



**17th Annual Arts,
Research, & Scholarship
SYMPOSIUM**

**UNDERGRADUATE
ABSTRACT BOOK**

May 2, 2023



CABRINI
UNIVERSITY





17th Annual Arts, Research, and Scholarship Symposium May 2, 2023

Abstract Book

Poster Presentations

The School of Arts and Sciences

Health and Exercise Sciences Department

Chambers, Michelle, Isaac Brady and Taylor Downing

Faculty Sponsor: Dr. Anjuli Gairola

“Childhood Cardiovascular Disease”

This project focuses on how cardiovascular disease present itself in children, from birth to 18 years of age. We looked at age, body type and whether or not the children had any previous illnesses. We found that cardiovascular disease can occur at birth or appear later on in life. It is more life threatening in those already suffering from another disease and those diagnosed with obesity. It is important to look at childhood cardiovascular disease as it is not as commonly talked about or known as cardiovascular disease in adults.

Deenis, John

Faculty Sponsor: Dr. Anjuli Gairola

“Myocarditis”

Myocarditis is inflammation of the myocardium that weakens the heart muscle, usually caused by a viral infection, that could eventually lead to an abnormal heartbeat, chest pain, shortness of breath, and heart failure. Myocarditis affects both genders, all ages, and all race groups, and poses a potential threat to the more physically active. Over the course of the past couple of years, countries across the world have been hit by a deadly virus, SARS-CoV-2. A virus that did not have much information early, as time went on doctors caught a connection between the virus and a possible myocarditis link. In the early months at the beginning of the pandemic, Universities and Conferences, with the aide of their respected cardiologist departments, conducted studies linking their athletes having

gotten COVID to a subsequent diagnosis of Myocarditis. Because there is no test or labs to conclude whether someone has it or not, doctors will take imaging and base their diagnosis on possible swelling or any inflammation visible. [SEP] The University of Maryland's Cardiologist program conducted a study on six-teen hundred Big Ten athletes and found that thirty-six had indications of Myocarditis. However, of those thirty-six, only nine had presented with any of the symptoms: shortness of breath, chest pain and an irregular heartbeat. To me, that was a huge red flag because how many of the total people who were infected have Myocarditis and they don't know it? It is unfortunate, at times, that research and discussion about these kinds of things is so controversial when, like it or not, has real implications on people, especially the youth (<25 year old). Something like this reiterates the impact that going to see your doctor versus not going has on possible early detections.

Dell, Tyler and Na'im Roberts
Faculty Sponsor: Dr. Anjuli Gairola
"Heart Rate Variability in Exercising"

Heart rate variability is the changes in our heartbeat from beat to beat, which can be looked at more closely when taking an EKG and looking at the R values. This can be linked to your overall health and fitness levels. HRV will be determined by having a high HRV or having a low HRV. Having a high HRV will tend to be compatible with athletes and will allow your body to stay in a "rest" stage and will be able to be more adaptive. Having a low HRV will tend to be compatible with someone who is not physically active and will keep their body in a "fight or flight" stage and will have low adaptability. We chose to write this paper to see the effects of HRV, Heart Rate Variability, in sports and if it can positively impact your performance or negatively impact your performance. This paper looked at HRV in different exercises, different groups of people, and different sports to determine that. This also looked at many different age groups ranging from 11-year old's who compete in gymnastics to 65-year olds. The conclusions of the research concluded that having a high HRV will tend to be with someone that is more physically fit and who is exercising more. This was found in the normal BMI group compared to a pre-obese group and cross-country skiers being able to work harder with a higher HRV.

Fitzpatrick, Brielle and Rey Maisonet
Faculty Sponsor: Dr. Anjuli Gairola
"Cardiovascular Adaptations in Endurance Athletes"

Millions of people participate in sports every day. Some football, some basketball, some soccer, some volleyball, some swimming, some track & field. Everybody is different in how their body adapts to their specific sport. The heart works extra when an athlete is participating in physical activity and for some athletes, the heart has extra adjustments it needs to make in order for the athlete to be successful in their sport. Since endurance athletes are more susceptible to cardiovascular adaptations, they will be the focus for this research. Training consistently is important as well. Properly preparing the body to perform at its' highest potential all the time so that the athlete is able to exert physical energy and recover efficiently as well. Pre-existing or newfound heart disease is also something that needs to be taken into consideration when discussing cardiovascular adaptations. Heart disease can affect the way the heart changes and can affect the athlete's performance in the long run.

Ignaszak, Sydney

Faculty Sponsor: Dr. Anjuli Gairola

“Anemia in Endurance Athletes”

Anemia, also known as iron deficiency, is the most common nutrient deficiency in the world and is most prevalent in endurance athletes. The effects of anemia in endurance athletes range from negatively impacting endurance, blood oxygen-carrying capacity, and the ability for the athlete to train and perform at a high-performance level. Endurance athletes are most effected by the consistent and long-term physical activity, which leads to inflammation impacting homeostasis of iron along with factors that are involved in the activity of red blood cells, such as ferritin, transferrin saturation (TSAT), and hepcidin. Studies took blood sampling and analysis to determine what genetic polymorphisms and factors influence anemia and iron absorption, how anemia is caused through endurance training, how training is impacted if there is inadequate iron intake, and other factors such as the menstrual cycle in female athletes. Results from the multiple studies discovered that there is a specific sports genetic profile for athletes which allows them to have higher frequencies of genetic polymorphisms that control iron metabolism and energy generation. Results also found that intense interval training will increase the response of hepcidin and worsen iron deficiency, mechanical stress causes red blood cell death and hemolysis production, a decrease in iron homeostasis with inflammation, a negative effect on Hbmass in anemic athletes training at high altitudes, and finally that physical performance is lowest during the bleeding phase of the menstrual cycle, showing that it has distinct effects on how a female endurance athlete trains and performs.

Stoddart, Jordan

Faculty Sponsor: Dr. Anjuli Gairola

“The effects of steroids on the cardiovascular system.”

The purpose of this research was to develop a better understanding of how AAS (anabolic androgenic steroids) affect the cardiovascular system. Anabolic steroids are given as prescriptions but are most commonly misused for the use of gaining lean mass and improving athletic performance, the studies conducted were all focused on the effects of misuse. There have been many different studies conducted on this topic but the ones used in this research project all came to the same consensus: anabolic steroids place tremendous stress on the cardiovascular system and place the human body as a whole at great risk for heart attacks, strokes and other fatal events.

Tumelty, Maura, Spenser Christiansen, and Sean Ferrara

Faculty Sponsor: Dr. Anjuli Gairola

“Hypertension”

Hypertension is a condition where the force of blood against the arterial walls is too high. This is also known as high blood pressure and it is a very serious issue. Someone who has a systolic blood pressure of 140 or higher and/or a diastolic blood pressure of 90 or more is classified as having hypertension. This diagnosis puts a patient at higher risk for various health issues like a heart attack, stroke, aneurysm, kidney problems, and more. Research was done to learn more about hypertension and how different factors can improve hypertension symptoms. It was found that medication, diet, and exercise are some of these factors. Exercise has been shown to decrease resting heart rate, body weight, and blood pressure which all help to positively impact hypertension. Diet was also found to leave a positive effect on people with hypertension when they eliminate specific fats, salts, and sugars.

Wurzbach, Maggie

Faculty Sponsor: Dr. Anjuli Gairola

"Hemophilia"

Hemophilia is a genetic blood disorder caused by the absence of blood clotting factors VIII or XI. It is important as exercise science majors we understand this chronic disease as we may encounter it in our fields of work.

Psychology Department

Bailey, Malik and Paige Zimmerman

Faculty Sponsor: Dr. Ruta Clair

"Taking sides: Solitary confinement"

The objective of this project is to determine whether or not solitary confinement for prisoners who have mental illnesses qualifies as psychological torture. It's important to understand how solitary confinement may affect prisoners who are struggling with mental illnesses. On the yes side of the argument, it argues that solitary confinement can be harmful by demonstrating how inmates who have gone through it exhibit symptoms of loneliness, confusion, and agitation. They have also demonstrated that there is little to no screening for mental illness in prisoners and that those who are affected by solitary confinement receive few to no support. On the no side of the argument, The federal Bureau of Prisons outlines policies and procedures intended to safeguard everyone who is an inmate, including those who have major mental health conditions, while defending the use of solitary confinement. There are four "care levels" based on the seriousness of the inmate's mental illness and the associated need of intervention. The ability to balance out still treating humans like humans but still providing the proper punishment that is necessary. There were no findings presented while examining the research on either side of the controversy, only a straightforward presentation of the topic's yes or no side of the facts.

Boulden, Jé La

Faculty Sponsor: Ruta Clair

"Depth of Emotions"

Emotional Intelligence is an increasingly popular area of study in psychology and focuses on how humans recognize and interpret emotions within our environment as well as the self. The area has prompted questions around the validity and significance of emotional intelligence. This poster and presentation examines two opposing perspectives addressing whether or not emotional intelligence is valid. This is important because more recently in the working world, employees are asked questions relating to emotional intelligence and employers look for employees that have a certain degree of emotional intelligence. Moreover, this raises concern of whether or not emotional intelligence should be used in serious circumstances.

Brown, Geraldine and Sarah Thomas
Faculty Sponsor: Dr. Emily Slonecker
"Self-Esteem, Gender, and Conformity"

Research suggests that social conformity is related to self esteem, particularly within college communities (Marrs 2016). However, it also appears that gender may play a role in dictating this relationship. For example, Marrs (2016) found that conformity to masculine norms is related to students' approach to learning and academia. This study was designed to examine the relationship between self-esteem, conformity, and gender. This study topic is important because self-esteem, conformity, and gender norms have a huge impact on society, especially college students. Undergraduate Psychology Majors at Cabrini will participate in online surveys assessing self-esteem, conformity, well-being and demographics. Data collection is ongoing through the end of March 2023. At the symposium, we will present our results exploring the relationship between self-esteem, conformity levels, and the participants' gender, the relationship between conformity levels and self-esteem, the relationship between self-esteem and participants' gender, and the relationship between conformity levels and the participants' gender.

Dziewit, Elise
Faculty Sponsor: Dr. Ruta Clair
"The Generalizability of American Psychological Research"

We live in a multicultural world that cannot be minimized to a one size fits all. Traditional psychological research has exclusively been based upon a very small portion of this multicultural world. Furthermore, the majority of studies conducted have used undergraduate American college students which raises the question: Is American psychological research generalizable to other cultures? There are two sides that debate the answer to this question including Gerald Haeffel and Jeffrey Arnett. Gerald Haeffel argues that American psychological research often generalizes to other cultures, especially studies regarding basic processes. In contrast, Jeffrey Arnett argues that culture is an integral part of human functioning as well as psychological findings. This topic also ignites themes of institutional racism that will be addressed. This poster will present both sides of the debate of whether or not American psychological research is generalizable to other cultures.

