

MONMOUTH
UNIVERSITY

HONORS SCHOOL



Student Research Conference

Abstracts

Spring 2021

***With great pleasure, the
Honors School presents its
Spring 2021 Research Conference***

Students will be presenting their research in the following fields:

Biology (BY)

Business (BU)

Chemistry (CE)

Communications (CO)

Computer Science (CS)

Education Interdisciplinary Studies (IS.EDE)

English (EN)

Health Studies (HE)

Mathematics (MA)

Software Engineering (SE)

Psychology (PY)

Dr. Nancy J. Mezey, Dean of the Honors School Proudly Presents:

Bradley Aiken, Computer Science
Aspen Bollinger, Business
Jessica Ciarczynski, Communications
Will Cooke Wharton, Biology
Jasmine Cooper, Sociology
Amanda Crocco, English
Nicholas DelBuono, History
Olivia Enny, Chemistry
Tyler Gordon, Business
Grace Haemmerle, Chemistry
Brooke Kampf, Psychology
Mariah Laster, Psychology
Emily Malool, Mathematics and Education
Mary McGee, Interdisciplinary Studies and Education
Brianna Miller, Chemistry
Michele Nisnevitz, Health Studies
Madeleine Ogden, Business
Kevin Pecci, Software Engineering
Nicholas Pillarella, Biology
Christiana Popo, Biology
Kurt Reinhardt, Business
Katherine Rivera, Psychology
Noah Rottler-Gurley, Computer Science
Taylor Rupprecht, Business
Brielle Sadowski, Interdisciplinary Studies and Education
Saiera Shueib, Business
Kaila Tortorelli, Business

BRADLEY AIKEN (CS) |

KEVIN PECCI (SE)

NOAH ROTTLER-GURLEY (CS) *Web Application for the Monmouth University
Virginia A. Cory Community Garden*

Chief Advisor: Dr. Raman Lakshmanan

The Monmouth University School of Social Work manages the Virginia A. Cory Community Garden in collaboration with other Monmouth faculty and volunteer gardeners from the surrounding communities. The garden is a fixture of collaboration and fellowship between the university members and our neighbors, providing volunteer opportunities and producing thousands of pounds of fruits and vegetables each year for deserving local food banks. This community project serves a fundamental function in our local community and is a testament to the dedication of its many volunteers and leaders.

The Garden Steering Committee expressed interest in utilizing a mobile-friendly application to elevate the communication, productivity, and cohesion among the gardeners, while streamlining maintenance and administration of the garden. Specifically, the Committee shared that they were looking for a service that includes features such as a message board and notification system, that would be more organized and beneficial than the current system, which is primarily handled through email.

As a collaborative effort, we, Kevin Pecci, Bradley Aiken, and Noah Rottler-Gurley, chose to meet this need and document the process as our Group Honors Capstone Project. As part of the Capstone process, we performed extensive literature reviews that cover topics such as the roles, benefits, and history of community gardens, change management theory, creating technology for users with limited technical experience, and designing APIs and other programmatic concepts. We gathered the requirements for this new system through interviews with leaders and advisors, as well as through a survey in which the community gardeners offered feedback. Using our backgrounds in the Computer Science and Software Engineering Department, we designed and built a mobile-friendly web application that reflects the features that were determined to be the most needed by the garden administrators and ordinary members.

ASPEN BOLLINGER (BUBK) | *How Product Packaging Influences and is
Marketed Towards Consumers: A Focus on Energy Bars*

Chief Advisor: Professor Mike Richison

Second Reader: Professor Andrew Pedersen

Packaging is an influential tool that is used to sell products across the world. Packaging communicates to the consumer what a product is, what it contains, and, in some cases, what it tastes like. However, in the eyes of a corporation, packaging has one main goal: to attract customers and influence their purchasing decisions. This thesis analyses how packaging design influences a consumer's purchasing behavior, with a specific focus on energy bars. I discuss how the key aspects of packaging design, such as the label design, color hues and harmonies, the typography, and the shape and size of the package visually communicates to the customer. From my research I created a marketing and advertising campaign that reflects my own energy bar company and how I would choose to market my products based on my specific target audience.

