Flow: A Demonstration that Appears to Break Entropy The Taylor-Couette demonstration shows the apparent unmixing of a dye placed into a viscous fluid. At first glance, this appears to break the Second Law of Thermodynamics as the entropy of the system looks as if it was reversed. A simple apparatus to show this effect was constructed by placing a viscous fluid in between two cylinders, the inner of which can freely rotate. Drops of dye are then carefully placed inside the fluid. By forcing the rotation of the inner cylinder, the dye appears to be completely mixed. If the rotation is reversed, however, the dye returns to where it was originally placed into the fluid. This effect is caused by some interesting consequences of fluid dynamics involving the relationship between inertia and the viscosity of a fluid, which this experiment aims to explain.

Cameron Mika
Accounting
Faculty Sponsor: Robert Zullo
Co-authors: Jack Quinn, Taylor Williams, Alex Mullen
Poster Session

We Would Rather Go Naked Than Harm the Earth: How Clothing Companies are going Green

The focus of our research will be looking at how different clothing companies have made commitments to sustainability and to the protection of the environment. The four companies that our research will focus on are Nike, Adidas, Patagonia, and The North Face. Each of the companies are very successful in their industry and have made commitments to their consumers to not only produce a great product but will create their product in a safer and more eco-friendly area. Our goal through the presentation is to inform our peers of the commitments made by these companies and how their overall missions are to make the planet cleaner and safer for all. Even though companies like Nike and Adidas are main competitors of each other, they have one common goal, to use sustainable practices.

Kiana Miles
Criminal Justice Studies
Faculty Sponsor: Randy Richardson
Co-authors: Izayah Bojanac, Evan Brochinsky, Iris Davis Hall, Harley Jane Hummel, Yiannoula Katsadas, Peyton Mackinlay, Katie Magee, Andrew Piatt
Performance

"A Celebration of 100 Years of Women's Suffrage: From Voice to Vote"

During a difficult time in our nation, it seems strange to be gathering during a pandemic to celebrate victory at a time when so many still struggle for full inclusion. As human rights, civil rights, gender rights, immigrant rights and even a woman's right to equality- including, once again, the vote, are questioned and attacked, it seems fitting that we should listen for the echoes of the very voices that led our nation through the struggle for women's suffrage a century ago and long before. And while we can't include them all, we hope that our compilation of excerpts from speeches, letters, periodical articles, books, a stage play and a screen play will serve as a witness, a warning, an inspiration, and a light to lead the way forward. "A Celebration of 100 Years of Women's Suffrage: From Voice to Vote"

Meghan Mills
Chemistry
Faculty Sponsor: Jessica Sarver
Oral Session

Growth and Purification of Alpha Synuclein

Alpha synuclein is an intrinsically disordered protein in the body, found primarily in the brain where it is used for vesical transport. This research project involves the expression and purification of alpha synuclein using Fast Protein Liquid Chromatography (FPLC) which is a pressurized method of separating proteins from one another. Specifically, alpha synuclein was purified using an ion exchange method. In this method, alpha synuclein was eluted with a sodium chloride gradient. Eluted fractions were run on an SDS PAGE gel to check the protein purity. To this point, the purification of alpha synuclein has been unsuccessful, however, work is being done to troubleshoot protein expression, the lysis method and the column viability. This work will contribute to the understanding of alpha synuclein in a physiological way as well as how it binds to lipid vesicles through biophysical measurements of the purified protein.

Claire Mock
Environmental Science
Faculty Sponsor: Helen Boylan
Poster Session

Chester, PA: A Case Study in Environmental Injustice

Chester, a city in Delaware County, Pennsylvania, within the Philadelphia Metropolitan Area, is one of the most well-known examples of environmental injustice. Many different chemical plants, waste sites, and incinerators are found in Chester, along a mile-long section of Front Street. The neighborhoods surrounding Front Street are primarily low-income and minority communities, but the main city of Chester is far-removed from this area. These incinerators and plants release noxious chemicals into the air and water supply, leading to respiratory issues. Since the 1990s, various organizations and law groups have been advocating for change in Chester, to no avail – the communities surrounding Front Street are still swamped by pollution.

Haley Moore
Neuroscience
Faculty Sponsor: Deanne Buffalari
Poster Session

The Reinforcement-Enhancing Effect of Nicotine on Reinstatement of Place Preference for Cocaine in Rats

The reinforcement-enhancing property of nicotine has the potential to promote use and abuse of other addictive substances. The current study examines whether nicotine enhances reinstatement of cocaine-seeking behavior using a place conditioning model. Adult male rats were administered cocaine in one compartment and saline in the opposite compartment of a place preference chamber. After preference of the cocaine-paired chamber was established, the preference was extinguished by daily testing without drug exposure. Reinstatement triggered by a priming injection of cocaine was assessed after a single injection of nicotine or saline. Animals demonstrated reinstatement of cocaine-seeking behavior; nicotine did not significantly increase reinstatement. The results of this study should facilitate further research on the reinforcement-enhancing effects of nicotine in order to understand the mechanism by which nicotine can potentially trigger relapse of cocaine and other addictive substances.

Jessica Nelson
Physics
Faculty Sponser: Natacha Merz
Oral Session

Modeling Uncontrolled and Controlled Covid-19 Spread Using Graph Theory

We explore the spread of Covid-19 through a graphically modeled population under a collection of control measures. The population is modeled with Python's Network-X and run through a simulated time progression, tracking infection rates, death rates, and time to herd immunity. We first consider standard control measures, such as social distancing, quarantining, etc. We next consider unique control measures developed using graph theory properties.

Jessica Nelson
Physics
Faculty Sponsor: Craig Caylor
Oral Session

Exploring Track Trigger Parameters for Exotic and Long Lived Particle Searches

CERN's ATLAS and CMS experiments were designed with prompt and standard model particles in mind. New desired searches, primarily for long lived particles (LLPs) and exotic signatures, demand new considerations in the design and implementation of hardware level track triggering algorithms. We look to find the collection of triggering parameters best suiting a wide range of signatures of LLP and exotic models. We explore the results for two such models: stable unclustered energy patterns (SUEPs) and displaced vertices.

Halle Nerone
Marketing and Professional Sales
Faculty Sponsor: Eric Gaber
Co-authors: Jocelyn Gillette, Nick Iregui, Nick Vicheck, Christopher Powers
Poster Session
Funding received from the Drinko Center for Undergraduate Research

Columbiana Counseling Center Market Research

The Counseling Center of Columbiana was founded in 1963 and focuses on providing "cradle to grave" counseling services. Due to their wide variety of offered services, they are considered ones of the most comprehensive counseling centers in the area. The students within this group have aided the counseling center in creating a slogan, a review of their website with suggestions for improvement, a splash page that can be used for physical and electronic brochures, and researched locations and points of contact for potential future clients.