Gebhart, Megan and Alyssa Manchini
Faculty Sponsor: Dr. Ruta Clair
"Are Violent Video Games Harmful to Children and Adolescents? (ignore question 11, we are not graduate students)"

The purpose of this project is to examine whether videogames are harmful to children and adolescents. It is important to know the potential effects videogames can have on a child as videogames become more and more popular. One side of the controversy of the effects on children states that videogames can cause further aggression and mental health problems. The alternative side states that correlation to aggression is not equivalent to causation of aggression. Also, there is limited evidence of psychological harm to children. Personally, I am in between the effects. I think video games can be used for good in the sense of keeping kids out of danger by keeping them at home. At the same time, I believe that those who struggle with mental health may get bad ideas from some of the violence in video games. It is a very tricky and tough topic to discuss in the sense of right and wrong. Therefore, research of the potential outcomes of this are essential.

Giannascoli, Alyssa

Faculty Sponsor: Dr. Ruta Clair

"Eclectic Therapy"

Eclectic therapy is an approach that uses various therapy techniques to treat an individual rather than a single, mythological approach. Eclectic therapy techniques allow a therapist to be flexible and adaptive when treating a patient. This integrative approach to psychotherapy holds a lot a controversy over singular therapeutic approaches. The purpose of this research is to determine if therapy should be eclectic. Is it better for a therapist to know one therapy technique very well, or many therapy techniques not as well? The methods of this research does not consist of any participants or procedure. The findings of this research will be from the "Taking Sides" Psychology Senior Seminar textbook, as well as from online peer reviewed articles. The results of this research are important to know which therapy approaches should be used for patients to receive the most effective treatments.

Gibson, JaLisa and Miranda Liebttag

Faculty Sponsor: Dr. Ruta Clair

"Are father's necessary for children's well-being?"

The question of whether father's are necessary for a child's well-being is discussed by different authors. Each one of them take a stance on either the "yes" or "no" side of this question. The "yes" side was written by Sean E. Brothers and Joseph M. White. They argued that fathers play a very important role in children's lives and have shown lower levels in areas such as behavioral challenges and depression. It also showed higher levels in areas such as academic achievement and cooperation. Meanwhile the "no" side written by Jane Waldfogel, Terry-Ann Craigie and Jeanne Brooks-Gunn examines different family structures and instability and how it effects a child's cognitive and health outcomes. Both of these articles, were analyzed for each student to create their own opinion and stance on whether they believe that fathers are necessary for children's well-being.

Hackney, Johnsey

Faculty Sponsor: Dr. Ruta Clair

"Psychology Professor"

Core characteristics of ADHD are impulsivity, inattention, and hyperactivity. There is controversy over whether ADHD is a real disorder. It's not totally clear if ADHD is pathological in nature and even if the behaviors can be considered to be negative. A social justice issue at hand is children who have ADHD in the classroom. Children who are diagnosed with ADHD can pose a distraction towards their classmates and teacher when learning. This can prevent the rest of the class from learning and letting the teacher do their job because of one or multiple students. The bottom line is that whether ADHD is a real disorder or not, we should still be attentive towards it. Children who are diagnosed with this condition need extra help in the classroom setting when it comes to self-control and learning. A great way to promote awareness around this issue is to have school assemblies on what ADHD is like. Another way is to go on social media and create posts that relate to ADHD along with hashtags.

Lewis, Marissa, Jayla Gary, and Makaila Ley-McManus

Faculty Sponsor: Dr. Emily Slonecker

“Does stress perception differ based on a college student's gender, if they play a college sport, or do not play a sport at all?”

Playing a college sport causes more stress in a college student's life than a student who does not play a sport at all. For example, a negative relationship has been found between how a college athlete's locus of control lowers when stress levels go up, meaning a student-athlete may not be able to do well in either field of student or athlete. The gender of a student is also a contributing factor in a student or student athlete's life, as females are seen to have higher stress levels than men, along with different coping mechanisms for the stress. This study was designed to compare stress perceptions based on athletic status (in season athlete, out of season athlete, not an athlete) and gender. The results of this study will address an important gap in the literature while also informing college procedures and policies surrounding mental health, particularly for student athletes. Cabrini students will complete an online survey assessing their stress levels, anxiety, and other variables. Data collection is ongoing through the end of March 2023. At the symposium, we will present our pending results exploring whether stress perception differs between student-athletes (in-season, out-of-season) and non-student athletes and by gender.

Mancini, Alyssa and Megan Gebhart

Faculty Sponsor: Dr. Ruta Clair

“Video Game Violence in Children and Adolescence”

The purpose of this project is to examine how harmful video games can be to children and adolescents. It is important to know the potential effects video games can have on a child as video games become more and more popular. One side of the controversy argues that these games can cause further aggression and mental health problems. Other researchers argue that correlation to aggression does not prove causation within the aggression, and the games do not cause psychological harm to a child. Personally, my position lies between the sides of the controversy. Video games can be used for good in the sense of keeping kids out of danger. At the same time, those who struggle with mental health may get bad ideas from some of the violence in video games. It is a very tricky and tough topic to discuss in the sense of right and wrong. Therefore, it is important to have robust research and attain the knowledge of the potential outcomes of videogames on children's development.

Melcher, Dejha and Rashae Rochester-Cottle

Faculty Sponsor: Dr. Emily Slonecker

“The long-term effects of parenting”

Family dynamics during childhood can significantly shape later personality and well-being. For example, previous studies demonstrate a connection between parenting styles and anger and compliance. However, gender may play a crucial role in moderating these effects. Therefore, our objective was to investigate how specific parenting styles predict stress, anxiety, and overall well-being in early adulthood, and whether these effects vary by gender. In particular, we will focus on more extreme parenting styles, such as neglectful and authoritarian parenting, as these styles are under researched. The data will be collected using an online questionnaire assessing anxiety levels, parental experiences, and stress levels. Data collection will continue until March 2023, and the results will be presented at the symposium. Our analyses will explore how the relationship between parenting styles, well-being, current anxiety, and stress levels vary among genders.

Morales, Selena

Faculty Sponsor: Dr. Ruta Clair

“Emotional Intelligence”

Emotional intelligence is the capacity to be aware of, control, and express one's emotions, and to handle interpersonal relationships judiciously and empathetically. The research question that I am introducing is, "Is emotional intelligence valid?". This research question is relevant and important because it is currently playing a role in people's business, careers, relationships, and education. The methods used in researching through previous studies. The results found is that there are arguments on both the yes and no side.

Pezick, Andrea and Johnsey Hackney

Faculty Sponsor: Dr. Ruta Clair

“Is ADHD a valid disorder?”

Recent scientists have brought up the question of whether ADHD is a valid mental disorder or if it is a construct created by society. On the yes side of the argument, the National Institute of Mental Health argues that ADHD is a real disorder that requires specific treatment and special consideration. On the other side of the argument, researchers argue that ADHD was invented by western society and it should not be considered a real disorder. In our research we study both sides of the argument and further research ADHD to decide if it is a valid disorder and therefore belongs in the DSM-5. The NIMH argues that ADHD is one of the most commonly diagnosed neurodevelopmental disorders in childhood and that the traits children with ADHD exhibit are not normal for children. They also argue that diagnosing children early on with ADHD allows them to get treatment that will allow them to properly develop and thrive in their life. The scientists arguing that ADHD is not a real disorder claim that there is no real medical test to prove the presence of ADHD, and therefore it is not real. They also argue that it gives children an excuse for their bad behavior. We believe that ADHD is a valid disorder and if you argue that because there is no valid testing for it then you basically argue no mental disorders are real. Without a proper diagnosis of ADHD, children will suffer and you risk inhibiting them from developing properly.

Pipitone, Angelica

Faculty Sponsor: Dr. Ruta Clair

“Should Neuroscience Research be Used to Inform Law Practices?”

This presentation will cover various aspects of neuro-law as well why or why not it should be incorporated into law practices.

Rochester-Cottle, Rashae

Faculty Sponsor: Dr. Ruta Clair

“Can positive psychology make us happier?”

Can applying positive psychology to one's life correlate with the experience of happiness? Positive Psychology research has found that those who have a positive outlook on life tend to be healthier; mentally, physically and spiritually. Other researchers argue that this is a happiness may not be a realistic goal. Even though happiness can be challenging to measure in many aspects in one's life, it leaves us wondering about what actually makes people happy and if positive psychology can aid in improving lives.

Sanchez, Orlyany

Faculty Sponsor: Dr. Ruta Clair

“Positive Psychology”

Positive psychology is defined as the “scientific study of what makes life most worth living”. There have been many issues concerning this topic including criticism that the research may be misleading. Researchers who believe that there is value to the concepts examined by the positive psychology movement include the authors Schueller and Parks. Their arguments examine what causes change within a person and how things like motivation can benefit people's happiness. Other researchers such as Newman and Larsen, argue that the concepts identified by researchers studying positive psychology do not advance the science of psychology. Their arguments mention that we don't have as much control over our happiness as we think we do. A social justice implication for this issue is how some people may believe that positive emotions aren't enough.

Santiago, Destiny

Faculty Sponsor: Dr. Ruta Clair

“Neurolaw Presentation”

Neurolaw is at the intersection of law and neuroscience and can be used in courts in various ways such as lie detection tests, brain imaging, etc. There is controversy about applying neuroscience to the justice system and concerning the application of neurolaw in court cases. On the yes side, Goodenough and Tucker argue that neurolaw is another way to address issues within the criminal justice system. On the no side, Aronson argue that there are various failures in research linking human behavior to brain activity. This presentation addresses the following question: "Should neuroscience research be used to inform law practices?" This is an important topic as it can intersect with many aspects of the criminal justice system.

Stillis, A'Niyah, Jordon Young, and Nily Exius

Faculty Sponsor: Dr. Emily Slonecker

“Social Support and Mental Wellbeing in College Students”

While college can be an enjoyable time for young adults, it can also be a source of immense stress. Various factors, including academic workload, living arrangements, financial struggles, and the ongoing pandemic, can contribute to this stress. However, prior research indicates that social support is a critical factor in promoting the well-being of college students, although this effect may vary by gender. This research project aimed to investigate the types of social support available to students at Cabrini University. Our goal was to identify the predictors of social support and their role in mental health across genders. To achieve this, we administered a 50-question online survey, and data collection will continue until March 2023. During the symposium, we will present our findings on the link between social support, mental well-being, and gender.

Thomas, Sarah

Faculty Sponsor: Dr. Ruta Clair

“Is Psychotherapy Effective?”

Senior Seminar in Psychology is a discussion-based course, with a focus on controversial social justice topics and questions. In this course, we look at both sides of the argument. My topic of discussion is, are all Psychotherapies equally effective? I will present both the “yes” and “no” sides of the argument supported by research. On the “yes” side I will use the argument made by Psychologists Mark Hubble, Barry Duncan, and Scott Miller who argue that all effective therapies are essentially alike, while all ineffective therapies are ineffective in their own way. On the “no” side I will use the argument presented by Psychologists Jedidiah Siev, Jonathan Huppert, and Dianne

Chambless who argue that outcomes among the various types of psychotherapies differ primarily because one technique or therapy is more effective than another.