JESSICA CIARCZYNSKI (CO) | *Poetry's Digital Divide: How Instagram is Revitalizing Poetry*

Chief Advisor: Dr. Lisa Vetere
Second Reader: Dr. Deanna Shoemaker

This thesis explores the value of Instagram as a platform for poetry in regard to feminist activism from a cultural and social perspective. This is done by examining the cultural influence of electronic literature and social media on the publishing field. The advancement of technology and the emergence of social media have changed the way books, newspapers, and other forms of text have been published. One of those ways is through Instagram. Instagram as a platform has created a sense of community for poets that allows for immediate feedback between the reader and the writer, and it is accessible to anyone with an internet connection. Instapoetry has been both praised and criticized by scholars for the value it brings to the poetry genre. Female Instapoets specifically are a driving force behind the movement, but they have also been the ones most criticized for their seemingly short, cliché writing. This thesis examines their work from a feminist framework, through content and platform analysis.

WILL COOKE WHARTON (BY) | *The Occurrence of Injuries Within the Early Years of a Professional Soccer Players Career Compared to the Final Years Before Retirement*

Chief Advisor: Dr. Jamie Pigman

The English Premier League is one of the most physically demanding and competitive soccer leagues in the world. Playing at such a high professional level comes with numerous injuries. An injury to a player can have detrimental effects on their health and their career. Additionally, an injury to a player can cause challenges for the entire team.

Therefore, by understanding who is more at risk of suffering an injury can help coaches and trainers to focus on injury prevention techniques for certain individuals. We were specifically interested in comparing injury occurrence for soccer players in the English Premier League during the early years of their career compared to other players during the final years of their career.

The purpose of my thesis proposal paper was to determine if there is a relationship between the number of years played as a professional soccer player and injury occurrence. I hypothesized that players with more years played will have a higher occurrence of injury compared to players with less years played. To ascertain if there was any truth in the hypothesis the English Premier League will be analysed. Each day a website (Premierinjuries), that records all the injuries occurring in the league, was studied. The injuries were recorded in a spreadsheet that shows the length of time the injured players have played professionally for. The goal of this paper was to better understand injury risk and improve the means in which to decide which players are at a greater risk of injury.

JASMINE COOPER (SO) | *Knucking and Bucking Too Hard: Did We Forget our Purpose?*

Chief Advisor: Dr. Walter Greason

For over a century, Black Greek -Lettered Organizations (BGLOs) have been present in the United States and the world making and impact on their communities. These organizations have some of the world’s greatest African American leaders, politicians, activists, writers and legal minds of the 20th and 21st century as notable members. Civil Rights Leader Martin Luther King Jr. was championed for his efforts in fighting for freedom and equality of African Americans. He served as a distinguished member of Alpha Phi Alpha Fraternity, Incorporated who made a lasting impact on the organization, the black community and the country. Similarly, Civil Rights activist Dorothy Height worked alongside King and was instrumental in the uplift of African American women for over 40 years. Through her membership in Delta Sigma Theta Sorority, Incorporated, Heights serves as yet another example of the caliber of members the Divine Nine procures. Despite the history of prestige and accomplishment, the present state of these organizations is uncertain.

Many of these organizations have been portrayed negatively in the media and received backlash from their portrayal in films like *School Daze* or *Burning Sands*. Undergraduate chapters of these organizations are being suspended left and right for hazing allegations and not complying with their school or international headquarter guidelines of operations. Greeks are constantly tearing one another down on social media platforms like Greek Shenanigans while simultaneously focusing on steps, strolls and probates rather than spreading awareness about their community service initiatives. However, the most telling is that several BLGOs are one lawsuit away from becoming bankrupt due to hazing deaths, yet undergraduate and even graduate (alumni) members continue to put their beloved organizations at risk.

AMANDA CROCCO (EN) | *Not Just Ever After’s: A Comparison of Classic and Contemporary Fairytales, and an Original Fairytale*

Chief Advisor: Professor Alena Graedon
Second Reader: Professor John Bazley

The goal of my thesis/capstone project was to study the creative writing craft process behind traditional and contemporary fairytales. I pursued the creative capstone option, and as such, I wrote an original fairytale that reflects my research and serves as the final product of this project. I also wrote a critical introduction and annotated bibliography. I approached this project by carefully reading and analyzing traditional and contemporary fairytales, grounding myself in historical literature, and consulting creative writing craft texts. All of this research drew me to the conclusion that stronger characterization and internally daunting conflicts set apart the contemporary fairytales from the traditional stories, and that these two elements of characterization and conflict are what make the fairytale genre of fiction so timeless and captivating.