Tyler Ness
Business Administration
Faculty Sponsor: Robert Zullo
Co-authors: Deondre McKeever, Maxwell Reamer, Noah Yates
Poster Session

Taste the Green: Sustainable Marketing in Restaurants

These four companies, Chipotle, Chick-fil-A, Starbucks, and Founding Farmers practice sustainability in the restaurant field to better the environment now and in the future. Chipotle ensures their food and animals are safe and sustainable, customers and farmers are pleased, and practices sustainable food policies to benefit the environment. Chick-fil-A has four main goals for sustainability in their restaurants. They're starting to build an LEED restaurant. They started to ask their suppliers to join the environmental movement. Starbucks is committed to offering high-quality, ethically purchased and responsibly produced products. They pride in creating opportunities for people to work, strengthen communities, and they lead in green retail. Founding Farmers stock their kitchen and bar with the freshest ingredients from sustainable farms. They want to make sure that the people are eating healthy by providing everything fresh and hand made from scratch.

Cassidy Nielson
Neuroscience
Faculty Sponsor: Deanne Buffalari
Oral Session

The Effects of Methylphenidate and Nicotine on Spatial Working Memory in Rodents

ADHD is a psychological disorder commonly diagnosed in childhood. Methylphenidate is a common medication used to treat ADHD. Nicotine is a substance of abuse commonly used for its self-medicating properties. There is a high rate of comorbidity to use nicotine while being treated with methylphenidate for ADHD in adolescence. Prior research suggests that the use of one or both substances could impact an individual's spatial working memory function. A reliable method for testing spatial working memory in rodents is using the radial arm maze apparatus. A rodent model was used in this study to test the effects of methylphenidate and nicotine on spatial working memory in adolescent rodents using the radial arm maze. The results suggest there was a decrease in spatial working memory function for rodents exposed to methylphenidate and nicotine in combination. The findings suggest that more research should be done in pursuing different avenues of treatment for individuals with ADHD.

Sammantha Parsons
Environmental Science
Faculty Sponsor: Helen Boylan
Co-authors: Izayah Bojanac, Ethan Brady, Brandon Cooper, Ethan Cunningham, Marcus Diniaco,Rena Duffy, Mark Eminhizer, Kaylee Hankins, Bella Hellmann, Miguel Joseph, Harris Kohl, Trevor McCabe, Nico McDonald, Braden Minteer, Jake Musselman, Joseph O'Brien, Megan Preisch, Hannah Pursel, Kate Sharp, Sara Small, Grace Snyder, Ashley Wire
Video Session
Funding received from the Drinko Center for Undergraduate Research

Chemical Analysis At-Home During the COVID-19 Pandemic

ES/CHE 231 Environmental Analysis is lab-based course that focuses on environmental applications of analytical chemistry. Students in this course normally complete a small research project as part of the lab using standard laboratory methods and common analytical instrumentation. Because of the COVID-19 pandemic and a small number of full-time virtual learners, the research project has been modified to focus on analysis experiments that can be completed at home using common household "chemicals." In a series of six video presentations, students will demonstrate these at-home experiments.

Brianna Pickens
Neuroscience
Faculty Sponsor: Deanne Buffalari
Poster Session

Effects of D-Amphetamine on Anxiety-like Behavior in Adolescent Zebrafish

Anxiety disorders are very prevalent in youth and adults worldwide. Of those diagnosed with attention-deficit hyperactivity disorder (ADHD), 25% are also diagnosed with anxiety disorders. D-amphetamine (Adderall) is a common treatment for ADHD. It is unclear whether or not d-amphetamine contributes to anxiety in ADHD. This research aims to identify if chronic d-amphetamine exposure during the juvenile stage affects anxiety-like behaviors long-term. Adolescent Danio rerio (zebrafish) were used as an animal model in the novel tank diving paradigm to study the effect of chronic d-amphetamine exposure on anxiety-like behaviors during adolescence in this study. Results demonstrated chronic d-amphetamine exposure increased anxiety-like behaviors in zebrafish which contradicted some previous research. The severity, duration, and anxiogenic or anxiolytic effects of d-amphetamine still need to be determined with further research on dose dependency, age, sex, and duration of exposure.

Sydney Pipo
Neuroscience
Faculty Sponsor: Deanne Buffalari
Oral Session

Effects of nicotine and methylphenidate on working and reference memory

The current study aims to understand the effects of nicotine and methylphenidate (MPH) use on working memory. Drug will be administered via injection and working memory function will be assessed using the radial arm maze. MPH is a psychostimulant prescribed to alleviate symptoms of Attention Deficit/Hyperactivity Disorder (ADHD). Nicotine, although a drug of casual use, is also believed to relieve ADHD symptoms. Because both drugs increase attentiveness and relieve hyperactivity, it is hypothesized that the combination will improve working memory function more effectively than MPH or nicotine alone. ADHD is a common neurodevelopmental disorder, with 63% of patients being medicated. Individuals with ADHD tend to experiment with nicotine earlier, become more dependent, and are more likely to progress to regular use than their neurotypical counterparts. Being that MPH and nicotine use often overlap in those with ADHD, it is necessary to understand the cognitive impacts of the combination.

Tsubomi Poley
Mathematics
Faculty Sponsor: Natacha Merz
Oral Session

The Firefighter Game Problem

The firefighter game problem is played on a connected graph where a fire starts on a vertex, v, at time, $t = 0$. At each subsequent time step, the fire spreads to the neighbors of v and a firefighter can be placed on a vertex that is on fire in order to "defend" it. Our goal is to optimally place firefighters on burning vertices on an $n \times n$ grid graph, such that we save the maximum number of vertices from burning.

Jack Quinn
Accounting
Faculty Sponsor: Jesse Ligo
Co-authors: Alec Rich, Antonio Porras
Oral Session

Student Debt Turmoil: A Growing Crisis

The average student loan debt per borrower exceeds $37,500, with an accumulative debt of nearly $1.6 trillion. The student loan debt continues to grow every year, as well as the number of delinquencies and defaults. We focused our project on the details of the growing debt, looking at the distribution based on demographic, the different types of loans and payment plans, and the growing amount of loans and loan interest. We also discussed possible solutions for lowering student loan debt, looking at student loan forgiveness through a political and fiscal lens. Our goal was to compile the basic information on student loan debt and student loan forgiveness so that the layman may be able to form an educated opinion, while highlighting the problem that the growing student loan debt represents.

Julia Redilla
Molecular Biology
Faculty Sponsor: Sandra Webster
Co-authors: Regan Kelly,Stina Shadel,Alex Turner,Molly Reilly
Orla Session

Examining Preconceived Judgements of Religions and Practices Based on Titles and Descriptions

The purpose of the study was to examine if people are prejudiced based on titles of certain religions or practices. 447 people from around the world participated in this study and were randomly assigned to two groups. The first group was given only names of six religions/practices and the second group was only given the definitions, omitting the titles. Participants were asked their opinion if a person in their family, political representative, or neighbor were to be a part of this religion/practice, and rate them based on a five point likert scale. It was hypothesized that preconceived notions of only names allows room for bias and prejudice towards them. A repeated measure ANOVA was used to produce the statistical results. These results showed that people were less biased when presented with people's beliefs rather than the name of their practices. To overcome these biases, people need to understand that how they view the religion might not be how it is actually practiced.

