



URAC • 2022

PROGRAM OF ABSTRACTS

Wednesday, April 27, 2022

Sponsored by the Drinko Center for Undergraduate Research

ABSTRACTS

Samuel Accordino

Neuroscience, Class of 2022

Faculty Sponsor: Deanne Buffalari

Oral Presentation

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Psychology/Neuroscience Award 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, Class of 2022

Faculty Sponsor: Jessica Rhodes

Poster Presentation

Interrelationships Between Anxiety Symptoms, ADHD Symptoms, & Nicotine Use

Individuals with ADHD are one of the most at risk populations for nicotine use, as they are 2-3 times more likely to initiate smoking and are more likely to chronically use nicotine. ADHD symptoms are also associated with increased smoking risk, indicating that undiagnosed individuals with symptoms are also at risk. A potential connection may be related to the experience of anxiety, as smoking is one of the most commonly reported coping mechanisms for the experience of anxiety. Specifically, 25-50% of individuals diagnosed with ADHD have comorbid anxiety symptoms. Additionally, the rates of both anxiety and smoking in ADHD may be related to prolonged use of stimulant medication, as chronic treatment may exacerbate anxiety symptoms that are then relieved with nicotine. Therefore, this study intends to use self-report measures of anxiety and ADHD symptoms, nicotine use, and stimulant medication history from Westminster College students and their caregivers to understand this connection.

Stephen Adametz
English, Class of 2023
Faculty Sponsor: Trisha Cowen
Poster Presentation

Etna, PA: History of a Gilded Age Steel Town

Etna, Pennsylvania, a town on the Allegheny River, began as a stop north from Pittsburgh. It flourished through the late nineteenth century as one of the most productive steel towns in the Pittsburgh Region. Built in 1872, the Isabella Furnace employed a large proportion of the Etna population. Daily life for blue-collar workers in Etna drastically differed from the owners and leaders in the Spang, Chalfant, & Co. Though motivated by the strike busting following 1892 Homestead Steel Strike, social programs helped create a vibrant business district and community. Events in the Greater Pittsburgh region can be traced back to Etna steel mill leaders, such as the founding of Allegheny General Hospital, the Duquesne Club, and involvement with the South Fork Fishing and Hunting Club, the organization found responsible for the Johnstown Flood. The study of Etna's class differences make for an interesting history that relates to many steel towns elsewhere in Western Pennsylvania.

Rebecca Adelman
Individual Interdisciplinary (BS), Class of 2022
Faculty Sponsor: Tricia Ryan
Co-authors: Alex Hartle, Kelly Somora
Poster Presentation

Decreasing Workplace Violence

Workplace violence is violence or the threat of violence against workers. It can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults (OSHA, 2002). It is a growing concern for employers and employees at UPMC Jameson in New Castle, Pennsylvania. The amount of workplace violence from psychiatric patients in the emergency room is the biggest concern for UPMC Jameson hospital. We would implement a better reporting system for workplace violence and mandatory training to learn more efficient de-escalation techniques. This should help reduce the occurrence of workplace violence and help keep hospital staff safe at Jameson.

Joseph Armstrong
Biology, Class of 2024
Faculty Sponsor: Russell Martin
Oral Presentation

Candidate for the Diversity and Social Justice award and the Health and Well Being Prize.

The Health of Lawrence County Immigrants

Within the first fifteen years of the 20th century, the United States experienced a wave of 15 million immigrants. These immigrants' first step to citizenship was through their "first paper," known as their Declaration of Intention. The dataset used in this study includes information entered in the 1906–1972 Declaration of Intentions filed in the Court of Common Pleas for Lawrence County, Pennsylvania. Within this study, we calculate the Body Mass Index (BMI) of immigrants, a general predictor of health in people, and many factors that impact an individual's health. This study creates a contrasting analysis of BMI for immigrants residing in rural and urban areas upon entry from and moving to rural and urban areas. This research serves as a lens to see how immigration and relocating efforts affect the health of immigrants and relocating populations, which is relevant in refugee and immigration purposes to this day.

Gavin Batdorff

Business Administration, Class of 2025

Faculty Sponsor: Robert Zullo

Co-authors: Luke Postufka, Reid Sanderson, Corbin Liang

Poster Presentation

Candidate for the First Year Poster Prize.

Addicted to Coffee? What really goes into a cup of coffee.

Addicted to Coffee? The coffee industry is very large in the United States and around the world as the majority of people have an intake of some type of coffee during the day. A few companies that we will be spotlighting will be Starbucks, Dunkin Donuts, Tim Hortens, and Folgers. Our poster will be presenting on how these 4 companies remain sustainable in their own different ways. We hope to teach people on how the coffee industry works and how different companies gain an edge in the market.

Patrick Benedict

Marketing and Professional Sales, Class of 2025

Faculty Sponsor: Robert Zullo

Co-authors: Laine Puhl, Cherise Schultz, Colleen Kinney, Patrick Benedict

Poster Presentation

SLOW DAHN! How car brands are using sustainable marketing to save the environment

Our research will consist of sustainable marketing in the automobile industry. Gas/diesel powered cars have become a big issue around the world with the fumes/pollutants from these

vehicles polluting the air. This is a big concern around the world. Electric powered vehicles could help eliminate pollution that gas powered cars cause. Our group will be researching four automobile companies from different parts of the world. These companies are Tesla for the United States, Volvo from Sweden, Volkswagen from Germany, and Honda from Japan. We will research how far these companies are in the development of electric vehicles and how they use sustainable marketing to sell their product.

Emma Bradley
Psychology, Class of 2022
Faculty Sponsor: Jessica Rhodes
Oral Presentation

*Funding received from the Drinko Center for Undergraduate Research
Candidate for the Psychology/Neuroscience award and the Health and Well Being Prize.*

How Deficits in Executive Functioning Mediate the Relationship Between ADHD Symptoms and Decreased Emotional Cognition

ADHD is a neurodevelopmental disorder characterized by executive functioning (EF) deficits and is associated with sluggish cognitive tempo (SCT) and reduced emotional cognition (EC). The present study evaluated the mediating role of EF in the ADHD-EC relation. Forty-nine participants completed measures of ADHD symptoms, EF, and EC. Analyses demonstrated that ADHD symptoms predicted both EC ($\beta = -0.49$, $p < 0.001$) and EF ($\beta = 0.80$, $p < 0.001$). EF also predicted decreased EC ($\beta = -0.44$, $p = 0.001$). EF did not mediate the relationship between ADHD and EC ($p > 0.05$). Secondary analyses demonstrated that SCT predicted both EC both EC ($\beta = -0.61$, $p < 0.05$) and EF ($\beta = 1.62$, $p < 0.001$) and EF fully mediated the relationship between SCT and EC (Sobel test = -3.06 , $p < 0.01$). Future research ought to aim to better understand the relationship between SCT, EF, ADHD and EC. A better understanding of this complex relationship can lead to more effective intervention strategies for those with ADHD.

Madison Brown
Psychology, Class of 2022
Faculty Sponsor: Sherri Pataki
Poster Presentation

*Funding received from the Drinko Center for Undergraduate Research
Candidate for the Health and Well Being Prize.*

Stress Levels and Time Management Among Student Athletes In and Out of Season and Non-Student Athletes

The present study examined stress levels, academic burnout, and time management among student athletes depending on whether they were in-season or out-of-season at the time and in comparison to non-student athletes. A quasi-experimental design was utilized and participants

were asked to complete a survey that included measures of time management, academic burnout and stress level. Responses were analyzed to see if the increase in demands on student athletes that are currently in season is related to lower student athletes' mental well-being and more academic burnout and stress in comparison to student athletes that are not in season and non-student athletes and if extra-curricular activities would effect students who are not involved in sports. Student athletes that were out of season reported the highest levels of negative levels of well-being and higher levels of academic burnout and stress. Non-student athletes reported the lowest levels of academic burnout and stress.

Jaelyn Buda
Political Science, Class of 2022
Faculty Sponsor: Shannon Smithey
Poster Presentation
Candidate for the Health and Well Being Prize.

Partisanship and COVID-19 Vaccination Rates Across Counties in Texas

Public reactions to healthcare have become increasingly politicized. Throughout the COVID-19 pandemic, the virus has become a partisan issue. With some government officials downplaying the severity of the issue and its existence at all, their attitudes and leadership have played a role in whether their supporters get vaccinated. Counties in Texas who voted for Donald Trump in the 2020 Presidential Election will have a lower vaccination rate against COVID-19 than counties who voted for Joe Biden. The higher the vote for Trump, the lower the vaccination rate will be. To test this idea, I used SPSS to run multiple regression to determine the effect the vote for Donald Trump in 2020 has on vaccination rates across counties in Texas. I demonstrate that the Trump vote has a strong effect on the vaccination rate.

Krystyna Burdelski
Nursing, Class of 2022
Faculty Sponsor: Joni Darby
Co-authors: Alexandra Pfab
Poster Presentation

Capacity Management: Discharge Planning

Our work with the Case Management team at Jameson Hospital focused on the discharge planning and utilization of the new Discharge Lounge. Our goal was to increase the percentage of patients using the lounge from the current zero percent to five percent. We met with the Case Managers to clarify and discuss the criteria for the patients to be appropriate for the lounge. Working on improving the identification and utilization of the discharge lounge allows for improvement in capacity management. Capacity management focuses on getting patients

discharged within two hours of the depart order being submitted. We also looked at the complications that prevented patients from being discharged. Whether it be a therapy consult, oxygen test, or the patient waiting for a ride home. There are many factors and steps that go into the planning for discharge of any patient. Overall, our goal was to increase the effectiveness and efficiency of the discharge process and patient care at Jameson.

Amauni Campbell

Neuroscience, Class of 2025

Faculty Sponsor: Randy Richardson

Performance

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Psychology/Neuroscience award and the Diversity and Social Justice award.

Story Of Us: On Race, Identity, and My American Experience

The address features the development of three narrative tropes: the story of self, story of us, and story of now. This particular narrative moves from the experience of one person facing racial injustice in America, to the collective stories of close friends and family. The historical background that's brought us from the past to now, showing how these acts have changed but not enough of a change to make a person of color feel safe, or respected. From Slavery to Jim Crow, 3/5th compromise to voter suppression, that same change so sorely needed to stop history from repeating itself. A story of self must turn into a story of us to make those around us see that we are all, in a way, the same. Thus, to exclude a group of people from the whole show that 'all lives cannot matter' until Black Lives Matter.

Komari Clark

Interdisciplinary major Fine Arts/Marketing, Class of 2023

Faculty Sponsor: Summer Zickefoose

Art Display

Kenobi's season debut

For my presentation I plan on displaying my first set of designs that I've created. I would be using this opportunity to develop my brand and help start to guide me through fashion industry. Also would help me start a foundation for my internship for future reference.

Luke Clark

Accounting, Class of 2022

Faculty Sponsor: Jesse Ligo

Co-authors: Madison Macura, Matthew Costello

Oral Presentation

Let's get our foot through the door

When making important life decisions, everyone sets off at their own pace. Buying your first house is no different. Our research will focus on how soon after college graduation recent alumni plan to move out of their parents' homes and at what age they plan on purchasing their first home. We will then go into the different steps needed to make sure an individual is on track to buying their first home. These steps will include researching areas to live, how tax rates can impact your decision, how to secure a mortgage and the best rates, as well as how much money you should be putting down on the house. The journey to buying your first house may seem daunting but with the right tools to succeed, you can cross that scary path.

Lindsay Cotton

Neuroscience, Class of 2022

Faculty Sponsor: Eric Fields

Oral Presentation

*Funding received from the Drinko Center for Undergraduate Research
Candidate for the Psychology/Neuroscience award.*

Preventing Dementia: The Impact of Sleep Quality on Cognitive Function in Westminster College Students

Because there is no cure for dementia, determining factors that may increase the risk of a diagnosis is imperative. The present study aims to investigate differences in scores on cognitive tests with varying sleep quality scores to determine the relationship between sleep quality and cognitive function. Participants for the study were recruited on a volunteer basis via an all-campus email. Each of the 50 participants were asked to complete a survey to collect demographics and information about sleep quality over the past month, an adapted version of the PSQI. Following the survey, participants were then asked to complete the N-back Task and the Wisconsin Card Sorting Task. I expect to see participants with high scores on the PSQI scoring lower on the cognitive tasks due the relationship between sleep habits and cognitive decline (Borkowska et al., 2009; Kato et al., 2018; Kato et al., 2019; Miyata et al., 2010; Okuda et al., 2021).

Theodore Curcio

History, Class of 2023

Faculty Sponsor: Michael Aleprete

Poster Presentation

Funding received from the Drinko Center for Undergraduate Research

Model UN Chicago Trip 2022

This Trip to Chicago for Model UN was great for the educational experience, it allowed students to see and be able to simulate the inner workings of the UN. How resolutions are passed, how voting works etc. Some other educational experiences from this trip was the ability to work with other schools and to be able to travel and see Chicago. But in the end the most educational part of the trip was the conference itself, allowing students to not only be able to use what they learned in class last semester, but able to use those skills for the class this semester and be able to set up for the school hosted conference.

Sean Davis

Business Administration, Class of 2022

Faculty Sponsor: Kandice Hartner

Co-authors: Sabrina Slagle, Gino Ginocchi

Poster Presentation

Candidate for the Environmental Prize and the Health and Well Being Prize.

Apiary Branding and Advertising: Group 1 "Fly Honeys"

The students of Creative Media Production will be investigating the possibility of advertising and promoting the Westminster Apiary at the field station on campus. The students will decide the best methods of sales and promotion through creating a logo, designing a bottle, producing a campaign, and many other avenues of bringing the Apiary to market. The students hope to successfully develop this project into a full-scale business opportunity for students to receive real world business experience as well as crating s revenue stream for the college.

Iris Davis Hall

Professional Communication and Leadership, Class of 2023

Faculty Sponsor: Randy Richardson

Oral Presentation

Funding received from the Drinko Center for Undergraduate Research

Argumentative Non-Argument: The Combatitive Rhetoric of Marjorie Taylor Greene

The emergence of Georgia Congresswoman Marjorie Taylor Greene as a political force is a perplexing phenomenon. Her controversial comments garner attention and in spite of being removed from Congressional committees, barred from Twitter and relentlessly scrutinized by media outlets, she has emerged as a leading voice in the GOP. The question that emerges is, how is this extreme voice so extremely effective? Over the course of the summer, I analyzed the persuasive strategies of Greene using Greene's speeches, interviews, social media posts, and other public statements served. To focus the scope of my research further, I examined her rhetoric related to COVID-19. An analysis of her rhetoric revealed a unique style of political rhetoric: combative rhetoric. Her rhetoric incites controversy for the sake of controversy,

conflict, and attention rather than insightful conversation or debate. The effect that Greene motivates is further conflict resulting in an increasingly polarized audience.

Iris Davis Hall
Professional Communication and Leadership, Class of 2023
Faculty Sponsor: Brittany Rowe-Cernevicius
Co-authors: Rob King
Other

Focus Group Session

Come and participate in a focus group session designed to provide feedback to students working in their Creative Media Production capstone projects. Participants will experience what it is like to participate in market research as they view a documentary trailer and elements of a graphic design project.

Christopher Dombrowski
Environmental Science, Class of 2023
Faculty Sponsor: Keith Bittel
Co-authors: Callie Beck, Payton Waight, Megan Miller
Poster Presentation
Candidate for the Environmental Prize and the Health and Well Being Prize.

Why Are We Using Fossil Fuels?

For our project, we decided to investigate four different energy sources to evaluate which energy source is the most sustainable and environmentally friendly. This project analyzes four different energy sources that include wind energy, hydropower, nuclear energy, and solar power. We decided to select these sources in order to provide a bigger insight into how "green" these sources truly are. To carry out the analysis, we are going to look at the environmental impacts, cost, efficiency, and how sustainable each of these energy sources is compared to fossil fuels.

Jill Douglas
Psychology, Class of 2022
Faculty Sponsor: Sherri Pataki
Oral Presentation
*Funding received from the Drinko Center for Undergraduate Research
Candidate for the Psychology/Neuroscience Award, the Diversity and Social Justice Award, and
the Health and Well Being Prize.*

What beliefs and attitudes do gender diverse college students have regarding sexual assault and rape myths on campus?

This mixed method study examined rape myth acceptance on college campuses among gender diverse students. Our goal was to consider participants' responses to a quantitative measure of rape myth acceptance (RMA) in light of participant responses to semi-structured interviews. In the quantitative study 114 participants answered a survey containing a RMA scale using either gender stereotyped (i.e. he, she) or gender neutral (i.e. they, them) language, masculine/feminine contingency scale, and sexual objectification scale. Key findings indicated that the RMA scale using gender neutral language was more reliable than the gender stereotyped scale. In the qualitative study, 21 participants volunteered to be interviewed for a study in which they were asked questions about the problem of sexual assault on college campuses, consent, and factors contributing to sexual assault. It was found that participants do not contain a deep understanding of the extent of sexual assault on college campuses.