Torres, Amy, Krystelle Jeremy, and Lauren Belardo

Faculty Sponsor: Dr. Emily Slonecker

“Employment and Mental Well-being in College Students”

Research suggests that social support has a significant impact on students' well-being and stress levels. However, it remains unclear whether certain types of social support may be more or less impactful depending on employment status. It is possible that the stressors presented by being a full time, employed student differ from those presented by being a full, unemployed student. Thus, the two groups may benefit from different types of social support. The findings of the present study could help college administrations develop social support systems and programs that encourage student success and retention. An online survey will be used to assess students' employment status, stress levels, and well-being. Data collection will continue until March 2023, and the results will be presented at the symposium, exploring the correlation between stress, well-being, and social support, as well as how these effects vary by employment status.

Torres, Amy

Faculty Sponsor: Dr. Ruta Claire

“Can Sex Be Addictive”

The presentation will be on the debate, "Can sex be addictive?" The article gives a detailed claim of the two sides, spoken upon. The YES side, written by Patrick Carnes argues that sex can be addicting as those addicted to drugs. In the beginning, Carnes defines that the term "addiction" are composed of three elements: Loss of control can unsuccessfully cut back the desire. Continuation, the act of wanting to do redo a problem over and over, while obsession is a repeated urge that cannot be unwanted. Patrick Carnes lists all ten distinctive types of behaviors a person with sexual addiction can cluster in, that results in categorizing what a person related to. The NO side were written by sex therapist, Lawrence A. Siegel and Richard M. Siegel. Both believe that calling the behavior addictive can confuse the ideology of scientific facts. The Siegel's perhaps disagree the comparison of sex and drugs in fact, it is stated that sexual behaviors are issues of personal responsibility, not personal physiology. Questions were done to assess the views on sexual activities such as feeling normal, degraded, or controlled by your desires. The Siegel's finalized with concluding that problematic sexual behaviors cannot be cured yet, Carnes has results of 190 participants being cured. The purpose of this project is to first idealize what you yourself believe in sexual addiction. Then, once you understand both the YES and NO side of the spectrum, evaluate what you agree with and what seems understandable. So, can sex be addicting?

Wainwright, Emily and Geraldine Brown

Faculty Sponsor: Dr. Ruta Clair

“Does an elective abortion lead to negative psychological effects?”

The psychology of elective abortion is a topic that is not commonly discussed due to the controversy involved with this topic. An elective abortion is the interruption of a pregnancy before the 20th week at the woman's request for reasons other than maternal health or fetal disease. According to the "yes" side, women who have had an abortion experienced an 81% higher risk of mental health problems (Coleman, 2011). According to the "no" side, there are other reasons and circumstances for a mother's decline in mental health after an abortion (Knowles & Golub, 2007).

Although the authors of the “no” side agree with the “yes” side on the methodological issues that occurred in various studies, they argue that abortion does not cause any mental health issues. There may be some space for common ground and this research project looks to identify that common ground.

White, Jhadah

Faculty Sponsor: Dr. Ruta Clair

“Is American Psychological Research Generalizable to Other Cultures?”

Psychological research spans broad topics in the United States. In the past decade or so psychologists have questioned whether American research is generalizable to other cultures. Some scientists argue that the diversity of America indicates that research performed here is applicable around the world, while others argue that American culture is distinct from that of other places. I will be explaining both sides of the topic, sharing my own opinions and new knowledge and why this topic is important to consider.

Williams, Raeven, Rose Haribson, Angelica Pipitone, and Max Tischhauser

Faculty Sponsor: Dr. Emily Slonecker

“Social Media Use and Views of Society”

Social media has both positive and negative effects on its users, but it remains unclear how users' social media habits and perceptions of social media interact to influence the world around them. Specifically, the present study aimed to examine how aspects of social media usage (e.g., frequency, platform choice) and users' perceptions regarding the importance of social media interact to predict their views of politics, other social media users, and the world around them. Participants will complete an 11-item questionnaire online, followed by demographic questions. Data collection will continue until March 2023, and the results will be presented at the symposium. In particular, our analyses will assess (1) the relationship between time spent on social media and perceptions of society, including politics, (2) whether users' perceived importance of social media moderates the relationship between time spent and perceptions, and (3) whether different social media platforms are related to an overall positive or negative view of society.

Zimmeraman, Paige and Malik Bailey

Faculty Sponsor: Dr. Ruta Clair

“Solitary Confinement”

The objective of this project is to determine whether or not solitary confinement for prisoners who have mental illnesses qualifies as psychological torture. It's important to understand how solitary confinement may affect prisoners who are struggling with mental illnesses. On the yes side of the argument, it argues that solitary confinement can be harmful by demonstrating how inmates who have gone through it exhibit symptoms of loneliness, confusion, and agitation. They have also demonstrated that there is little to no screening for mental illness in prisoners and that those who are affected by solitary confinement receive few to no support. On the no side of the argument, The federal Bureau of Prisons outlines policies and procedures intended to safeguard everyone who is an inmate, including those who have major mental health conditions, while defending the use of solitary confinement. There are four “care levels” based on the seriousness of the inmate's mental illness and the associated need of intervention. The ability to balance out still treating humans like humans but still providing the proper punishment that is necessary. There were no findings presented while examining the research on either side of the controversy, only a straightforward presentation of the topic's yes or no side of the facts.

Science Department

Abraham, Sruthi

Faculty Sponsor: Dr. Caroline Nielsen

“Efficacies and risks of dental implants”

This review aims to examine the efficacy of dental implants on suboptimal bone quality areas and the impact of the release of the implant's titanium particles. Life without teeth can be detrimental causing a person to be more prone to nutritional impairment, rapid bone loss, and changes in chewing patterns. Dental implants allow one to limit this by replacing the lost tooth. Studies by Chahal et al., 2022 and Cellejas et al., 2022 examine the efficacy of dental implants with a full mouth rehabilitation and the biocompatibility of titanium implants, respectively. In Chahal et al., 2022, researchers studied 24 patients with 438 implants: looking at the implants' success/survival and peri-implantitis. Their findings concluded that using dental implants for full mouth rehabilitation would result in successful long-term survival rates of the implants. In Cellejas et al., 2022, researchers isolated different sizes of implantoplasty, with 200 implants, ranging sizes from 5 μm (Ti-5), 10 μm (Ti-10), 15 μm (Ti-15), and 30 μm (Ti-30). This study was completed in vitro to keep track of the titanium particles detached. After studying the cytotoxicity of the titanium particles, it was determined that the 15 μm (Ti-15) particles had the lowest levels of cytotoxicity. The results from this study showed that Ti-15 particles were biocompatible because it caused a lower immune response in comparison to Ti-5, Ti-10, and Ti-30. The results from both studies allow one to conclude that using dental implants can be a great solution to replacing lost teeth.

Abraham, Sruthi, Barbara Martins and Kenzi Eldabh

Faculty Sponsor: Dr. Vinayak Mathur

“Identifying the presence of horizontal gene transfers (HGT) in the phage Caudoviricetes and the bacteria Alistipes”

Bacteriophages are viruses that target bacteria and have been considered as potential treatment against antibiotic-resistant bacteria infections. Interactions between phages and bacteria are important to study as they are a potential mechanism of horizontal gene transfer (HGT). HGT has become important for researchers, because the transfer of genetic material from bacteriophages to bacteria could have a role in acquiring antibiotic resistance. This study aims to investigate the prevalence of HGT between the phage Caudoviricetes and the bacteria Alistipes. We obtained accession numbers for the tail measure protein gene from phage. Using the community science pipeline we identified potential cases of HGT between the phage in the study and the bacteria they infect. In this study we are focussing on the HGT between a Caudoviricetes phage and Alistipes bacteria. To test for HGT, FASTA complete sequences of the 10 hits were downloaded as well as the FASTA complete sequences of the original phage and bacteria, Caudoviricetes and Alistipes. A multiple sequence alignment was done with the 12 complete sequences using the software MUSCLE. Also using the Mega Phylogenetic Software, a phylogenetic tree was created. MUSCLE results had shown that Alistipes have similar sequences that are conserved when compared to Caudoviricetes. The phylogenetic tree showed patterns that indicated there is HGT due to Caudoviricetes and Alistipes sequences located on the same clade.

Brown, Jordan

Faculty Sponsor: Dr. Caroline Nielsen

"The examinations of immunity response in anorexia nervosa patients"

An eating condition called anorexia nervosa results in an unusual absence of appetite. Given how prevalent the condition is, we ought to be concerned. There are significant mortality rates, as well as starvation-related suicides. The first article discusses the relationship between b cells and body composition in normal and atypical female anorexic patients. They divided the female German ancestry population into two groups, one of whom was healthy and the other had the illness. Blood samples were obtained at time 0 and again six weeks later. The blood sample was utilized for flow cytometry to detect a subset of b cells in the blood that were at various stages of maturation. According to the research, anorexic patients have lower levels of b cells. Overall b cells reduce in patients will lead to gastrointestinal infections. The second article describes the endocrine abnormalities brought on by continuous malnutrition in anorexia patients' chemical imbalances with their organs. Growth hormone resistances are necessary when the body develops organ imbalances because they boost hormone release while lowering insulin factor I levels. Also increases adrenocorticotrophic hormone and corticotropin-releasing hormone. Due to properly released antidiuretic hormones, there is water retention in the kidneys. Failure of an organ will harm the heart and brain and result in death. I want to express my gratitude to this community's Sciences Department and Cabrini University. A special thanks to Dr. Carrie Nielsen and Sheryl Fuller-Espie for their assistance with my thesis project on anorexia nervosa.

Brown, Jordan, River Harper, Jasmine Martinez, and Jessie Kargbo

Faculty Sponsor: Dr. Sheryl Fuller-Espie

"The potential life saving breakthroughs from genomic sequencing on individualized treatment for genetics diseases"

Sequencing of the human genome using second and third generation sequencing methodologies has played a significant role in understanding DNA polymorphisms in the context of various diseases. An important concern regarding whole genome sequencing (WGS) includes the infringement liability of numerous sequence variations in patient databases. However, WGS is providing enhancements linked to clinical practices. Ashley et al. (2010) attempted to use the genomes to study genetic related diseases including cancers, type II diabetes and myocardial infarction. In this study, certain gene variants were found to be associated with early death due to cardiac challenges including TMEM43, MYBPC3, and DSP. Recent developments in SMS and HSMS, presented by Pushkarev's team, enable scientists to swiftly track around 1 billion DNA molecules (Pushkarev et al., 2009). They reported a 99.8% overall accuracy rate for detecting single-nucleotide polymorphisms (SNPs). Ross et al. (2009) also discussed early death in studying the effect of the human epidermal growth factor receptor (HER-2) in breast cancer patients. The significance of HER-2 gene amplification and protein overexpression in the absence of anti-HER-2 targeted therapy displays a HER-2-positive rate of 22.2% and a mean relative risk for overall survival (OS) of 2.74. Due to increased interest in modern genomics, a breakthrough in life saving measures has been conducted through the study of various malignant tumors in patients characterized by modified DNA mutations in somatic cells that contribute to rapid tumor growth (reviewed in McLeod, 2013). Such advancements in genomics allow treatment for heritable disease conditions in the field of precision medicine.