Parker Redmond
Biology
Faculty Sponsor: John Robertson
Poster Session

Distribution and Density of Integumentary Sensory Organs in the Cranial Region of Juvenile Alligator mississippiensis

Alligators and other crocodilians possess some of the thickest skin in the animal kingdom. However, structures called integumentary sensory organs (ISO) are hypothesized to heighten their sensitivity to changes in the chemical and physical environment. We determined the size and distribution and described the structure of ISO's on the jaw and cranial regions of juvenile American Alligators (Alligator mississippiensis). Surfaces of the heads from five alligators [snout-vent-length (SVL)=53-58 in.] were photographed from multiple angles to create montages. A grid was superimposed on the montages, and the number and diameter of ISO's were measured using ImageJ. We found an increase in the total number of ISO's compared to previous research on smaller alligators (SVL=36 in.), which indicates that as alligators mature, their total number of ISO's increases. The change in ISO numbers could suggest a change in sensitivity or function, which merits further research on live adult alligators.

Anthony Ritter
Sports Management
Faculty Sponsor: Robert Zullo
Co-authors: Isaac Stamatiades
Poster Session

Kobe, LeBron, or David- Who's the NBA's All-Time Greatest (at sustainability)

Basketball is one of the most exciting/entertaining sports in the world to date. The NBA is watched and followed by millions of people not only in America, but the entire world due to the amazing athletes that have played or are currently playing in the league. Everyday, people have had debated about who is the greatest of all time. But not enough people ask the question like "who has the best arena in terms of sustainability?". This question needs to be asked more frequently because without sustainable arenas, there will not be an NBA in the future. The top sustainable arenas that we will discuss about are the State Farm Arena, the Barclays Arena, the Spectrum Center Arena, and the United Center. Over the past few years, these arenas have been making incredible strides in going green and setting an example for other NBA arenas in the league. Come see our poster to see if former commissioner David Stern is the NBA's greatest of all time… when it comes to sustainability.

Dylan Rodriguez
History
Faculty Sponsor: Angela Lahr
Co-authors: Cheyenne Keith, Bryer Cochenour
Research Round Table

Promoting, Opposing, and Covering the 1977 National Women's Conference

Join us for a roundtable discussion as we explore both the internal and external perceptions of the 1977 National Women's Conference in Houston, Texas. Presenters will highlight the speeches, advertisements, and media coverage of the event. We will analyze the tone, public acceptance, political capital, and intended appeal of the conference, as well as identifying the effects on the women's movement and women's history, including the impact on domestic affairs.

Francisco Rodriguez
Biology
Faculty Sponsor: Kristen Amick
Co-authors: Casey Barton
Poster Session

Identification of Sub-haplotypes Among Domestic Dogs with the B1 Mitochondrial Control Region Haplotype

Veterinary forensics often uses the frequency of mitochondrial control region (mtCR) haplotypes in a population to determine the evidentiary value of a match between an individual and crime scene evidence. The Hawaiian dog population experienced a founder effect, indicated by 40% of dogs sharing the B1 mtCR haplotype. The canine mtCR represents just 7% of the mtGenome. Three additional highly variable regions outside the mtCR have been identified that may divide haplotypes into sub-haplotypes. Here we analyzed these loci in Hawaiian dogs known to carry the B1 mtCR haplotype. Using DNA extraction, target locus amplification, sequencing, and computational analysis, the loci were assessed for additional polymorphisms that could be used to define B1 sub-haplotypes. Sequences were analyzed by searching for additional single nucleotide polymorphisms to further categorize individuals. The significance of this mtGenomic analysis is important to the evidentiary value of mtDNA evidence.

Francisco Rodriguez
Biology
Faculty Sponsor: Kristen Amick
Poster Session

Bacterial Biodiversity comparison within Pymatuning Lake

Pymatuning Lake, found in Pymatuning State Park, is one of Pennsylvania's largest lakes, spanning 17,000 acres. The lake has many tourist attractions including feeding carp and waterfowl at the spillway. This activity has created a unique environment where phosphorus levels at the spillway are 1.5x higher than a nearby tributary. Here we analyzed the bacterial assemblage at the spillway and two additional locations within the lake to determine whether there was variation in species richness and diversity at the spillway. Microbiome sequencing and analysis of over 1.1 million 16S rRNA gene sequences yielded ~5,000 unique sequences at each site. Furthermore, the spillway's aquatic environment was the most species rich with an additional 62 and 172 species relative to the other locations. Specifically, bacterial species favoring phosphorus were found in the spillway and either absent in the other areas or their presence was two to three times less, comparatively.

Emma Rudolph
Molecular Biology
Faculty Sponsor: Robert Zullo
Co-authors: Dom Motta, Nick Vicheck
Poster Session

Evolving Agriculture - How Companies are Changing To Produce a Better Product and Planet

The agricultural industry has caused a variety of effects on the environment including climate change, deforestation, pollutants, soil degradation, and waste. Farmed animal products contribute stress on ecosystems and is the largest source of greenhouse gases. Pesticides used in agriculture often pollute water sources, affecting lakes, rivers and groundwater. Most aspects of agriculture also cause a loss in biodiversity, reducing the variation of organisms in ecosystems. These agricultural effects have caused a crisis on our planet. There are agricultural companies that choose to ignore these effects to save the company's bottom line. However, there are many agricultural companies that have chosen to fight against these negative effects and have turned more sustainable practices. Companies like California Safe Soils, Impossible Foods, Advancing Eco Agriculture, and Freight Farm are a part of the plethora of businesses that have decided to market their sustainable efforts.

Ashley Russell
PreK-4 Early Childhood Ed/PreK-8 Spec Ed
Faculty Sponsor: Sararose Lynch
Oral Session

How can teachers individualize intensive reading interventions to ensure successful outcomes?

Teachers use data to drive instructional decisions and intervention programs via Multi-Tiered Systems of Support (MTSS), but how can they make it individualized for each student? MTSS is an instructional framework that includes multiple tiers of instruction and support services to help inform decisions at each tier of instruction. In this project, I used the Wilson Reading Program to help guide Tier 3 interventions with an emerging independent reader who was recently diagnosed with dyslexia. This session will share how I have used data to guide instructional decisions for the student, along with strategies on modifying intensive reading interventions.

Douglas Salah
Business Administration
Faculty Sponsor: Eric Gaber
Co-authors: Paige Williams,John Popa,Breanna Ferguson,Connor May,Hailey Mele,Alex Mullen,Bethanie Martin,April Munson
Poster Session

Brand Consortium

The brand consortium group is made up of individuals who have their own brand or have aspirations to grow their own brand. This group works together to come up with ideas, processes, contacts, conversations, and strategies that can aid in developing a brand. Their main goal is to help these new and upcoming brands to establish a following and create products/services that will grow into a successful business.