NICHOLAS DELBUONO (HS) | *Donald Duck - The Face of World War II: An Examination of Walt Disney and the Walt Disney Company's Influence and Role in World War II*

Chief Advisor: Professor Maureen Dorment

Second Reader: Professor Melissa Ziobro

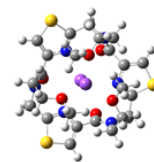
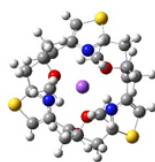
Walt Disney and his characters have been a mainstay in American culture throughout the 20th and into the 21st centuries. They were also a mainstay of the American propaganda machine during World War II. At the start of the war, Disney's company faced economic ruin. The company had taken the monumental profits from their smash-hit film *Snow White and The Seven Dwarfs* in the late 1930s and had used these profits to begin production of several works at one time. Because of this overextension of resources, the company had fallen on hard times. An employee strike further exacerbated the financial stress on the company. Disney's ship was sinking and needed a lifeline. That lifeline came in the form of government contracts at the start of World War II. The government contracts saved the company by making Donald Duck the face of the war effort. Donald Duck, along with other characters, promoted war bonds, victory gardens, food rations, and appeared on insignia patches for American soldiers. This cast of characters also served as educators for the military in instructional films produced by the Disney Company. This paper examined the relationship between the Department of War Information and the Disney company during the war years 1941-1945. Through an analysis of primary and secondary sources, it will demonstrate Disney's enlistment and active participation in the war propaganda or mobilization effort of the United States home front and the U.S. Armed Forces. As Disney aided in saving the nation, the nation aided in saving Disney.

OLIVIA ENNY (CE) | *Macrocycles as a Potential Anticancer Agent*

Chief Advisor: Dr. Yana Kosenkov

The problem of cytotoxicity of cancer treatments is an issue that has been investigated in the field of chemistry and medicine for decades. The cytotoxicity of these treatments can cause many problems in patients undergoing cancer treatment such as: cognitive impairment, osteoporosis and cardiotoxicity. The goal of this project is to contribute to design of potential anti-cancer drugs that will have a much lower cytotoxicity to healthy cells and may reduce the side effects that patients undergoing cancer treatment will experience. To accomplish this, we survey thiazole based peptoids that may selectively bond to the telomeres of tumor cell DNA. We also aim to investigate the effect that ions present in cell environment have on the stability of these ligands. Computational methods will be employed to sample various conformations of predetermined peptoid macrocycles and their binding energies when binding to double-stranded B-DNA.

The molecules and ion-molecular complexes that are being studied in this research project were built in GaussView and then computed using the Density Functional Theory methods in Gaussian. In this research, the molecule has been put into model solvent environment (water and ions), in order to replicate the conditions that the molecules would be in when they are used as medications. The solutions under study have molecule to sodium chloride ratios of 1:0, 1:1 or 1:2, as pictured. It was found that the molecules with a ratio of 1:2 were the most stable. Autodock was then used to simulate how these conformations would bind to B-DNA.



The study performed concluded that the sodium ions had a significant stabilizing effect on the conformations and that the macrocycles demonstrate a preference for the minor grooves in B-DNA. The next steps of this study are to perform docking simulations with G-quadruplex DNA, the DNA present in telomeres.

TYLER GORDON (BUBA) | *The Best Practices in Putting Together a Platform for Outsourced Accounting*

Chief Advisor: Dr. Daniel Li

My thesis project is meant to analyze the best practices in putting together a platform for outsourced accounting. With the rise of technology and cloud accounting amongst the business world, it is important that accountants who provide outsourced work have a concise platform that their clients can access. By a client having all of their information in one place that can be accessed with ease, it will make the transition to outsourcing that much easier. Considering that I currently work out of an outsourced accounting firm, I have exposure and a strong understanding of how outsourcing works. Some individuals tend to shy away from outsourcing due to the fear that their financial information may get misconstrued. However, with my findings, I am creating a platform that can erase some of those nerves for a client when transitioning to an outsourced accountant.