Byrnes, Avery

Faculty Sponsor: Dr. Sheryl Fuller-Espie

"Hereditary Breast Cancer: BRCA1 Mutations & Treatment using CRISPR/Cas9 Genome Editing"

Hereditary breast cancer has been a serious concern for families all over the world because of the drastic effects it can have. Treatment options are continuously being researched to try and find a cure to this deadly disease. BRCA1 and BRCA2 are two major genes that play a role in tumor suppression, and are directly linked to breast cancer. One study to gain further knowledge on mutations in these genes was performed on a Vietnamese woman who had a medical history of breast cancer. Genomic DNA was pulled from her blood sample, probes were used to capture sequences of 17 genes from her DNA, and next-generation sequencing identified mutations. The patient's BRCA1 gene was mutated, and after taking other family members blood samples, the mutated allele was found to be from her father. There were also several other family members with this mutated allele, some of which had other types of cancer. Although this study emphasizes the extreme effects a mutated gene can have, researchers are currently performing studies to find treatment options to help with this problem. A study recently performed used CRISPR/Cas9 genetic engineering to alter P53, PTEN, and RB1 genes in breast organoids to mimic human breast tissue. After gene editing, the organoids were inserted into mice to look at tumor formation, and results showed that the deletion of the three genes affect the growth of tumors. Future studies aim to better understand the use of gene editing on breast cancer patients.

Crawford, Leon

Faculty Sponsor: Dr. Caroline Nielsen

"From Hydrofluorocarbons to Hydrofluoroolefins: An Analysis of The Benefits, Sustainability, and Dangers of The Transition"

We need to care about the refrigerants we use due to the potential environmental disasters that could be caused by them. As described by Cahill (2022) and Bjornsdotter et al. (2022) there has been a significant increase in recent years of trifluoroacetic acid (TFA) in the environment from the use of fluorinated compounds like refrigerants, this was determined using various types of spectroscopies. These papers predict an increase in TFA in the environment if there are a migration from hydrofluorocarbon (HFC) refrigerants to hydrofluoroolefin (HFO) refrigerants. The papers by Meng et al. (2022) and Direk et al. (2019), use HFO refrigerants tested against HFC refrigerants in automobile air conditioning systems to evaluate efficiency. In the articles, the HFCs outperformed HFO and HFC/HFO mixtures. It was concluded that despite efficiency loss, HFO and HFC/HFO mixtures should be researched as HFC restrictions are beginning to be made. The main reason articles like these exist is due to HFO refrigerants having a significant reduction in GWP when compared to their predecessors and it's because of this that there is a large push to switch to these refrigerants. The widespread use of HFO refrigerants is an inevitable thing that will happen as they become more efficient and cheaper to make than HFC refrigerants but before that happens the effects they could have, need to be researched because solving an environmental crisis like global warming will not matter much if we poison our waterways while we do it.

Crawford, Leon

Faculty Sponsor: Dr. Joseph Smith

“Computational Study of the Antioxidant Behaviors of Gallic and Protocatechuic Acids”

Reactive oxygen species (ROS) have been implicated in several physiological issues, including heart failure, cancer, and both Parkinson’s and Alzheimer’s diseases. ROS are a small subset of molecules that contain highly reactive oxygen atoms and typically possess a radical (unpaired electron) site. ROS can enter the body through exposure to airborne pollutants like ozone or specific, normal physiological processes. Antioxidants are believed to remove ROS by binding to the radical species or donating part of their own structure to stabilize the ROS, making it less reactive. This study utilizes computational methods to investigate the reactions between modeled ROS, hydroxy radical, and two phenolic antioxidants: Gallic and Protocatechuic Acid. In particular, the OH addition and H abstraction by OH reactions were studied. All calculations were performed using the Gaussian16 suite of programs. An initial conformational analysis was performed using B3LYP/6-31G(d) for all reactants, products, and transition states. All configurations that were within 2.5 kJ mol⁻¹ were further optimized using B3LYP/6-311++G(3df,3pd). Transition states were confirmed by the presence of a single imaginary frequency and IRC calculations. The lowest energy configurations were then refined using three composite methods: CBS-QB3, G3, and G4. Two sets of isogyric reactions for each specie was used to further correct the energies and resulting enthalpy of formation values from the composite methods were averaged for final enthalpy of formation values. These values were imputed into ChemRate to determine the rates of reactions for each reaction. The findings will cross-compare the trends from these two similar antioxidants.

Cummings, Kai, Madison Heipp, and Anne Kennedy

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“Terminating Triplets: Potential Therapies and Neurological Advances in CRISPR Technology for Huntington's Disease”

Neurological disorders are some of the most debilitating disorders that can affect people on a day-to-day basis. Ranging from something as relatively minor as headaches to fatal diseases such as amyotrophic lateral sclerosis (ALS), the sheer breadth of neurological disorders affects the vast majority of humanity in one way or another. Huntington’s disease (HD) is another one of these fatal neurological disorders, and stems from a mutation in the huntingtin gene (HTT) resulting in an increased number of CAG triplets, leading to an aggregation of mutated HTT protein in the brain due to an expansion of polyglutamine repeats. Over time, this aggregation leads to decreased motor function, behavioral changes, and impaired cognitive ability, all before culminating in fatality (Yamamoto et al., 2000). By using HD as the model, researchers can extrapolate many of the methods used to treat other forms of neurological disorders, especially those stemming from triplet nucleotides as seen in HD (Lu & Yang, 2012). These two studies utilized a mouse model for the purpose of targeting the mutation and suppressing or reversing the expression of the mutation. Experimental data showed that without constant influx of misfolded proteins, the expression of neurological deficiencies decrease. This indicates that there are therapeutic strategies to combat the negative effects of neurodegenerative diseases, which could potentially be expanded to humans.

Eldabh, Kenzi

Faculty Sponsor: Dr. Caroline Nielsen

“An overview of Mini Dental Implants and Their Effectiveness”

Mini dental implants (MDIs) are small, one-piece implants originally used for orthodontic anchorage. They have recently been studied for efficacy when used with overdentures, and how they impact a patient's oral health related quality of life (OHRQoL). Augmeuntong and colleagues (2017) studied how the use of 2 MDIs compared to 4 MDIs and 4 conventional size implants. They found that in 60 patients, those with the conventional size implants had more prosthodontic complications and less patient satisfaction, and that 2 MDIs showed the same results as 4 MDIs. It was concluded that MDIs provide a cheaper and easier method of attaching overdentures and the provided more patient satisfaction and less marginal bone loss. Brandt and colleagues (2021) studied which type of attachment head was most successful and how it impacted the patients' OHRQoL. They compared ball attachments to locator attachments of 122 patients from 3 dental offices. Those patients then had to attend maintenance appointments where the researchers looked at the structural state of the overdentures. The OHRQoL was studied using the oral health impact profile questionnaire. They found that locator attachments had less maintenance issues and resulted in an increase of the patients' OHRQoL. Although they were originally used for orthodontic anchorage, MDIs have been found to work better than conventional size implants and increase a patient's oral health related quality of life when used with overdentures.

Falgie, Jamie, Elizabeth Klimek, and Patrick Quinn

Faculty Sponsor: Dr. Vinayak Mathur

“Investigating Horizontal Gene Transfer in Gut Bacteria”

Previously thought to be vestigial, the appendix plays a role in both acting as a mediator in mucosal immune responses and maintaining ‘good’ gut bacteria. A bacterium from the genus *Alistipes* called *Alistipes shahii* was isolated from human appendix tissue in the United States that exhibits gram-negative, anaerobic, and rod-shaped characteristics. This bacterium also demonstrated horizontal gene transfer with the tailed bacteriophage *Caudoviricetes* sp. Horizontal gene transfer (HGT) is the process of transferring a DNA sequence between species without genetic inheritance. Our research seeks to find relevant intestinal bacterial species in the appendix and assess the presence or absence of HGT in those species. In order to determine if HGT is present we will utilize MUSCLE alignment and analyze phylogenetic trees. Initial evidence suggests that there is confirmation of HGT between bacteria and bacteriophages for the tail tape measure gene, but further analysis looking at genome synteny will provide validation. Understanding HGT in gut bacteria can aid in understanding the broader flora and virome of the gastrointestinal tract and its health.

Falgie, Jamie

Faculty Sponsor: Dr. Caroline Nielsen

“Effects of Climate Change on Plant-Pollinator Interactions”

Nearly 87.5% of the world's flowering plants are dependent on plant-pollinator interactions in order to reproduce. However, climate variables such as increased atmospheric temperature and fluctuation in precipitation are endangering these crucial interactions. A study conducted by Farias-Silva & Freitas (2021) had a purpose of examining behavioral thermoregulatory mechanisms in the carpenter bee *Xylocopa frontalis* to determine how these mechanisms may be altered due to increasing temperatures. Using a thermal imager, measurements were taken at different times throughout the day. It was found that activities that generate more body heat were conducted throughout cooler

hours of the day, whereas activities that require lower body heat were conducted throughout the hotter hours. The results show that *X. frontalis* are well adapted to handle the heat of their current environment, but suggest that an increase in global temperature could put both the species and their pollination services at risk. In addition, a study conducted by Wyver et al. (2023) reported on phenological shifts between *Malus x domestica* Borkh (also known as Bramley Apples) and the surrounding pollinating bee community. Researchers used Generalized Linear Models to analyze 48 years of citizens in science data and National Fruit Collection data for pollination and flowering records. The results found that peak pollinator activity is advancing faster than peak flowering activity, creating a phenological mismatch between them. It is extremely important to understand how the changing climate is already affecting, and predict how it will continue to affect, plants, pollinators, and their mutualistic interactions.

Flores, Kathie

Faculty Sponsor: Dr. Caroline Nielsen

“Dental conditions regarding human deciduous teeth commonly known as primary teeth”

There are more than 300 genes associated with tooth formation and even though primary dentition begins the formation process first, it still correlates with the formation process of the permanent dentition. Having so many genes involved with the formation of teeth numerous of genetic disorders can arise and affect the formation and eruption of teeth. The first investigation is focused on validating characteristics of PFE associated with parathyroid hormone 1 receptor (PTH1R) variants. The analysis consisted of evaluating 44 patients with suspected PFE and sequencing PTH1R genes. The genetic analysis revealed 14 different variants among 38 subjects, and patients with PTH1R variants presented specific symptoms like severe open bite. The results show a significant interconnection between clinical characteristics and the group with pathogenic variants of PTH1R gene. Another rare condition that has been reported to affect primary teeth is STAT3 hyper-IgE syndrome, associated with the retention of primary teeth (RPT). Thirty-one radiographs of 11 patients were analyzed and the dental history of 13 patients was followed to observe improvements. The results showed that if RPT are extracted around the physiological exfoliation age, permanent teeth erupt normally. It is crucial to assist RPT not just in STAT3-HIES patients but everyone to avoid dental complications. Both studies suggest that it's important to keep in check dental health as it may raise bigger issues when dental anomalies appear, also to optimize dental treatments when needed. Future research directions would be to look more into dental conditions outside of genetic disorders and syndromes, other population groups.