Natalie Schwarz
Biology
Faculty Sponsor: Ann Throckmorton
Poster Session

The effectiveness of microplastics as vectors for heavy metals in the mouthpart deformities in Chironomus riparius

Due to their small size and enduring presence in ecosystems, microplastics (plastics between 0.1 ?m and 5 mm in size) are one of the more dangerous pollutants currently being studied. Heavy metals are also hazardous due to their toxicity and ubiquitous presence in industrial runoff. Combined, microplastics and heavy metals are even more dangerous than if they didn't interact because microplastics absorb the heavy metals, making heavy metal uptake easier and allowing them to last longer in an organism's body, and microplastics more toxic. Detritivores who live in aquatic sediments are especially vulnerable, because microplastics have a tendency to bioaccumulate. One such organism is Chironomus riparius, which lives in freshwater in its larval stage; if microplastics are present in high concentrations during the developmental phase, their mouthparts become deformed. The goal of this experiment is to see how heavy metals impact the deformities microplastics cause in larval C. riparius. The larvae were exposed to environments during their juvenile phase with microplastics PET and PVC, heavy metals copper and zinc, or both. It is expected that the deformities would be most abundant and severe when both heavy metals and microplastics are present in the environment.

Natalie Schwarz
Biology
Faculty Sponsor: Joel Postema
Oral Session
Funding received from the Drinko Center for Undergraduate Research

The Evolution of the Perception of La Malinche Throughout Mexican History

La Malinche is one of the most controversial figures in Mexican history. While she was a real person, her story has risen to near mythical proportions; there are only two facts about her that everyone can agree on. First, she was a slave of and translator to Hernán Cortéz, the Spanish Conquisador who lead the charge that conquered the Aztec empire. Secondly, said conquest would not have been successful without her. Throughout Mexico's history, La Malinche has been a noblewoman or a Jezebel, a saint or a demon, a goddess or a Judas—her contemporary image evolves as Mexican society does. One notable perception to recently emerge comes from the Chicana movement, which symbolizes La Malinche as the mother of mestizos, or mixed rase Mexicans. In this presentation, I will set forth the changes in La Malinche's contemporary perception based on how her story changes during crucial moments in

Mexico's cultural and political development, and what names she is referred by during these periods.

Julia Serbati
Neuroscience
Faculty Sponsor: Deanne Buffalari
Poster Session

Assessment of Adult Zebrafish Anxiety Behavior After Acute Bisphenol A (BPA) Exposure During Late-Stage Development Measured by the Novel Tank Diving Test

This experiment sets out to model acute BPA exposure in late-stage development and its impact on anxiety levels in adults. Adult zebrafish were exposed to varying levels of BPA and were tested for anxiety-like behaviors using the novel tank diving test. The zebrafish model eliminates the confounds of external human experiences, since anxiety can be triggered by life stressors that are not related to BPA exposure. It is paramount to understand how BPA exposure can facilitate anxiety in adults in a world where chemical pollutants and anxiety disorders are present in daily life.

Julia Serbati
Neuroscience
Faculty Sponsor: Helen Boylan
Poster Session

No More Wasting Away: The Reduction of Food Waste and Plastics at Westminster College

Issues surrounding sustainability have become an important part of campus initiatives. I have been working with Sodexo food services to emphasize the importance of reducing food and plastic waste at Galbreath dining hall and the TUB. This initiative started by training workers at Galbreath dining hall to use LeanPath technology to track post-consumer food waste and pre-consumer overproduced food that is donated to the New Castle Mission. I have gathered trends on the types of food that are typically wasted and the amount of food that is donated on a weekly basis. After my start with food reduction, I worked closely with managers and workers from Sodexo to implement a reusable to-go container system at both dining hall locations. I have collected data to compare the usage of plastic disposable containers versus reusable to-go containers. As of the 2020 fall semester, Sodexo employees have been composting pre-consumer food waste.

Morgan Shine
Bichemistry
Faculty Sponsor: Patrick Lackey
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Biophysical Characterization and Computational Modeling of Histone mRNA Degradation Intermediates

Histone mRNA is the only known metazoan mRNA with a stem-loop at its 3' end rather than a poly(A) tail. In histone mRNA degradation, the stem-loop is trimmed by 3' human exonuclease (3'hExo) and uridylated by terminal uridylyl transferase 7, creating uridylated intermediates. It is unknown how this trimming and uridylation affects the binding interactions between the stem-loop and its protein binding partners, the stem-loop binding protein (SLBP) and 3'hExo. In this work, we characterized the binding interactions of a wild-type stem-loop, a uridylated intermediate (5U), and a truncated stem-loop (Trunc) using a combination of experimental and computational biophysical techniques. Through native electrophoretic mobility shift assays, we show that SLBP and 3'hExo are able to bind both the 5U and Trunc constructs despite 3' end modification. Our molecular dynamics simulations further show that 3' end modification does not interfere with the tertiary structure of the ternary complex.

Hattie Shrock
Neuroscience
Faculty Sponsor: John Robertson
Co-authors: Haley Beckman
Poster Session

Investigation of PPSV23 Vaccine to Promote Confidence in Vaccine Safety

With rise of COVID-19, significant scientific and public attention has been brought to vaccines. This attention has also brought skepticism. This poster focuses on the Pneumococcal conjugate vaccine (PPSV23) and how it protects individuals against pneumonia and why it is important. This vaccine is useful in protecting high-risk individuals including individuals 65 years of age and older, as well as children 2 years or younger because both age ranges have weakened immune systems. Pneumonia is a potentially fatal infection with a striking 11-40% mortality rate. PPSV23 consists of bacterial antigens that elicit an immune response which results in the increase of phagocytic cells that target pneumococcal bacteria for destruction. Providing an understanding of how this vaccine impacts the body can promote confidence in vaccine safety during this deadly pandemic. Knowledge is important to be able to encourage others to help protect themselves against deadly diseases by the use of vaccines.

Charlotte Shunk
English
Faculty Sponsor: Kristianne Kalata
Co-authors: Charlotte Shunk, Alainna Romeo ,Kendall Straub
Other

SCRAWL Spring 2021 Release

Scrawl's Spring 2021 edition will debut on the day of URAC. This table will be an opportunity for us to pass out the free copies of Scrawl to anyone who wants one

Charlotte Shunk
English
Faculty Sponsor: Deborah Mitchell
Co-authors: Charlotte Shunk, Alainna Romeo ,Kendall Straub
Oral Session

ADAPTATIONS TO ADULTHOOD: UNDERSTANDING THE THEMATIC DIFFERENCES BETWEEN YOUNG ADULT NOVELS AND COMING-OF-AGE FILMS

This presentation follows the research and writing process of my senior Capstone project. It explores the textual differences between films and novels and how those differences translate into thematic differences through the adaptation process. I look specifically at the adaptation of Young Adult novels into Coming-of-Age films. My presentation will conclude with a sample of my research applied to my own writing of both a sceenplay and novel.

Charlotte Shunk
English
Faculty Sponsor: Kristianne Kalata
Co-authors: Charlotte Shunk, Alainna Romeo ,Kendall Straub
Performance

Scrawl and Sigma Tau Delta present Student Artistic Perspectives

Scrawl and Sigma Tau Delta, the English honors society, will select students who submitted to the Spring 2021 edition of Scrawl to share their works -- what inspired them, the writing/creation process, and field any questions from the audience. Approximately six students (not yet selected) will share their work.

