

2022 Student and Faculty Research Forum Abstracts

Student Author: Kade Abney

Academic Area: Agriculture

Research Project: *Just Horsin' Around: A Content Analysis of Equestrian Representation on TikTok*

The equine industry relies heavily upon social media for broadcasting, advertising, sales, and more. Because of the importance of social media to the success of the industry, it is imperative that the sport is represented safely and accurately in order to prevent stigma and false interpretations. This study aims to analyze equestrian videos posted on the social media platform TikTok. The focus of the analysis is to recognize relationships between safe riding practices and viewer interactions, with an emphasis on comment connotation. The platform of TikTok was chosen due to the average age of users, which is consistently younger than other social media platforms. With the continued success of the horse industry dependent on interest of younger generations, this analysis will determine relationships between the horse industry and public perception, as well as how these relationships could potentially impact the industry in the future.

Student Author: Kaitlin Armstrong

Academic Area: Art/Communication Arts/Theatre/Music

Research Project: *Color Theory- Is Color Theory Still Relevant?*

This research tests the relevance of color theory given the increasing production and publication of amateur content and graphic design. Specifically, it tests the relevancy of color theory in today's design market against images designed without color theory concepts, mirroring some amateur content. An integrated theoretical framework consisting of Symbolic Interactionism, Gestalt theory, and Color Valence theory was used to guide this study and the interpretation of its findings. Three surveys constructed to test traditional color design as taught by higher education. After collecting anonymous responses, the surveys were evaluated based on audience reaction to proper color theory, and the implications of responses. The research reveals several directions for further study and emphasizes the importance of frequent appraisal of audience cognitive and emotional responses to color theory.

Student Author: Shawndale Arrington

Faculty Authors: Ellen Gagliani

Academic Area: Biology Health Science/Chemistry

Research Project: *The Antibacterial Properties of Ingredients in 2% Stridex Pads Against Staphylococcus aureus, Pseudomonas aeruginosa, and Escherichia coli*

Human skin has three layers (epidermis, dermis, and hypodermis) that function to keeping harmful substances from entering the body. Bacteria such as Staphylococcus aureus, Pseudomonas aeruginosa, and Escherichia coli can be found on the skin's epidermal layer. Many skin care products have antimicrobial properties that can limit the growth of certain bacteria on the skin. In this study, we tested the skincare product Stridex, along with the isolated ingredients salicylic acid, citric acid, and sodium borate, against the following microbes: Staphylococcus aureus, Pseudomonas aeruginosa, and Escherichia coli. We hypothesized that 2% salicylic acid would have the most antimicrobial property of the tested ingredients in the Stridex pads because this is listed as the active ingredient. Our results showed that sodium borate had little to no antimicrobial effect against the microbes tested. The salicylic acid, citric acid, and Stridex pads had no statistically significant differences among each other. Salicylic acid showed antimicrobial properties towards each bacteria but did not show a significant amount of difference against the citric acid nor the Stridex pads.

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Student Author: Carley Asher

Faculty Authors: Chad McKay and Daryl Nash

Academic Area: Agriculture

Research Project: *Consumer Perception of Food Prices*

Understanding consumer perceptions on food prices is essential knowledge for the agriculture industry to build relationships among consumers and producers. The purpose of this study is to examine the perception of current food prices among a population of varying education levels. The study was conducted with three subject groups: first-year agriculture students, senior agriculture students, and Wilmington College faculty (n = 96). Upon completion of the survey, participants were evaluated on demographics, perceived prices of five fresh foods (apples, head of lettuce, pound of ground beef, gallon of whole milk, loaf of bread), and education experience. Of the 96 participants, 54 indicated they were from a direct farm or agriculture background while 42 were not. Results indicate the participants have a varying perception of food prices, while also perceiving that the five fresh food prices have increased since 2019. Information gained through this study will contribute to the understanding of purchase behaviors among an educated population throughout Ohio and neighboring regions.

Student Author: Cassie Baird

Faculty Authors: Daryl Nash and Amanda Rollins

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *The Relationship Between Lactoferrin, Udder Health, and Calf Growth Rate in Beef Cattle*

Lactoferrin is an important protein that affects bovine health. It was a precursor to modern antibiotics and is a natural immune defense system. The protein LF is effective at improving immune response because it is an iron binding protein that starves bacteria of nutrients. The gene is a member of the transferrin family and is located on the autosome (BTA) 22q24 and consists of 17 exons (Arnould et al., 2010). The relationship between LF and mastitis has been well-established in dairy cattle. However, the relationship between LF and production traits in beef cattle has not been examined as extensively. Since LF production is associated with lower milk production (Cheng et al., 2010), and the dam's (mother's) milk production is an indicator of her calf's growth rate, we hypothesize that beef cows producing higher levels of LF will produce less milk and will therefore raise smaller calves. In addition, because lower levels of LF are associated with poorer milk quality in dairy cattle, we hypothesize that the same relationship will hold true in beef cattle. In preparation for the research to be conducted to test these hypotheses, a preliminary study was conducted to determine the best site to collect tissue samples from beef cows for DNA analysis.