GRACE HAEMMERLE (CE) | *Biochemical Characterization of Alcohol-Adapted Lipid Rafts from Adolescent Brain Membranes*

Chief Advisor: Dr. Denis Rhoads

During the years of adolescence, there are major developmental changes occurring in the human brain. Additionally, this is the time that many individuals begin to experiment with drugs and alcohol. Not only is alcohol use common among this age range, but there is also a tendency to binge drink. In addition, many adolescents mix alcohol with caffeine or amphetamines which is the active ingredient in Adderall ©. This combination reduces alcohol withdrawal symptoms, which we have interpreted as masking growing alcohol dependency. This is a significant issue because alcohol abuse in adolescence can lead to lifelong susceptibility to alcohol dependency. At this point there is not enough substantial information regarding the cellular effects and alcohol's influence on molecular mechanisms. Previous work in our lab showed the alcohol treated subjects were producing lipid rafts in lower buoyancy fractions. The appearance of lower buoyancy raft fractions suggests that changes in lipid raft dynamics may be a part of the brain's cellular response to alcohol.

This study was conducted to demonstrate the difference in biochemical properties, especially in regard to cholesterol levels, in "alcohol-adapted" lipid raft fractions. This study was conducted in three major categories. Adolescent rats were placed on liquid diets with and without supplementation with alcohol in the form of ethanol. Next, lipid rafts were isolated from the membrane using insolubility in Triton X-100, and buoyant properties in a discontinuous sucrose gradient during 18 hours of ultracentrifugation. Fractions containing the flotillin raft marker protein were isolated. Finally, spectroscopic analytical procedures and colorimetric assays were conducted to determine concentrations of protein, cholesterol, and sphingomyelin. Ratios of cholesterol/protein, sphingomyelin/protein and cholesterol/sphingomyelin were calculated to compare raft fractions differing in buoyancy. The analysis indicates the cholesterol/protein ratios are lower in lower buoyancy raft fractions. This result supports the hypothesis that changes in biochemical composition account for the appearance of different raft fractions following alcohol consumption. Cholesterol plays a key role in the physical properties of lipid membranes. Further studies would be able to further explore alcohols effect on cellular adaptability in the brain and its role in alcohol dependency.

BROOKE KAMPF (PY) | *I Hope We Can Stay Friends: The Influence of Relationship Variables on Perceived Break-Up Line Effectiveness*

Chief Advisor: Dr. Gary Lewandowski

This study examines relationship variables' link to reactions to break-up lines, or statements used to initiate relationship dissolution. A sample of 97 participants (70% female, 30% male) college students currently in romantic relationships volunteered for the study. In a survey/correlational design, each participant completed break-up line effectiveness scales, an adult attachment questionnaire, a fear of being single scale, commitment scale, and a self-concept clarity scale. We hypothesized differences in attachment, fear of being single, commitment, and self-concept clarity would correlate with varying reactions to break-up lines. As hypothesized, there was a negative correlation between anxious attachment and innocuous break-up lines ($r = -.29, p > .001$) and anxious attachment and sincere break-up lines ($r = -.24, p = .02$). We also found a negative correlation between lower self-concept clarity and avoidant break-up lines ($r = -.23, p = .03$), as hypothesized. Contrary to the hypothesis, there was no correlation found between avoidant attachment and innocuous lines ($r = .01, p = .96$) or fear of being single and avoidant break-up lines ($r = .06, p = .56$). The findings suggest that some relationship variables correlate with perceived break-up line effectiveness. Partners' reactions to break-up lines can be affected by some variables, particularly anxious attachment.

**MARIAH LASTER (PY) | *Common Themes of Sexual Abuse:
A Forensic Case Study***

Chief Advisor: Dr. Christine Hatchard

This paper focuses on three forensic sexual abuse cases that occurred within the past ten years. Each of the cases include adolescent male victims who were sexually abused by the same perpetrator. The three male plaintiffs between the ages of 41 and 55 who were victims of sexual abuse between the ages of 8 and 13 filed a lawsuit against a clergy member at a Christian denomination Church located in New Jersey. For a single victim, the abuse lasted between three months and two years. This case study explains the events leading up to the abuse, actions that took place at the time of the abuse, and the proceedings after the abuse. The relationship between the victim, victim's family, and the perpetrator is also examined. The purpose of this paper is to identify common themes among the cases and evaluate how closely it relates to the literature on sexual abuse.