Jill Douglas

Psychology, Class of 2022

Faculty Sponsor: Jessica Rhodes

Co-authors: Regan Kelly

Poster Presentation

Candidate for the Diversity and Social Justice Award.

Rape Myth Acceptance Using Gender Neutral Language

Rape myths are false beliefs regarding sexual assault and typically measured using gender stereotyped language (i.e., she). This is non-inclusive and highlights the need for assessment with gender neutral (GN) language (i.e., they). The aim of this study was to create and assess the psychometric properties of a new measure of rape myth acceptance (RMA) using GN language. Study 1: Participants (n = 44) completed both the Illinois Rape Myth Acceptance (IRMA) scale and a GN-RMA scale. Both reliability ($\alpha = .94$) and validity ($r = .93$) estimates of the GN-RMA were strong. Study 2: Participants (n = 102) were randomly assigned to either the IRMA scale (n = 51) or the GN-RMA scale (n=51). Reliability estimates were strong and comparable; GN-RMA ($\alpha = .90$), IRMA scale ($\alpha = .850$). Results suggest that the revised GN-RMA scale demonstrates strong psychometric properties. Given the inclusive language of the revised scale, future research should consider implementation of the GN-RMA.

Michaela Duke

Biology, Class of 2022

Faculty Sponsor: John Robertson

Poster Presentation

Cleft Lip and/or Cleft Palate

Oral cleft is the most prevalent craniofacial malformation in newborns, affecting 1 in 690 births. This presentation will serve to inform and educate about oral clefts including cleft lip (CL), cleft palate (CP), and cleft lip with cleft palate (CL/P). Craniofacial development is composed of a complex interaction of cell patterning, cell migration, cell proliferation, and cell differentiation. Most oral clefts occur independently of other developmental deformities. However, syndromes, or groups of symptoms occurring together, with accompanying developmental deformities do occur. Etiology, or causation of CL/P, includes both genetic and environmental factors. Prenatal diagnosis of oral clefts is preferable, as it allows for identification of associated syndromes. Ramifications of oral clefts involve airway and sucking difficulties, so newborn management with surgical repair is crucial. Additional surgeries, as well as orthodontic and speech therapies, may be required.

Annalisa Echevarria
Public Relations, Class of 2022
Faculty Sponsor: Brittany Rowe-Cernevicius
Poster Presentation

Social Media and Apology: A Case Study Analysis of Influencer Apologies

This study analyzed 21-year-old beauty YouTuber James Charles's internet apology in the wake of a 2021 scandal involving inappropriate contact with minors. Since starting his YouTube channel in December 2015, he has gained over 25 million subscribers and directed, co-produced and hosted his own reality competition on YouTube. Using a case study approach, this research analyzed an apology video that Charles posted on April 21, 2021. Benoit's Theory of Image Restoration was applied to the video in which Charles talked about holding himself accountable for messaging boys on Snapchat. Thematic coding of the video and comments made about the video revealed that Charles's did use Image Restoration Strategies and was successful in preventing further damage to his reputation. This research can be used as a stepping stone into more research into influencer apologies and how influencers can use Benoit's Theory of Image Restoration.

Annalisa Echevarria
Public Relations, Class of 2022
Faculty Sponsor: Kandice Hartner
Co-authors: Christopher Powers, Jacob Merkel, James Boyle
Poster Presentation
Candidate for the Environmental Prize and the Health and Well Being Prize.

Apiary Branding and Advertising campaign

Working in tandem with Dr. Boylan's Entrepreneurship class we created a branding campaign, packaging options, and advertisements that coincide with the mission and vision of the Apiary. The project required research elements such as creative brief, sketches, moodboard and multiple client meetings. We are one of three groups who created concepts for the Apiary as part of the Advance Design and Advertising class.

Jamieson Elia

Biochemistry, Class of 2022

Faculty Sponsor: Helen Boylan

Poster Presentation

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Health and Well Being Prize.

Analysis of delta8-THC in Commercially Available Products by Reverse Phase HPLC

Delta 8-THC is unregulated at the federal level, as long as it's hemp derived and Delta9-THC content is < 0.3%. Most products sold are not just Delta-8 THC -- as the conversion reaction from CBD to THC often yields a high percentage of delta-8-THC, as well as small amounts of other cannabinoids and reaction by-products. Little is known about the health effects of these impurities, and chemists have not identified all of them. This is a research project confirming the purity of commercially available labeled delta8-THC products, and identifying potential unwanted by-products.

Mark Eminhizer

Biology, Class of 2022

Faculty Sponsor: John Robertson

Poster Presentation

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Environmental Prize.

Characterizing Gill Pigmentation in Juvenile Atlantic Sturgeon

Acipenser Oxyrinchus, commonly known as the Atlantic sturgeon, has been fished and exploited to near extinction. The goals of this study are: 1) to develop and validate a digitized, image analysis-based method of quantifying gill pigmentation, 2) to assess the change in degree of gill pigmentation within varying ages and sizes of Atlantic sturgeon, and; 3) to determine the localization of pigmentation within Atlantic sturgeon gills. I predicted that the degree of pigmentation will increase as the sturgeon grow. I also hypothesized that pigment will be localized within the gill filaments. This study employs image analysis methodology to measure the amount of pigment present in single gill arches. Gills were examined via light microscopy to identify and localize melanocytes. Results show pigmentation having a positive linear

relationship with the size and age of the sturgeon, as well as there being a consistent pattern of pigment cell localization within the filaments.

Marc Esqueda

Political Science, Class of 2022

Faculty Sponsor: Shannon Smithey

Poster Presentation

Candidate for the Diversity and Social Justice Award.

Voter Suppression; Voter I.D Laws before and after Shelby County v. Holder (2013)

Voting suppression has been a longstanding issue in the history of politics in the United States. In this decade, there has been a significant increase in the adoption of strict voter ID laws. Many critics view these laws as a tool used by those of the political right to suppress the votes of people who support their political opponents. Electoral data indicate that such laws do in fact disproportionately affect racial minorities and the lower class from the process of voting. This disparate impact increased after the Supreme Court's decision in Shelby County v Holder (2013). In this paper, I document this case's implications by analyzing the national election statistics on a state level from the years 2008-2016; collecting data both before and after the decision. This research will display that the adoption of these strict voter identification laws in these states will have a negative impact on the overall state-level turnout of racial minorities in national-level elections.

Jessica Fellion

Nursing, Class of 2022

Faculty Sponsor: Joni Darby

Co-authors: Emily Bright, Kal Ternitsky

Poster Presentation

Candidate for the Health and Well Being Prize.

"Reducing Clostridium Difficile Infection Rates at UPMC Jameson"

Per the CDC, Clostridioides difficile is a bacterium responsible for an estimated 500,000 hospital acquired infections (HAIs) on an annual basis within the U.S. alone. If untreated, it is known to commonly cause inflammation of the large intestine and diarrhea, in addition to rare complications as sepsis, toxic megacolon, and even death. Therefore, it is crucial to reduce infection rates, especially at UPMC Jameson, as will be presented with this poster. Measures related to decreasing rates, which will be explored within this presentation, include instituting effective "care bundle" methods such as implementing easily noticeable, bright PPE signs and reminders to wash hands outside of patient rooms, determining the proximity of sinks/working with staff to locate convenient sinks to ensure proper hand hygiene of soap and water to prevent

the spread of the pathogen, in addition to distributing badge-sized cards to nurses which offer major points of reducing *C. difficile* infections.

Molly Frank

English, Class of 2022

Faculty Sponsor: Kristianne Kalata

Oral Presentation

Candidate for the Diversity and Social Justice Award.

Magic, Mayhem, and Womanhood: The Reclamation of the Witch in Modern Fantasy by Women Authors

The figure of the witch has historically and culturally been used to punish powerful women and warn other women of what fate awaits them if they stray from what society deems as acceptable behavior. Even on a modern stage, powerful women are often demonized, deconstructed, and depowered. Women authors have been and continue to engage in reclaiming the figure of the witch to be a symbol of empowerment. Four modern women authors have been engaging in this work across four novels and a short story. In looking through the lenses of monster theory, narrative theory, and feminist theory, the novels *Terrier* (2006) by Tamora Pierce, *Shadow and Bone* (2012) and “The Tailor” (2013) by Leigh Bardugo, *Circe* (2018) by Madeline Miller, and *The Witch’s Heart* (2021) by Genevieve Gornichec all provide modern takes on the witch and the fantasy genre as a whole to reclaim the figure as a symbol of female empowerment and community.

Emily Gagliardi

Biology, Class of 2022

Faculty Sponsor: Ann Throckmorton

Poster Presentation

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Environmental Prize.

High concentrations of cannabidiol significantly decreases survival of the mealworm, *Tenebrio molitor*

The stored-grain pest *Tenebrio molitor*, commonly known as the mealworm, creates immense difficulties for the agricultural community as they feed on stored grains. Since mealworms have become resistant to traditional pesticides that have been used to try to control their populations, attention has been shifted to more natural solutions. Cannabidiol (CBD) is a secondary metabolite of the *Cannabis sativa* plant that may be an effective, natural pesticide. This study tested the effects of CBD on mealworm survival. Mealworms were exposed to different concentrations of CBD and were monitored for five weeks to determine the number of surviving mealworms after exposure. It was found that CBD had significantly decreased mealworm

survival at high concentrations. With this, it could be concluded that CBD has potential to be an effective pesticide against *T. molitor*.

Emily Gagliardi
Biology, Class of 2022
Faculty Sponsor: John Robertson
Co-authors: Hannah Meeks
Poster Presentation

Comparing the Coagulation Mechanisms of Two Coagulation Disorders

Coagulation, or blood clotting, is a mechanism initiated by the body to reduce the loss of blood involving the use of platelets, coagulation factors, proteins, and vasoconstriction. Disruptions in coagulation methods can lead to hypercoagulation disorders creating an increased tendency to clot in both the presence and absence of bleeding. Blood clots kill 100,000 people each year. Antiphospholipid Antibody Syndrome is a hypercoagulation disorder characterized as an autoimmune disorder creating an increase in specific blood proteins that can increase the risk of clotting. Prothrombin Gene Mutation Disorder is a hypercoagulation disorder characterized by a gene mutation that creates an excess in the production of clotting factors that increase the risk of clotting. Understanding the disruptions in these coagulation methods can aid individuals with these disorders in preventing the detrimental risks associated with them.

Krysta Germanoski
Finance, Class of 2025
Faculty Sponsor: Kristanne Kalata
Co-authors: Abigail Cannon, Elizabeth Walters
Research Round Table
Candidate for the Diversity and Social Justice Award.

Education and Justice

The presenters in this roundtable are to explore how their working definitions of justice in education and law impact their perspective on issues regarding youth. Topics to be covered include Critical Race Theory; censorship in educational texts and the lack of education for children in foster care. As research is shared on these topics, students will explore the impact that law and education has on our youth; more specifically, observations of how justice is sought out within these set foundations is analyzed and how the change in the way justice is pursued can improve the future of our children. The roundtable will culminate by encouraging all students to analyze the topics in discussion and explore how changing the pursuit of law and education can be modified in order to obtain justice for all.

Krysta Germanoski
Finance, Class of 2025
Faculty Sponsor: Robert Zullo
Co-authors: Abigail Cannon, Breannnda Davis, Madillynn Kerr
Poster Presentation
Candidate for the First Year Poster Prize.

Sustain-a-beauty

This poster will explore the way in which the beauty industry has made an effort to become more sustainable overall. As many other industries dive into more environmentally sustainable alternatives, the beauty industry is not falling behind, making many changes, from packaging to product ingredients themselves. Focusing specifically on Bare Minerals, Dove, Burt's Bees, and W3LL People, big changes to the beauty industry are illustrated, showing a prime example of the comprehensive change. These companies have exemplified how the industry has been able to shift to a more sustainable format, thus allowing the needs of present consumers to be met while preserving the future of the world.

James Gilbert
Biology, Class of 2022
Faculty Sponsor: John Robertson
Poster Presentation
Funding received from the Drinko Center for Undergraduate Research

Structure of the pyloric cecum in Atlantic sturgeon

This study describes structural features of the pyloric cecum in Atlantic sturgeon (*Acipenser oxyrinchus*). In various fish species, the pyloric cecum is a prominent digestive organ thought to have absorptive and, possibly, secretory functions. Using freshly excised tissues from juvenile fish, we determined morphometric indices that relate pyloric cecum dimensions to other digestive tract components and whole body measures. In addition, we use histology with differential staining to characterize pyloric cecum cell and tissue features. Characterizing the structure of the pyloric cecum in Atlantic sturgeon may afford insight into digestive adaptations associated with the way of life and diet of this acipenseriform species. As Atlantic sturgeon continue to face population decline and the threat of extinction, contributions to the understanding of digestive structure and function may be useful in efforts to conserve this species.

Charles Gordon
Psychology, Class of 2022
Faculty Sponsor: Loreen Huffman
Poster Presentation

Minecraft Effects on Attention, Mental Rotation, and Manual Dexterity

Minecraft is a popular video game. Despite controversies about playing video games, previous studies have shown that Minecraft can significantly increase writing, reading comprehension, and math skills in school-aged children. Few studies have examined the impact of Minecraft on young adults cognitive and motor skills. The purpose of this study is to examine the effect of Minecraft on three domains of functioning: visual attention, mental rotation, and manual dexterity. I hypothesized that Minecraft would increase visual attention, mental rotation, and manual dexterity. Participants played Minecraft for 40 minutes then were tested on their visual attention, mental rotation, and manual dexterity. Scores were compared to a control group who did not play. The results of this study are discussed to inform us about the possible benefits of playing Minecraft on attention and other skills.

Kayleigh Green

Music Education, Class of 2023

Faculty Sponsor: Todd Cole

Co-authors: Emily Lamark, Maddy Matejka, Amber Cepec, Marissa Mulea, Madison Mueller-Howell

Performance

The Sweet Trebles A Cappella Group

The Sweet Trebles will perform a few songs from recent decades. These will include:

Halo/Walking on Sunshine arranged by Thomas Videla

Light in the Hallway arranged by Roger Emerson

I Got Rhythm arranged by Dorothy Horn

Anna Grimenstein

Biology, Class of 2022

Faculty Sponsor: Marosh Furimsky

Poster Presentation

Examining Bisphenol S exposure in zebrafish embryos and its effects on their cardiac development and fitness

Bisphenol S, a synthetic polymer, is found in aquatic environments due to plastic pollution. BPS is a xenoestrogen; it interferes with estrogen signaling and can cause disease. The goal of this project was to determine if BPS disrupts cardiac development in aquatic animals. Zebrafish embryos were exposed to three levels of BPS (10, 100, and 1000 $\mu\text{g/L}$). Some embryos were treated with BPS for three days. Survivorship, hatching time, body length and head width were recorded. Other embryos were treated with BPS for four days and dechorionated on the first day.

Heart rate and cross-sectional heart area were recorded. Hatching time was delayed by one day in embryos treated with BPS. Heart rate decreased with an increase in BPS concentration, and heart area increased with the 100 and 1000 µg/L treatments. These results show that Bisphenol S disrupts proper development and function of the heart in zebrafish. This may result in decreased cardiac health for aquatic animals exposed to BPS.

Nicole Grzebyk
Nursing, Class of 2022
Faculty Sponsor: Tricia Ryan
Co-authors: Forest Mills
Poster Presentation

Reducing Falls and Falls with Injury

Reducing falls and falls with injury is one of the priority problems in the hospitals and other healthcare facilities. Keeping patients safe is the most important thing within a patient's care. Patient falls are some of the most frequent accidents in hospitals that pose a great threat to patient safety. All falls are a significant problem. No one fall is harmless to a patient. Some falls may cause significant injuries to a patient which also lengthens the hospital stay. Falls are looking to be reduced in the patient population so that further injuries and comorbidities can be prevented. By correcting patient conditions that put them at an increased risk for falls will hopefully decrease the number of falls and the number of falls with injury. Also, by reducing the number of falls, the healthcare team, the patient, and the organization as a whole will benefit. Reducing falls will positively impact the hospital or organization because it will reduce costs in the patients' care.

KayLee Hankins
Environmental Science, Class of 2023
Faculty Sponsor: Keith Bittel
Co-authors: Patrick Benedict, Reid Sanderson, Adam Coppins, Brody McGuinness
Poster Presentation

Candidate for the Environmental Prize, the Diversity and Social Justice Award, and the Health and Well Being Prize.