Nina Silver
Biology
Faculty Sponsor: Karen Resendes
Oral Session

p53, p21, and p27 are not involved in apoptosis in pancreatic cancer cells treated with gemcitabine alone or in combination with 5FU

The chemotherapy 5-Fluoruracil (5FU) increases nuclear pore permeability causing Ran concentration to be higher in the cytoplasm than inside the nucleus, altering nuclear transport and causing cell death. Gem resistance often occurs in pancreatic cancer, so we sought to study the effects of combining 5FU and gem in PANC1 cancer cells. Our results showed that gem and combo treatments decreased nuclear Ran localization from the control. Immunoblots showed that Ran expression increased in all treatments, indicating a higher degree of Ran mislocalization. This implies that 5FU and gem together may not be better at disrupting Ran localization than gem by itself. Immunofluorescence and immunoblot experiments of tumor suppressors p53, p21, and p27 show that none are retained in the nucleus at higher levels than the control in any treatment. These findings indicate that p53, p21, and p27 are not primary modes by which gemcitabine induces apoptosis either by itself or when combined with 5FU.

Kai Skinner
Biology
Faculty Sponsor: Diana Ortiz
Poster Session

Observation of Aedes albopictus development after exposure to sub-lethal dosage of plant derived compounds

Current control methods for arthropod vectors carry environmental and human health concerns. To combat these issues the use of extracted plant compounds have been researched for their efficacy as mosquito control. In prior studies, the compounds carveol, linalool, and piperonal been found to exhibit larvicidal effects on Aedes albopictus. However, the sublethal toxic effects of these compounds on the developmental stages of this mosquito remain understudied. Our study observed Ae. albopictus throughout their life cycle upon exposure to different concentrations of carveol, linalool, and piperonal using the WHO bioassay technique to evaluate sublethal larvicidal and pupal activity. Results showed that exposure to sub-lethal concentrations of these compounds led to failed and atypical emergence of adults from the pupal casing. Previous studies that exposed mosquitoes to synthetic larvicides linked failed and atypical emergence to disruption of juvenile hormone activity during development.

Curt Slagle
Financial Economics
Faculty Sponsor: Eric Gaber
Poster Session

Lawrence County Medical Source- SBDC Offering to Research and Suggest Social Media Marketing Solutions

Medical Source Inc. focuses on the distribution of PPE and have previously sold to care-taking facilities and hospitals. The main goal of this group is to develop a website for the company in which all their products and inventory will be available to consumers for orders.

Sara Small
Individual Interdisciplinary
Faculty Sponsor: Ann Throckmorton
Poster Session
Funding received from the Drinko Center for Undergraduate Research

Geospatial Analysis of Food Deserts in Rural United States

Accessibility to fresh food is a large problem in the United States, often affecting the poorest and least educated citizens. I used geospatial and statistical analyses to identify counties in need of assistance and investigate common themes within these communities, including higher levels of poverty, obesity, overrepresentation of minority communities, as well as close proximity to gas stations rather than fresh food markets. Using the results of that analysis, I brainstormed potential sustainable solutions for increasing accessibility to fresh food including community gardens or local farmers markets in order to create a stronger community, healthier eating choices, encourage physical activity, and spur economic development counties most in need of assistance.

Riana Smith
Chemistry
Faculty Sponsor: Jessica Sarver
Co-authors: Tom Bablak, Brian Whetzel, Everett Lefever
Video Session
Funding received from the Drinko Center for Undergraduate Research

The Formation and Crystallization of Ice Cream: Testing the Colligative Property of Freezing Point Depression

The experiment conducted is an easy to understand method for the formation and crystallization of ice cream. The video is hosted by a knock off "Bill Nye the Science Guy" who explains the composition of ice cream to be air, ice crystals, fat globules, and liquid syrup. Our video goes further in depth of the composition of ice cream, explaining the chemistry of fats, stabilizers, and flavors included in many ice creams. The main experiment tests the colligative property of freezing point depression. When a salt is added to ice, the freezing point is theoretically lowered and the ice itself gets colder because it is unable to absorb heat. Our experiment tests whether adding salt to the ice will really help to lower the temperature of the ice and make the cream crystallize faster than if we were to not add salt and test the same experiment. In the end we could successfully conclude that the salted ice was colder as it was able to form ice cream before the unsalted ice was able to.

Riana Smith
Chemistry
Faculty Sponsor: Craig Caylor
Poster Session

Determining the Fluctuations in Brightness of RR Lyrae Star BB Lep

The purpose of our experiment was to observe an RR Lyrae star, BB Lep, using photometric data gathered from telescopes from the Las Cumbres observatory located across the globe. Within the "Horizontal Branch" stage of a star's evolutionary life cycle exists an interesting classification of stars known as RR Lyrae. RR Lyrae stars have a characteristic unlike most stars in which they will vary in brightness over periods of time. They are incredibly important to astronomers, as they are used to determine distances to globular clusters and have helped in the past to determine the distance to the center of the Milky Way Galaxy. From the data collected, we have been able to find BB Lep's light curve with which we can determine the specific fluctuations of its brightness over time.

Mackenzie Snarey
History
Faculty Sponsor: Angela Lahr
Co-authors: Ivy Withers, Patrick Holton
Research Round Table

Unity Brings Power: The 1977 National Women's Conference

Participants at the 1977 National Women's Conference sought to unite diverse women across the country around women's rights. This roundtable will begin by discussing how organizers planned a torch relay of over 2,600 miles from New York to Texas to highlight the link between the 1848 Seneca Falls, New York women's rights convention and the conference in Houston. Along with the relay, the roundtable will discuss state-level meetings that preceded the national conference. These meetings built enthusiasm for the national event where thousands of women of diverse backgrounds gathered to determine which issues would be debated in Houston. Finally, the roundtable will discuss the conference's assembly space in Houston, dubbed Seneca Falls South, which included organizational booths and performances meant to encourage the spread of ideas amongst attendees from across the country. These events, both before and during the conference, established a sense of unity for those involved.

Tyler Snodgrass
Neuroscience
Faculty Sponsor: Sandra Webster
Oral Session
Funding received from the Drinko Center for Undergraduate Research

The Effects of Social Antecedents of Bullshit on Bullshit Detection

Bullshitting is communicating without regard for genuine evidence. This study examines the effects of three social antecedents on bullshit detection. Participants were asked to read information, and then rate 48 statements based on how much concern for evidence they think the statement writer had. Other information on the writer's profession and their obligation were given to the participants. Bullshit ratings were compared to the score from the statement writers to determine the rating accuracy. An interaction between statement knowledge, statement expertise, statement obligation showed that statements produced by writers who expected them to be evaluated by experts were more accurately assessed without obligation. However, when the statement writers expected review by a non-expert, bullshit detection was worst when the writers were obligated to answer without knowledge. These results show that bullshit detection accuracy is influenced by social antecedents of statement generation.