EMILY MALOOL (MA.EDE) | *Food Waste: It Just Doesn't Add Up*

Chief Advisor: Dr. Sandra Zak

Second Reader: Dr. Jason Fitzgerald

Food waste causes economic and environmental problems, which can result in an overall societal crisis if left unresolved. Billions of dollars are wasted each year by the food that people throw away. The environmental damage associated with food waste includes the millions of tons of food dumped in landfills and the resulting production of methane gas, which in turn, has a negative impact on climate change. People need to be taught how their everyday activities contribute to food waste and how they can help improve the situation. The ideal place to start this lesson is in school where students can apply their math skills to help fight against both climate change and food waste. One way to teach real world applications, especially in math settings, is by incorporating projects into the classroom. The lesson plans created for this project, intended to be implemented in secondary math classrooms, will encourage students to develop their knowledge and conduct research on food waste. The lesson plans will require students to collect their own data, analyze the data and learn how to apply curriculum topics such as slope, functions and graphing to problems they face in the real world. As a result, instead of questioning how they can ever apply the things they learn in school to their real lives, students can see the importance of what they learn, how they can become active citizens, and even find topics of interests for college majors and future careers, while working towards solving a global issue.

MARY MCGEE (IS.ED) | *What are Effective Instruction Strategies Targeting Students Having Various Levels of Technology Access*

Chief Advisor: Dr. Jiwon Kim
Reader: Dr. Serbay Zambak

Second

Every day students come to the classroom from different lives and different backgrounds. They also come from different levels of access to technology, as well as different technological skill levels. Students who do not have consistent access to technology outside of the classroom will be at a disadvantage in the classroom unless they are given the time, space, technology, and support to foster their technology skills as well as their confidence in the technology skills. Through research done by reading literature, it was found students who do not have access to technology at home have lower levels of confidence when using technology. Lower confidence levels can impact their performance as well as their future and career path. To solve this problem, this unit plan aims to help answer the question: what are effective instruction strategies targeting students having various levels of technology access? To help combat this, teachers should be implementing technology practice into their normal lessons, as well as create an awareness of technology and its presence in the world within the classroom.

BRIANNA MILLER (CE) | *Examining the Conformational Changes Between B-Form and A-Form DNA During the COVID-19 Pandemic*

Chief Advisor: Dr. Davis Jose

The B-DNA to A-DNA transition is associated with the continuation of cell processes such as cell division. B-DNA is the most common conformation of DNA, present in aqueous solutions, and is the most stable conformation of DNA. A-DNA is present in dehydrated solutions and helps protect the cell from harsh conditions and makes buried parts of DNA available for interactions. Spermine and spermidine, two polyamines found in all eukaryotic cells, promote transcription and translation through the stabilization of A-form DNA. Cell division, facilitated by the presence of telomeres of sufficient length, is vital in the survival of healthy cells and the destruction of mutated cells. Circular dichroism (CD), fluorometry, and computational simulations can be used to observe the changes in left circularly polarized light and right circularly polarized light, which corresponds with DNA conformation changes.

Research regarding the B-form to A-form transition has been significantly slowed after the onset of the coronavirus pandemic. The SARS-CoV-2 virus, upon infection, can result in respiratory disease and other bodily harm. This disease is referred to as COVID-19, has resulted in hundreds of thousands of deaths in the United States since its introduction to the United States in March 2019. Wet research laboratories, especially laboratories serving primarily undergraduate institutions, have limited guidelines specific to their research that allows research to continue under pandemic restrictions. A methodology that accounts for research efficacy, safety, and skill development in undergraduate researchers has been carefully collated to study the B-form to A-form DNA transition by combining best practices for COVID-19 protection and using virtual tools with established wet lab and dry lab techniques to maximize study of this phenomenon in an ever-evolving pandemic situation.

MICHELE NISNEVITZ (HE) | *Limitations of Social Emotional Learning Educational Progress and Mental Health*

Chief Advisor: Dr. Walter Greason
Second Reader: Dr. Paz-Gonzalez

Social and emotional learning (SEL) is a key component in P-12 educational curriculum that uniquely engages students with close attention to student self-awareness and interpersonal skills. The five generic areas of SEL include self-awareness, self-management, social awareness, relationship skills and responsible decision-making. These competencies discretely integrate lifelong skills into education at a young age. Prosocial behavior and character building parallel the goals of academic achievement. SEL is effective only if implementation is thorough and proper. Poor socioeconomic status (SES), pre-existing mental health issues, and distance or virtual learning are factors that impede SEL. Students of lower socioeconomic background are at greater risk for dangerous behavior or exposure to environmental factors that will hinder the benefits of SEL. Similarly, students who battle mental illness require modifications and close attention through SEL in order to reap the same benefits as other students. The current coronavirus disease (COVID-19 or SARS-CoV-2) pandemic has halted much progress made in terms of SEL, and has affected the mental health of many students, as well as the SES of their families. These factors are subjective to diminished success rates from SEL. Overall, it can be concluded that a multifaceted approach to SEL must be implemented in order to achieve a culturally sound, supportive curriculum that reaches vulnerable students who are lacking in crucial aspects of their lives.