Air Pollution in California

Our research focuses on air pollution in the state of California. Air pollution is a major concern in California. Specifically, the burning of fossil fuels. The main sources of this issue are industry and average citizens. This is a concern because the overuse of fossil fuels as a power source and as fuel for motor vehicles increases greenhouse gas emissions contributing to climate change and an increase in wildfires in the state of California. Our research focuses on air pollution with regards to the use of motor vehicles and how market-based economics can be used to formulate a

possible solution to the issue. Specifically we are looking at how alternate forms of transportation can improve air quality and reduce air pollution.

Bryce Hayes
Individual Interdisciplinary (BS), Class of 2022
Faculty Sponsor: Craig Caylor
Poster Presentation

Detection and Output of Sign Language using TinyML on a Sony Spresense

Using a Sony Spresense attached to glasses, we will detect sign language and output a visual display as well as an audio output of the translation into English. We will do this by implementing machine learning processes on the embedded level using TinyML practices such as Python's TensorFlow Lite Micro and C++.

Lily Hefner
Molecular Biology, Class of 2025
Faculty Sponsor: Kristianne Kalata
Co-authors: Gavin Jones, Christine Karn
Research Round Table

Candidate for the Diversity and Social Justice Award and the Health and Well Being Prize.

How Far is Too Far? Trying to Control Life and Death

This panel of All-College Honors students will be discussing the morality of modern scientific issues: CRISPR-Cas9, lethal injection and assisted dying. These topics prompt questions about how much control humanity ought to have over the life and death of themselves and others. Currently, policies in place require reasonable explanations of a person's choice to implement these technologies. Are reasonable explanations enough or do we need to require something more? Is it "okay" for humans to have this kind of power?

Michael Henderson
Political Science, Class of 2022
Faculty Sponsor: Shannon Smithey
Poster Presentation

Constitutional Design of Eastern European States and its Influence on their Economies, Governmental Structure, and Social Stability

This study looks at the effect constitutions have on political and economic stability. The independent variables of this study are the post-soviet East European states constitutions established between 1989-1998. More specifically, the constitutional structures and balance of power between the president and parliament. I also looked at the number of political parties as an independent variable. The dependent variables are the economic stability and political stability specifically between the range of 2006 to 2008 and 2017 to 2019. Executive authority given within constitutions is one of the most important aspects. An executive can make decisions and hoard power based on how much power is given to them in the constitution. The country also has to have the political stability to hold the executive accountable if they do break a part of the constitution.

Emmalene Hodil

PreK-4 Early Childhood Ed/PreK-12 Spec Ed, Class of 2022

Faculty Sponsor: David Swerdlow

Co-authors: Victoria Harden, Jaden Sowers

Other

SCRAWL Spring 2022 Release

Scrawl's Spring 2022 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.

Emmalene Hodil

PreK-4 Early Childhood Ed/PreK-12 Spec Ed, Class of 2022

Faculty Sponsor: David Swerdlow

Co-authors: Molly Frank

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 2022 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.

Daniel Horgan

Creative Media Production, Class of 2023

Faculty Sponsor: Kandice Hartner

Co-authors: Jack Karson, Saige Heigel, Tim Spicer

Poster Presentation

Candidate for the Environmental Prize and the Health and Well Being Prize.

Apiary Brand and Advertising Campaign: The “Bee” in Westminster

This project, through the advanced design and advertising class taught by Kandice Hartner, is meant to design a brand for the Westminster College Apiary. In collaboration with Dr. Boylan’s entrepreneurship class, our team has created a logo, product mockups, and social media posts to encapsulate the vision and mission of the Westminster College Apiary. Utilizing research strategies including creative briefs, sketches, mood boards, and client feedback, we’ve curated a comprehensive marketing strategy to help further promote the apiary’s growth. Our audience can expect an in-depth presentation on our design process and its application. This project is mutually beneficial to the advanced design and advertising class as well as the college apiary.

Daniel Horgan

Creative Media Production, Class of 2023

Faculty Sponsor: Brittany Rowe-Cernevicius

Co-authors: Callie Beck

Other

Focus Group Session

Come and participate in a focus group session designed to provide feedback to students working in their Creative Media Production capstone projects. Participants will experience what it is like to participate in market research as they view a documentary trailer and elements of a graphic design project.

Tyler Hunter

English, Class of 2024

Faculty Sponsor: Randy Richardson

Performance

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Diversity and Social Justice Award and the Health and Well Being Prize.

The Masking of Neurodivergence: A Public Narrative

The hiding or masking of neurodivergence is frustrating at best and harmful at worst. The event Public Narrative is a ten-minute speech where one can explore personal experiences to explain their understanding of the world and their effect on it. Public Narrative is a competitive speech event from the scholarship of Harvard Sociologist and Author Marshal Ganz. The address features the development of three narrative tropes: the story of self, the story of us, and the story of now. Students explore their personal experiences and how the individual can help others understand larger topics. This speech explores discriminatory behavior towards neurodivergent people, as well as stereotypes that hurt the neurodiverse community. Neurodivergence is defined

as ‘differing in mental or neurological function from what is considered typical/normal.’ With various data sources, I am able to bring the many behaviors that hurt the neurodivergent community into the light.

Mackenzie Hupp

Psychology, Class of 2022

Faculty Sponsor: Sherri Pataki

Oral Presentation

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Psychology/Neuroscience Award.

The Impact of Weight and Physical Disability on Person Perception

Two studies examined the intersectionality of weight and physical disability on stigma. A 2X2 experimental design measured the effect of being overweight, physically disabled, or both on evaluations related to a hypothetical academic scholarship. Participants were randomly assigned to four conditions with the applicant described as obese, in a wheelchair, neither or both. Participants rated applicant’s competence, resilience, and perceived control. Applicants who were neither obese nor disabled were seen as being least responsible for needing financial aid. To increase experimental realism, in Study 2 participants were randomly assigned to indicate their own willingness to participate in future campus outreach related to obesity, physical disabilities, or obesity paired with a physical disability. Participants were predicted to be least supportive of obesity outreach due to weight stigma not explained by a physical disability.

Mackenzie Hupp

Psychology, Class of 2022

Faculty Sponsor: Randy Richardson

Co-authors: Izayah Bojanac, Kent Dunn, Ellis Moore, Iris Davis Hall, Claire Mock

Other

Funding received from the Drinko Center for Undergraduate Research

Parliamentary Debate

Parliamentary Debate is a civil style of debate generally associated with 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. Topics may include anything from contemporary social and political issues to philosophical propositions and may reflect questions of fact, value, or policy. Students compete in teams with Debaters alternating sides from round to round speaking in defense of the resolution on the Government side and then against the proposition on the Opposition team. Generally speaking, in each round debaters contest over matters of topicality, inherency, harm, and solvency. Parliamentary Debate requires a comprehensive knowledge of current events as well as the ability to apply argumentation and

debate theory. In the present debate, it will be Izayah Bojanac, Kent Dunn, and Iris Pearl Davis Hall vs. Claire Mock, Ellis Moore, and Mackenzie Hupp.

Joshua Hutcherson
Nursing, Class of 2022
Faculty Sponsor: Tricia Ryan
Co-authors: Dom Mymo
Poster Presentation

Decreasing Left Without Being Seen Rates in Emergency Rooms

For our QI project, the topic we were assigned was left without being seen rates in the emergency room. After meeting with our preceptor, Karen Calhoun, she directed us with data that showed more of a burden in the left without being seen aspect. We discussed ways to implement new practices that can help ease the burden of the waiting room. We started with the whole purpose of people who leave without being seen. What is their motive? The reason they always leave is due to wait times. These wait times are upwards of 6-8 hours some days/nights. When patients come in with abdominal pain or generalized pain and wait for hours without being pulled back to the ER, they become impatient and leave. This causes controversy, being that some of these patients have the potential to have something urgent in need of medical attention, but unfortunately go unseen. In this project, we will try to implement ways to decrease these wait times. We will focus on using telehealth and adding equipment.

Alexa Hutchinson
Nursing, Class of 2022
Faculty Sponsor: Joni Darby
Co-authors: Eva Hagg
Poster Presentation

Improving Rapid Response Documentation

Rapid responses, also known as medical emergencies, occur in every hospital in all departments. There is not a specific way to document events of a Rapid Response efficiently and accurately while the event is taking place, leading to incorrect information within the patient's chart. Incorrect documentation can lead to poor patient outcomes, lawsuits, and wrong treatment decisions. During a Rapid Response there are various actions being performed all at once and by different individuals. These events can easily become very chaotic, and it is difficult to record times that medications were given, when CPR was started and stopped, and heart rhythms that were present during the response. Our team will increase CCU RN documentation of patient status change compliance by implementing education sessions and posted reminders to document change in status in the CCU at Jameson Hospital.

Carsyn Jack
Financial Economics, Class of 2022
Faculty Sponsor: Jessica Ligo
Co-authors: Eibhlin Terrell, Kenny Garvey
Oral Presentation

Why Do We Need Student Loans and How Do I Get Rid of Them?

Often a touchy subject due to its recent politicization, the repayment of student loans is a crisis for many individuals. When it comes to inflation, there are many aspects of the United States economy that have inflated at different rates. Past statistics clearly show that the rate in which minimum wage has increased since 1980 has been consistently much lower than the rate in which the cost of college attendance has increased. Thus, students often need to borrow so much money that they frequently find it increasingly difficult to pay back their student loans, even after graduation and working in the career designated by their major. Analysis of the current cost of college, the current minimum wage, and the average annual salary received upon graduation of college provides the insight necessary to see both the reason student loans are so difficult to repay as well as the most appropriate path to their repayment.

Olivia Jacobson
Neuroscience, Class of 2022
Faculty Sponsor: Eric Fields
Oral Presentation
Candidate for the Psychology/Neuroscience Award.

Stress and memory in college students

Though memory is best divided into three separate processes, retrieval is the focus of my research. Retrieval is the reactivation of memories that have been encoded and consolidated. The hypothalamus-pituitary-adrenal (HPA) axis, that is activated in response to stress in the body, produces cortisol in humans. Cortisol inhibits the hippocampus in the brain, impairing memory. Participants will be presented with a list of neutral words, asked to rate their stress, then asked to place their hand in a bowl of water. The control group will be room temperature water and the experimental group will be ice water. After a 20-minute latency period, participants recall as many words as possible and rate their stress again. The experimental group should have less words remembered. Stress during retrieval will impair memory because cortisol in the brain binds to receptors in the hippocampus. This research is relevant to students of all ages and their educations.

Alexis Jones
Political Science, Class of 2022
Faculty Sponsor: Shannon Smithey

Poster Presentation

The Effect of Appointing President on Judicial Vote Patterns: A Case Study of Judicial Decision Making and Opinion Language

Presidential appointments to the Supreme Court of the United States are thought of as great predictors of how justices will decide cases during their tenure. In this research, I show that while the theory that presidential appointments to the Supreme Court of the United States of America can predict judicial decision making, there are some areas where justices appointed by the same president disagree, which does show broader features of those justices' specific decision-making style. I utilized Justice Ginsburg and Justice Breyer for this case study. For my analysis, I created inter-agreement scores of the natural court cycle between 2010 to 2016 and I utilized content analysis of U.S. Supreme Court Cases. In relation to my hypothesis, I confirm that justices appointed by the same president do not invariably decide cases the same way. This shows that appointing president cannot be the only item considered when evaluating the future decision making of U.S. Supreme Court justices.

Constantine Kallaur

Individual Interdisciplinary (BA), Class of 2022

Faculty Sponsor: Bradley Weaver

Video

Funding received from the Drinko Center for Undergraduate Research

Imagine a Quest

This short film written and directed by Constantine Kallaur, was created as a senior capstone project. The film centers around the relationship between two brothers and their adventures, and explores the theme of spending time with your loved ones. This presentation is, in many ways, a follow up to last year's presentation in URAC 2021 where the trailer and story ideas were presented for feedback and discussion. Now having a finished product, the purpose of this screening is to give both faculty and students a chance to see the film and to ask questions about its production. It is an opportunity to see one of the first student films ever made for a capstone project.

Constantine Kallaur

Individual Interdisciplinary (BA), Class of 2022

Faculty Sponsor: Bradley Weaver

Co-authors: Dani Soloski, Marcus Tokar, Austin Shaw

Video

BEA Club Short Film Competition

The BEA (Broadcasting Education Association) on campus is holding a short 72 hour short film competition open to all students and faculty. This screening will showcase the top three films declared to be the winners. It is an opportunity to watch the combined efforts of several students and faculty in their film making endeavors.

Constantine Kallaur

Individual Interdisciplinary, Class of 2022

Faculty Sponsor: Bradley Weaver

Co-authors: Dani Soloski, Marcus Tokar, Mason Peck

Video

The Mother Fair Short Film Showcase

The Mother Fair Short Film Showcase will screen three original micro-movies created by Westminster undergraduates for public screening at URAC 2022. Multiple teams of aspiring artists, actors and storytellers will create short video narratives with a running time of 2-3 minutes. The local chapter of the Broadcast Education Association Student Clubs (BEA@WC) will present the work on behalf of students who participate in a 48-hour-type film competition scheduled for the weekend of April 1-3, 2022. The works demonstrate the trend of collective filmmaking with smartphones and apps. The showcase promotes the accessibility of storytelling to all individuals while celebrating liberal arts and Westminster's mission, including fostering well-roundedness, creativity, critical thinking, managing deadline pressure and lifelong skills related to problem-solving.

Matthew Kane

Environmental Science, Class of 2025

Faculty Sponsor: Keith Bittel

Co-authors: David Kelly, Mitchell Myers, Jordan Roser

Poster Presentation

Candidate for the Environmental Prize and the First Year Poster Prize.

Environmental Impact of Cryptocurrency

Bitcoin mining has become extremely popular over the past few years due to the recent jump in its price. However, what may seem like a perfect all digital solution to many is actually creating a major effect on the environment that many are unaware of. In addition, bitcoin circulation between users is also extremely energy intensive as a single transaction will require approximately 707 kilowatt hours of electricity, releasing half a ton of Co2 into the atmosphere.

The information above highlights the prominent issue, the carbon footprint generated by the power plants providing that energy. These plants can release harmful pollutants including

mercury, acid gasses, and organic air toxics. This study aims to emphasize the urgency of this issue and investigate some of the unintended issues that cryptocurrency mining creates. We will find a viable solution in order to reform crypto mining to mitigate the environmental damages.

Matthew Kane

Environmental Science, Class of 2025

Faculty Sponsor: Helen Boylan

Co-authors: Victoria Harden, Baylee Horvath, Nathan Kacey, Trevor McCabe, Megan Miller, Shea O'Donnell, Tyler Sportelli, Tomi Taiwo

Poster Presentation

Candidate for the Environmental Prize and the First Year Poster Prize.

Environmental Entrepreneurship: Westminster Bee Company

The Westminster College Environmental Entrepreneurship class is focused on establishing a business venture from the apiary at the Field Station. Students from different disciplines are working together to create a business plan to package, market, and sell the apiary products. The class intends to market our all natural bee products mainly to alumni and local markets as Westminster-branded, high-end goods in sustainable packaging. The Westminster Bee Company is committed to sustainability and providing educational opportunities to Westminster College students, as well as creating healthy, organic apiary products for our customers. Stop by for a taste!

Weisberg

Jack Karson

Film and Media Relations, Class of 2022

Faculty Sponsor: Summer Zickefoose

Performance

I Can't Decide What Kind of Photos to Take

This display features selections from my personal and professional photography portfolio. It explores the idea that life cannot fit into a single genre through my inability to find a niche for my work. To me, photography is the greatest way to breathe order into chaos. It's a coping mechanism for the growing entropy of our lives. Really, I can't decide what kind of photographer I am, and this display is my justification. "I Can't Decide What Kind of Photos to Take" will include some combination of the following photographic genres: portrait, lifestyle, landscape, sports, corporate, concert, and 35mm film.

Cole Konieczka

Biology, Class of 2022

Faculty Sponsor: John Robertson

Co-authors: Ian Barr
Poster Presentation

Fabry Disease – A Potentially Life-Threatening Genetic Condition

Fabry disease is a rare genetic disorder with multi-systemic effects. In the general population, Fabry disease is found in 1 in every 117,000 people, more commonly found in males. Fabry disease is caused by a mutation in the GLA gene of the X chromosome. This results in a deficiency of an enzyme alpha-galactosidase A which breaks down glycolipids and glycoproteins. Major complications of Fabry disease include heart complications, kidney failure, and nerve damage. Currently, there is no cure for Fabry disease. However, treatments can help manage symptoms. The two most popular treatments currently include enzyme replacement therapies and oral chaperone therapies. Enzyme treatments involve receiving an infusion of lab-made agalsidase beta enzyme, while oral chaperones repair faulty alpha-GAL enzymes by facilitating proper folding. This review will aim to go into further depth covering the prevalence, cause, mechanism of action, symptoms, and treatments for Fabry disease.