Student Author: Gage Blon

Faculty Author: Kendra Cipollini

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *Quantifying Advantage of Induce Defenses in the Daphnia genus*

Phenotypic plasticity is an occurrence in which an organism is able to adapt its phenotype to an unfavorable circumstance based on environmental cues within a lifetime. This research attempts to take the idea of phenotypic plasticity and take it a step further in quantifying the advantage of plastic change in the Daphnia genus. Through the elongated exposure to kairomones from live *T. cancriformis*, and follow-up predation trials, which quantified predation bouts and success, a numeric value for effectiveness of phenotypic response was recorded.

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Student Author: Olivia Boczar

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *High Impact Exercise Stress vs Low Impact Exercise Stress in Mice*

Exercise helps a critical role in health and overall quality of life. It is used to help decrease body weight, gain muscle mass, and even help with depression and improving cognition. Yet it can be overdone and put more harm on the body through joint damage and harming the immune system. There are many forms of exercise and fall into two categories, high impact and low impact. While both forms are harmful is one chronic exercise regime more harmful on the body than another? This study using mice as a model would look at both and see which is better to use for experiments. It will be looking at the corticosterone levels to compare stress from exercise. If they both produce the same amount of stress on mice and have similar corticosterone levels, then they both can be interchangeable for research when using exercise. This would allow researchers focus in on what they are testing. If it is something to do with the endocrine system and exercise, as it also impacts the hypothalamus functions, then they can use swimming as a lower impact exercise on the body while still achieving the same results from the stress of exercise in general rather than using running to do more damage to the body than necessary. The aim of this study is to see if high impact exercise will cause more stress than low impact exercise or will have there be similar results. The stress response will be affected by both exercises, but will one cause a higher response, or will they both be similar enough to say that any chronic exercise will harm the stress response of the body.

Student Author: Sabrina Bowman

Academic Area: Art/Communication Arts/Theatre/Music

Research Project: *How NFTs are revolutionizing the landscape for artists and the rights to their work.*

2021 was referred to by the media as the year of the NFT, they are changing the way that artists of all kinds can buy and sell art. NFTs have become so prevalent for not only artists but also companies with trademark visual assets to sell pieces of quintessential brand visuals or sounds. I anticipate that NFTs will become part of the language in the marketing and art world; and a necessary part of visual communications. As NFTs have been created and risen in popularity many anticipate that the ability to create and publish them is a new marketable skill for visual artists. NFTs are refashioning the way that artists can own and sell their work by decentralizing copyright, creating an online community of young art collectors, and allowing a flexible format for artists to publish their work and receive payment all over the world

Student Author(s): Sophie Buisson, Macie Riley, and Hailey Price

Academic Area: Business Administration/Accounting

Research Project: *Personalization in Marketing*

Our group is looking at the rise in popularity of personalized marketing techniques.

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Student Author: Ashley Carlson

Academic Area: Social Sciences

Research Project: *Its All in Your Head?: Investigating Mental Health (Motivation) among Collegiate Student-Athletes*

This paper explores multiple articles concerning mental health in collegiate athletes and how motivation plays a role in athlete's experiences with their sport. This paper will analyze a variety of factors that may affect college athletes' mental health. These factors include self-determined motivation, athlete burnout, stigma towards mental health, sleep, seeking mental health services, and quality of mental health services. Ryan & Deci's (1985) Self Determination Theory is used to explain how motivation is relevant to the mental health of athletes and how when unsatisfied it can lead to poor mental health status. The purpose of this study is to determine how motivation and its related factors affect college athletes.

Student Author: Montgomery Carpenter

Faculty Author: Savitha Krishna

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *Acidic Demineralization of Cortical Bone and Connective Tissue Using Gallus gallus domesticus and Meleagris gallus domesticus Tarsometatarsus's*

This experiment is designed to explore the demineralization of Gallus gallus domesticus and Meleagris gallus domesticus tarsometatarsus's along with the surrounding connective tissue. Sulfuric acid (pH 1.01) is used as one chemical compound at an 85% and 50% concentration, due to its high acidic qualities and based on the knowledge that it is used to deteriorate human bone for occasional forensic cases. The next chemical used will be acetic acid (pH 2.4), also at an 85% and 50% concentration, chosen for its ability to decalcify bones and change the bone structure. Coca-Cola (pH 2.6 - 2.7) is the last compound used to relate the project to the real world and compare its low acidity to the other chosen compounds. These three chemical compounds will be tested on tarsometatarsus and the surrounding tissues of the Gallus g. domesticus and Meleagris g. domesticus. The bones and tissue will be observed microscopically in timed intervals. The expected results are all bone and tissue samples in the 85% sulfuric acid will demineralize and show the most significant microscopic differences. The 50% sulfuric acid will follow. The acetic acid will make the bones and tissues lose their composition allowing them to turn into a flimsy structure. The last will be Coca-Cola, this will stain the tissue and bone however it will not alter the dynamics of either bone or tissue. After analyzing the data, it will be expected that the sulfuric acid will be the most effective as well as the quickest in demineralizing the tarsometatarsus's and connective tissues.

Student Author: Jadrien C. Douglas

Faculty Author: Corey Cockerill

Academic Area: Art/Communication Arts/Theatre/Music

Research Project: *How Stereotypes and Tropes affect LGBTQA+ Identities*

How do stereotypes and tropes based on or using LGBT+ characters affect the people who actually identify as LGBT+? How do these scenes and character affect how they see themselves?