Blaine Sorrick
Environmental Science
Faculty Sponsor: Helen Boylan
Co-authors: Erin Ward
Poster Session

Feasibility Study of Recovered Minerals in AMD Sludge

To combat the effects of abandoned mine drainage in western PA, the Slippery Rock Watershed Coalition uses passive treatment systems to treat over 1.5 billion gallons of water annually. The treatment systems naturally improve the quality of affected water but produce a sludge byproduct consisting of high concentrations of precipitated metals. Students in this interdisciplinary course used chemical analysis to analyze the environmental effects and to determine the economic value of the sludge. A feasibility study was conducted to assess the removal costs and the marketability of minerals in the sludge. Due to the small amount of minerals extracted, it was not considered a feasible market for large industries. Other businesses, such as the pottery market, may find this feasible due to the smaller amounts of minerals needed for pigment. We communicated the results to the SRWC and others to spread the word of possible economic gain and environmental impact associated with AMD recovery.

Megan Steele
Biology
Faculty Sponsor: Joshuha Corrette-Bennett
Co-authors: Josie Barnhart
Poster Session

The effect of cortisone acetate on limb regeneration rate and digit formation in Ambystoma mexicanum

Many organisms naturally produce cortisol, a form of cortisone. It is part of the immune response, but in high quantities can lead to decreased bone density and tissue damage. The goal was to see if increasing concentrations of cortisone affected axolotl limb regeneration and digit formation. The left forelimbs of twenty-four axolotl were amputated and then axolotl were injected with water or various concentrations of cortisone. Over a period of forty-five days, the regeneration rate of the limb was assessed by taking pictures and measuring the growth of each regenerating limb using ImageJ. High and low treatment groups were compared to the negative control group. Data was analyzed using ANOVA to identify significant differences. We predicted that higher cortisone levels would inhibit limb regeneration rate and digit formation. While differences in digit formation were visible, there were no significant differences in the rate of regeneration between treatment groups and the control.

Catherine Stevens
Physics
Faculty Sponsor: Craig Caylor
Oral Session

Investigating RR-Lyrae type star

RR-Lyrae type stars are a display periodic variations in brightness. Since they are only found in systems older than 10 Gyr, RR-Lyrae type stars are used as standard candles to measure the distances to very old stellar systems. We investigate the properties of X Ret, a specific star of this type, using photometric data. From this data, we recreate X Ret's light curve and determine the period of its variability.

Morgan Straw
Environmental Science
Faculty Sponsor: Helen Boylan
Co-authors: Quentin Bloom, Christopher Dombrowski, Mark Eminhizer, Destiny Hughes,Nate Lednum, Trevor McCabe, Daniel Thimons
Video Session

Environmental Issues in the Region: Leaders and Stakeholders

Students in ENV 201 Contemporary Environmental Issues have explored a series of environmental issues in the region including conservation, climate change, endangered species, and water treatment. In addition to doing background research on these topics, the students have interviewed environmental leaders in the region and performed a stakeholder analysis of the topic. Students will present their work in a series of audio and/or video presentations.

Julia Strobel
Molecular Biology
Faculty Sponsor: Karen Resendes
Oral Session

PCID2 regulates nuclear export of BARD1 mRNA

PCID2 is a regulator of protein and mRNA nuclear export. BRCA1 and BARD1 regulate DNA damage in the nucleus and cell division in the cytoplasm. In investigating the effects of PCID2 on nuclear to centrosomal export of BRCA1 and BARD1, previous studies showed that PCID2 directly affects the transport of BRCA1 protein from the nucleus to the cytoplasm. However, BARD1 levels decreased throughout the cell without PCID2; thus, BARD1 transport may be affected in a different manner. We investigated if PCID2 regulates the transport of BARD1 mRNA from the nucleus to the cytoplasm. Without PCID2, mRNA export in general – specifically the export of BARD1 mRNA – was reduced. Without export of its mRNA, the BARD1 protein will not be produced, preventing DNA damage repair and leading to abnormal chromosome separation, which are cancer attributes. Understanding how PCID2 is involved with BARD1 mRNA export informs research on the synthesis of drugs that target the PCID2 molecule and BARD1 mRNA export.

Julia Strobel
Molecular Biology
Faculty Sponsor: John Robertson
Poster Session

What You Need to Know About the Moderna COVID-19 Vaccine

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) was officially given its name on February 11th, 2020. Today, over 2.5 million people worldwide have died as a result of the resulting disease, COVID-19. Since the first reported cases of COVID-19 in December 2019, researchers have been working to improve and develop vaccines specific to the SARS-CoV-2 virus. Specifically, the biotech company Moderna has created an mRNA vaccine that is almost 95% effective at preventing COVID-19 illness in vaccinated individuals. mRNA vaccines are becoming imperative in the medical world, and it is important to understand their function and mechanism of action. This poster provides viewers with important information about the new Moderna COVID-19 mRNA vaccine. Educating the public about this vaccine is important so that more people are comfortable making the best decision for not only their health, but also for the health of the general public.

Stephan Tella
Biology
Faculty Sponsor: Marosh Furimsky
Poster Session

The Morphological and Behavioral effects of Acetaminophen in Danio rerio Embryonic Development

Acetaminophen is commonly used for pain relief. To investigate the possible effects of prolonged use, if any, zebrafish (Danio rerio) were used as a model to determine if there can be a connection between the usage of acetaminophen and the time of development or developmental differences. The research was conducted by exposing zebrafish to two different dosages acetaminophen (with concentrations of 50?gL and 100?gL) mixed with a simultaneous control group of the embryo medium E3 over several days. During administration developmental observation under microscopes was conducted to determine any specific changes were found morphologically. During these periods of exposure, zebrafish were tested using light and reflex response assays. Zebrafish were a suitable model due to the optical transparency of the fish embryo allows access to observations of the drug in all stages. They also show similarities in the mammalian system and shares large syntenic regions with the human genome.

Meilin Titus
Accounting
Faculty Sponsor: Eric Gaber
Co-authors: Jessica Booher, Joe Coveny, Grace Deschand, Payton Goodwin
Poster Session

Outdoor Odyssey Service Line Repositioning Research

Outdoor Odyssey is a non-profit retreat center that offers several different programs for individuals, including mentoring troubled youth and retired veterans. They help teams bond, develop leaders, and provide tools for resiliency creation. The students put their efforts towards finding ways to market the center in a COVID-19 friendly manner. Future goals are to find ways to raise money to keep Outdoor Odyssey functioning in order for them to continue impacting the lives of those in need.

Lauryn Todd
Accounting
Faculty Sponsor: Brian Petrus
Co-authors: Nathan Kraus, Lauren Millhorn, Olivia Lyle
Oral Session

Summer Analyst Program - Tesla & Electric Vehicles

The Summer Analyst Program students studied the electric vehicle industry and a wide range of pertinent environmental, social, and political issues. Through a business-oriented lens and via analytical tools and methodologies provided by Moody's Investors Service, program participants analyzed, forecasted, and modeled a financial credit outlook for one of the industry's most controversial companies, Tesla.

Chasey Townsend
Biology
Faculty Sponsor: Ann Throckmorton
Poster Session

Insecticidal effects of Cannabidiol essential oil against the mealworm beetle, Tenebrio molitor

Mealworm beetles, Tenebrio molitor, are a significant pest of stored food products like grains, flours, and bran; food for domestic pets; and dry pasta products. They may be controlled by essential oils such as cannabidiol (CBD), a non-psychoactive compound derived from Cannabis sativa, which assists in giving the plant the capability to resist. I treated two food sources, cornmeal and bran meal, with three different concentrations of CBD essential oil: 5%, 10%, and 15%. I let the mealworms remain in the oil-coated food for 20 days before counting how many died and in what stage mortality occurred: larva, pupa, or beetle. I found that mortality increased in the group treated with 15% and most deaths occurred in the larval stage indicating that CBD oil increased mortality and delayed development—both of which can be beneficial for population control. Not only is CBD a safe alternative to synthetic insecticides but it is also effective in controlling mealworm populations.