MADELEINE OGDEN (BUBF) | *Social Media's Effect on Women's Soccer from a Sociological and Business Perspective*

Chief Advisor: Dr. Joseph McManus
Second Reader: Dr. Jennifer McGovern

Social media has taken over communication in the 21st century. The way in which we communicate has a massive effect on all businesses, namely sports in this case. Athletes have had to adjust to keep up in the evolving technological world, and make themselves stand out amongst so many others online. This study examined how social media has affected aspects of sports, such as engagement, specifically within women's professional soccer. The research is relevant from a business perspective because understanding how fans and athletes utilize social media will allow for marketing decisions to be made in order to maximize viewership. Posts made by teams or athletes may work to drive interest, and therefore, viewing, of different sporting events.

The study was conducted by use of a content analysis. Ten NWSL players were selected, based on their play for the United States national soccer team, as well as their shared trait of being in the league since its conception (2013). Thirty Tweets for each woman were analyzed, and placed into categories of being related to sport, friends/family, advertisements, global issues, social justice issues, or other. Engagement was measured by the number of comments, retweets, and likes a Tweet received. This study showed that 73% of the variables increased consistently over the three year time period. Further, the content of players' Tweets affects fans' engagement as well. Qualitative coding established which topics garnered players more attention from their audience. This data relates to revenue for players and organizations because with a greater number of interactions on social media, there is an increased business potential.

NICHOLAS PILLARELLA (BY) | *Advances in Understanding the Effect of Chronic Alcohol and Amphetamine Co-use on Behavior and Expression of Glutamate Receptors in the Adolescent Brain*

Chief Advisor: Dr. Denis Rhoads

Adolescence is a time where the brain is still remodeling and where humans often have their first experience with alcohol and other drugs. A persistent problem in the adolescent community has been the use of non-prescribed amphetamines, such as Adderall®, with alcohol. Recent studies have suggested that amphetamine co-use can mask the cues of emerging alcohol dependence by preventing symptoms associated with alcohol withdrawal. This thesis advances two previous studies where Dr. Rhoads' laboratory has modeled the co-use of alcohol and amphetamine in adolescent rats. In a recent behavioral study, co-consumption of amphetamines and alcohol decreased alcohol withdrawal severity in the Long Evans (LE) rat strain. In recent biochemical studies, alcohol withdrawal symptoms were correlated with an increased amount of N-methyl-D-aspartate (NMDA) glutamate receptors in the brain during chronic alcohol consumption. This upregulation is associated with lipid raft structures that organize NMDA receptors and other components of glutamate signaling.

The biochemical portion of this study focused on the hypothesis that amphetamine co-use may prevent the upregulation of NMDA receptors during adolescent alcohol consumption. Frontal cortex, subcortical forebrain, and hippocampus were obtained from LE rats consuming alcohol, amphetamine, or alcohol and amphetamine as part of a liquid diet. Brain fractions were either studied whole or isolated into lipid rafts as detergent resistant membrane microdomains. Analysis was done by SDS-PAGE and Western Blot to determine the expression of NMDA receptors in each sample. Amphetamine co-consumption prevented the upregulations of NMDA receptors in all samples, and this may explain the reduction in alcohol withdrawal symptoms. The results point to lipid rafts as common targets of alcohol and stimulants.

The behavioral portion of this thesis consisted of comparing the LE strain with the Spontaneously Hypertensive rat (SHR) strain, a model for Attention Deficit Disorders. Again, adolescent rats were administered a liquid diet supplemented with alcohol, amphetamine, or alcohol and amphetamine. The rats were withdrawn for 6 hours at days 5, 12, 19, and 26 and withdrawal behavior evaluated. In sharp contrast to what was observed with LE rats, the SHR did not show any symptoms associated with alcohol withdrawal. Future studies should focus on the hypothesis that upregulation of glutamate receptors is not occurring during alcohol consumption by adolescent SHRs and on its relevance to individuals with attention deficit disorders.