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Student Author: Heidi Edens

Faculty Author: Corey Cockerill

Academic Area: Art/Communication Arts/Theatre/Music

Research Project: *The Severed View of Wildlife in Documentaries*

For my capstone I studied the multitude of ways wildlife are presented throughout the documentary world. My main question was if wildlife that receive more screen time therefore receive more conservation attention. I reviewed various literature as well as completing my own research with evaluating the series Our Planet to discover what species were seen the most, sounds used for each species, differences in animal portrayals, and overall commonalities.

Student Author: Matthew Eggenpiller

Faculty Author: Ellen Gagliani

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *Identification of Klebsiella pneumoniae*

Unknown organisms can be identified by conducting tests to identify specific characteristics of that organism. The results of the tests can be compared to a list of standard characteristics of known organisms and the identity of the bacteria can be narrowed down. Tests to identify the organism's metabolic activities, cell wall structure, and antibiotic resistance are most common. In this experiment, a stock culture of what was at the time an unknown bacterium was used to conduct several tests to find the identity of the unknown organism. Based on the results of the tests, the identity of the organism was confirmed to be *Klebsiella pneumoniae*. *K. pneumoniae* is a resident microbe of the digestive tract and is usually harmless unless it enters other parts of the body such as the lungs or eyes where it can become pathogenic. Experiments such as these are useful for identifying an organism that is causing an individual to become ill so that the appropriate treatments can be given. Similar tests can also be useful for testing a specific organism to identify which treatments it is most sensitive to.

Student Author: Lucy Elizabeth Enge

Academic Area: Agriculture

Research Project: *Composting the Middleman: Institutional Food Waste in Wilmington, Ohio*

Food waste is so often discussed at the consumer level, but what would happen if it was rather addressed at an institutional level? As cities look toward supporting the infrastructure of growing populations, cities that operate their own smaller municipal waste systems like the City of Wilmington, Ohio, must contend with limited financial resources and unforgiving EPA intake limits. In such circumstances, addressing food waste and diverting it from a city's landfill would relieve pressure on this particular infrastructure and also allow, with population growth, for landfills to be able to intake more non-food refuse. In the case of Wilmington and other like cities, as food waste household collection could be costly and challenging for communities to adopt as a first step in food waste reduction, city officials may benefit from a more detailed exploration of concentrated food-waste sources such as schools, grocery stores, and restaurants. This type of study could then encourage targeted and proactive food waste reduction strategies and whose data on institutional food waste sources could benefit legislators in crafting food waste policy that focuses on incentivizing widespread institutional remediation and proactive education.

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Student Authors: Haley Fouch, Hannah Armstrong, and Trinity VanDusen

Academic Area: Business Administration/Accounting

Research Project: *Mental Health vs. GPA*

We decided to look into how mental health affects college students GPA. We wanted to specifically see how grades are affected based on the impacts of anxiety, depression, and many other things college students may suffer from. We decided to collect the data through a survey.

Student Author: Brittany Gregory

Academic Area: Art/Communication Arts/Theatre/Music

Research Project: *Influencer Marketing and the Effects it has on Children*

Children today spend most of their time on the internet watching other children unbox toys, people playing video games and watching product reviews. They would rather watch people do these things than do these things themselves. The people they watch are referred to as influencers aka “social media personalities with large followings who highlight products and services and are frequently paid or given products in exchange.” Children are very vulnerable to anything they hear or see. Platforms such as YouTube and TikTok have become great marketing tools for vloggers to affect children’s behaviors, identities and development. Through this research, there are many ways to identify why and how social media influencers target children with certain types of marketing strategies. Exploring these strategies will also develop many interesting theories on the effect influencer marketing has on children’s actions and what risks may come from what they are being exposed to.

Student Author: Hannah Hall

Faculty Authors: Erika Goodwin, Eric Dick, and Jennifer Walker

Academic Area: Sport Sciences

Research Project: *Effects of Rock Steady Boxing on Parkinsons Patients*

Rock Steady Boxing’s (non-profit organization) program goal is improving Parkinson’s patients’ quality of life through a non-contact, boxing-based fitness class. The purpose of this study was to investigate the effects of Parkinson’s patients perceived improvement on proprioception from one hospital-based Rock Steady Boxing Program. The program was led by athletic trainers and physical therapists. Descriptive survey research was used with Parkinsons patients in the Rock Steady Boxing Program. The results of this study show Rock Steady Boxing Program has several positive effects on the Parkinson’s patients. Including, balance, coordination, walking, improved independence at home, memory, and decreased number of falls. Athletic Trainers teaching these classes offer their unique skills and benefit Parkinson’s patients in this program.

Student Author: Damien Harris

Academic Area: Art/Communication Arts/Theatre/Music

Research Project: *Queerness and Its Place in Horror Films*

Being scared for fun is a relatively new activity in humans but doing so and seeing yourself represented is even more modern. Queer identities in the horror genre seems new but horror has always been a unique outlet to subtly tell stories with much deeper meaning. This is a case study in just how deeply intertwined queerness and scary movies are.

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Student Author: Ti Harris

Academic Area: Art/Communication Arts/Theatre/Music

Research Project: *How Psychoacoustics Influence our Emotional Response to Visual Stimuli*

The psychological effects of audio when paired with visual stimuli have been a subject of interest in the research world for numerous years. This study analyzes the emotional retort of the participants to visual stimuli with both compatible and incompatible audio. It questions if compatible audio will supplement the precision of emotional discernments in an array where auditory and visual stimuli are compatible relative to an array with incompatible audio-visual stimuli. The study will be conducted through the use of quantitative research. Its goal is to express the importance of auditory stimuli when paired with visual stimuli, and how the proper combination of both promotes heightened emotional response and emotional empathy.