Haldaman, Gianna

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“How the degenerative eye disease retinitis pigmentosa affects normal vision and potential therapeutic strategies”

Retinitis pigmentosa (RP) is a rare eye disorder that is inherited, but there are cases where it's not inherited, meaning that it's sporadic. RP is caused by mutations that result in the cells within the retina to degenerate over time. These cells are known as photoreceptors, which uphold the vision and are known to be susceptible to mutations. To identify how RP exerts its degenerative effects on vision, many studies use fundus photography and optical coherence tomography (OCT) to analyze the degeneration within voluntary patients, and sometimes even mice. A study performed by Nakazawa et. al. (2019) was able to identify the abnormal structural changes of the layers of the retina in mice and humans using OCT. These structural changes are similar regardless of the mutation. Identifying these defects allow for professionals to compare whether potential treatments can provide retinal protection. Zhang et. al. (2022) investigated how mesenchymal stem cells (MSCs) can provide protection by using mice that were subjected to an optokinetic response test as well as

electroretinogram tests. This was used to determine how vision differed depending on whether the mouse was treated with MSCs or not. The overall findings showed exactly how to identify RP within an eye, and the potential in treatments given the results showing that MSCs are able to rescue visual response.

Harper, River

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“The genetic structure of addiction with hope for the future”

Addiction has been killing and ruining the lives of countless humans throughout the world. In the United States, addiction has become an epidemic, however it does not receive warranted public attention. In 2021, overdoses alone accounted for the loss of 107,000 American lives which surpassed vehicle and gun (including suicide) related deaths combined (CDC, 2022). While so many are dying from addiction, it raises the question as to why the individuals continue to use drugs when death is so prominent. Some overdoses are considered suicides, while the majority are ruled to be accidental overdoses due to increased drug use. To understand addiction and give rise to increased treatment options, the neuropathways related to the craving that causes the affected individual to repetitively use drugs while ignoring the consequences must be known. A study by Shen et al. (2022) analyzed the neuropathway for methamphetamine euphoria and determined DRD1-MeCP2-BDNF-TrkB involvement. Additionally, this research team discovered that a cannabinoid receptor inhibitor has potential to lessen the cravings. For the death rates to continue to climb even with the warnings of fentanyl laced drugs, there must be something keeping those affected individuals going back to the drugs that may kill them. Addiction is a complex issue resulting from both environmental and genetic susceptibilities. Nagaya et al. (2017) related 40%-60% of addiction susceptibility to the genetic makeup of the individual. In their 2017 study, they found statistically significant data correlating SNP's rs1042114 and rs910080 to opioid addicted individuals.

Hernandez, Leslie

Faculty Sponsor: Dr. Caroline Nielsen

“Negative Exposure Effects of Polystyrene Microplastics on the Hippocampal Region and Maternal-fetal Immune Balance”

Exposure effects of polystyrene microplastics (PS-MPs), a widely used plastic in the food industry, has been greatly investigated in marine organisms, but not in model organisms. One study investigated the neurotoxic effects on the hippocampal region, an area involved in learning and memory ability, over an extended period on mice. Researchers included behavioral tests such as the Morris Water Maze, the Novel Object Recognition, and a probe test to examine learning and memory ability. Brain ultrastructural changes were analyzed by measuring the levels of pro-apoptotic genes and expression of proteins associated with synaptogenesis and inflammation in the hippocampus via RNA and protein extraction. Behavioral test results between the controlled and exposed groups showed no significant difference, but negative differences were observed in the brain structure, expression of proteins, and levels of pro-apoptotic genes. Hence, inconclusive results. A second study examined the effects of PS-MPs exposure regarding maternal-fetal immune imbalance, important for a successful pregnancy, and reproductive toxicity in pregnant mice. Flow cytometry, RNA extraction, and real-time quantitative polymerase chain reaction (RT-qPCR) was performed to determine the levels of CD45+ leukocytes, decidual natural killer cells, macrophages (M1 and M2), CD4+ T cells, and pro/anti-inflammatory cytokines. It found an increase in embryo resorption rate, helper T cells, and cytokine secretion, and a decreased amount of decidual natural killer cells and a flipped M1/M2 ratio (M2 dominant). It was concluded that exposure disrupted the

maternal-fetal immune balance. Further research is needed for conclusive neurotoxic effects and maternal-fetal immune imbalance in model organism.

Hernandez, Leslie, Triniti Heyward, and Abaigeal Staniewski

Faculty Sponsor: Dr. Vinayak Mathur

“The Genealogical Correlations of Human Herpes Simplex Virus Type 1 and Varicella Zoster Virus”

The Herpesvirus is a well-researched bacterial infection that has had a wide range of genetic diversity throughout history and nature; however, there are only nine clinically distinguishable human herpes viruses. Along with Herpesviridae subfamily, a closely related virus is Varicella zoster virus (VZV). The initial infection of VZV is known to cause chicken pox. But in some cases, reactivation of the virus later in life can occur due to a weaker immune system and cause shingles. The International Committee on Taxonomy of Viruses categorizes herpesviruses that are capable of infecting mammals and VZV as Alphaherpesvirinae. This conceptual investigation analyses the genomic sequences of two commonly known Alphaherpesvirinae subfamily members, Herpes simplex virus type 1 (HSV-1) and VZV. We used a MUSCLE alignment software to generate and compare the base pair composition alignment of HSV-1 and VZV. MEGA was utilized to create a phylogenetic tree to show the evolutionary relatedness. This work builds upon the bioinformatics research performed to analyze HGT between bacteria and viruses. The physiological and genealogical aspects of VZV and HSV-1 helped to understand the correlations in biochemical mechanisms contributing to the genetic diversity and history of the human herpesviruses.

Heyward, Triniti, Leslie Hernandez, and Abaigeal Staniewski

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“Quality Assessment of Pasteurized and Unpasteurized Milk by Using the Methylene Blue Reductase Test and Plate Count Techniques: Spread Plate and Pour Plate”

Milk pasteurization is the process of heating milk at specific temperatures for a specific period. Diseases can arise from external environmental flora or the normal flora from the cow's mammalian ducts. A coliform counting plate technique and methylene blue reductase test was performed to assess the quality of pasteurized and unpasteurized whole milk samples from Wawa, Cream of Land, and Hope Spring Farms. Coliform counting and reductase tests are often used to determine the possible growth of pathogens also known as coliform contaminants. Both pasteurized milks exhibited the absence of contaminants while unpasteurized milk exhibited a slight presence of aerobic pathogens. There was no bacterial growth observed for the pasteurized milk on both the pour plate and spread plate method. For the unpasteurized milk, there was bacterial growth in the spread plate in comparison to the pour plate method. The first investigation analyzed Designed Multiplex real-time PCR, Commercial real-time PCR, and Conventional culture for assessing the presence of Salmonella Spp. and Shigella Spp. in raw cow, goat, sheep, and donkey milk samples. There was no significant difference observed regarding how many milk samples tested positive for the presence of bacteria. Lastly, the second investigation observed the importance of hygienic practices and the milk handling process for different business types. The study concluded that the type and percentage of pathogenic microbes that were present prior to improper management or unhygienic techniques were exhibited throughout the establishment as well as the prevalence of contaminants in the milk sample for each business type.

Holden, Ashton and Sam Geathers

Faculty Sponsor: Dr. Vinayak Mathur

“Using bioinformatics to analyze spike proteins in SARS-V2 viruses”

SARS-V2 is a strain of the coronavirus taxa that reached pandemic levels globally in 2020. The use of bioinformatics plays an essential role in identifying the SARS-V2 genome and providing a means to study the evolution of the coronavirus genome. Bioinformatics uses bacterial databases to determine the ancestral relations and mutations of the bacteriophages by examining genomic sequences. To conduct this investigation, we used the National Center for Biotechnology Information (NCBI) database to run blastp sequences for SARS-V2 coronavirus spike protein strains for the years 2020-2023. These blasts were limited to the viral database of NCBI. We analyzed the top (5) hits for each SARs coronavirus spike protein sequence alignment for similarity using Multiple Sequence Comparison by Log Expectation (MUSCLE) software. Alignment comparison data was then uploaded for construction of a phylogenetic tree using the Muscular Evolutionary Genetics Analysis (MEGA). The goal of this investigation was to study muscle alignment sequence homology of based on the SARs coronavirus spike protein strains in comparison to their level of virulence.

Holden, Ashton

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“Periodontal disease serves as an inflammatory link to systemic diseases”

Periodontal disease (PD) is a degradative disease of periodontal tissues caused by inflammation in response to the proliferation of periopathogenic bacteria (PB). PD is linked to systemic infection, with the onset triggered by many factors. Noteworthy is the diverse body of research surrounding PD, its causations, and systemic effects seen in patients with comorbidities of an inflammatory nature. The findings of Silva-Boghossian et al. (2018) are based on a study group of seventy-six obese and 34 non-obese women divided into subgroups determined by PD status. Using mean counts of 40 bacteria taxa collected during oral samples, findings showed significant correlations ($P < 0.01$) between periodontal pathogen prevalence and obesity using the Mann-Whitney U test. Comparatively, Palvic et al. (2021) investigated the presence of (5) periodontal pathogens, *Porphyromonas gingivalis* (P.g.), *Aggregatibacter actinomycetemcomitans* (A.a.), *Tannerella forsythia* (T.f.), *Treponema denticola* (T.d.), and *Prevotella intermedia* (P.i.), in periodontal pockets (PP) and atheromatous plaques collected from coronary and carotid tissues during the heart surgery of 58 patients. Samples from PP and arterial tissues supported the hypothesis of PB translocation through the bloodstream and correlation regarding the abundance of PB in both periodontal tissues and arteries. Statistical analysis used an absolute percentage agreement and Cohen's kappa statistic to correlate frequencies. These studies provide trajectory and direction for future investigations examining the possible pathways to intervention for PD and associated inflammatory diseases.

Holmes, Nicholas

Faculty Sponsor: Dr. Caroline Nielsen

“The significance of future research into herpes simplex virus”

This review explores the current research into herpes simplex virus (HSV-1), and the need for future research into HSV-1. Current investigations are impactful and span several medical subjects. This project explores the use of existing medications to create new, and exciting treatments for HSV-1. One such treatment, developed by Kaszoki et al., in 2022, uses the decades-old drug, acyclovir, as a core substance in electro-spun nanofiber patches. These patches can be used to create a more direct drug delivery system that can exhibit higher transdermal permeability than normal topical ointments

containing the drug. Trials using these patches have shown limited results, however, there is still room for hope, as the trials were small and inconsistent. More exciting research into HSV-1 involves the theory that HSV-1 is instrumental in causing Alzheimer's disease (AD) and dementia. Ruth Itzhaki, a forerunner of this theory, believes that there is a tremendous amount of existing evidence pointing to the relationship between HSV-1 and AD. In order to study this potential relationship between AD and HSV-1, Cairns et al. designed a study in 2020 in which a human brain-like tissue model was created. Using this model, researchers were able to induce the hallmark symptoms of AD by infecting the tissue with HSV-1. My research highlights the need for more research into new drugs for the treatment of HSV-1, as well as the necessity to further explore the consequences of prolonged infections in individuals.