Kayleigh Trobek
Mathematics
Faculty Sponsor: Tibor Solymosi
Oral Session

An Argument for the Integration of Care and Reason in Contemporary Ethics

Feminist ethics aims to include care in morality. Care is showing concern for yourself and others. An important question is whether to rely on logic and reasoning or emotions and caring. Through evaluating Kohlberg's theory of moral development, and comparing different theoretical cases, I show the importance of relationships and caring in morality. Feminist ethics leads us to believe this along with the pragmatism of John Dewey. Different ethical theories such as moral sentimentalism and ethics of care incorporate emotions into morality. I also argue that the naturally feminine quality of caring is an important qualitative value in ethics, as Dewey indicates. While reason is necessary, caring is also required as described by feminist ethicist Hilde Lindemann. Finally, I use neurofeminist ideas of the combination of human biology and social lives to argue for the integration of care and reason, along with Dewey's pragmatist views.

Jacob Trzcinski
Engineering Physics
Faculty Sponsor: Craig Caylor
Poster Session

Demonstration of Faraday's Law: Observations of Dropping a Magnet Through a Conducting Tube

When we talk on the phone to our friends and colleagues and when we swipe our credit card to buy our morning coffee, we are applying Faraday's Law of induction. This law states that when the magnetic conditions of a system are changing, a coil of wire will produce an induced voltage, known as electromotive force, driving electric current in the conductor. This induced current produces a magnetic field that opposes the original changing magnetic field. In the case of a moving magnet, the induced current produces a force that opposes the motion of the magnet. In an everyday application, the magnetic strip in a credit card induces a voltage in the reader and a person can feel the slight resistance as they swipe their card. This can be exaggerated by using a strong magnet and a large conductor. The goal of this project is to apply and demonstrate Faraday's Law by dropping a magnet through aluminum tubes of varying diameters and thicknesses, and measuring the duration of the fall.

Ian Valente
Sports Management
Faculty Sponsor: Robert Zullo
Co-authors: Frank Antuono
Poster Session
Funding received from the Drinko Center for Undergraduate Research

Tackling the world's greatest opponent: the NFL and environmental sustainability

The National Football League has 32 teams that have people from all over the world playing for them and working in their organizations. Over the last decade a few teams have been flying a different color along with their base colors, green. Lincoln Financial Field home of the Philadelphia Eagles, CenturyLink Field home of the Seattle Seahawks, MetLife Stadium home of the New York Giants and Jets, and Soldier Field home of the Chicago Bears have all made revisions to their stadiums to go green. Each of these teams have great defensive players who make great tackles each week but the most important tackle was made by these stadiums. Tackling the issue of environmental pollution is not only a crucial play for athletes but for the entire human race. Come see our poster to learn more about these NFL team's efforts.

Nickalas Vicheck
Business Adminstration
Faculty Sponsor: Eric Gaber
Co-authors: Belle Snyder, Maya Steward, Rianna Lyden
Poster Session

OhanaLink- Pivoting/Repositioning of Health Care App

OhanaLink Technologies is an application that provides family communication to health care needs. It allows families to communicate with other during health care crises or situations and limits miscommunication that can incur. This group is helping OhanaLink to expand into different markets for their new application, "OhanaLink Health" and provide sales tactics to get their product into health care facilities. The main goal is to get OhanaLink into health care facilities so they can take advantage of the opportunity to help families be more connected.

Brittany Watson
Psychology
Faculty Sponsor: Jessica Rhodes
Poster Session
Funding received from the Drinko Center for Undergraduate Research

ADHD and Impairment: An Examination of the Role of Multitasking Deficits

Attention-Deficit/Hyperactivity Disorder (ADHD) is associated with impairments in functioning in life domains (i.e. social.) Research has also suggested ADHD is associated with deficits in multitasking abilities, however more work is needed to understand this relationship. The present study will investigate the mediating role of multitasking deficits in the relationship between ADHD symptoms and impairment. Participants will be 30 undergraduate Westminster students between the ages of 18 and 22. Following informed consent, participants will complete self-report assessments of ADHD symptoms, executive function, and impairment ratings, as well as a multitasking task. It is hypothesized that participants with a higher number of reported ADHD symptoms will have slower response times and less accuracy upon completion of the multitasking task compared to those with less reported ADHD symptoms. The findings of this research are expected to inform treatment strategies for adults with ADHD.

Noah West
Biology
Faculty Sponsor: John Robertson
Poster Session
Funding received from the Drinko Center for Undergraduate Research

How does a filter feeder feed? Characterizing gill raker mucus cells in paddlefish (Polyodon spathula)

Gill rakers are important feeding structures in fish. Paddlefish are filter feeders, entrapping and consuming plankton with long, fine gill rakers. The gill raker's histology and biochemistry were analyzed, with specific focus placed on the roles of mucus cells in the gill raker function. Alcian Blue – Periodic Acid Schiff staining was performed to distinguish and localize mucus cells; it was found that abundant mucus cells were seen along the rakers, more preferentially along the gill arch facing surface. This distribution may be significant in the role of mucus in filtering plankton. AB-PAS staining also showed that the gill rakers were dominated by acidic mucus cells. SDS-PAGE of gill raker and arch mucus scrapings indicated no clear differences in the polypeptide profiles of the mucus samples. These findings represent novel contributions to the biology of the paddlefish, particularly related to the structures and functions involved in food acquisition.

Noah West
Biology
Faculty Sponsor: John Robertson
Poster Session

An Overview of Metabolic Acidosis

The human body tolerates only a very small range of body fluid pH levels; this entails the need for multiple complex buffer systems throughout the body to maintain a healthy balance of acids and bases. It is important to recognize the kidneys' significant role in detecting pH levels and sustaining a proper anion balance in the blood. Chronic Kidney Disease affects 12% of the global population, and it increases the risk of chronic metabolic acidosis (MA) since kidney function is impaired. Uncontrolled (MA) can have depressive effects on many body systems like the heart and bones. Symptoms usually are not present, but some may experience confusion, vomiting, and more. To help curb the severity of MA, patients can reduce their dietary protein and increase their fruit and vegetable intake to lower net endogenous acid production from food. The drug Veverimer is a new treatment for metabolic acidosis used to lower acid in the body by binding excess hydrochloric acid and excreting it.