Student Author: Maryn Herring

Faculty Authors: Erika Goodwin and Jennifer Walker

Academic Area: Sport Sciences

Research Project: *Comfort Levels of Male Collegiate Student Athletes in Reporting Symptoms of Eating Disorders*

The purpose of this study was to investigate the comfort levels of male student athletes at a Division III college in reporting symptoms of eating disorders to Athletic Trainers. Descriptive survey research was used. This study supports that male athletes experience symptoms of eating disorders and some are not comfortable reporting those symptoms to their team athletic trainer. Increasing awareness and education to both athletes and athletic trainers will normalize the issue and encourage better reporting of cases.

Student Authors Ben Hidy, Jesse Reliford, and Joel O Brien

Academic Area: Business Administration/Accounting

Research Project: *Does the Baseball Change the Amount of Homeruns and How Pitchers Pitch*

Does the weight of the baseball effect how many homeruns hit. Does the umpires cracking down on illegal substances effect the pitchers performance.

Student Authors: Bryce Howard, Luke Downing, Grant Mihalick, and Mac Davis

Academic Area: Business Administration/Accounting

Research Project: *Future of Electric Cars*

For our research project, we are going to figure out what the demand for electric vehicles are and where they fit within families. Within the automotive industry, the newest invention is electric vehicles. although they are not really common, we wanted to see if they are better for the economy regarding fuel prices, the environment, and what people can expect when purchasing an electric vehicle.

Student Author: Kayci Johnson

Faculty Author: Amanda Rollins

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *A Noninvasive Method for Sample Collection for Lactoferrin Gene Polymorphism in Hampshire Cross Ewes*

Mastitis is a costly disease that affects livestock in all areas of the world. There has been a lot of research on mastitis resistance in cattle, but there is little research on sheep. Sheep are prevalent as milk producers, so it is critical that they have healthy udders. In bovine, polymorphisms of the lactoferrin gene are thought to be a potential genetic component to mastitis resistance. The goal of this study was

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to identify the lactoferrin gene polymorphism in Hampshire cross ewes by using a noninvasive collection method. The samples were collected from ewes by scraping for cells in the armpit and cheek area. DNA was extracted from the cells, and the DNA was amplified using polymerase chain reaction (PCR). The PCR product was sent for outside sequencing. The sequencing was unsuccessful and did not provide clear sequences. The results suggest that the noninvasive collection method was unsuccessful, and the methods need to be altered. Blood sample collection currently appears to be the best method to collect samples to identify lactoferrin gene polymorphism.

Student Author: Jake Jubach

Faculty Author: Amanda Rollins

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *Identification of Cytauxzoon felis in Domesticated Feline Within the Southwest Ohio Region*

Cytauxzoon felis is an apicomplexan parasite common to bobcats, the reservoir host by a tick vector. It is only mildly symptomatic, resulting in fevers that occur in bobcat kittens. However, this parasite is potentially lethal for infected domestic cats even with medical treatment, and mortality rates approach 100% for those without treatment. Bobcats are native to Ohio, but elusive. However, C. felis has been genetically identified as endemic in wild opossum carriers in southwestern Ohio. This suggests that domestic cats are at risk in this region. Blood samples from local feral cats were tested for evidence of C. felis infection. Preliminary results warrant a broader investigation of the prevalence of this dangerous parasite and the potential risk to cats.

Student Author: Chyann Kendel

Faculty Authors: Chad McKay and Javonne Mullins

Academic Area: Agriculture

Research Project: *Determining Factors in Successful Completion of an Agricultural Education Degree*

An individual can do anything they set their mind to. This is a saying that has been repeated to students since day one of their education. Why is it though some students enter a program and leave or withdraw before degree completion? Agricultural education degree candidates are needed to meet existing and growing demand across the nation. Thus, the purpose of this study was to analyze if FFA membership, FFA officer involvement, farm size, parental occupation, and satisfactory ACT score while in high school leads students to degree completion in an agricultural education major at Wilmington College.

Researchers surveyed students enrolled in a first-year agriculture course each year from 2015 to 2021, 560 students total were considered for this study. The population size was then reduced based on the dependent variable of academic major, meaning that N=126. This study utilizes a questionnaire survey that is administered to students during class. In addition, degree completion was tracked using the college's online portal database which provides the student's enrollment status at the time of the study. A major in agricultural education was used in logistic regression as the dependent variable. Logistic regression was used to determine whether being in FFA with yes=1 and no=0 was an indicator of an agricultural education major, the results yielded a Cox & Snell R² = .062. Logistic regression was used to determine if being an FFA officer was an indicator of an agricultural education major, yes=1 and no= 0, which yielded a Cox & Snell R² = .024. The same method was used to determine if living on a farm influenced a decision to major in agriculture education, it resulted in Cox & Snell R² = .023. If the parental occupation was related to education, yes=1 and no=1, which determined an influence on major choice as Cox & Snell R² = .003. Lastly, ACT score was evaluated based on if the score was satisfactory to

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enter the Wilmington College education department, if the composite, math, and reading scores were a 20 or above, yes=1 and if they were not then no=0. The ACT Score yielded a Cox & Snell R² = .064. The R² values were not significant predictors, but of the factors that were tested, ACT Score held the most significance in comparison to the others.