Ava Krensky

Biology, Class of 2022

Faculty Sponsor: Summer Zickefoose

Co-authors: Tanner Dudek, Karly Froess

Performance

Candidate for the Environmental Prize and the Diversity and Social Justice Award.

Title: Food Insecurity in Households in Lawrence County

54.4 million Americans are food insecure, according to the U.S. Department of Agriculture. Food insecurity is when people do not have reliable access to a sufficient quality of affordable, nutritious food. Healthy food with appropriate calories is typically more expensive, so those that have a lower socioeconomic status are unable to obtain proper nutrition to fuel their day-to-day lives. This problem is endemic to communities across the United States, and people that have never experienced this burden are not aware of the hardships that food insecure households experience. We decided to draw attention to this problem in our community, and our research found that in Lawrence County, one in ten households are food insecure. For our art project, we decided to construct birdhouses made of cedar and put edible plants in nine of the ten houses to represent their access to healthy foods. The one black house with no plants represents the one household in ten without access to healthy foods.

Ava Krensky

Biology, Class of 2022

Faculty Sponsor: John Robertson

Poster Presentation

Candidate for the Health and Well Being Prize.

Amelogenesis Imperfecta: Causes, Treatments, and Effects

People know they need to brush their teeth twice a day and floss regularly to maintain healthy teeth and overall oral health. However, for those who are born with a genetic predisposition to amelogenesis imperfecta (AI), oral health is not such a simple equation. AI is a condition that affects the structure and appearance of the tooth enamel. Tooth enamel is the thin, outermost layer of the tooth composed of calcium phosphate (Norris, 2010). Those that suffer from AI have teeth that are unusually small, discolored, pitted, or grooved with early tooth decay and loss of teeth (GARD, 2018) due to mutations or altered expression in five main genes. The purpose of this paper is to explain the causes behind AI, its emotional and physical effects on patients, and current treatments and research. Exploring this disorder will help both those with AI and those without understand the complexities and difficulties of living with this condition.

Annalynn Lalama
Psychology, Class of 2022
Faculty Sponsor: Jessica Rhodes
Poster Presentation

Low Self-Esteem and Nicotine Dependence Mediated by Narcissistic Traits

The present study investigated the role of narcissistic traits in a relationship of low self-esteem and nicotine dependence. Past research has found self-esteem as a factor of nicotine dependence. We hypothesized that low self-esteem would predict nicotine dependence and narcissistic traits, and narcissistic traits would mediate the relationship between low self-esteem and nicotine dependence. Participants recruited from Westminster College (N=36, Mean Age=20, SD=1) were given an electronic self-report survey that used measures such as the Narcissistic Personality Inventory, Rosenberg Self-Esteem Scale, and Nicotine Dependence Syndrome Scale. Contrary to hypotheses, self-esteem did not predict nicotine dependence ($r=-.154, p=.369$) or narcissistic traits ($r=.005, p=.978$). Narcissistic traits did not predict nicotine dependence ($r=.210, p=.219$). The findings did not show links amid self-esteem or nicotine dependence, thus a mediating role of narcissistic traits could not be explored.

Emily Lamark
Molecular Biology, Class of 2022
Faculty Sponsor: Karen Resendes
Poster Presentation

5-Fluorouracil and Gemcitabine Alter Nuclear Transport

The chemotherapy 5-Fluorouracil (5-FU) increases nuclear pore permeability and disrupts the gradient of the nuclear transport regulator Ran, leading to cell death of HeLa cervical cancer cells. Combining 5-FU with other chemotherapies is known to increase these effects. Therefore, we sought to determine if 5FU would work similarly with Gemcitabine (GEM) in both HeLa cells and Panc1 pancreatic cancer cells, where GEM resistance is common and may be overcome by combination with 5FU. Indeed, 5-FU+GEM further disrupted Ran in HeLa cells and led to eventual cell death. Furthermore 5-FU and GEM individually and in combination disrupted Ran in Panc1 cells. Current work explores the impact of disrupted nuclear transport on localization of tumor suppressors p21 and p27. If these cell death inducing factors accumulate in the nucleus, their changed transport may help overcome GEM resistance in Panc1 cells and identify a possible combination treatment with 5-FU for use against pancreatic cancer.

Ashlyn Lang

Environmental Studies, Class of 2023

Faculty Sponsor: Keith Bittel

Co-authors: Tomi Taiwo, Rob Schrantz, Luke Persinger

Poster Presentation

Candidate for the Environmental Prize.

Making municipal recycling work

80% of all recycled items end up in landfills due to inefficient recycling processes and a limited market for products made from recycled materials. A lot of these recycled items being thrown into landfills are mass produced items that could be made from recyclable materials. Our solution is to create a program that educates the residents of Pittsburgh on how to properly recycle and to incentivize participation via tax deductions and credits.

By increasing the use of recycled materials, society's environmental impact can be reduced. Our research will focus not only on improving the recycling process in the United States but on the economic and environmental benefits as well.

Carinna Lapson

Engineering Physics, Class of 2022

Faculty Sponsor: Craig Caylor

Poster Presentation

Fabrication and Implementation of an Underwater ROV to Identify Fish Species in Britain Lake

Underwater ROVs, or Remote Operated Vehicles, are submersible vessels attached to the surface via a cable. In recent years, the popularity of these ROVs has increased, which has sparked the attention of those in the industry and hobbyist alike. Unfortunately, most underwater ROVs currently are costly to purchase. The goal of this study is to build a cost-effective underwater ROV out of primarily PVC pipes that can not only capture live underwater video feed but can also identify fish species within Westminster College's Britain Lake in real time using machine learning. Since there is no good training data set for fish species, research was done to collect images of potential fish species that populate Lake Britain and implemented to train the machine learning model. Via a remote controller from the surface, the underwater ROV can be maneuvered, using a Raspberry PI on board the vessel to record video and relay information back to a computer on the surface via an ethernet cable.

Mark LeBlanc
Computer Science, Class of 2022
Faculty Sponsor: John Bonomo
Oral Presentation

Visualizing 3-D Mathematics with Computer Graphics

The graphical representation of 3-D mathematical concepts onto 2-D media such as textbooks and computer screens pose unique challenges. We have developed a program to facilitate both the visualization and the analysis of 3-D mathematical concepts. In essence a 3-D calculator leveraging modern computer graphics hardware and techniques to produce an adjustable visualization of which can be used for further analysis.

John Lima
Physics, Class of 2022
Faculty Sponsor: Craig Caylor
Poster Presentation

Micro:bit in the Classroom

In secondary education, laboratory exercises that reinforce concepts being taught in the classroom can provide engaging experiences for learners. However, experimental protocols often call for the use of expensive measurement probes and other equipment. This creates challenges for implementing these experiences in underprivileged schools. Using the inexpensive Micro:bit learning board, we have made a number of labs that replace the need for this expensive equipment while also bringing the student into the creation of the data collection code.

Lauren Lindemuth
Psychology, Class of 2022
Faculty Sponsor: Jessica Rhodes
Poster Presentation

Social Anxiety and Nicotine Dependence: Viewing the Relationship via Anticipatory Anxiety

Smokers with social anxiety exhibit more nicotine dependence thought to be due in part to poor emotion regulation. Anticipatory anxiety is a future-oriented symptom associated with social anxiety. The purpose of this study is to investigate the mediating role of anticipatory anxiety in the relationship between social anxiety and nicotine dependence. Twenty-six participants (ages 18-22) were recruited from Westminster College. Participants completed a group stress induction, as well as pre- and post-test anxiety-related self-report measures and a test of nicotine dependence. Results demonstrated that social anxiety was not associated with nicotine dependence ($r=-.296$, $p=.171$) or anticipatory anxiety ($r=.314$, $p=.657$). Limitations of the study include sample size and methodological considerations. Future research should consider the effects of state and trait anxiety characteristics on nicotine and dependence,

Keywords: social anxiety, nicotine dependence, anticipatory anxiety, mediation

Hunter Linhart

Business Administration, Class of 2023

Faculty Sponsor: Robert Zullo

Co-authors: David Gearhart, David Kelly, Josh Kurtz

Poster Presentation

Beers of the Year: Sustainable Beer Practices

We have set out to find brewing companies that have incorporated sustainable practices into their businesses. In today's market, sustainability is taking off and anything that can help the environment will undoubtedly draw business, revenue, and investments. At Alice Springs Brewing Co., Alaskan Brewing Co., Great Lakes Brewing Co., and Corona (Anheuser-Busch), we have found initiatives of sustainability that help to improve the environment, aim to decrease waste, and still maintain profitability of the company.

Charles Lisella

Music Education, Class of 2023

Faculty Sponsor: Timothy Winfield

Co-authors: Madison Mueller-Howell, Matt Claypoole, Hunter Hoag, Dalton Stoops, Cameron Stahl, Isabella Dienes, Jocelyn Sellers

Performance

Funding received from the Drinko Center for Undergraduate Research

Westminster College Trumpet Ensemble

The trumpet ensemble will perform a variety of compositions from the Renaissance to the modern day. Works will include Gabrieli - Canzon Septimi Toni a 8 No. 1, Morales - Conquest, Price - Intrada Dramatica, Kimmel - Suite No. 2, and Stewart - Fanfare a 4.

Charles Lisella

Music Education, Class of 2023

Faculty Sponsor: Ryan Keeling

Co-authors: Tanner Smith, Cameron Stahl, Dan Horgan, Jake Tanner, Jack Romocean

Performance

Candidate for the Health and Well Being Prize

Westminster Barbershop Club

The Westminster College will be performing multiple different works including:

Sh-boom (Life Could Be A Dream) By: Dave Briner

Don't Deal With The Devil (Video Game "Cup Head") By: Kristofer Maddigan

Loch Lomond By: Jonathan Quick

Gabrielle Lucas

Political Science, Class of 2022

Faculty Sponsor: Angela Lahr

Oral Presentation

Candidate for the Diversity and Social Justice Award.

Carefully and Justly? : Ethnicity, Gender, and the Distribution of the American Red Cross's Emergency Relief to Titanic Survivors

The 1912 Titanic sinking occurred during the Progressive Era, a period of activism in the United States that included movements to improve citizens' rights, relief programs for the poor, and production efficiency advancements. However, the era's activism was impacted by social norms of the period: Xenophobia, particularly regarding immigrants, was common, as were gender limitations, which affected the era's activism by influencing determinations of who was worthy of aid. This research qualitatively and quantitatively analyzes the Red Cross report on the aid given to Titanic survivors to investigate the impact of social norms on relief distribution. Despite xenophobia and ethnocentrism coloring Progressive Era activism, Red Cross aid given to survivors was not determined by applicants' ethnicity; however, aid was constrained by the period's gender roles, with familial contributions of men given higher value than those of women, leading to male deaths being compensated more than female.

Noah Luzader
Accounting & Business Administration, Class of 2022
Faculty Sponsor: Robert Badowski
Oral Presentation

Comparison of large and small accounting firms' management styles and operational strategies

In the field of public accounting, both professionals and academics have identified areas in which the operational objectives and management decisions vary with firm size. The study both explored relevant literature and tested these preconceptions. To accomplish this, the researcher constructed an interview questionnaire and completed interviews with practicing professionals addressing issues of company culture and employee relations, risk management, and client relationships.

Jacob Mack
Marketing and Professional Sales, Class of 2024
Faculty Sponsor: Robert Zullo
Co-authors: Joseph Antuono, Joe Somora, Luke Persinger
Poster Presentation

Crack Open an Eco-Friendly Cold One

The research conducted highlighted environmentally sustainable beer companies. Since most breweries use hops and barely when being grown, these crops are sprayed with harmful products. Not only can this impact human health, but it can also pollute rivers, lakes, and oceans, which will have a domino effect and further create more environmental issues. During this process, substantial amounts of carbon emissions are released into the atmosphere, which is the main contributor to global warming and can also have a detriment on human health. The brewing process produces wastewater, and only takes two-six liters of water to make just one liter of beer. To fix these issues, beer companies can use organic ingredients, recycle wastewater and aluminum cans. A potential audience of this topic can expect to learn about how the common beer companies and brewing processes harm our environment. During our presentation, they will be introduced to the eco-friendly "cold ones".

Nicole Mackenstein
Biochemistry, Class of 2022
Faculty Sponsor: Patrick Lackey
Oral Presentation

The binding of histone mRNA degradation intermediates and SLBP

Histone mRNA is the only metazoan mRNA that does not end in a poly-adenylated tail, but instead ends in a conserved 3' stem loop. In this study we characterized the binding of the 3' stem loop in histone mRNA degradation intermediates to the stem loop binding protein (SLBP). The mechanism behind the degradation of histone mRNA includes the trimming and uridylation of this 3' stem loop. We designed a competitive binding assay using native electrophoretic shifts to observe the binding interactions that occur between SLBP and the mRNA during degradation. We studied three histone mRNA degradation intermediates to allow a representation of the trimming and uridylation that occurs to be shown. Each intermediate was fluorescently labeled on the 5' end of the stem loop and bound to SLBP. A competitor was added to each sample in increasing amounts to allow the binding to be observed and to allow the dissociation between mRNA and protein to be calculated and compared.

Payton Mackinlay
History, Class of 2022
Faculty Sponsor: Shannon Smitley
Poster Presentation

Nationalism in the Indian Mutiny of 1857

From 1857 to 1859, there was a violent uprising against British colonial authority in India. Despite its ultimate lack of success, the rebellion continues to attract political and scholarly attention. One key point of interest focuses on questions of what factors gave rise to the rebellion. Different views of what caused the rebellion can be seen in the different names that people apply to it--“the Sepoy,” “the Bengal’ or ‘Indian Mutiny’ to the British, “the National Uprising’ or ‘the First War of Independence” to people in India, or merely “the Great Rebellion.” In this paper, I use the criteria for nationalist movements established in works such as E. J. Hobsbawm’s Nations and Nationalism since 1780 and Ernest Gellner’s Nations and Nationalism to test the claim that the Indian Mutiny of 1857 was a nationalist revolt.

Katie Magee
Political Science, Class of 2023
Faculty Sponsor: Randy Richardson
Performance
Funding received from the Drinko Center for Undergraduate Research

Polarizing Pictures; A Rhetorical Analysis of Images from the January 6th, 2021 Uprising

The controversial events of January 6th, 2021 have further polarized an already divided nation. The dispute over the nature of the events of the day, and perhaps even more significantly, what the event should be called threatens to cripple American democracy for the foreseeable future. And while the iconic images of the day definitely tell a story, the perceptions taken from the

scene vary greatly. Rhetorical scholar Dana Cloud applied Micheal Calvin McGee's rhetorical construct known as the ideograph to images of veiled Middle Eastern women in her 2004 Quarterly Journal of Speech article. While presenting a ten minute speech in Rhetorical Criticism category, Dana Cloud's theory of the negative visual ideograph will be used to explain how media from the day can be used not only to give meaning to an event that has yet to be given a name, but can also shed insight into the political burnout, overall apathy, and the larger partisan divide that has become more visible over the past year.

Grace Matson

Fine Art, Class of 2025

Faculty Sponsor: Robert Zullo

Co-authors: Jayden Benjamin, Dylan Hanna, Dwight Parker

Poster Presentation

Candidate for the Environmental Prize.

The Summa Cum Laude of Sustainability

In our generation, due to the devastating effects of climate change more institutions and industries are seeking ways to implement environmentally sustainable strategies. We will talk about the higher education industry. We will take a closer look and uncover the different ways these institutions implement sustainability. Focusing on Stanford University, Duquesne University, the University of Pennsylvania, and our very own Westminster College.

Caitlyn Mattocks

Biology, Class of 2022

Faculty Sponsor: Joshua Corrette-Bennett

Co-authors: Allison Sherman

Poster Presentation

The effects of beta-alanine on axolotl limb regeneration and mmp9 expression

Axolotls regenerate neural and limb tissue following tissue damage or loss. Regeneration is regulated by many proteins, one of which is matrix metalloproteinase 9 (MMP9). Mouse studies show that beta-alanine enhances wound healing, but its effect on tissue regeneration has yet to be analyzed. We predicted that β -alanine will enhance regeneration rate and upregulate mmp9 expression. Following beta-alanine exposure, sequential amputations were conducted on adult limbs and again 48 hours after amputation. Limbs were photographed every 3 days post-amputation. Each photo was analyzed with ImageJ. Total RNA was extracted from each tissue sample, followed by RT-qPCR amplification to assess mmp9 expression levels. β -alanine groups exhibited a decrease in the rate of limb regeneration. Differences in mmp9 expression levels

between untreated and beta-alanine-treated tissues were insignificant, but average band intensity showed a trend of increased mmp9 expression as beta-alanine concentration increased.