Kenzakowski, Ben

Faculty Sponsor: Dr. Sheryl Fuller-Espie

"Clinical Bacteriophage Therapy: History, Efficacy Against Biofilms, and Future Challenges"

As the emerging threat of antibiotic resistant pathogens continues, the revival of phage therapy can offer a viable alternative to therapeutics based on small molecule drugs. One study, conducted by researchers from Iran, sought to characterize a strain of phages known to infect Methicillin-resistant Staphylococcus aureus (MRSA) based on the phage's stability. The researchers conducted this study by exposing MRSA to phage treatments under certain temperature ranges, pH ranges, and salinity conditions and exposing MRSA to a control. The results demonstrated that the phages were stable in temperature ranges from -20C to 70C, pH ranges from 4 to 10, and salinity of up to 15%. Based on the research, the authors of this study concluded that the phage exhibited the correct conditions to survive in environments such as skin wounds. Another study, conducted by researchers in Switzerland, sought to provide a generalized in vivo animal model for phage therapy using rats that were infected with MRSA. To conduct the study, combinations of nebulized phages and an antibiotic used to prevent systemic disease were administered to the rats and the survivorship was assessed after four days. The results indicated that there was no noticeable difference between the survivorship of the rats treated with both antibiotics and phage therapy compared to phage therapy alone. Based off of the research that was gathered, a higher survivorship rate could be achieved through the administration of an antibiotic that specifically prevents disease in the lungs.

Klimek, Elizabeth, Brooke Crossley, and Emma Barbera

Faculty Sponsor: Dr. Sheryl Fuller-Espie

"DNA Forensics"

The universal nucleobases—adenine, thymine, cytosine, guanine, and uracil—present in DNA and/or RNA are what determine the structure, function, and fundamental units of heredity of every living entity. The unique arrangement of these nucleobases can be examined through various bodily samples collected by forensic scientists to construct DNA profiles, further aiding in the identification and prosecution of offenders to various types of crimes like murder and rape. DNA forensics has played a significant role in the criminal justice system since the mid-1980s, and the discipline is continuously evolving new methods to improve the recovery and analysis of DNA in investigations. Although DNA is a strong form of testimony, there are a few limitations that may bring credibility into question. With the discovery that synthetic DNA could be easily produced using standard molecular biology methods such as PCR, molecular cloning, and genome amplification (WGA), an authentication assay based on methylation analysis was established to differentiate between real and manufactured DNA planted at crime scenes. Furthermore, a recent report into the DNA methylation in semen can help determine an individual's age. This is

particularly useful in rape cases in instances when short tandem repeat (STR) profiling is not impossible but additional research and technology developments are advised due to the resulting age gap in the study. These two distinct studies offer proof that DNA identification in ongoing cases is changing and addressing reliability issues in DNA forensics, which are projected to become more prevalent in the coming years as new techniques become more routinely used.

Koshy, Bryan and Jordan Brown

Faculty Sponsor: Dr. Sheryl Fuller Espie

“The determination of bacterial numbers applications and use”

As our knowledge about bacteria and antibiotic resistance increases, the determination of bacterial numbers has become increasingly relevant. In our experimental studies, *Escherichia coli* samples with both high and low concentrations of bacteria in suspension were subjected to spectrophotometry and spread plate techniques to obtain a correlation between colony forming units (CFU) and absorbance values. As the bacteria were diluted through a serial dilution procedure, we observed a significant difference in CFU and absorbance as the solution was diluted sequentially. By determining the absorbance of each sample we calculated how many microorganisms were present. Looking at antibiotic-resistant pathogens can be beneficial for healthcare prevention. To advance our goal, we must find ways to eliminate antibiotic resistance to target-specific drugs in bacteria, which is a persistent problem as resistant strains of bacteria are disseminating globally and leading to multidrug resistant superbugs. A research article included in the literature search associated with this study investigated viable plate count, turbidity analysis, qPCR testing, optical density, and heterotrophic plate count to determine microbial colonies because traditional plate count techniques are often unreproducible and time consuming. The results indicated that pPCR is the most accurate method for accurate determination of bacterial cell count. In a second research article, flow cytometry was used for determining antibiotic resistance/susceptibility by enumerating viable cell numbers after exposure to selected antibiotics over time. Results indicated that flow cytometry is effective in identify numerical differences in culture exposed to antibiotics versus control samples and also reduces the time-to-result very significantly, thus improving determination of antibiotic resistance in a clinical arena.

Koshy, Bryan

Faculty Sponsor: Dr. Sheryl Fuller Espie

“Vaping induces histological changes in the lung and gene expression alteration in the hippocampus”

As the use of electronic cigarettes becomes more prevalent in today's society the comparison assessing the safety of traditional cigarettes was compared to nicotine vaping. The first study described in this project involved the use of 30 male rats that were placed in three separate treatment groups. Group A was exposed to vapor smoke, group B was exposed to cigarette smoke, and group C was the untreated control group. Groups A and B experienced similar effects such as parenchyma, hyperplasia, and collagen deposits when observed through H&E, PAS, and Masson's trichome staining. The study concluded that vaping is just as harmful as traditional cigarette smoking which confirmed by histological changes within different types of staining. Gene expression is another component that is affected by nicotine and the development of the central nervous system. The second study reviewed in this project used 6 pregnant mice exposed to 13mg of nicotine and without for three weeks. Observations during analysis via RtPCR and serum cytokine analysis showed a reduction in hippocampal gene expression. Serum levels of IL-1B, IL-2, and IL-6 were also measured and reported to be decreased compared to baseline controls. The Iba-1 region was also enhanced when different lobes of the brain were observed. The study concluded that aerosols

from nicotine-full and non-nicotine smoke show great alterations within the central nervous system of neonatal mice. Although vaping nicotine is considered safer than traditional cigarettes these two studies are noteworthy representations of the harmful effects of vaping in the body.

Martins, Barbara

Faculty Sponsor: Dr. Caroline Nielsen

“The Relationship of RAGE and HMGB1 on the Exacerbation of Chronic Obstructive Pulmonary Diseases”

Chronic obstructive pulmonary disease (COPD) is a chronic, incurable lung condition that limits the airways and causes breathing difficulties. The exacerbation occurs by cigarette smoke (CS) and it is more common in the elderly, particularly those over 65 years of age. When smoking, reactive Receptor for Advanced Glycation Endproducts (RAGE) species are dispersed, and absorbed by the lungs and may interact with serum proteins. This is reflected in the fact that serum concentrations of RAGE in smokers are significantly higher than in non-smokers. Unbiased gene expression portray of alveolar macrophages (AM) obtained from RAGE null and C57BL/6 WT mice exposed to CS for a few weeks was performed to gather data on RAGE mediates. It used RNA sequencing to address AM transcriptome responses to in vivo CS exposure. The pathway analysis of RNA expression found a number of genes integral to the pathogenesis of COPD impacted by the absence of RAGE. Proinflammatory cytokines, which include RAGE, to Binding of high-mobility group box 1 (HMGB1) may promote tissue inflammation and remodeling. HMGB1 was assessed in the bronchoalveolar lavage (BAL) of 50 patients who were non-smoker, smokers, and smokers with COPD. BAL levels of HMGB1 were higher in smokers with COPD than in smokers and never-smokers. RAGE was overexpressed in the airway epithelium and smooth muscle of patients with COPD and it was adjacent with HMGB1. Concluding that interaction of elevated expression of HMGB1 and the proinflammatory cytokines in COPD can sustain inflammation and remodeling; contributing to disease progression.

Quinn, Patrick

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“Examining The Epizootic Threat of Parvovirus”

The objective of this review was to examine the epizootic threat parvovirus poses, both in the past and in the future. An epizootic threat is a disease that poses the threat of becoming a pandemic in animals. Understanding arrovirus allows researchers to learn more about other viruses, and develop preventative strategies for the spread of disease. Two studies that aid in analyzing the epizootic threat of parvovirus are Ilyas et al., 2018 and Nur-Farahiyah et al., 2021. The goal of Ilyas et al., 2018 was to characterize the protein of a Protoparvovirus called bufavirus strain 1 (BuV1). The authors performed cryon-electron microscopy at 130,000x magnification and sequencing the VP2 capsid gene. The researchers recreated images of the capsid, and sequenced the VP2 gene for phylogenetic analysis. The authors concluded that the presence of 3-fold protein protrusions on the surface of BuV1 - compared to a normal pinwheel structure on other protoparvoviruses - may be responsible for adsorption to human cells. The goal of Nur-Farahiyah et al., 2021 was to isolate an unknown parvovirus strain from an infected Malayan Tiger (*Tigris jacksoni*). Researchers amplified the parvovirus DNA from the serum of the tiger using PCR, and sequenced the genome of this strain for phylogenetic analysis. It was found that the parvovirus was a canine parvovirus (CPV) 2a variant. This highlights the threat that parvoviruses pose in their rapid mutation and wide range of hosts.

Qyshkollari, Theodhora

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“Breast Cancer: Symptoms, diagnosis, and treatment with vaccines and CAR T-cell therapy”

Breast cancer (BC) accounts for 41,000 deaths annually in the United States, but with advancements in diagnosis, death rates have dropped by 38%. Symptoms are mostly lump-associated, and diagnosis involves screening methods such as mammography, color doppler ultrasonography and others. This review emphasizes treatments including prophylactic vaccines and chimeric-antigen receptor T cell (CAR T cell) therapy. One of the studies assessed the efficacy of a vaccine composed of P435 peptide conjugated to liposomes containing DOPE and monophosphoryl lipid A (MPL) adjuvant in treating HER2 (+) BC. Seven groups of BALB/c mice were treated with different liposomal combinations of the vaccine or buffer, and then they were challenged with TUBO cells. ELISpot assay found that mice injected with Lip+DOPE+P435 showed high interferon (IFN)- γ , and low IL-4 levels. Additionally, it was observed that the Lip+DOPE+P435+MPL vaccine reduced tumor volume significantly. A different study investigated CAR T cell therapy in treating natural-killer group 2 member D (NKG2D)-expressing triple negative breast cancer (TNBC) in vitro. Following culturing, flow cytometric analysis was used to identify the cell lines expressing NKG2DL. Once CAR T cell combinations were constructed, they were incubated with different BC cells. Bioluminescence assay indicated increased cytotoxicity in the MDA-MB-231 cell line when treated with NKG2D-BBz and NKG2D-27z CAR constructs. xCELLigence revealed that 2:1 effector:target (E:T) ratios were effective in eradicating TNBC when using the CAR constructs mentioned. Therefore, both the vaccine and CAR T cell therapy serve as compelling treatment options.