According to the 2019 National Agricultural Education Supply and Demand Study, "numerous challenges are facing school based agricultural education include, but are not limited to, student enrollment, funding, and obtaining licensed teachers" (Foster, Lawver, & Smith, 2020, p.1). Continued analysis of these challenges will enable colleges and universities throughout the United States to play a vital role in not only generating interest in pursuing a degree in agricultural education but assist college and university level programs determine factors that contribute to degree attainment. The future of this study is to compare the data to recognize trends in enrollment and completion over multiple generations. These plans would reduce the limitations of this study as they have the potential to expose an increase in statistical significance as it moves towards more current trends in students. Lawver and Torres establish the need for more educators, "agricultural education has not seen a single year since 1965 in which all teaching positions have been filled" (Lawver & Torres, 2012, p. 40). The identification done through this article paves the way for the recommendations set forth. Lawver and Torres outline this as, "Finally, identifying the factors that influence students' choice to teach gives us the first step towards creating a plentiful supply of well trained and highly qualified agriculture teachers" (Lawver & Torres, 2012, p. 40). Advancements will be made as factors are identified and then supports are put in place to increase the interest and supply for agricultural education.

Although the results were not statistically significant, this research provides college and university agricultural programs information about degree completion of their agricultural education students. This information could assist with generating an increased number of agricultural education graduates by targeting factors that impact their degree completion early on in the academic career of the student.

Student Author: Rachel Kesterson

Faculty Authors: Erika Goodwin and Jennifer Walker

Academic Area: Sport Sciences

Research Project: *Rodeo Athletes' Perceptions of Available Onsite Medical Care Provided*

The purpose of this study was to investigate the medical care perceptions of rodeo athletes at one Southwest Ohio rodeo as compared to others. This study utilized a descriptive survey. This study revealed rodeo athletes reported better medical care at this southwestern Ohio rodeo where Certified Athletic Trainers covered. This reflects an emerging field for athletic training where ATCs knowledge and skills can be utilized.

Student Author: Andrew Louderback

Faculty Author: Savitha Krishna

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *Concentrations of microplastics in creeks and streams in Southwestern Ohio*

It is about the concentrations of microplastics in creeks and streams around the local area of Hillsboro, Ohio. To see if there are MP's in the creeks and of what type they are to be further analyzed. So, that ways to clean up the local environment can be broken down into specific ways to possibly clean each source separately.

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Student Author: Courtney Luderman

Faculty Author: Ellen Gagliani

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *Identification of the Unknown Bacteria: Escherichia coli*

An unknown bacteria was presented to run twelve tests, in order to find the identity. Several different types of agar were used in these test. These being sheep blood, MacConkey, urea, and mannitol salt. Another common type of test that were used in this experiment was to test antibiotic resistance. A few other test that were ran were gram staining, the fermentation of different sugars, and enzyme present. After completing all of the test, it was concluded that the unknown bacteria was Escherichia coli (E. coli). Most of the test that were ran clearly indicated that the bacteria was E. coli. The clear indication of the bacteria's identity was with the tryptophanase test, as E. coli was the only bacteria that should give a positive result on this test from the options that were provided.

Student Author: Brenna Nicole Mae Luti

Academic Area: Art/Communication Arts/Theatre/Music

Research Project: *Media and Its Effects On Environmental Activism*

There have been questions about whether some of these methods are having a positive effect or not. Various kinds of media have shown mixed results concerning environmental values. After reviewing the literature on this subject, I devised a study with the help of one of my instructors. Students filled out surveys during lunch hours for two days. According to the results, people somewhat think the environment is valuable and were neutral about scientists. At the same time, people and their families do not participate in events relating to the environment that much. Some factors being studied here, like the influence of media on pro-environmental values, were somewhat inconclusive.

Student Authors: Wyatt Lykins, Tim Triplet, Sofia Thomas, and Gabe Dolen

Academic Area: Business Administration/Accounting

Research Project: *"Talk of Shame" podcast data breakdown*

We will be doing a data breakdown of the Talk of Shame Podcast and looking at how it statistically compares to others in the podcast field.

Student Author: Chloe Mason

Academic Area: Social Sciences

Research Project: *How Do the Cartoons We Watch as Children Influence Our Political Beliefs as Adults*

The increasing number of explicitly politically charged cartoons has become a concern for many families as they seek to determine what shows are beneficial or harmful for their children to watch. In the past, we have observed how TV impacts the human mind over time using George Gerbner's Cultivation Theory. Gerbner's research suggests that children are more easily influenced by media than adults, as well as the idea that those who consume more TV will have a view of reality that reflects the media rather than factual events (1981). Previous research frequently looks at the effects of violence, but never at the underlying commentary in cartoons and what its impact may be. Using a focus group of students from Wilmington College, this research observes the favorite cartoons of participants, what values may have been portrayed in these cartoons, and compares them to their current political leanings. Using these methods, it was found that cartoons do correlate frequently with the political beliefs of now-adult participants. These findings indicate that children do absorb more than what is obviously depicted on TV and may be utilized in determining the future political leanings of our current youth, as well as what censorship a parent may feel is necessary for their children.