Emilie McGill

Fine Art, Class of 2023

Faculty Sponsor: Helen Boylan

Co-authors: Ben Antal, Brady Callahan, Grace Deschand, Tanner Dudek, Saadiq Ferrell, Karly Froess, Jimmy Gilbert, Abby Green, Katie Henningsen, Ava Krensky, Deondre McKeever, Samuel Napper, Ben Pluymers, Belle Snyder, Shannon Sullivan, Emiley Weber

Other

Candidate for the Environmental Prize.

Environmental Artist Podcast Project

Environmental Studio is a cluster course that integrates the disciplines of environmental science (ES 170 Project-Based Environmental Science) and fine art (ART 120 Sculpture and Science). One interdisciplinary project completed by the cluster students was a podcast featuring an interview with an artist whose work portrays environmental themes. The artists include Paper Buck (mixed media on decolonial social movements), Aaron Henderson (public projections on air pollution), John Guy Petruzzi (watercolor and endangered species), JG McGill (landscape paintings), and Jeff Schmuki and Wendy Deschene (hydroponic sculpture about food security). Students, working in teams of 3-4 students, completed background research related to the environmental topic, interviewed the artist, and compiled interview clips and narration into the finished podcast. The podcasts will be played alongside a slideshow of visuals of the artists and their artwork.

Hannah Meeks

Biology, Class of 2022

Faculty Sponsor: Ann Throckmorton

Poster Presentation

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Environmental Prize.

Impact of various concentrations of cannabidiol on mealworm, *Tenebrio molitor*, metamorphosis and mortality

Tenebrio molitor, also known as the mealworm, is a stored grain pest that diminishes and taints farmers' harvests. To reduce this problem, synthetic pesticides are used which have many negative impacts on the environment and humans. A less harmful alternative to synthetic pesticides is natural pesticides, and cannabidiol (CBD) may be able to be used as one. This study tests the effectiveness of CBD as a natural pesticide by using the mealworm and observing CBD's impact on its metamorphosis and mortality. The mealworms were given three different

concentrations of CBD oil in a bran meal mixture and were observed throughout their metamorphosis. The number of days between exoskeleton sheddings and number of deaths were recorded. We found that the concentration of 45 mg/ml significantly increased time between exoskeleton sheddings after one month, and that there was no difference in mortality between the groups. From this, we concluded that CBD can be used as a natural pesticide.

Owen Meilander
Physics, Class of 2022
Faculty Sponsor: Craig Caylor
Poster Presentation

Modeling Magnetic Flux expulsion in SRF Cavities

Superconducting radio frequency (SRF) niobium cavities are used by modern particle accelerators to accelerate electrically charged particles to near the speed of light. Superconducting niobium is used in these cavities because of its extremely low resistance, however, there is still a residual resistance that persists. This resistance is mainly caused by trapped magnetic flux that is pinned during the cooldown process by impurities, grain boundaries, and other imperfections. The focus of this project was to explore the effects of the geometry of the cell and the temperature gradient during the transition of the niobium to the superconducting state on the magnitude of the trapped flux. It was found that the trapped flux was proportional to the temperature gradient during cooldown through the critical temperature. These findings will allow for further optimization of these SRF cavities leading to increased performance and efficiency.

Owen Meilander
Physics, Class of 2022
Faculty Sponsor: Craig Caylor
Poster Presentation
Funding received from the Drinko Center for Undergraduate Research

Applications of Electrowetting

Electrowetting relies on applied voltages to change the shape of a liquid deposited onto a solid surface. This phenomenon, first observed in mercury in 1875, has now become pivotal in the manipulation of tiny droplets of water. In order to enhance this phenomenon, the liquid is separated from a conductor with a dielectric, appropriately named electrowetting on a dielectric (EWOD). In this project, we explored the principles of electrowetting to connect them to outside applications. By first analyzing the response of water droplets through a variety of applied voltages on a flat slide covered in Teflon-AF, a hydrophobic dielectric, we were able to calculate the thickness of this layer and determine an ideal application layer. From here, we altered the geometry to use the curvature of the droplet to act as a lens for a miniature camera.

Jacob Merkel
Fine Art, Class of 2022
Faculty Sponsor: Summer Zickefoose
Performance

A story through Still life

Have you ever been told a story through art? I have demonstrated and tried to articulate an interpretation of my life through still life works in pencil. Raising curiosity and questioning things through the use of everyday objects that never see the attention that they deserve. By drawing these objects and showing their beauty, it is capturing the essence of beauty within such simple things in a moment in time. To evoke emotion in such seemingly emotionless items has a certain specialness to it.

Casey Mezerkor
Engineering Physics, Class of 2022
Faculty Sponsor: Craig Caylor
Poster Presentation
Candidate for the Environmental Prize.

Economical Quadcopter Drone with Thermal Camera and Image Recognition

Drones have the ability to reach locations that may be impossible for land based observers to navigate, and have been becoming increasingly more common for a wide range of applications. I created an economical drone using a 3D printed body and off the shelf purchased drone components to carry a Raspberry Pi to help identify and locate people in these potentially hard to reach locations. It uses image recognition from a standard camera which is then referenced with an onboard thermal camera to help maximize accuracy in locating victims. The Pi is loaded with Google's TensorFlow machine learning platform which is trained with a model specifically designed to identify humans. If the model thinks a target may be a human, it then checks with the onboard thermal camera to see if there is a hotspot in the temperature map. This information can then be sent back to an observer on the ground via a live cellular connection along with the drones GPS coordinates, and the information used from there

Lauren Millhorn
English, Class of 2023
Faculty Sponsor: Kristianne Kalata
Oral Presentation

The Graduate: An Illustration of Psychological and Classist Motivations

Nichols' *The Graduate* outlines psychological consequences of permissive parenting and failed elitism. Nichols satirizes elitism through Mrs. Robinson and Benjamin: Mrs. Robinson cannot keep control and Benjamin cannot accept his elitist title. My paper uses psychological studies to define permissive parenting and identify how it prompts Benjamin's affair with Mrs. Robinson. I use psychoanalytic criticism to evaluate Ben's dominant id, which permits him to recklessly pursue the affair. I use social analyses of elitism to identify posh behavior in *The Graduate* as social satire. Parental figures in *The Graduate* show permissive parenting qualities mark them as failed elitists when their children embrace freedom. Benjamin becomes a hypocritical elitist when he resists posh mannerisms yet uses his financial privilege to maintain his affair. The characters' flawed elite practices reveal the undeserved acclaim of the high class, making the viewer ponder: is power equivalent to credibility?

Lauren Millhorn

English, Class of 2023

Faculty Sponsor: David Swerdlow

Oral Presentation

Funding received from the Drinko Center for Undergraduate Research

From Receptors to Revisers: Readers in the Crusoe(e) Narrative

This paper identifies varying reader responsibilities in DeFoe's *The Adventures of Robinson Crusoe* and Coetzee's *Foe* to determine how different responsibilities impact the narrator's influence over the Crusoe story and the reader's authority over the Crusoe(e) narrative. I analyze narrative strategies that Robinson Crusoe and Susan Barton apply to recount their experiences, and determine how readers can exert authority over the Crusoe(e) narrative in response to each narrator. I apply reader-oriented theory to assess fictive and fictional readers in *Foe*, where fictional readers show authority over Barton's narrative by revising her island story into the Crusoe story. The juxtaposition between the readers' responsibility to draw conclusions on Crusoe's character as opposed to their responsibility to offer Barton their influence shows varying roles that readers must assume and the authority that the audience holds in determining the Crusoe(e) narrative.

Brandon Minter

Environmental Science, Class of 2022

Faculty Sponsor: Helen Boylan

Oral Presentation

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Environmental Prize and Health and Well Being Prize.

Testing Salivary Cortisol and Cognition in the Context of Attention Restoration Theory and Stress Reduction Theory

Exposure in nature has been shown to produce significant positive physiological and psychological effects. Attention Restoration Theory focuses on the fascination of nature that restores directed attention. Whereas Stress Reduction Theory posits that we gain the benefits of nature passively because we are adapted to feel positive emotion in the environment. This experiment aims to assess which theory better explains the effects of nature. Two groups will have a structured, mindfulness based experience to maximize the fascination with nature. One will be in nature and the other indoors. The final group will have a non-structured outdoor experience. Each individual will undergo salivary cortisol and psychometric tests. If the groups with structure have more positive outcomes then that would support ART. Likewise, if the non-structured group does better, then SRT would be more supported. Data collection and results will be performed once the weather breaks.

Katherine Mozelewski
Neuroscience, Class of 2023
Faculty Sponsor: John Robertson
Co-authors: Lindsey Wheaton
Poster Presentation

Neuromyelitis Optica Reveals Interactions Between the Central Nervous System and Visual System

Autoimmune diseases are found in three to five percent of the world's population and increase affected individuals' chances of death at the hands of usually nonlethal illness. Two organs critical for daily functioning - the eyes and the brain - are disrupted by an autoimmune disease called Neuromyelitis Optica (NMO). NMO was initially mistaken as a form of multiple sclerosis (MS) as both diseases involve the demyelination of nerves in the body. However, scientists later discovered that NMO's pathophysiology is distinct from MS in that it occurs when antibodies specifically attack plasma membrane water channels in the spinal cord and optic nerve, causing blindness and paralysis. There is no current cure for NMO, but steroids are often prescribed to ease the inflammation of the nervous system, and azathioprine has been used to suppress specific immune cells. This review will expand on the pathology, symptoms, and treatments for NMO.

Jacob Musselman
Individual Interdisciplinary (BS), Class of 2022
Faculty Sponsor: Jessica Sarver
Poster Presentation
Funding received from the Drinko Center for Undergraduate Research

Analysis of Antioxidant Levels in Commercial and Locally Brewed Beer

Beer contains antioxidants which have many health benefits because they rid the body of reactive, radical species and prevent oxidative damage. This research focuses on quantifying the antioxidant content in beer and comparing the content between different beer types and the different brewing processes. Antioxidant levels were measured using a DPPH (2,2-diphenyl-1-picrylhydrazyl) assay with methanolic beer samples and UV-Vis spectrophotometry. To accomplish this, a calibration curve was constructed using Trolox as the antioxidant standard. Once a suitable calibration curve was obtained, various store-bought beer samples were collected and tested to see how the levels compare between different brands and variations of beer. We also investigated how the antioxidant levels in citrus beers compared to those without citrus. Future work will focus on collecting beer samples at local breweries to measure the antioxidant content along the various steps of the brewing process.

Jacob Musselman

Individual Interdisciplinary (BS), Class of 2022

Faculty Sponsor: Keith Bittel

Co-authors: Chloe Buckley, Hannah Plowman, Luke Postufka

Poster Presentation

Candidate for the Environmental Prize.

Generation of Unsustainable Waste - Single Use Plastic

Environmental activist, Roz Savage, said ‘it cannot be right to manufacture billions of objects that are used for a matter of minutes, and then are with us for centuries.’ With there currently being an estimated 6.3 billion tons of waste plastic on Earth, single-use plastic is contributing to severe environmental detriment every single day. Aside from lack of infrastructure and ignorance to the urgency of understanding and requiring more rigid recycling standards, there is no way to adequately recycle these plastic products, resulting in overwhelmed waste plants or littered oceans, and serious issues for marine and terrestrial life. The focus of this research lies in the search for alternative uses for single use plastic and considering the process of implementing these market-based solutions realistically within the business/industrial field.

Samuel Napper

Business Administration, Class of 2023

Faculty Sponsor: Summer Zickefoose

Co-authors: Saadiq Ferrell, Emilie McGill

Performance

Candidate for the Environmental Prize, Diversity and Social Justice Award, and the Health and Well Being Prize.

22% of Children in Lawrence County Struggle with Food Insecurity;
Time for Change

22% of Children in Lawrence County Struggle with Food Insecurity; Time for Change

Our group tackled the issue of children facing food insecurity in Lawrence County, 22% of them struggle with food insecurity. There is an understanding that children around the country struggle with this issue, however, our research opened our eyes to the problem where we live. Food insecurity is destructive to the physical and mental well-being of children. It can cause behavior issues, depression, anxiety, and developmental problems. Our sculpture used the visual of a milk carton and is constructed out of recycled cardboard. We gathered recycled food labels to cover the surface, each bringing cardboard food packaging from our own homes. We chose a nutrition label to depict the data, switching out the nutrition facts with facts addressing the issue of childhood food insecurity in our county. The issue of food insecurity affects children everywhere, and we believe it needs to be addressed.

Jimmy Oberlin

Biology, Class of 2023

Faculty Sponsor: John Robertson

Co-authors: Ovi Deivaprakash

Poster Presentation

Biofilm Found in Mouths with Gingivitis

Gingivitis is a disease of the gums with symptoms that include inflammation, swelling, and bleeding around the teeth. In a 1998 study, over 50% of adults had gingivitis present on an average of 3 to 4 teeth (Oliver, 1998). Gingivitis is caused by poor oral hygiene and should be taken seriously as it can lead to gum decay, tooth loss, and even oral infections. Each year, almost 37% of adult Americans do not go to the dentist; now due to the COVID-19 pandemic, dental visits have decreased, allowing for the number of gingivitis cases to rise drastically (Adjaye-Gbewonyo, 2020). The purpose of this literature review will be to investigate what biofilms are present within gingivitis cases along with the causes of these biofilms. Identifying biofilms found in those suffering from gingivitis may provide information useful in the defense against this common disease that can have devastating effects. Understanding what biofilms are present can lead to potential treatments and protections.

Reagan Olson

Nursing, Class of 2022

Faculty Sponsor: Joni Darby

Co-authors: Jonathan Micsky

Poster Presentation

Improving the Compliance of Reporting Critical Lab Results.

Communication breakdown in the reporting of critical lab values is both harmful to patient safety, as well as costly. Critical results fall significantly outside of the normal range and it is crucial that they be treated as soon as possible to have the best patient outcome. Our project focuses on registered nurses completing a critical result notification form that populates within their task list whenever a critical lab value on a patient is entered into the system by the laboratory. We are observing the registered nursing staff compliance with completion of the form pre- and post-intervention. The median compliance rate pre-intervention is about 84%, our goal is to reach a 95% compliance, which will lead to improved patient outcomes and decreased cost to both patient and hospital.

Andrew Perry
Computer Science, Class of 2022
Faculty Sponsor: John Bonomo
Poster Presentation

D&D Character Application

Databases have been used in a variety of different areas for years and can be utilized in a variety of different ways. In this project a database was built from the ground up to be used in conjunction with the tabletop game Dungeons and Dragons. This application allows the user to manage the items that their character can find, easily see what items are contained within the database or even add their own and manage multiple characters at the same time all in one easy to use application.

Nicholas Pirollo
History, Class of 2022
Faculty Sponsor: John Winters
Co-authors: Stephen Adametz, Thomas Kauffman, Carl Medsger, Jacob Kelley
Other

"Old Main and the Westminster Community: A Digital History Exhibition"

This proposed project is a digital exhibition created and researched by the students of HIS 321 in Spring 2022. The exhibition focuses on Westminster College's Old Main Memorial Building that was built in 1927 in collegiate gothic style as a memorial to the college's original Old Main built in 1855. Through that history, this exhibition will showcase what it means to be a Westminster Titan. Our research focuses on the history of Westminster students and their daily lives around Old Main. The exhibition will therefore focus on Old Main as a hub of community growth and adaptation, disaster and recovery, wartime preparedness, politics and administration, and cultural activity. Throughout its 170-year history, Old Main Memorial and its tower stand as a

cornerstone of Westminster College as well as the local community. It is a landmark dedicated to the alumni of the past, students of the present, and prospective students of the future.

Benjamin Pluymers
Computer Science, Class of 2022
Faculty Sponsor: John Bonomo
Oral Presentation

Q Methodology for the Modern World

Dr. James Rhoads's Jr presented a project to modernize a program made in Fortran 77 and Pascal called PQMethod by Peter Schmolck. PQMethod is a program that allows the user to perform the process of Q Methodology, allowing sorting, factor analysis, and rotations. The project included research on Fortran 77 and Pascal to translate the source code provided by Peter Schmolck into the most up to date version of an interpreted language Python 3. Modernizing this program is going to allow the program to be run on Windows using various graphical user interfaces to perform the sorts and analysis once a text-based equivalent is created in Python. PQMethod also deals with information sharing between users and the python version will be no different with a modern approach to file finding and storing using Window's File Explorer like other programs used daily.

Benjamin Pluymers
Computer Science, Class of 2022
Faculty Sponsor: Summer Zickefoose
Co-authors: Abby Green, Katie Henningsen, Deondre McKeever
Performance
Candidate for the Environmental Prize and the Diversity and Social Justice Award.