CHRISTIANA POPO (BY) | *Uncovering Bias in Ecological Primary Literature*

Chief Advisor: Dr. Sean Sterrett

Second Reader: Dr. Pedram Daneshgar

New Jersey contains multiple types of unique ecosystems within its 22,608 square km including the sandy dunes on the coast, Pine Barrens of the southern counties, and forested habitats in the northwestern part of the state. Many wildlife groups depend on this diversity of ecosystems to survive. Even with all of the ecosystem diversity, New Jersey receives low recognition on a large scale basis for its abundance of ecological variety. Is it because there are no scientists studying ecology in New Jersey? Or is it because large journals are selectively picking and choosing what they want to publish in order to captivate readers with interesting, or attention grabbing topics? Biases can be present in all aspects of science, from hiring positions to granting funds to suitable research labs. But are they present when a research article is being submitted for publication in a scientific journal? I analyzed over 500 ecology-based articles in two of the highest impact journals in the field of science (*Science* and *Nature*) and two of the higher impact journals in the field of ecology (*Ecology* and *Oecologia*). From each of the reviewed articles, I noted the location of the author, location of the study site, ecosystem type as well as other spatial factors relevant to each study. I analyzed this data in Microsoft Excel and R-Studio to find global distribution and any trends that may be present within the journals. The results of this project will indicate whether or not there are geographical bias to certain countries or certain areas of the U.S., and taxonomic bias towards a certain phylum or species. This analysis will allow for scientists to see if journal editors are selecting articles in order to increase their audience, or allowing each region/species to receive fair representation in literature.

KURT REINHARDT (BUBA) | *How Will Blockchain Technology Affect Current Accounting Systems?*

Chief Advisor: Dr. Nancy Uddin

My thesis attempted to answer the question "How will blockchain technology affect current accounting systems if adopted?" Many businesses and financial institutions are investigating the potential of blockchain for the future. If this technology is widely accepted and implemented, it could impact multiple industries. The accounting sector will have to adapt if blockchain becomes a viable option. Accountants will have to understand this technology and how it could change accounting systems and professional duties. This thesis used the case study method. The case studies focus on companies that are currently using blockchain, specifically Walmart, Maersk, and Microsoft.

KATHERINE RIVERA (HE) | *Sport Specialization: Do Parents Know the Risks?*

Chief Advisor: Dr. Staci Drewson

The problem this project aims to address is the way parents are consuming content and making decisions for their children's sports experience. Sport specialization refers to a person choosing one sport to focus on, practice for and study the rules and techniques for it with the aim of elite status. On the other side, sport sampling refers to a person playing multiple sports and getting a more well-rounded athletic experience. The project aims to specifically look at the difference of information for parents of children under the age of 14 and over the age of 14, as well as between types of websites. Research shows that before high school, sport specialization is not only unnecessary, but can be damaging long-term. The significance of this research is to determine if parents have access to research-based information about the risks of early sport specialization prior to making decisions for their child. Since parents are often the sole decision-makers when their child begins to participate in athletics, it is important to see if they are properly informed about the potential risks of sport specialization. The method of this project is a content analysis of websites aimed to give parents sport information. The websites are categorized into the age of the child and the type of website. The study aims to look at the information given about sport specialization versus sport sampling and how that may impact their children. Overall, the content analysis revealed that most of the websites lacked information about early sport specialization risks. Sport specialization research is generally not available to parents unless they specifically seek it out. Since many parents are unaware of the dangers of early sport specialization, youth sport administrators, coaches and researchers may want to increase efforts to educate parents during the registration periods and pre-season meetings.

TAYLOR RUPPRECHT (BUBEF) | *Foundations of Trust*

Chief Advisor: Dr. Walter Greason

The American economy has never been known to be predictable by any means, but the components that help form the movements in economic systems can, to a limited extent, be foreseeable. Individuals have a profound impact on market volatility, whether by being a single investor or representing a large firm. The reason for this aligns with the theory of herd mentality, where individuals have an innate characteristic to follow along with trending market derivatives most times without knowing the risks associated with those new and upcoming mechanisms.

Analyzing and drawing conclusions from three horrific market crashes that occurred in 1929, 1987, and 2008, offer patterns that have been present over time. These patterns demonstrate individuals exhibit hubris behavior when it comes to investing in financial derivatives that promise great returns. There is also the common theme of Federal Reserve policies being enacted too late or staying constant for too long, which has escalated a financial panic into a recession and/or depression. This study puts forth these findings and applies them to the current economic climate, showing when different ratios and financial indicators are leaning towards market inefficiency, special purpose acquisition companies (SPAC) can serve as the next rapidly growing financial derivative that can ultimately turn a vulnerable market into an economic downturn.