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Student Author: Shelby Michael

Faculty Author: Audrey Wagstaff

Academic Area: Social Sciences

Research Project: *Go for Broke? Using Festinger's (1957) Cognitive Dissonance Theory to Explain Student's Attitudes on Student Loan Debt*

To ascertain Wilmington College students' attitudes on acquiring and contributing to student loan debt numbers as a vehicle for future success, we sent students a survey via Qualtrics. Our survey contained questions regarding student's reasons for attending college, as well as their student loan debt estimations, post-college salary estimations, and how confident they believed their estimations to be. Using Festinger's (1957) Cognitive Dissonance Theory, we created several hypotheses and compared our results to such. The first hypothesis was that students will feel that their student loan debt amount is reasonable and that they can pay off such amounts in a reasonable period of time. The second hypothesis was that students will feel that their annual post-college salary projections are accurate and that they are confident in such estimations. The third was that students will feel that their student loan debt projections are accurate and they are confident in such estimations. Lastly, the fourth hypothesis was that students are more likely to attend college for extrinsic reasons — i.e., external rewards like money or fame — than intrinsic ones — i.e., personal growth. The data showed that some of my hypothesis were supported, though not all.

Student Author: Courtney Michalak

Faculty Author: Audrey Wagstaff

Academic Area: Social Sciences

Research Project: *Vaccination Vacillation: Exploring Factors that Influence Student Compliance with the COVID-19 Vaccine Mandate*

Beginning in March 2020, schools and colleges across the nation began shutting down, forcing students to switch to remote learning and return home early. Extracurriculars were cancelled suddenly, and cases of COVID-19 began to rise. In response to this illness, what was once "normal" life was changed drastically to lockdowns, small gatherings, and fear. Medical professionals scrambled to work together to develop strategies to reduce the spread of the virus. Masks were to be worn everywhere, and vaccines were in the making. Wilmington College eventually placed a vaccine mandate which was met with opposition and support. Using components of the Health Belief Model, undergraduate and graduate Wilmington College students (N = 113) took a survey about their attitudes toward the vaccine, the mandate, exposure to narratives, and vaccine intentions. This information was used to understand how students made decisions regarding compliance with the COVID-19 vaccine mandate.

Student Author: Sarah Monnier

Faculty Authors: Erika Goodwin and Eric Dick

Academic Area: Sport Sciences

Research Project: *Effects of Caffeine on Agility Tests on One Women's Collegiate Volleyball Team*

The purpose of this study was to investigate the effects of caffeine on agility tests (3-step approach, 2-hand vertical leap, 5-10-5 drill) on a women's collegiate volleyball team at one Division III institution. Pretest-posttest randomized study design was utilized. Caffeine gum was used by the participants. Caffeine consumption had no effect on agility tests in this study. The decreased scores could be due to lack of proper warm up (day two). It is important that athletic trainers educate their athletes to understand how caffeine and other supplements may or may not improve physical performance.

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Student Author: Kathleen Monnig

Faculty Authors: Erika Goodwin and Jennifer Walker

Academic Area: Sport Sciences

Research Project: *Mens' and Womens' DIII Soccer Athletes Anxiety Levels Due to Balancing Academic and Team Responsibilities*

The purpose of this study was to investigate anxiety levels due to balancing academic and team responsibilities in one Division III women's and men's soccer teams. Descriptive survey research was used. Results show that athletes in this study had experienced a variety of anxiety symptoms balancing athletic and academic life during college. Male athletes may have more of problem admitting to having symptoms than women. More education and support for athletes on balancing academic and athletic life can give a better quality of life to athletes. Athletic Trainers should be cognizant of these life stresses for athletes and offer guidance and counseling as needed.

Student Author: Kaylashae Moore

Faculty Author: Amanda Rollins

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *Haplotypes of the DQA2 Gene in Boer Goats and Their Association with Foot Rot*

The DQA2 gene is part of the histocompatibility complex in goats. This is the defense against infections and illness. One infection that is prevalent in goats across the world is foot rot. It is important to find out which goats have a more developed immune system based on the DQA2 gene. DNA samples were analyzed from 11 Boer goats from the Wilmington College farm, 10 of which have had foot rot. The sequences were compared with published sequences from Genbank. Seven new DQA2 haplotypes were discovered, none which matched the sequences that were previously published.

Student Author: Sofija Nikolovska, Noah Arend, Peyton Mullins, Kane Lewis

Academic Area: Business Administration/Accounting

Research Project: *Correlation: Seat Assignment & Class Success*

Our project uses a statistical regression formula in order to determine how much your success in a class is based on your seat in that class. Data was collected in a primary fashion using surveys sent to students at Wilmington College. The project will depict the outcomes, conclusions, limitations, and implementations of the information.

Student Author: Allison K Puckett

Faculty Author: Audrey Wagstaff

Academic Area: Social Sciences

Research Project: *Social Impacts of Early Intervention Programs on Autism*

Autism is currently seen to affect approximately 1.47% of individuals worldwide. This diagnoses often changes the outlook on life of the diagnosed individuals as well as how they are viewed. This research explores how individuals with an ASD diagnosis are affected by factors such as Early Intervention programs, labels, and non-ASD attitudes. Topics addressed are splinter skills, integration of individuals into the workplace and communities, levels of intervention, programs, diet and lifestyle, and animal assistance. This research considers how confirmation bias influences those diagnosed with ASD as well and how the community as a whole interacts with diagnosed individuals. Methods involved in gathering data include a survey sent to students at Wilmington College. Results reveal how diagnosed individuals are impacted by labels and ASD-oriented programs and how diagnosed individuals view non-ASD individuals' knowledge of ASD needs and preferences.