Serving Up Food Waste One Plate at a Time

Our piece brings forth the issues of food waste and food insecurity in the surrounding areas. We analyzed Allegheny and Lawrence counties food waste problems and how they compare to each other. In our piece it was important to convey how food waste is a bigger problem than what meets the eye. Our use of cardboard for large food elements is a metaphor for how much waste is used in a basic meal. There are four plates that express food waste rates. We used two big plates to represent these two counties. We made an Amish donut to represent Lawrence County. For Allegheny County we made a Primanti's sandwich. On our plates we had visible and non-visible news headlines to bring attention to food waste and food insecurity in both counties. The statistics were hidden on the plates with the meals to make the art more hands on. This represents how food waste and insecurity are not always known to people, even though they are everywhere.

Magen Polczynski

Neuroscience, Class of 2022

Faculty Sponsor: Marosh Furimsky

Oral Presentation

Candidate for the Psychology/ Neuroscience Award and the Health and Well Being Prize.

The Effects of Topiramate on the Development of the Nervous System using Zebrafish as a Model Organism

Topiramate is a more naturally derived anti-epileptic drug (AED) than valproic acid. It is predicted that it will be less harmful to the developing embryo than other classic anti-epileptic drugs like Valproic Acid. By completing this study, we will be able to determine two things. First, we are looking to see whether the topiramate will cause the developing embryos to die. Secondly, we are looking to see whether surviving fetuses develop birth defects in both the nervous system and the cardiovascular system. Determining the long-term effects of topiramate on the fetus could lead to potential benefits in the future. Because pregnant women often battle with whether they should stop taking medications or not, having an alternative option to valproic acid could give benefits to both mother and child in the future. In this study, I will be looking at specific neurological and cardiovascular markers to determine whether the fetus is developing correctly.

Noah Pollio

Biology, Class of 2022

Faculty Sponsor: Karen Resendes

Oral Presentation

Funding received from the Drinko Center for Undergraduate Research

PCID2 facilitates the nuclear export, but not the centrosomal localization, of BRCA2 in Hs578T breast cancer cells

The protein PCID2 helps to export proteins from the nucleus to the cytoplasm and localizes to the centrosome, where it is often found in cells with an abnormally high number of centrosomes. PCID2 assists in the nuclear export and centrosomal localization of BRCA1, a key centrosome cycle inhibitor. Thus, PCID2 may regulate the centrosome cycle by delivering key regulators of duplication. BRCA2 is also a nuclear protein that prevents centrosomal overduplication. We proposed that PCID2 helps to transport BRCA2 from the nucleus to the centrosome. Using siRNA knockdown of PCID2 and subsequent immunofluorescence studies, we found that the loss of PCID2 significantly decreased the amount of BRCA2 exported from the nucleus to the cytoplasm. Yet, the loss of PCID2 had no significant impact on the ability of BRCA2 to localize to centrosomes, indicating that while PCID2 affects BRCA2 by assisting in its nuclear transport, it likely does not directly recruit cytoplasmic BRCA2 to the centrosome.

Noah Pollio
Biology, Class of 2022
Faculty Sponsor: Eric Gaber
Co-authors: Jad Jadallah, Sara Small, Lauryn Todd, Ashley Wire
Research Round Table
Candidate for the Health and Well Being Prize.

Westminster College Global Health Project

The COVID-19 pandemic created unique challenges for scientists, global health officials, governments, and business leaders. We examined and contextualized these emerging challenges, namely how rampant misinformation, vaccine hesitancy, and improper vaccine supply-chain management figured in the exacerbation of the pandemic. Moreover, we investigated the emergence of promising COVID-19 therapeutics that may be helpful in mitigating future outbreaks, and contrasted the efficacy of these approaches with self-medication practices that many individuals have taken part in during the course of the pandemic. We found that future outbreaks can be further minimized through the swift, equitable distribution of legitimate treatment options. We further found that while social media and political misinformation campaigns pose a danger in hindering future public health efforts, community-based educational outreach is effective in restoring trust in healthcare officials and practitioners.

Lillian Quick
English, Class of 2024
Faculty Sponsor: Shannon Smithey
Poster Presentation
*Funding received from the Drinko Center for Undergraduate Research
Candidate for the Diversity and Social Justice Award.*

Defense Attorneys and Probation

Defense attorneys play a crucial role in protecting the rights of individuals who have been criminally accused. Each probationer had an attorney who guided him or her through the process of negotiating a guilty plea with the prosecutor. Some of these attorneys may be "repeat players," appearing regularly in the county courts to represent many criminal defendants over time. Such experience may make the attorneys more effective advocates for their clients, but it may also lead them to push their clients to forego the chance of an acquittal. I will contribute to Professors Smithey and Robison's ongoing research project by collecting information about the defense attorneys who represented the probationers in the research sample. We want to know more about the frequency with which different defense attorneys represent probationers, and we want to know more about their professional and educational backgrounds.

Sydney Rankin
Biochemistry, Class of 2022

Faculty Sponsor: Jessica Sarver
Oral Presentation

Funding received from the Drinko Center for Undergraduate Research

Comparison of Antimicrobial Activity in Home-brewed and Store-Bought Kombucha Using the Specimen *Escherichia coli*

Kombucha is a sugar-fermented tea that works on a basis of a symbiotic culture of bacteria and yeast strains that produce acetic acid. This acid lowers the internal pH of microorganisms outside of the symbiotic relationship and results in growth inhibition or complete destruction of the microorganism. Though this process has been studied, comparing store-bought and home brewed kombucha has not been explicitly compared. This study aims to close that knowledge gap and ultimately aid in deciding which type of kombucha, store-bought or home-brewed, is healthier for consumers. The antimicrobial activity of kombucha was studied with *Escherichia coli* using Mueller Hinton Agar plates to measure the zones of inhibition present after exposure. This study concluded there was no statistical difference between the antimicrobial activity of store-bought kombucha and home-brewed kombucha.

Jessica Reabe

Criminal Justice Studies, Class of 2022

Faculty Sponsor: Kristin Park

Poster Presentation

Funding received from the Drinko Center for Undergraduate Research

Compassionate Release: Factors that Affect Public Perceptions on Capital Punishment

Considering recent capital punishment executions of the guilty and innocent, the general population's attitudes on the death penalty have been changing. Gender has been known to be a prevalent factor affecting people's view on the death penalty, and it is likely that there will always be a strong divide between males and females on who is pro and anti-death penalty. With sexual orientation, there is a pervasive correlation between gay men associating with being anti-death penalty then compared with heterosexual males, similar to lesbian women. The goal of this study is to traverse more deeply the impact of gender and sexual orientation, as well as age, religious affiliation, and personality types on individuals' attitudes toward capital punishment. This study used a survey questionnaire to gather data to help society understand why these previously mentioned factors are so important to the public's attitude toward capital punishment.

Molly Reilly

Neuroscience, Class of 2022

Faculty Sponsor: Eric Fields

Oral Presentation

Candidate for the Psychology/Neuroscience Award and the Health and Well Being Prize.

Effects of Aggression on the Clinical Observations of Chronic Traumatic Encephalopathy in DIII NCAA Athletes

Chronic Traumatic Encephalopathy (CTE) occurs when there is repeated microtraumas to the brain and is commonly seen in contact sport athletes. The neurological changes seen in those with CTE are generally represented by emotional impairment and executive dysfunction (inhibitory control, episodic memory, and sustained attention). This study wants to measure the effect of emotion on sustained attention across three groups; contact sport athletes, non-contact sport athletes, and then non-athletes. Each group will have two sessions, one in which they will fill out two self reports - a concussion symptom and aggression questionnaire - and be given a sustained attention task, and the second session will trigger aggression using the International Affect Picture System before giving the sustained attention task. For results an ANOVA test will be used and will allow me to measure the effect of the group, the effect of the session, and the interaction between session scores and groups.

Sydney Rensel

English, Class of 2025

Faculty Sponsor: Kristianne Kalata

Co-authors: Erica Cunningham, Gretchen Haydu

Research Round Table

Candidate for the Diversity and Social Justice Award.

Passing, From Words on a Page to Actions on a Screen

Presenters in this roundtable will explore film Director Rebecca Hall's 2021 adaptation of Nella Larsen's Harlem Renaissance novel, Passing (1929), with emphasis on the significance of the events seen through the narrative techniques of Larsen's novel and the directorial elements of Hall's film. Topics to be covered include composition of scenes; usage of lighting, sound, and editing; and authorship. The roundtable will conclude by inviting all in attendance to discuss the implications of research, particularly concerning the lives and time period of the author and director, and what it means to pass in the past and present.

Michael Rezk

Computer Science, Class of 2024

Faculty Sponsor: Adam Blumenthal

Oral Presentation

I Scheduled URAC Using Programming and Math

Scheduling an event with 100+ presentations by hand is very difficult, time

consuming, and prone to human errors and bias. Linear programs are mathematical models that can be used to find the most optimal solution to a problem subject to constraints. In this talk we will discuss how to create one to solve problems involving scheduling and distribution.

A linear program takes in variables, constraints, and an objective function. The linear program will assign values to the variables based on the constraints and the objective function. Constraints give us the possible/allowed assignments of variables. Solving the linear program maximizes the objective function to determine the best assignment of variables.

Having this problem automated saves a lot of time and effort, along with reducing bias and potential oversights. Linear programming is a useful and widely applicable tool for finding an optimal solution, and of course we want URAC to be the best it can every year.

Joseph Rosa

Human Resource Management, Class of 2022

Faculty Sponsor: Loreen Huffman

Poster Presentation

Candidate for the Diversity and Social Justice Award.

The Relationship between Self-esteem and Prejudice Toward Inter-racial Couples

This study examined the relationship between self-esteem and perception of men and women in same-race versus mixed-race romantic relationships. The participants were Westminster College students. Participants were given a measure of self-esteem and shown a photograph of a couple. The race of the people in the photograph varied (black couple, white couple, black man/white woman, white man/black woman.) Participants evaluated the social status, physical attractiveness, and gender deviance of the people in the photograph. I hypothesized that lower self-esteem would be associated with lower ratings of status and attractiveness if the couple is interracial. I hypothesized that white women with a black man would be rated higher in gender deviance. I hypothesized that same race couples, white or black, would be evaluated similarly. Correlations were used to examine these relationships. The results increased our understanding of the role in self-esteem and prejudice toward mixed-race couples.

Lindsey Rutledge

Individual Interdisciplinary (BA), Class of 2022

Faculty Sponsor: Summer Zickefoose

Performance

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Environmental Prize and the Health and Well Being Prize.

Exploration and Significance of Mycology

My work revolves around the application of mycology, both through nature and through human use, whether it be medicinal or nutritional. I chose to create pieces centered around mycology as it is a study that is not widely covered, but has proven to be invaluable to all aspects of life. In the environment, fungi act as general decomposers for organic matter, promoters of plant growth, and, in some instances, decomposers of nuclear radiation. Through recycling nutrients back to plants, the producers at the top of the food chain, life is ensured to continue. Extraction and consumption of fungi has been practiced traditionally by humans for millennia, and continues to be relevant within modern times. Through the pieces I showcase, I hope to provide my audience with a learning experience on the value of fungi and the many benefits associated with them.

Adam Saunders

Accounting, Class of 2022

Faculty Sponsor: Jesse Ligo

Co-authors: Angelesa Desatnik, Anastasia Woosley

Oral Presentation

Insurance 101: Protecting Your Future by Planning Early

The researchers will be examining the various insurances which are required or should be considered by recent graduates. Among the topics discussed will be health, car, and renters/home insurance. The goal is to enlighten students about the recurring expenses they will have to incur, especially if they have not previously been responsible for covering these costs. The many factors which tend to affect the cost of insurance plans will be discussed. The pros and cons of varying insurance policies will be discussed, to aid students' ability to make educated decisions when the time comes to choose insurance plans. Researchers will exhibit the certain types of insurance applicable for recent graduates and how they fit into an array of budgets associated with Westminster graduates.

Seth Shrader

Chemistry, Class of 2022

Faculty Sponsor: Peter Smith

Oral Presentation

Funding received from the Drinko Center for Undergraduate Research

Synthesis and characterization of cobalt, iron, and europium-substituted aluminum phosphate catalysts for the partial oxidation of cyclohexane

The partial oxidation of cyclohexane to adipic acid is the first step in the production of nylon 6 and nylon 6,6—the two most common nylons in the textile and plastic industries. This reaction is typically catalyzed by homogeneous cobalt or manganese catalysts, often in combination with initiators and oxidizing agents. Because they can only be used once, these catalysts are

expensive and produce lots of waste. We synthesized several europium-substituted, aluminophosphate heterogeneous catalysts as potential alternatives for this reaction and obtained x-ray powder diffraction patterns for each. Each of these catalysts was reacted with cyclohexane, and the composition of products was analyzed using gas chromatography.

Nevan Schwab
Molecular Biology, Class of 2022
Faculty Sponsor: Karen Resendes
Poster Presentation

PCID2 assists in the nuclear export of nucleophosmin (NPM) in HeLa cells.

PCID2 aids in the nuclear export of various proteins and further functions by localizing to the centrosome, where it can regulate the process of centrosome duplication. Nucleophosmin (NPM) is a nucleolar protein that undergoes Crm1-dependent nuclear export and associates with centrosomes to prevent early cell division. Other proteins reliant on Crm1 for nuclear export, like BRCA1, also require PCID2 for nuclear export and centrosomal localization. Here, we show that NPM is reliant on PCID2 for its nuclear export using siRNA knockdown on HeLa cells. Immunofluorescence revealed a 34% increase in nuclear fluorescence of NPM without PCID2, while centrosomal localization of NPM show no impact due to removal of PCID2. These results identify PCID2 as a regulator of centrosome duplication by facilitating NPM nuclear export to the cytoplasm. Ongoing studies seek to identify NPM and PCID2 complexes and explore any effects that PCID2 knockdown has on the structure or composition of the nucleolus.

Hattie Shrock
Neuroscience, Class of 2022
Faculty Sponsor: Deanne Buffalari
Oral Presentation

Candidate for the Psychology/Neuroscience Award and Health and Well Being Prize.

The Effects of Methadone and Nicotine on Severity of Anxiety-like Behavior and Somatic Behavioral Symptoms following Withdrawal in Sprague Dawley Rats

High levels of opioid use have led to various pharmacotherapies to help patients maintain abstinence, such as methadone. However, methadone may cause dependence and withdrawal, leading to unsuccessful treatment. Other contributors to failed opioid treatment are nicotine usage and anxiety disorders. The purpose of this study is to investigate how exposure of rats to chronic simultaneous nicotine and methadone will affect the anxiety-like behavior and somatic behavioral symptoms after withdrawal of methadone. Anxiety-like behavior will be measured using the elevated plus maze. Withdrawal symptoms will be recorded as pain sensitivity,

vocalization, and other visual markers of withdrawal. The predicted outcome is that the group continuation of nicotine, after withdrawal of methadone, may reduce anxiety-like behavior and withdrawal symptoms. Preclinical work regarding nicotine usage and anxiety disorders in combination with opioid usage may benefit individuals to optimize treatment.

Jacob Shulock

Marketing and Professional Sales, Class of 2023

Faculty Sponsor: Bradley Weaver

Co-authors: Ryan Felter, Sabrina Slagle, Andrew Allender, Cal Cummins, Kyle Fenton, Lauren May, Lindsey Rutledge, Alex Norris, Jimmy Sentz, Adam Silvis, Nick Vicheck, Shaemour Young, Branden Millward, Nick Hubner

Video

Candidate for the Environmental Prize.

Backyard solutions to bird population losses- A Tweetspeak Cluster Project

Tweetspeak Cluster students present videos showcasing multiple ways to conserve local, native bird populations with practical backyard projects. In 2019, a study published by Cornell Bird Lab researchers revealed nearly 3-billion birds have disappeared from North America since 1970, many of the common species we find in our communities. Avian biodiversity contributes to the overall health of our local ecosystems in various ways. Birds are pollinators seed dispersers, help control insect and pest populations, and serve as indicators of the state of the environment. These Tweetspeak backyard videos demonstrate viable solutions you can put into action to help in conservation efforts for birds and local wildlife.

Madison Sieczkowski

Nursing, Class of 2022

Faculty Sponsor: Tricia Ryan

Co-authors: Jocelyn Behr

Poster Presentation

Reducing Complications and Hospital Readmissions After Total Joint Replacements

The human and financial cost of post-op complications are increasing as the number of surgical procedures performed in the United States continues to rise. Many of these complications require patients to be readmitted to the hospital within 90 days of being discharged. Pinpointing areas that cause hospital readmissions will reduce the cost of patient care by improving overall discharge times, reducing the need for additional testing, surgeries, and treatments.

Sara Small

Individual Interdisciplinary (BS), Class of 2022

Faculty Sponsor: Helen Boylan

Oral Presentation

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Environmental Prize and Health and Well Being Prize.