Qyshkollari, Theodhora, Kim Vo, and Tien Tran

Faculty Sponsor: Dr. Vinayak Mathur

“Investigation of potential horizontal genetic transmission from Caudoviricetes phages to Clostridium and Enterobacter bacteria”

Horizontal gene transfer (HGT) is a phenomenon in which genetic material is laterally exchanged between organisms in a fashion that differs from parent-to-offspring. This study investigated possible HGT between Caudoviricetes sp. (DAY67785.1) and Enterobacter cloacae complex (WP_058999072.1), and between Uncultured Caudovirales phage (ASN68292.1) and Clostridium senegalense (WP_010295870.1). Additionally, this study aimed to compare phylogenetic trends between both phage-bacteria relationships. The viral and bacterial accession numbers were inputted to the National Center for Biotechnology Information (NCBI) to obtain their amino acid sequences in FASTA format. Then, Basic Local Alignment Search Tool (BLAST) was used to find the top five hits of each accession number. The initial sequences and top five hits from each BLAST search (12 in total) were run through Multiple Sequence Alignment (MUSCLE) for comparison between sequence alignments and for base-pair similarities. Lastly, the MEGA software was utilized for the construction of a phylogenetic tree to depict the evolutionary relationship among all 12 sequences, and for the verification of HGT presence. This was done for each pair of phage and bacteria. Ultimately, the MUSCLE alignment, MEGA phylogenetic software, and BLAST searches were indicative of HGT in both phage-bacteria relationships. These results provide conclusive evidence of the horizontal transmission of the tail measure protein gene region from Caudoviricetes to E. cloacae, as well as from Uncultured Caudovirales to C. senegalense. Both phylogenetic trees also showed similar trends in evolutionary distance between both phages and their respective host bacteria.

Reyes, Yaneska, Trung Tran, and Ben Kenzakowski

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“Gene Therapy’s Prescription of Stem Cells Against Genetic Diseases”

Gene therapy is the transference of remedial genes into the cells of a patient to rectify genetic disorders induced by a defective gene or genes. Delivery methods are categorized as ex vivo gene therapy and in vivo gene therapy. The mechanisms involved in delivery methods include virus vectors, nonvirus vectors, stem cells, and gene editing. Researchers from Stanford University provided research into using recombinant hematopoietic stem cells to treat sickle cell disease (Dever et al., 2016). Specifically, they used CRISPR/Cas9 with adeno-associated viral delivery to knock-out the mutated beta-globin gene and to insert the wild-type gene into the cells. They injected cells into the bone marrow of mice and after a 16-week period, samples of the tissue were analyzed and were found to contain five times as many recombinant cells compared to the beginning of the experiment. Transgenic stem cells were used to successfully restore the whole human epidermis (Hirsch et al., 2017). This treatment focused on patients with severe burns and inherited skin conditions. In this experiment, they utilized mouse models that had severe skin injuries and implanted stem cells onto their backs. Their results were confirmed by the histology analysis and the human biomarkers found in the regrown tissue. The development of an epidermis that performed every function of a human's epidermis. Success in both recombinant hematopoietic stem cells and transgenic stem cells supports the utilization of gene therapy as a solution to genetic disease conditions. Further development and research will increase the effectiveness of gene therapy.

Rosario, Saige, Kerriane King, and Sarah Newman

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“Genetically Modified Foods: Future Advancement or Environmental Threat?”

Over the past several decades, advances in genetic engineering and recombinant DNA technology have allowed for the production of a wide variety of genetically modified (GM) foods. Most GM foods serve as feed for livestock, though genetically-engineered animals are also made for human consumption. In particular, gene-editing techniques such CRISPR-Cas9 have been used to engineer crops that express insecticide, herbicide, or even pest resistance to increase crop production. Recent research has been driven to understand how to improve GM crops to better serve the needs of human populations. One study (Paine et al., 2005) sought to find an effective method of increasing the vitamin A content of Golden Rice to prevent vitamin deficiency-related health problems in humans. Studies have also been conducted to measure the presence of GM organisms in nature and found evidence of GM crops, like transgenic canola plants, establishing themselves in natural habitats (Schafer et al. 2011). Other studies have shown evidence of GM organisms being able to breed with non-GM species, allowing hybrid offspring to display the genetic modification of their GM parent (Oke et al., 2013; Schafer et al., 2011). The ability for hybridization to occur between GM and non-GM organisms has raised concerns among environmental groups due to the potentially damaging consequences hybridization poses to the environment. The future of GM foods is expected to focus on ways to continue serving human populations, while reducing any environmental threats the alterations may pose later on.

Tran, Tien

Faculty Sponsor: Dr. Caroline Nielsen

“Dental Gingivitis is a Silent Epidemic at Large.”

Gingivitis is the beginning stage of periodontal disease. Gingivitis is gum inflammation disease caused by the building of plaque and bacteria in periodontal pockets. 87.4% of adults aged 35–44 years have gingivitis according to epidemiological studies (Li et al., 2021) which is a problem for the population. This is a scientific review to educated new science and technology on detecting dental gingivitis and treatment of mouthwashes. In a study, used PCA algorithm help reduce large database size(dental disease photos) of non-periodontal disease. Then the AI system Self Organization Feature Maps (SOM) Neural Network Algorithm, Fuzzy Self Organization Feature Maps (FSOM), Neural Network Algorithm, and BAT Algorithm were tested which one is better at diagnose different kind periodontal disease for dataset made up of 120 images. Comparison of the final result showed that BAT had highest accuracy of Gingivitis disease (97.942%) comparing to 89.306%(SOM) and 93.859%(FSOM) (Khaleel & Aziz, 2021 After diagnostic of gingivitis, there need be a treatment. A Study using four different mouthwashes (Peridex-alcohol based, hiora-non alcohol based, orofresh-non alcohol basedorofresh-non alcohol based) with forty participants split in random groups rinse with 10ml of different mouth wash for 30 days. The tests used were oral examination and microbial colonies grown on agar screening. The result showed all groups of mouth showed were similar reduction of dental gingivitis and bacteria colonies in mouth. Perdiex was not recommended for long use because of negative side effects. (Krishnamurthy et al., 2022). Hopefully, this information allows dentist to lower gingivitis faster.

Vo, Kim

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“Immunological roles of saliva and their relevance to Sjogren's syndrome”

Sjogren's syndrome is an autoimmune disorder that affects the exocrine glands. One of its distinctive symptoms is hyposalivation. This brings about concerns regarding oral immunity, as saliva contains numerous proteins with bactericidal functions. In one study aimed at assessing the structural damage to oral bacteria caused by these salivary proteins, Enterococcus faecalis and Streptococcus mutans, causative agents for root canal infections and dental caries, respectively, were incubated with salivary peptides histatin 5, chromogranin A, and cystatin C. Electron transmission microscopic examination of both bacteria revealed a significant decrease in cell wall width by approximately 10 nm, and in plasma membrane bilayer distance by 1 to 3 nm. With this said, a decrease in salivary production can potentially mitigate the antiseptic effects of these salivary peptides, thus increasing risk of oral infection. Another study examined the relationship between salivation and the colonization of Candida, the causative microorganism for oral candidiasis. 53 elderly patients were given an oral examination and assigned a numerical score for various oral health status markers. All participants were a mixture of denture users and non-users, and with xerostomic and normal salivary conditions. Salivary samples from each patient were then cultured, and the number of Candida colony-forming units was counted. Results revealed a general trend of improved oral health conditions and decreased Candida counts in correlation with increasing salivary rates. Ultimately, this study confirmed an inverse relationship between salivary flow and Candida colonization, thus confirming the hypothesis that decreased salivation poses a greater risk of oral infection.

Sociology and Criminology Department

Agnew, Erin

Faculty Sponsor: Dr. Matt Reid

“Young Adults and the Consumption of Electronic Nicotine-Based Products”

The young adult population is exposed to a wide variety of tobacco products, and this can cause young adults to feel inclined toward using these products. The known reasons why young adults are trying or using electronic nicotine-based products include the variety of flavors offered, the idea that it is better than cigarettes, curiosity, pressure from peers, or to quit/reduce their tobacco use (Luzius et al., 2022). This study examined the relationship between the young adult population and the consumption of electronic nicotine-based products. Using a non-probability sampling approach, a survey was distributed to 85 Cabrini University students in the fall semester of 2022. The survey examined if and how electronic nicotine-based tobacco products were utilized by the students. Hypothesized in this study was that young adults are more likely to use electronic nicotine-based products if they are exposed to social media advertisements and posts, and if they observe their peers using these products. It was also hypothesized that masculinity would cause males to be more likely to consume electronic nicotine-based products. Results showed that peer pressure does influence the young adult population when it comes to using these tobacco products. Young adults who live with someone who abstains from any form of tobacco product were found to be more likely to also abstain from electronic nicotine-based products.

Darcelin, Christel

Faculty Sponsor: Dr. Matt Reid

“Gender Norms: The Effect on Socialization”

The purpose of this study is to find out whether students have progressed as much as we think concerning gender norms, and how gender norms are perpetuated by undergraduate students. Gender norms are defined as being “produced through social institutions (such as families, schools, workplaces, laboratories, universities or boardrooms), social interactions (such as between romantic partners, work colleagues, or family members), and wider cultural products (such as textbooks, literature, film, and video games). They draw upon and reinforce gender stereotypes about women, men, and gender-diverse individuals” (Gendered Innovation, n.d.). A survey was distributed to students at Cabrini University to explore several hypotheses. The survey explores how gender norms may be enforced at home, potentially resulting in an imbalance of basic life skills. It also explores how the participants may have fallen victim to gender norms. This is an important research area as results enable us to better understand how gendered responsibilities and expectations are reinforced through education and other societal environments.

Dills, Mia

Faculty Sponsor: Dr. Jennifer Bulcock & Dr. Katie Farina

“The Influence of Anxiety and Depression on Substance Use”

Since everyone is a stakeholder in the higher education system in some way, it is necessary to be concerned about the mental and physical health of today’s undergraduate students. The current study aims to investigate the relationship between students with anxiety and/or depressive symptoms and their substance use habits. This study builds upon prior research that has looked at mental health in undergraduate students, and numerous studies that have investigated substance use habits in undergraduate students. This current study aims to see if there is a correlation between anxiety and depressive symptoms and drug/alcohol use in college students. The study uses

quantitative research methods and electronically surveyed approximately 150 Cabrini University students in the Spring 2023 semester. The survey asks about the students' anxiety symptoms, depressive symptoms, alcohol use, and drug use. The researcher hypothesized that students who experience generalized anxiety symptoms are more likely to be substance misusers than those with fewer and/or less severe anxiety symptoms. Additionally, it was hypothesized that students who experience depressive symptoms are more likely to be substance misusers than those with fewer and/or less severe depressive symptoms. Results will be available at the symposium.