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Student Author: Brianna Purvis

Academic Area: Art/Communication Arts/Theatre/Music

Research Project: *Emerging Marketing Practices on Instagram*

Instagram can be a beneficial tool for advertising a business on social media, but it requires understanding the new and emerging marketing practices. The most developed features Instagram provides to those looking to market their business on social media are reels, paid or boosted posts, and guides. These three emerging marketing practices require implementing a marketing strategy that includes a focus on generating brand awareness, virality, and profile building. Throughout the analysis of the Instagram insights, a business owner looking to develop a social media strategy might recognize that reels would be the most useful tool in reaching a large audience and generating engagement. Secondly, paid or boosted post might be a successful tool in reaching a large audience but the return on investment is important to consider when adding this practice into the marketing strategy. Lastly, guides take time to prepare and are educational for your followers but generate little to no engagement in some areas. Understanding how each of these emerging marketing practices work and how to properly implement them into your business Instagram account along with your marketing strategy can help to build a profile and create brand awareness.

Student Author: Tristan Reiley

Academic Area: Social Sciences

Research Project: *Our Waning Trust in the Truth: The Rise in Public Mistrust of the Media*

This Social Science research examines the possible factors for the recent decline in trust in media sources. Survey-based research, using the population of Wilmington College, as a sample for these variables

Student Author: Malachi Shelton

Academic Area: Social Sciences

Research Project: *Reducing Gun Violence Within the United States*

During an act of gun violence, an individual or group of individuals are physically and mentally harmed. Anyone can be affected by gun violence. More than 500 people die worldwide each day because of gun violence. The levels of gun violence need to be reduced, or else it will continue to rise throughout time. The question is, how do we work on reducing the rates of gun violence? Here, the results identified that there is a large average of volunteers in a survey who believe a failure of the mental health system has a factor in the increase of gun violence. Along with other results, we are able to see what the average participants think would make the most difference in reducing gun violence.

Student Author: Abigail Shinkle

Faculty Author: Savitha Krishna

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *Growing Dwarf Broad Beans with different Proteins and Enzymes within Milk to have growth in Bean plants*

Growth is a major component in the way of life, but it's an even bigger component in the use of growing plants, and providing food for the human body. There are thousands of experiments every year that are conducted in controlled environments, where they compare the different genotypes in a specific environment, or to study a plant's performance under different conditions that are usually out of the normal. In this research we will be talking about setting up for our experiment and applying the different environmental conditions, and the basic focuses of our experiment. When setting up your plants you have to take in consideration how you are going to conduct your experiment through and through. Plant

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biologists rely heavily on the experimental setups in which plants are cultivated either under laboratory conditions, in experimental gardens or in different agricultural settings. In this experiment we will be using whey protein, lactoperoxidase- Bovine Milk, Whole cow's milk and a fifty-fifty ratio of whole cow's milk & H₂O. I'll be planting twenty plants and for every five plants I will use a different mixture of liquid to water the plants with. I will water the plants everyday with the same amount of each Liquid, and they will get the same amount of sunlight. I'm very interested in seeing the growth of the beans within using these different liquids. I feel that the beans will have the most success with the enzyme lactoperoxidase-Bovine Milk, because it will be able to help the plants in maintaining stable growing environments.

Student Author: Jessica Small

Faculty Author: Amanda Rollins

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *Evaluating calf vigor at birth and the influence of the traits: birth weight and age of the dam at calving.*

The question of many cattle producers is how important is vigor, what impacts it, and how can vigor be improved? Successful calving and growth until weaning can be impacted by a multitude of factors. Birth weight and the age of the dam at calving are two very influential factors that directly impact calf vigor and ultimately productivity until weaning. Vigor is mainly based on mobility and the speed in which a calf completes its first activities. In this experiment vigor will be compared against the birth weight of the calves and the age of the dam to determine the influence those traits have over vigor. A herd of predominantly Angus influenced cattle will be observed over the course of a month to assess the vigor of calves at birth and the behavior exhibited between the cow and calf as well as evaluating the physical traits of the calves at birth. All the data will be analyzed and significance, if any, will be determined.

Student Author: Natalie Sparling, Emily Williams, and Abdul Kanu

Academic Area: Business Administration/Accounting

Research Project: *Music vs Major*

Does your major and your favorite genre of music correlate? A survey was sent out to student in order to collect their major and favorite genre of music.

Student Author: Hayley Suchland

Faculty Authors: Erika Goodwin & Eric Dick

Academic Area: Sport Sciences

Research Project: *Effects of TikTok on the Mental Health of Men's and Women's Soccer Teams at One Institution*

The purpose of this study was to investigate the effects of the social media platform, TikTok, on the mental health of Division III Men's and Women's soccer players at one institution. Descriptive survey research was used. TikTok had several adverse effects on the mental health of most participants. TikTok use increases self-comparison and affects how student-athletes in this study think and feel about themselves. With the ever-growing increase in mental health issues in society, it is extremely important for athletic trainers to understand the increased risk of mental health issues as a result of using social media platforms like TikTok.