Sustainable Sweetener: Understanding Microplastic Contamination in Honey and Gauging Interest in Potential Local Honey Co-Op

This on-going interdisciplinary project includes the integration of a microplastics study, apiary management field experience, and a local beekeeper survey to gauge interest in a potential honey cooperation in Western PA. During the exploration of a microplastics laboratory technique, different methods were analyzed for efficiency in determination of potential microplastic contamination. The hands-on experience over the Summer of 2021 at the Westminster College apiary helped to shape the almost 50 participant survey of beekeepers, who shed light on their opinions about a potential cooperative business model for their beekeeping practices. This sustainability and community oriented project can shed light on a popular product and hobby around New Wilmington and the surrounding area.

Riana Smith

Chemistry, Class of 2022

Faculty Sponsor: Jessica Sarver

Oral Presentation

The Search for Pyruvic Acid in the Interstellar Medium

Pyruvic acid is known to be involved in biological functions, such as the Krebs cycle, as well as being a potential precursor for the amino acid alanine in the interstellar medium (ISM). It is therefore an important candidate for interstellar searches but has yet to be detected in the ISM due to lack of submillimeter spectroscopic information. Using the Global Optimization and Broadband Analysis Software for Interstellar Chemistry (GOBASIC), the work presented here attempts to take the previously fit results from a set of observational spectral line surveys of molecule-rich sources and additionally searches for matches to the millimeter/sub-millimeter wave spectrum of pyruvic acid. Unfortunately, no definitive detections of pyruvic acid were made, however, an upper limit analysis based on previous results was performed on all sources. The results of these searches, the upper-limit analyses, and the implications for future studies of pyruvic acid in the ISM are presented here.

Makenzie Snarey

History, Class of 2022

Faculty Sponsor: Angela Lahr

Poster Presentation

Funding received from the Drinko Center for Undergraduate Research

The Pueblo Revolt of 1680, Social Identity, and Pueblo Culture

In 1680, Pueblo communities organized to drive the Spanish from New Mexico. An era characterized by Pueblo communities' self-rule that drew on Pueblo traditions, referred to as the "freedom period," followed. This interdisciplinary research draws from the social psychological concept of social identity theory, which links self-worth to communal identification, to examine the cultural history of the pre-1680 Spanish colonial period and the freedom period as well as their effects on the twenty-first century. Documentary research is examined alongside an analysis of artifacts uncovered by archaeologists and transcribed oral histories. This cultural history reveals evolving notions of social identity that influenced the societies' evolution. Themes from the cultural battles and revitalization of previous centuries are vibrantly apparent in twenty-first-century cultural practices and highlight the deep cultural and spiritual ties between the 1680 revolt and freedom period.

Joy Snow

Nursing, Class of 2022

Faculty Sponsor: Tricia Ryan

Co-authors: Juliana Sienkiewicz

Poster Presentation

CLABSI's in Healthcare

Our capstone project looked at Central Lines Associated Bloodstream Infection or also known as CLABSI. We took a look into a local hospital's rate of infections and attempted to see what we could do to decrease the rate. We assessed the current plan of care and dove deep into national guidelines. We looked into what techniques worked and what had been being done in the past that may have not worked. We assessed all the knowledge that we both have obtained from our years in nursing school as well as our current nursing positions. This topic is very important to both of us with our current positions in healthcare. We wanted to find an idea that may work better to help others and help overall decrease all CLABSI rates to nothing.

Isabelle Snyder

Business Administration, Class of 2022

Faculty Sponsor: Summer Zickefoose

Co-authors: Brady Callahan, Grace Deschand, Jimmy Gilbert

Performance

Have YOU grown a garden?

Nationally, over 30 million students rely on school lunches for their daily food. School gardens are a new idea that have been introduced across the country to provide healthy food but are not always implemented or accessible. Our studies show that one in four students in local schools have never grown a garden. Showing the simplicity of growing vegetables in virtually anything, including school supplies, brings awareness of the fact that children can have access to healthy food with ease. This art piece highlights the simplicity of being able to grow vegetables to feed children who rely on school lunches. It is meant to show that there is no reason students should go hungry, while illustrating the ease at which these children can learn the value of gardening as a means for sustenance.

Jaden Sowers

Mathematics, Class of 2024

Faculty Sponsor: Randy Richardson

Performance

Funding received from the Drinko Center for Undergraduate Research

Pedestrian Injuries and Deaths on College Campuses: No Laughing Matter

After Dinner Speaking is an oration that calls attention to a serious issue through the use of humor. In my oration, I speak on pedestrian deaths and injuries on college campuses in America. Pedestrian deaths have risen significantly as of late, Covid only making the situation worse. In America alone, pedestrian injuries have reached over 180,000 a year, along with 6,721 people dying as pedestrians in 2020. From 2019-2020 the increase of pedestrian deaths rose by 46%. College campuses are among the most dangerous places in America for pedestrians. Research has been accumulated by the CDC and the Governors Highway Safety Association. More recent examples of these tragedies have been taken from New York Times, NBC News, and The Atlantic.

As a creative and humorous touch, the rhetoric of the Beatles serves as a cohesive subtext throughout the speech. Beyond entertainment, audience members are encouraged to be more aware of the specific traffic conditions on their own campuses.

Emilee Spozarski

Individual Interdisciplinary (BS), Class of 2022

Faculty Sponsor: Karen Resendes

Poster Presentation

Funding received from the Drinko Center for Undergraduate Research

STAT3 nuclear accumulation due to loss of RanBP2 may contribute to pathogenesis of acute necrotizing encephalopathy

Ran Binding Protein 2 (RanBP2) contributes to the efficiency of nuclear transport. Loss of function mutations of RanBP2 occur in familial cases of acute necrotizing encephalopathy (ANE), a rare, sometimes fatal brain disease occurring in infancy/early childhood following viral infection. The influence of mutant RanBP2 on ANE onset is unknown, but research suggests a role for abnormal cytokine production; hyperactivation of the IL-6/JAK/STAT3 signaling pathway occurs in ANE. We investigated whether loss of RanBP2 could influence the cellular localization of the transcription factor STAT3. Knockdown of RanBP2 caused a 27% increase in nuclear STAT3, suggesting increased cytokine gene expression may occur without RanBP2. Current studies test if RanBP2 knockdown with IL-6 treatment will have an additional effect on the cellular localization of STAT3. Our results establish increased nuclear STAT3 as a potential mechanism for mutant RanBP2 to influence cytokine production in ANE.

Abigail Steinbeck

Neuroscience, Class of 2022

Faculty Sponsor: Deanne Buffalari

Oral Presentation

Candidate for the Psychology/Neuroscience Award.

Effects of Chronic Exercise on Avoidance Conditioning in Male and Female Rats

It is widely known that exercise is vital to proper development. One of the beneficial consequences of exercise is a release of dopamine in the brain after exercising (Brené et al., 2007; Vina et al., 2012). Studies have found that success in avoidance conditioning, a model for learning, is highly dependent on the amount of dopamine in the brain (Wadenberg et al., 2000; Hefco et al., 2003; Ichihara, Nabeshima, & Kameyama, 1988). Sex differences in memory performance have been seen in that adult male rats have better performance than females (Jonasson, 2005). Therefore, it would make sense that as exercise increases dopamine, it would help subjects perform better through conditioned passive avoidance. This study focuses on the effects of chronic exercise through forced wheel running on passive avoidance behaviors in rodents. Both male and female rodents will be put through an exercise protocol and then tested through passive avoidance for both long term and short-term memory function.

Braden Stesiak

Computer Science, Class of 2022

Faculty Sponsor: John Bonomo

Oral Presentation

The Computer Science Behind Music

The concept of music is a phenomenon involving many different aspects of STEM fields. All natural sounds are created through vibrations and each musical note maintains a unique pitch and

frequency value. This study offers insight to the science behind music and is meant to educate the audience about the complex aspects of modern music produced through technology. Throughout this presentation, one will learn about how different instruments can output diverse frequency ranges produced as note pitches. Additionally, one will be able to observe and understand how music can be represented digitally through code on a computer, demonstrating the relation between synthesized music and notation software.

Megan Strohmengar
Biology, Class of 2023
Faculty Sponsor: John Robertson
Poster Presentation

Hemophilia A and Von Willebrand Disease

More than 1.1 million men worldwide have hemophilia, an inherited disorder where the lack of certain clotting factors prevent adequate blood clotting. Clotting factors are proteins found in the blood that assist with clot formation. There are four main types of hemophilia; A, B, C, and Von Willebrand disease. This project will focus on hemophilia A and Von Willebrand disease. Hemophilia A is the most common form, with over 85% of diagnosed cases. It is caused by the lack of clotting factor VIII. Von Willebrand disease is caused by a reduction in the von Willebrand cofactor, a non-protein chemical that attaches to a protein and helps to perform functions. Both are caused by problems with the same factor. Symptoms of these diseases include bleeding in the joints, skin, and mouth and frequent nosebleeds, all of which are hard to stop. This literature based investigation will aim to summarize the important symptoms of this disease and succinctly explain the causes and treatment methods.

Shannon Sullivan
Psychology, Class of 2022
Faculty Sponsor: Summer Zickefoose
Co-authors: Emiley Weber, Ben Antal
Performance

Candidate for the Environmental Prize and the Diversity and Social Justice Award.

Unacceptable Conditions

Factory farmed chicken eggs or free-range chicken eggs? 78% of people purchase factory farmed chicken eggs, which come from chickens living in poor conditions. These eggs contain pesticides ingested by the chickens. It is important for people to understand what is in their eggs and to be informed on the inhumane treatment of factory animals. For this project, we used materials such as a wooden base, a cardboard platform, paint, and polymer clay for the chicken and egg sculptures. We used these base materials to set up a stage, giving it a comedic quality as well as using the clay to produce a childlike aesthetic, akin to a scene from a children's storybook. It gives a dark, humorous tone to process the serious situation that we are trying to portray. We

used the clay eggs to represent the ratio of egg products sold. This demonstrates the need for education on food source conditions and ingredients, and hopefully you can gain that from looking at this piece.

Shannon Sullivan
Psychology, Class of 2022
Faculty Sponsor: Jessica Rhodes
Poster Presentation

Exercise to Mitigate Symptoms of Attention-Deficit/Hyperactivity Disorder through Improving Executive Functioning

This study looked at whether acute exercise reduced symptoms of ADHD. Participants (n=11) were recruited from Westminster College (aged 18-22). Participants completed a self-report measure of ADHD symptoms, and a sustained attention task (CPT) before and after 10 minutes of physical activity (administration order was counterbalanced). It was hypothesized that acute exercise would improve symptoms of ADHD. Baseline CPT was not significantly correlated with either CPT task ($p > .05$). Regression analyses demonstrated that ADHD symptoms did not significantly predict change in CPT performance after exercise ($\beta = -.60$, $p > .05$). These results were inconsistent with the literature, suggesting exercise improves sustained attention among those with symptoms of ADHD. Limitations of the study include the small sample size, exercise manipulation and ceiling effects in the CPT task. A better understanding of the mechanisms behind exercise-induced symptom reduction can inform future treatment plans.

Ashley Tartar
Political Science, Class of 2024
Faculty Sponsor: Kristianne Kalata
Co-authors: Victoria Peltonen, Karson Hahn
Research Round Table
Candidate for the Diversity and Social Justice Award.

Narratology and Perspectives in Passing

Presenters in this roundtable will explore film Director Rebecca Hall's 2021 adaptation of Nella Larsen's Harlem Renaissance novel, Passing (1929), with emphasis on correlations between the novel and the film interpretation of Passing. Topics to be covered include how main character Irene's thoughts in the novel are presented through her body language in the film, as well as the narratological comparisons between voice and camera usage. The roundtable will conclude by inviting all in attendance to discuss the implications of research, particularly concerning the evolution of ideological perspectives from the 1920s to present day.

Ashley Tartar
Political Science, Class of 2024
Faculty Sponsor: Trisha Cowen
Poster Presentation

Candidate for the Environmental Prize, the First Year Poster Prize and the Health and Well Being Prize.

Consumerism: Its Past, Present, and Our Future

The modern concept of consumerism emerged during the industrial revolution, when mass production became a widespread ability, allowing factories to out-produce the population's needs. Instead of producing materials to meet the demands of customers, companies began creating consumer demands to meet the increased levels of production. This period of growth in the 1920s soon led to a global system of economic interdependence, which, while helping to stabilize international relations and economies, also created a highly materialistic society, exacerbated environmental degradation, and limited morality in business. If these consumerist trends continue, the world will face a bleak future of resource depletion and price-driven societies. This research demonstrates that to create a sustainable global society, consumers must act collectively to demand ethicality from companies, encourage a circular rather than linear production cycle, and eliminate excessive purchasing and disposable trends.

Maya Thornton
Public Relations, Class of 2022
Faculty Sponsor: Brittany Rowe-Cernevicius
Poster Presentation

Social Media and Influencer Marketing: A Case Study Analysis of the “Lonely Ghost” Brand

Social media today is the premier source for networking, but it is also a primary avenue for communication, entertainment, inspiration, and online shopping. As research and analysis on this topic continues, Instagram has proven to be an extremely useful tool for online branding. More specifically, Instagram has been utilized very successfully by online influencer Indy Blue and her clothing brand Lonely Ghost. Using Malcolm Gladwell's “The Law of the Few,” this study analyzes Indy Blue's use of social media to promote her clothing brand Lonely Ghost, and uncovers why it is successful. This study spotlights why Lonely Ghost's consumers buy what they buy. The results of the study help public relations and business professionals better understand how to communicate with the public and their customer base. Small business owners can also learn how they can sell and promote their products.

Meilin Titus
Accounting, Class of 2022

Faculty Sponsor: Jesse Ligo
Co-authors: Ryan Beard, Noah Luzader
Oral Presentation

The Sure FI/RE Way to Becoming Financially Free

Often students put investing off as they feel they either do not have enough saved or do not know enough about finance. However, due to the time value of money, students earn less from their savings and negatively impact their ability to retire by delaying their investments. In order to encourage students to invest for their futures, we will educate them on financial issues and provide them a roadmap of how to start.

Meilin Titus
Accounting, Class of 2022
Faculty Sponsor: Keith Bittel
Co-authors: Eibhlin Terrell, Matthew Costello, Grace Deschand, Adam Saunders
Oral Presentation

Plastic, Plastic, Plastic,... What Should Be Done With It?

Estimates vary slightly, but the general consensus is that only about 9% of plastic waste produced in the United States is recycled. Even then, plastic that is recycled is usually made into products that cannot be recycled again and, thus, end up in a landfill, incinerator, or worse.

Our research will focus on uses for recycled plastic that are economically viable and reduce plastic waste that fouls the environment. We will also investigate how to make the recycling process more efficient, increase the usage of recycled plastic in the manufacturing process, and reduce the use of plastic in general. To increase awareness of the plastic problem, the Enactus chapter at Westminster College has been engaged in collecting plastic lids and caps that will be turned into a park bench by a manufacturer in the state of Indiana. To date, over 300 pounds of plastic lids and caps have been collected.

Meilin Titus
Accounting, Class of 2022
Faculty Sponsor: Robert Zullo
Co-authors: Joshua Smith, Gabriel Diulus, Peyton Pauline, Josue Charles
Poster Presentation

Environmentally Sustaining Entertainment

The entertainment industry, along with everyone else, is changing the way they conduct business and are looking for new ways to become more sustainable. It is our goal to look into sustainable entertainment marketing and educate students and guests on what certain entertainment industries are doing to become more environmentally friendly. Specifically, we will be covering what movie theaters, sports stadiums, amusement parks, automobile races, and county fairs are doing to help the environment.

Lauryn Todd
Finance, Class of 2022
Faculty Sponsor: Colleen Merrick
Other
Candidate for the Diversity and Social Justice Award.

The effect of gender balanced teams in the professional workplace

The coronavirus pandemic has caused women to leave the workforce at an alarming rate – 4.2% globally, compared to 3% of men (Clay, 2022). Companies led by gender diverse teams tend to be more effective and profitable. The purpose of this workshop is to apply concepts and demonstrate the power of gender balanced teams in the professional workplace.

Lauryn Todd
Finance, Class of 2022
Faculty Sponsor: Brian Petrus
Co-authors: Logan Minch, Jarred Kohl, Nathan Kraus, Belle Snyder, Mikaela Crumlich, Kent Dunn, Josh Collins, Cal Cummins, Ryan Felter, Andrew Heider, Hailey Mele, Michael Petronzio, Cherise Schultz, Curt Slagle, Joshua Smith, Eibhlin Terrell, Paige Williams, Hannah Wilson, Ryan Armstrong
Oral Presentation

Winter Analyst Program: Supply Chain Disruption

The Winter Analyst Program students studied the ongoing supply chain disruptions felt worldwide via a wide range of pertinent environmental, social, and governance perspectives. Through a business-oriented lens and industry-related analytical tools and methodologies, program participants analyzed, assessed, and evaluated the causes, implications, and cross-functionalities associated with post-COVID distribution channel complications.