BRIELLE SADOWSKI (IS.EDE) | *Social Emotional Learning While Social Distancing*

Chief Advisor: Dr. Ai Kamei

During times of crisis, people begin to reevaluate their priorities in life. During the COVID-19 pandemic, countries worldwide have prioritized safety and they have shut down all non-essential facilities for several months. While a clear line has been drawn between wants and needs in some cases, other cases are not so definitive. Currently, there is one public facility that the United States still struggles to reopen due to the uncertainty regarding its importance in comparison to the need for safety: schools. Undoubtedly, education is highly valued, but is learning in person more important than safety? While Americans struggle to answer this question, schools have shifted to virtual classrooms, making learning extremely difficult. This scramble to educate as effectively as possible has led to the overemphasis of standard subjects like mathematics and language arts, meanwhile other equally important aspects of education have been put on the back-burner. Social-emotional skills in particular are known to be critical life skills, but because of social distancing mandates, development in this area has not been emphasized as strongly as it once was, pre-pandemic.

While this issue appears to be new, there have been other times when students and teachers could not gather in a physical classroom, whether they were due to viral outbreaks or natural disasters. By analyzing the impact that these events had on students, in connection to social-emotional milestones and skill-enhancing activities, this project introduces an educational curriculum of practical exercises tailored to the social-emotional development of students learning in remote classrooms.

SAIERA SHUEIB (BUBF) | *The Great Recession's Banking Regulations Applied to the COVID19 Recession*

Chief Advisor: Dr. Joseph Mosca

Following The Great Recession of 2008, policies, like the Dodd Frank Act, were implemented to regulate the financial and banking sector and to prevent another major economic crisis. Almost ten years later, the United States faces another severe recession, but this time the cause is a global health pandemic instead of economic or financial stressors. But, regardless of where a recession originates from, banks play a vital role. In the '08 Recession, banks were part of the root cause of the crisis. In the current recession, banks are key players in leading economic recovery. However, the longer the health crisis persists, the more problems can arise and strain the banking system, which could then create a banking crisis. One of the main points of the Dodd Frank Act was to prevent such an occurrence. Previous research has commented on whether the Dodd Frank Act has been effective in making the banking sectors stronger and safer. Several studies point to the legislation's shortcomings to claim that the legislation is ineffective in regulating the banking industry. Specifically, shortcomings include, but are not limited to, failure to address the too big to fail phenomenon, the strains of regulations on small banks, the costs of compliance and, the most despised of all, the stress tests. Therefore, this research analyzes whether the legislation has been effective by addressing these shortcomings during the COVID19 Recession time. The main goal is to see if the Dodd Frank Act has done more harm than good, as previous literature has found, or if it really did make the banking sector stronger and safer to withstand COVID19 implications.

KAILA TORTORELLI (BUBK) | *Impact of Online Brand Reviews in the Form of Comments on Instagram on Consumer's Overall Purchase Intentions and Attitude: Instagram Focused*

Chief Advisor: Dr. Joseph Rocereto

Customer reviews are a way for consumers to understand how a product or service works in the eyes of other consumers. Electronic word of mouth (eWOM) has been shown by many researchers to be effective with a consumer's attitude and purchasing intention when viewing online reviews related to a product or service. There are many studies showing how effective eWOM is on company websites or other review sites, but no studies have yet to explore the effect eWOM has in social media in regards to attitude and purchasing intentions. Instagram is a popular social media platform with billions of users that view ads and posts from companies aiming to sell their product or service. These posts often contain comments attached from consumers listing their thoughts and feelings towards the product or service in the Instagram post. This study's main objective is to analyze how eWOM on Instagram influences a consumer's attitude and purchasing intention toward the product or service in the post. To achieve the objectives in the hypotheses, two multi-item scales measuring attitude and purchasing intentions were adapted from previous studies. Two surveys were created and completed by a total of 61 people and this sample included people ages 18-23. One survey examined how positive eWOM comments affected one's attitude and purchase behavior, and the other survey examined how negative eWOM comments affected one's attitude and purchase intentions. The study sample included primarily full-time college students. The study findings validate that eWOM communication through Instagram comments influences one's attitude and purchase intentions toward a product or service in which the comments are connected to. This study is important because marketing in current society heavily involves social media and confirms that comments on company's posts are crucial to the success of the company's selling efforts.

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