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Student Author: Nicholas Thompson

Faculty Author: Audrey Wagstaff

Academic Area: Social Sciences

Research Project: *Policing the Mentally Ill and Developmentally Disabled*

This research project uses statistics and opinions from people in law enforcement to show the issues law enforcement agencies face when it comes to policing the mentally ill and developmentally disabled citizens of society.

Student Author: Jonathan T. Vance

Faculty Author: Kendra Cipollini

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *Insect Diversity in Field vs. Forest Ecosystems*

When outdoors in the different ecosystems we have in this vast world of ours, it can be hard to miss the diversity they contain. A noticeable difference comes in the form of Insect diversity between the different ecosystems. For this research, we will look at the difference between two of these ecosystems. The field ecosystems and the forest ecosystem. Through observation, the diversity appears to be larger in the forest ecosystems. This prompts the question, do Insect populations in forested habitats have a larger diversity than those in a field habitat, or do the field habitats have the larger insect diversity? In this study, we sought to provide supporting evidence that forest habitats harbor a larger insect population than fields by using black lights to sample the insect populations in these different ecosystems. The hypothesis for this study is that forest ecosystems will have increased insect diversity over field ecosystems. The assumption that the forest will have higher diversity is based on previous observations and increased floral diversity and niche availability in forest ecosystems compared to that of a more monoculture field setting. Upon completion of sampling, we have concluded that this study supports the hypothesis, and the diversity is higher in forest ecosystems over field ecosystems.

Student Author: Chloe Mason

Faculty Author: Audrey Wagstaff

Academic Area: Social Sciences

Research Project: *Learn, Live: Ascertaining Factors related to Recruiting and Retention among Agriculture and Social Science Students*

Why do students come to Wilmington College, and what are their experiences like? In this study, we examined recruiting and retention of students majoring/minoring in the Agriculture and Social Sciences Areas. Through survey and institutional effectiveness data, we examined a series of variables including motives for attending WC, experiences with curricular and co-curricular opportunities, and relationships with faculty and academic advisers.

Student Author: Taylor Wells

Faculty Author: Ellen Gagliani

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *Antimicrobial properties of a 20% Benzocaine spray (Americaine), 4% Lidocaine cream (Salonpas), and chlorhexidine-based skin cleanser (Hibiclens) on bacterial cultures.*

Benzocaine and Lidocaine are both topical, transdermal anesthetics that are in some over-the-counter pain medications. They are also used in the hospital setting where they are used to numb an area before needle insertion. This as well as a skin disinfectant containing the CDC recommended chlorhexidine solution would be used to prep the skin for needle insertion. There are instances of nosocomial infections despite the use of these solutions, these infections can be life threatening. To see if the

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topical anesthetics typically used to numb the area could be used to completely replace the need for the extra step of the skin disinfectant, they should be tested against bacteria that grow on the human skin. This study was done using the Kirby-Bauer disk diffusion method. The bacteria that will be tested are *Staphylococcus aureus*, *Escherichia coli*, and *Pseudomonas aeruginosa*. There has been previous research that shows topical anesthetics have antimicrobial properties. The studies previously done have shown that lidocaine containing topical anesthetics have longer lasting antibacterial properties than that of some skin disinfectants. This study will look to support the premise that topical anesthetics provide bacteriostatic properties and could be used to replace the step of using a skin disinfectant before the anesthetic. Salonpas (4% lidocaine) will be the most effective at preventing bacterial growth, followed by Americaine (20% Benzocaine), and Hibiclens will be the least effective. The results of this study were inconclusive because there was not enough data collected to accurately depict the data.

Student Author: Maya Yerian

Faculty Author: Savitha Krishna

Academic Area: Biology/Chemistry/Math/Physics

Research Project: *The Effects of Varying Enrichment Levels on Stress and Depression Response in Mice*

The experiment conducted analyzed the effects of varying levels of enrichment on the depression and anxiety response in mice. This was done by placing mice in three different housing conditions for four weeks and assessing their anxiety and depression response through a sucrose preferred test, an open field test, repeated behavioral observation periods and a cortisol assay. The control group had their basic needs met with no enrichment, the second group had artificial means of enrichment such as wheels, tubes, and wooden chews. The final group had natural elements of enrichment through access to plants, natural food items, floral hay, and thick bedding to allow for behavior such as burrowing. All mice were fed a pelleted food, had wood chips for substrate and lived in a 10-gallon aquarium tank. All mice were housed in the same room to allow for all mice to have the same environmental factors such as humidity, lighting and temperature. The hypothesis is that mice in the naturally enriched environment will exhibit fewer signs of depression and anxiety and will have lower corticosterone levels than mice in the artificially enriched environments, and the control group. At this time results are still being analyzed.

Student Author: Thomas Young

Academic Area: Social Sciences

Research Project: *Social Media Censorship*

This research looks at what effect social media censorship has on users and whether it contributes to a willingness to self-censor. The censorship that is singled out is the removal of content that users have posted. Self-censorship would be referring to the decision not to or hesitate to post. This research looks at users behavior online regarding censorship like whether they will be active on or use websites where they have had content removed. This research used a survey that was conducted at Wilmington College. The survey conducted was multiple choice and asked participants questions ranging from what kind of website/platforms they use and how often they use the internet to whether they have had content removed, whether this influences their decision to post content, and whether this has an effect on how often they use said platform.