Marcus Tokar
Strategic Comm & Social Media, Class of 2024
Faculty Sponsor: Kandice Hartner

Co-authors: Brittany Marburger, Dale Sizemore, Ryan Thibault, Gavin Morris, Jalen Douglas,
James Boyle
Video

It Comes at Night

It Comes at Night was a short film produced by my team as part of the Pittsburgh 48 hour film festival. We had 48 hours to write, shoot, and edit. We got the category of horror and had to make a scary movie. The movie is about a group of kids who go investigate an abandoned building. They then encounter evil and chaos and have to escape before this trip becomes their last...

Jenna Toohey
Biochemistry, Class of 2022
Faculty Sponsor: Erin Wilson
Poster Presentation
Candidate for the Health and Well Being Prize.

The Effects of Confinement and Molecular Regulation on Biom mineralization

Within this project, I have been studying the process of biom mineralization. Biom mineralization is the process where inorganic hydroxyapatite crystal deposits within the bone matrix. The bone matrix is a highly crowded environment which contains collagen, bone cells, and ions. Within it, there are also hydroxyapatite inhibiting proteins which slow the growth of this mineral and regulate its production. This gives our bones strength to handle compression when this process is properly regulated. I have mimicked the bone matrix in vitro and performed experiments to collect mineral for further analysis using IR spectroscopy, and TEM. This research is important, because proper bone mineralization allows our bones to stand apart from all other materials. Without proper regulation of this process, mineralization will either be excessive or deficient which could compromise the quality of bone tissue and lead to bone disorders such as osteoporosis.

Kayleigh Trobek
Mathematics, Class of 2022
Faculty Sponsor: Natacha Merz
Oral Presentation

Zero: The Story of Nothing

Zero has been an important part of history, as well as life, for most of human existence. The idea of zero has a long historical background, ranging from zero as an evil entity to our modern

understanding. It has taken a long time for the world to comprehend the true importance of zero, and recognizing the various uses in mathematics and the world around. First we will consider some of the problems with zero in history. Despite these problems, zero has been used for mathematics regardless of the contingencies. For the remainder of the paper, we will consider different uses of zero in adjunct with infinity, complex numbers, and the idea of the undefined. Finally, we will end with showing the importance of zero in mathematics by considering, in particular, how limits and coding currently behave due to the increased understanding of the number zero.

Kayleigh Trobek

Mathematics, Class of 2022

Faculty Sponsor: Tibor Solymosi

Oral Presentation

Funding received from the Drinko Center for Undergraduate Research

A Cultural Critique of Liberal Arts Education Through the Lens of Embodied Realism and 4E Cognitive Science: A Philosophical Reconstruction

Reflection on current cognitive science demands a dramatic reformation of contemporary education. This reconstruction requires concepts from embodied realism, which advocates for the integration of body, mind, and environment via education. I discuss the cognitive science behind embodied realism, utilizing John Dewey's conception of experience as organism-environment interactions (which Tibor Solymosi characterizes as \mathbb{E}) and related embodied-mind concepts from Mark Johnson. This explains learning as a process of understanding via an embodied realist approach, beginning with 4E cognition (embodiment, embedded, enacted, and extended). I apply this approach to the current education system, specifically the liberal arts. I conclude with how best to apply an embodied realism approach to enhance our understanding of knowledge and learning to enrich the education process.

Lauren Turturice

Molecular Biology, Class of 2023

Faculty Sponsor: Karen Resendes

Oral Presentation

Funding received from the Drinko Center for Undergraduate Research

Reinforcing the Role of PCID2 in Centrosome Duplication by Regulating BRCA1 Localization in Breast Cancer Cells

PCID2 is involved in CRM-1 nuclear export as an adaptor protein that localizes with γ -tubulin. Previous results support that the protein BRCA1 also localizes with γ -tubulin at the centrosome and acts as a negative regulator of duplication. Because PCID2 has a role in nuclear export it can

be hypothesized that it may have the ability to control the localization of BRCA1. The aim of this study was to redemonstrate that without PCID2 nuclear export does not occur and BRCA1 therefore does not localize to the centrosome within the Hs578t breast cancer cell line. Three successful experimental replicates were performed which involved siRNA knockdown of PCID2, Western blot analysis to confirm the knockdown, immunofluorescence to quantify the changes in BRCA1 localization, and MTT assays to assess cell viability upon knockdown. Overall, nuclear BRCA1 increased upon PCID2 knockdown and centrosome localization remains to be inconclusive.

Amy Tutt
Biology, Class of 2024
Faculty Sponsor: John Robertson
Oral Presentation
Candidate for the Health and Well Being Prize.

Class-based student perspectives on science-based art

College academic experiences seem likely to inform intellectual identity. We surveyed first year Inquiry students (mixed majors) and upper-class anatomy & physiology (science majors) students to explore relationships between identity, matriculation, and reactions towards anatomical works of art. Both student populations were shown four works by Damien Hirst for 90 seconds each and were asked to record their free-response reactions to each work. They were then asked to rate characteristics (important, beautiful, educational, etc.) of the work. Lastly, students were asked to relate their perspectives on the art to their academic identity and experience. We found differences in the perceptions of, and reactions towards, scientific works of art between these groups of college students. Results will be discussed in the context of liberal arts outcomes and practices, and how these may contribute in positive ways to college-based development of intellectual identity.

Morgan Waag
Strategic Comm & Social Media, Class of 2023
Faculty Sponsor: Kandice Hartner
Co-authors: Max Robinson, Andrew Tedesco, Christopher Powers, Mason Peck, Savion Baker
Video
Funding received from the Drinko Center for Undergraduate Research

The Figures

As a project for the 48 Hour Film Festival and a project for Kandice Hartner's Single Video Camera Class, our team was required to create a short film in the genre of Sci-fi: Alien Invasion over the course of a weekend. We were given specific time allotments, props, and dialogues to incorporate in the film. The assignment helped us work collaboratively together and support one another's strengths in video operating, editing, producing, and writing a script all within a strict

deadline. Drinko funds were used to help compensate for costs associated with food, preparation meetings, health & safety measures, and supplementary materials used for filming.

Morgan Waag
Strategic Comm & Social Media, Class of 2022
Faculty Sponsor: Brittany Rowe-Cernevicius
Co-authors: Dani Soloski, Andrew Phillips
Other

Focus Group Session

Come and participate in a focus group session designed to provide feedback to students working in their Creative Media Production capstone projects. Participants will experience what it is like to participate in market research as they view a documentary trailer and elements of a graphic design project.

Gabrielle Weaver
Nursing, Class of 2022
Faculty Sponsor: Tricia Ryan
Co-authors: Brianna Powell
Poster Presentation

Reducing Catheter Associated Urinary Tract Infections on Inpatient Hospital Units

Catheter associated urinary tract infections are the most common type of healthcare – associated infection (HAI). HAI's are infections that occur while receiving healthcare, developed in a hospital or other health care facility. Urinary tract infections (UTI's) are an infection involving any part of the urinary systems. Catheters are tubes inserted into the bladder through the urethra to drain urine. 15-25% of hospitalized patient will receive urinary catheters during their stay. Complications associated with CAUTI's result in increased length of stay, patient discomfort, and excess health care and contribute to increased mortality. Research suggest over half of CAUTI's can be prevented. This project aims to reduce annual number of CAUTI's to one or less through increased patient education and increased staff compliance with catheter care and documentation. Per data there has been an increase in CAUTI's in inpatient facilities. Reduction of CAUTI's will lead to decreased complications.

Bennett Webster
Psychology, Class of 2022
Faculty Sponsor: Loreen Huffman
Poster Presentation

The effect of emotional intelligence as a mediator of shyness and depression with overall life satisfaction

Emotional Intelligence is the ability to regulate and understand ones emotions and the emotions of those around the. This study looked in to if emotional intelligence is a mediator variable of depression, shyness and life satisfaction. I hypothesized that a high level of emotional intelligence would reduce depression, reduce a persons level of shyness and increase their life satisfaction. I will be using Westminster college students for this study. They will complete a survey containing measures of emotional intelligence, depression, shyness and life satisfaction. After completing data collection I will run correlations between the four variables to determine if my hypotheses were supported. The results found will increase our knowledge of the role of emotional intelligence and shyness on the overall mental health and well being of college students.

Lydia Weisberg
Psychology, Class of 2022
Faculty Sponsor: Jessica Rhodes
Poster Presentation

Anxiety Sensitivity as a Moderator in the Relationship Between State Anxiety and Nicotine Craving

The primary aim of the present study was to investigate the moderating role of anxiety sensitivity (AS) in the relationship between state anxiety (SA) and nicotine craving. Participants were 8 college students who were regular smokers. In a group setting, participants completed measures of anxiety and smoking before and after a stress inducing task. AS was not correlated with pre- ($r = .513, p = .194$) or post-test SA ($r = .469, p = .241$), or pre- ($r = .344, p = .902, .817$) or post-test report of craving ($r = .620, p = .748, .758$). Contrary to hypotheses, the interaction between AS and SA did not significantly predict craving (p 's $> .44$). The results did not support the hypothesis that AS influences the relationship between SA and craving. Limitations include: A small unrepresentative sample, little variability in variables, and methodological issues. A better understanding of the factors that influence the relationship between anxiety and smoking can inform treatment strategies.

Abigail Westcott
Neuroscience, Class of 2022
Faculty Sponsor: Deanne Buffalari
Poster Presentation

Effects of Nicotine Exposure on Anxiety in Female Adolescent Rats

Anxiety disorders are the most common mental illness in the United States, affecting 40 million adults every year. Living with the effects of anxiety can vary among individuals, and those suffering may engage in risky behaviors to reduce their anxiety. Nicotine is often used to address and alleviate issues like anxiety as a coping mechanism. Despite reports that nicotine helps relieve stress, actual evidence suggests that nicotine can produce anxiogenic effects, or induce anxiety. The present study investigated how different amounts of nicotine exposure can affect anxiety in female adolescent rodents. Female adolescent rats were exposed to either repeated nicotine injections or a single nicotine injection. An elevated plus maze was used to measure anxiety-like behaviors following the injection period. This research will further explain how the effects of smoking may induce certain levels of anxiety; therefore, making nicotine use to alleviate anxiety an ineffective coping mechanism.

Abigail Westcott
Neuroscience, Class of 2022
Faculty Sponsor: John Robertson
Poster Presentation

Differences in the Clinical Forms of Multiple Sclerosis

Multiple Sclerosis (MS) is a chronic inflammatory autoimmune demyelinating disease of the central nervous system, that affects one million individuals in the U.S. alone. The immune system of individuals with MS attacks and destroys the myelin sheath coverings of axons which are critical for electrical communication. There are four types of Multiple sclerosis consisting of relapsing remitting, secondary progressive, primary progressive, and progressive relapsing. This research will investigate the differences in these various forms relative to the rate of demyelination or decline, relapses, symptoms, and acute attacks. Differentiating these forms can affect the course of action taken by a patient and medical personnel to treat and manage the disease. The objective of this poster is to highlight the important differences distinguishing the various clinical courses of Multiple sclerosis and to explain how those specific diagnoses are critical to which treatment would be most effective.

Lindsey Wheaton
Biology, Class of 2023
Faculty Sponsor: Marosh Furimsky
Poster Presentation
Funding received from the Drinko Center for Undergraduate Research

Exposure to Bisphenol F Leads to Developmental and Cardiovascular Abnormalities in Zebrafish

The widespread restriction of the use of bisphenol A after extensive research has led to a surge in the use of bisphenol alternatives, such as bisphenol F (BPF). To further investigate the effects of BPF in aquatic ecosystems, zebrafish embryos were exposed to different concentrations of BPF in normal, dechorionated, and post 24-hour exposure then observed for abnormalities using various forms of microscopy. Developmental abnormalities including increased mortality, decreased hatch rate, depigmentation, spinal deformation, and failed swim bladder inflation, as well as cardiovascular abnormalities including decreased heart rate and the appearance of an atypical phenotype in the vasculature at varying concentrations and exposure times were observable. These findings further support the idea that BPF has harmful effects on the development of zebrafish, is toxic in aquatic environments, and is not a safe alternative to BPA.

Makyla Wheeler

Criminal Justice Studies, Class of 2025

Faculty Sponsor: Randy Richardson

Performance

Funding received from the Drinko Center for Undergraduate Research

Candidate for the Diversity and Social Justice Award.

Just Mercy: Inadequate Public Defense in U.S. Death Penalty Cases

I will be giving a 10-minute persuasive speech on the growing inadequacy of the U.S. legal public defender system. This issue is no more apparent than in the situations of those receiving public defense in capital cases. The importance of quality legal defense magnifies given death rows disproportionate racial make-up and reported 186 exonerations since 1973. Our public defender system is riddled with individual and structural problems. On an individual attorney level, the problems lie in the abhorrent behaviors of specific bad attorneys and the overworking of lawyers overall. Structurally speaking, the public defense system is plagued with ineffective federal legislation, and inconsistent state laws. Solutions to the issue of inadequate public defense range from the solitary person to the federal and state governments. Research has been collected from several relevant sources such as the Death Penalty Information Center (DPIC), and the Equal Justice Initiative (EJI).

Hannah Wilson

International Studies, Class of 2022

Faculty Sponsor: Shannon Smithey

Poster Presentation

Candidate for the Diversity and Social Justice Award.

Cultural Repatriation: A Comparative Case Study of the United Kingdom, New Zealand, Spain, and Peru

Cultural repatriation, the return of cultural artifacts to their original owners, is of particular importance to the countries of the United Kingdom, New Zealand, Spain, and Peru. Histories of colonization and artifact looting have prompted changes in artifact ownership that are now subject to modern debates about repatriation. International policy, private collectors, museums, and domestic legislation are areas involved in these debates. This research addresses these factors that influence cultural repatriation, focusing on policy, domestic and international pressure, and museum power and independence. Using data from museum archives, international organizations, domestic policy records, and newspaper reports, this work determines that cultural repatriation outcomes are dependent on the degree of government connection to museums. These outcomes contribute to the ideas of cultural property ownership and the future of international artifact repatriation.

Hope Wilson

English, Class of 2022

Faculty Sponsor: Kristianne Kalata

Oral Presentation

Candidate for the Diversity and Social Justice Award.

The Educational Clash Between Two Forces

This research looks at how the invention of the printing press along with the forces of propaganda uses their powers to send the public into the moral panic, in relation to the recent controversy surrounding Critical Race Theory (CRT). The purpose is to assist in answering the true question which is: Why is our culture immersed in controversy now? Moreover, how could the banning of CRT affect the future of accurate lesson planning in American History and English Language Arts (ELA) curricula? Resources that help support this research are from literature by authors like bell hooks, philosophers such as John Dewey and William Deresiewicz, and journalists from a political-based magazine, CounterPunch.org. A creative depiction of this research will serve as a follow-up – a portion of a screenplay that illustrates all sides of the current controversy that threatens the future of education in America.

Ivy Withers

History, Class of 2022

Faculty Sponsor: Angela Lahr

Poster Presentation

"'Try Jesus, Not Drugs!': Young Adults and the Billy Graham Crusades During the Long 1960s"

This research examines Billy Graham's appeals to American youth during three occasions when he held crusades on college campuses: the University of Auburn in 1965, the University of California, Berkeley in 1967, and the University of Tennessee in 1970. The evidence shows that

during the political and social turmoil of the long 1960s, Graham sought to persuade young adults on college campuses to participate in his crusades, reassure students about the fate of the world around them, and encourage rejection of the New Left. Using Graham's sermons and student newspapers from the campuses he visited, evidence shows that students where Graham visited were divided over his campaigns. There are few histories that address this youth involvement in depth. Highlighting this group demonstrates how young adults during the 1960s were becoming more involved in social movements. This involvement had lasting effects on the developing "religious right" that would continue into the 1970s and 1980s.

Shaemour Young

Professional Communication and Leadership, Class of 2022

Faculty Sponsor: Colleen Merrick

Oral Presentation

Candidate for the Diversity and Social Justice Award.

Colorism in Hip-Hop Music through Black and White People Perceptions

Colorism is a hidden social issue in minority races that does not get the attention it deserves to help better communities within that race. Colorism can create divisions with people, self-hatred, and make racism a bit harder to tackle. Through many ways colorism can be used as a tactic through media and without general knowledge it is hard to notice. One of the most popular tactics is music especially Hip-Hop music. Not only music but the culture around Hip-Hop music is just as important and needs to be shared but, as well the outcomes of colorism and what it can do to a community. As well to a person and who they are versus who they want to be. Colorism affects the black community in a big way and does not affect the white community and in this shared world we need to be able to recognize and educate each other on this issue to be able to further take a shot at the byproduct of racism.

Where They Are From: A Poetry Collection by the Class of 2025

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 2021 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 2025. Please note the variety of backgrounds, experiences, and guiding principles that comprise our Westminster community.

WESTMINSTER COLLEGE

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