Hannah Westwood
Criminal Justice Studies
Faculty Sponsor: Jamie Chapman
Poster Session
Funding Received from the Drinko Center for Undergraduate Research

Frontline Mental Health Workers and Incarceration: Expectations vs. Reality and Stress Management during COVID-19

This research project seeks to examine the experiences of Frontline Mental Health Workers such as Corrections Officers and Nurses. As the mental health crisis in the United States grows, Frontline workers take on additional challenges and tasks that affect physical, emotional and mental wellbeing. Using a symbolic interactionist approach, this research examines the "caring" professions in the context of COVID-19. This Capstone project is part of an on-going faculty-lead research project focusing on the lived experiences of Frontline Mental Health Workers working in incarcerated settings. The project is designed as a qualitative secondary analysis project consisting of 20 interviews from Frontline Mental Health Workers and seeks to contextualize Frontline experiences. Emergent themes include a delineation between expectations versus realities, stress exasperation and changing role expectations.

Brian Whetzel
Political Science
Faculty Sponsor: Angela Lahr
Co-authors: Josh Moon, Ayla Griffin ,Zach Ramfos
Research Round Tables

Analyzing the Diversity of the Organizers and Participants of the 1977 National Women's Conference in Houston, Texas.

This roundtable presentation addresses the people behind the 1977 National Women's Conference held in Houston, Texas. The presentation is split into four subtopics: the commission members, the delegates, minority women, and men at the conference. The research suggests that the diversity of the people behind the convention contributed to and reflected the goals of the women's rights movement.

Brian Williams
Biochemistry
Faculty Sponsor: Jessica Sarver
Oral Session
Funding received from the Drinko Center for Undergraduate Research

Distinguishing Differing Conformations of Alpha-Synuclein through Distance Measurements

Alphasynuclein (asyn) is a membrane binding protein whose function, while not completely understood, has been identified with an increased risk of developing Parkinson's Disease (PD). Asyn has distinct pathologicaal and physiological states. Pathologically, it has been observed to aggregate, eventually leading to the development of PD. Physiologically, asyn is thought to be involved in transporting lipid vesicles containing neurotransmitters. To better understand the pathological state of asyn, a deeper understanding of the physiological structure is needed. Previous studies have found two conformations of asyn: a horseshoe and an extended helix. Computer modeling has been performed using Visual Molecular Dynamics to determine double mutations of asyn in an effort to mutate asyn via site-directed mutagenesis. Additionally, molecular dynamic simulations have been performed to determine a theoretical baseline of which conformation is predominant.

Paige Williams
Accounting
Faculty Sponsor: Eric Gaber
Poster Session

Simply Bold Brand Development

Simply Bold Aesthetic This research project focuses on creating a clothing brand called Simply Bold Aesthetic. The goal of the brand is to sell attire that shares confident and bold sayings. The research project focuses on analyzing different branding and marketing techniques in the online sales industry. The different platforms used to measure the impacts on sales will include the sales generated from TikTok, Instagram, and Etsy. The poster will show the conclusions of which marketing methods led to the greatest sales, as well as what branding methods received the best response.

Rachael Woessner
Molecular Biology
Faculty Sponsor: Karen Resendes
Poster Session

PCID2 Influences the Nuclear and Cytoplasmic Localization of BARD1 Protein in Hs578T Breast Cancer Cells

The nuclear export of proteins to different intracellular locations is a critical function of the cell that effects many cellular processes. The CRM1 transporter regulates export of BARD1, which regulates DNA repair in the nucleus and works as a negative centrosome regulator blocking amplification during cell cycle. PCID2 is involved in CRM1-mediated protein export and functions in the nucleus and at the centrosome, where it is thought it might play a role in regulating duplication during cell cycle. We aimed to replicate previous results using HeLa cells to study the role of PCID2 on BARD1 protein localization and transport in Hs578T Breast Cancer cells. PCID2 knockdown caused a 20% decrease in nuclear BARD1, a 30% decrease in centrosomal BARD1, with a 15% increase in Hs578T cells demonstrating excess centrosomes. PCID2 was not involved in the CRM1 mediated export of BARD1 protein from nucleus to centrosomes. Rather we propose that PCID2 regulates to the nuclear export of BARD1 mRNA.

Miranda Woge
Fine Art
Faculty Sponsor: Summer Zickefoose
Other

Do you understand me?

We experience language every day. What we often don't realize is that language is alive. By using it, we inspire it to move. Every word spoken makes language warp and expand. My aim is to depict language in the ways it can change to create new meaning beyond intention. In dreams, just as in language, we are not necessarily grounded. While things may appear to be exactly as we already know them, even a brief oddity can turn our perception backwards. With this in mind, I use watercolor to explore a dreamscape that has a loose and seemingly ever-changing motion. I further distort perception by displaying the paintings with clear glass ornaments. The majority of phrases utilized in the works and titles are in Norwegian Bokmål (the traditional form of modern Norwegian) which I have been studying on my own for three years. I give them stability to contrast the painted figures with the hope that I can offer viewers the same pause, to let them hear a collection of words being reborn.

Kyle Youmans
Music Education
Faculty Sponsor: Daniel Perttu
Performance

A Perspective on Preludes

Keyboard preludes have been an integral part of performance since the rise of keyboard music, ever since the invention and popularity of the keyboard instruments, including organ, harpsichord, and piano. This brief presentation will detail the history of the prelude genre in keyboard history, beginning with the Baroque era and ending with a performance of a newly composed piano prelude by Kyle Youmans. This is an abridged version of my Capstone Lecture and Recital.

Seth Zacherl
Political Science
Faculty Sponsor: Michael Aleprete
Co-authors: Kelsey Humes,Michael Kurywchak,Andrew Piatt,Seth Zacherl,Evan Brochinsky,Kaylee Brosius,Amir Hassan,Iris Davis Hall,Joseph Pisano,Hannah Wilson,Teddy Curcio,Mitchel Henderson,Jess Reabe,Mark Moran,Victoria Harden,Marc Esqueda,Bryer Cochenour,Jackson Gastmeyer
Poster Session
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American Model United Nations 2020

Last October, Westminster Model United Nations participated in the American Model United Nations (AMUN) conference. Westminster students represented Argentina, Romania, and Italy, discussing issues such as the fight against climate change, food insecurity, and international arms trafficking. Traditionally, AMUN is held in person in Chicago, but this year we attended virtually. By attending the AMUN conference, Model UN students gained a deeper understanding of the issues the world faces today and what the United Nations can do to solve them. We also developed our research skills, understanding of others' views, and public speaking.

Where They Are From: A Poetry Collection by the Class of 2024

Westminster's Orientation Program is designed to help First Year students acclimate to all aspects of campus life. Part of that process asks students to consider who they are becoming by reflecting on the people and places that have shaped them. In their first Westminster 101 classes held during Orientation Weekend, the 2019 and 2020 First Year students began their Westminster journey by reading the poem "Where I'm From" by Kentucky Poet Laureate George Ella Lyon. In response to that work, the students then composed their own "Where I'm From" poems, and shared them with their classmates. This activity allowed the students to see not only the commonalities and connections they have with their peers, but also to understand the diversity of backgrounds and experiences that they bring to campus. This display offers a selection of the "Where I'm From" poems from the class of 2024. Please note the variety of backgrounds, experiences, and guiding principles that comprise our Westminster community.

WESTMINSTER COLLEGE

Drinko Center for Undergraduate Research
Patterson Hall | Room 315
319 S. Market Street
New Wilmington, PA 16172-0001

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