Dziewit, Elise

Faculty Sponsor: Dr. Jennifer Bulcock and Katie Farina

"The Impact of Childhood Trauma on Academic Performance in College Students"

This study examines the impact of childhood trauma on academic performance in college students. Childhood trauma is considered to be a traumatic event that is frightening, dangerous or violent that poses a threat to a child's life or bodily integrity (The National Child Traumatic Stress Network, 2022). This study focuses on physical, sexual, and emotional abuse, neglect, and domestic violence. Traumatic experiences in childhood can detrimentally impact individuals as they enter their college years and negatively affect their ability to perform academically (Welsh et al., 2019). A student's inability to function in the college environment can lead to late graduation or not finishing an undergraduate degree. This in turn can affect one's success in a future career. Furthermore, the manifestation of these particular traumatic experiences can be seen in students grade point average, missed or late assignments, academic adaptation, and overall success (Welsh et al., 2019). Evidence also suggests that traumatic experiences in childhood can present challenges for students' academic functioning and attainment at the college level (Mitchell et al., 2020). In order to determine if there is a link between childhood trauma and academic performance a survey was distributed to students within the Cabrini University population using an availability sampling method. The results of the survey will be available at the symposium.

Forestier, Yamiliz

Faculty Sponsor: Dr. Jennifer Bulcock and Katie Farina

"Perceptions of Rape and Sexual Assault"

Rape myth acceptance is one of the ordinary circumstances existing in rape culture. Gender affects people's perception of rape myths. Research shows men are more likely to adhere rape myths than women (Hockett et al., 2016). This study seeks to understand the relationship between gender and rape myth acceptance as well as media impact on rape myth acceptance. Cabrini University students were surveyed using an availability sampling method and quantitative analyses were applied to the data. The results will be available at the symposium.

Guiliano, Ava

Faculty Sponsor: Dr. Matt Reid

"College Students' Opinions On The Death Penalty"

The death penalty has always been a controversial issue. Many believe it is a just way for murderers and criminals to pay the price for their crimes. Others view the death penalty as an outdated practice or as an "easy way out." Examination of this topic is important as today's college students, as well as future generations, have the power to influence public policies related to the death penalty. As previous studies note, many different social factors influence an individual's perspective on the death penalty, including age, gender, religious beliefs, and political identification. The current study, conducted at Cabrini University during the Fall 2022 semester, seeks to determine if age, gender identity, religious beliefs, and political identification have a direct impact on college student's

opinions of the death penalty. Survey data were analyzed using a series of four Chi-Square tests. The results show no significant differences between age, gender identity, religious beliefs, and political identification in participants' opinions of the death penalty. The limitations of this study and implications for future research are discussed.

Hack, Wayne, Mia Dills, Angelo Primavera, Annamarie Marsh, and Luis Vazquez

Faculty Sponsor: Dr. Jennifer Bulcock & Dr. Katie Farina

“Media, Substance Abuse, Athletes, and Mental Health in College Students”

Mental health is a topic of discussion across the United States due to its common and ever-growing prevalence (NIMH, 2022). One topic to be explored is how the depiction of mental illness in the media may affect perceptions of mental health. It is important to know that in popular media such as *Criminal Minds*, those who are portrayed with some sort of mental illness are framed in a negative way through lighting, music choice, and emphasizing undesirable aspects of the individual. These might include talking to oneself, appearing disheveled, or engaging in unpredictable and/or violent behavior (Henderson, 2018; Parrott and Parrott, 2015). This study aims to look at college students' perceptions of mental health and their relationship to potential media influences. The study administered an online survey in the Spring of 2023 to approximately 150 Cabrini University students. An availability sampling method and quantitative analyses were used. The researcher hypothesized that higher consumption levels of media known to negatively stereotype mental illness will increase college students' negative perceptions of mental illness. The results of this study will be available at the symposium.

Mack, Madison

Faculty Sponsor: Dr. Jennifer Bulcock & Dr. Katie Farina

“The Effect of Sex Education on Safe Sex Practices”

This study examines the relationship between sex education and the likelihood of college students engaging in safe sex practices. Sex education allows adolescents to gain information and skills needed to make the best decisions regarding sex and relationships (Planned Parenthood, n.d.). However, not all sex education is the same. Abstinence-only sex education teaches that refraining from sex until marriage is the expected sexual behavior of teens while comprehensive sex education provides medically accurate information about safe sex practices, including the use of contraceptives for reducing the chance of unwanted pregnancy (Abstinence Education, 2018). It is important for adolescents to receive sex education as it encourages safe sex practices such as sticking to sexual activity that does not spread infections as well as understanding what a healthy sexual relationship can look like (Leung et al., 2019). Research shows that those who receive comprehensive sex education are more likely to practice safe sex when compared to those who received abstinence-only education. To examine this relationship, an online survey will be distributed to Cabrini University students through an availability sampling method and analyzed using quantitative analyses. Results will be available at the symposium.

Marsh, Annamarie

Faculty Sponsor: Dr. Jennifer Bulcock & Dr. Katie Farina

“The Consumption of Media and the Belief in Intimate Partner Violence Myths”

Intimate partner violence is an ongoing public health issue that is portrayed in the media in accordance with prejudicial societal myths. Various media platforms have the ability to cater to the different needs of individuals, contributing to their level of consumption. As such, it is important to understand the influence media consumption has on belief in intimate partner violence myths in order to combat stigmatization and to increase recognition. Additionally, media violence has introduced an acceptance of violence that is evident in intimate partner violence myths. The current study seeks to evaluate the relationship between the consumption of media and media violence and the belief in myths pertaining to intimate partner violence. It is hypothesized that a higher level of media consumption is positively correlated with belief in intimate partner violence myths. This study uses quantitative research through the use of electronic surveys to collect data from approximately 150 Cabrini University students. Results will be available at the symposium.

Primavera, Angelo

Faculty Sponsor: Dr. Jennifer Bulcock & Dr. Katie Farina

“The Negative Effects Alcohol has on College Students Athletes and Academics”

Excessive drinking is a worldwide issue amongst student athletes. In fact, alcohol consumption has been negatively associated with academic performance and heavy drinking has been proposed as a probable contributor to student attrition from college (El Ansari et al., 2013). Among student athletes, alcohol use is associated with negative general health and athletic performance consequences. Furthermore, it appears college athletes are at risk for heavy alcohol use, which jeopardizes their academic standing and athletic performance (Fearnow-Kenney et al., 2016). The purpose of this study is to examine the negative effects alcohol has on the academic performance of student athletes. Primary quantitative data gathered through the use of surveys distributed to Cabrini University students during the Spring 2023 semester are analyzed. The study examines two hypotheses: 1) student athletes who drink tend to skip classes more frequently than non-athletes and 2) heavy episodic drinking exposes student athletes to physical alcohol-related negative consequences such as low athletic performance. Results will be available at the symposium.

Vazquez, Luis

Faculty Sponsor: Dr. Jennifer Bulcock & Dr. Katie Farina

“Gender and the different perceptions on intimate partner violence”

This study examines the gender differences in perceptions of intimate partner violence. Intimate partner violence or IPV is an act of physical, sexual, and/or psychological violence that occurs between two, current or past intimate partners. The purpose of this study is to determine if males' or females' perceptions of IPV are any different from one another and to see which group finds IPV to be more concerning. It is expected that there will be minimal differences in their perceptions. However, it is hypothesized that females will view IPV as more concerning than males. For this study participants will complete a survey with questions regarding IPV using a 5-point Likert-scale format ranging from strongly agree to strongly disagree. An availability sampling method will be used along with quantitative analyses. Results will be available at the symposium.

Wainwright, Emily

Faculty Sponsor: Dr. Jennifer Bulcock & Dr. Katie Farina

“College Students and Perceptions of Police, Stress, Rape Myths, and Safe Sex Practices”

Public safety departments on college campuses are extremely under researched entities. Though limited, previous research has found that students value local law enforcement at higher rates than campus public safety. Students expect public safety to protect them but not to interfere with their general college experience (Youstin & Kopp, 2021). Cabrini University students were surveyed using an availability sampling method regarding their perceptions of public safety and local police via an online Google forms survey. The survey was distributed to students from their professors using a link or QR code. This study will compare the perceptions of local police to public safety amongst college students. Results will be available at the symposium.

Engagements for the Common Good

Charon, Spencer

Faculty Sponsor: Prof. Cynthia Ross

“Dark Ways of Technology”

Traffickers use social media and other internet tools to increase the effectiveness of their undertakings, by identifying and recruiting human beings on a larger scale than what is possible through traditional offline schemes. These tactics are used by traffickers to influence and exploit vulnerabilities and by tailoring their manipulation tactics, and by grooming individuals to form emotional connections and build trust and confidence. These ground-breaking tools can prevent and respond to human trafficking but they could also simultaneously create more chances for trafficking and other forms of abuse to flourish.

Cobos, Fredi, Jeff Isaac, and Johan Mejia

Faculty Sponsor: Dr. Crystal Anderson

“The Discrimination of Latino Students in Schools”

This project will highlight a brief history of discriminatory educational practices and policies of Latino/Hispanic students. It will detail why Latino students have been stereotyped and discriminated against historically and through current times.

Cruz, Isryanna

Faculty Sponsor: Dr. Crystal Anderson

“Equity and Equality of Equal Education Opportunities of Latino Students”

The purpose of this research is to delve into the question of why Latinx students drop out/ not pursue higher levels of education at statistically greater percentages than their white counterparts. There are several contributing factors, but cultural barriers appear most significant. This will be a collection of studies from personal accounts and statistical research to understand the background behind a large demographic of students that are underrepresented and served in educational affairs. Whether it be language differences, shame, lack of information, or troubling personal situations, there is a large disparity in education among the Latinx population in America. Within Recent years there has been an uptick in the amount of Latinx students from different academic ranges who do not pursue college education or even finish high school due to these varying circumstances. This project will encompass the history and present factors, along with action to take towards this ongoing issue.

Debany, Sam

Faculty Sponsor: Prof. Cynthia Ross

“Signs of Human Trafficking”

My research will include the general signs someone would show if they are being trafficked. What we can do to help them, the signs will be present for all types of human trafficking.

Estevez, Saul and Naomi Garcia

Faculty Sponsor: Dr. Crystal Anderson

“Equity and Equality of Educational Opportunity of Latino Students, “Latino Students Continue to Experience Racial Segregation”

The primary research of the project is to investigate Latino students’ experiences when dealing with racial segregation. The meaning of racial segregation is the separation of people into racial or other ethnic groups throughout their daily lives. The effect of racial segregation on Latino students is the achievement gap created due to unequal social and economic conditions. Within the past several years, there have been many articles that demonstrate that racial segregation is still relevant today. Throughout our research, we will examine a variety of articles to identify why segregation is still relevant today as well as what we can do as educators to better the situation. The research will also analyze the effect on Latino students when experiencing racial segregation within their schools. The results will be available at the symposium.

Ferriola, Jimmy

Faculty Sponsor: Dr. Crystal Anderson

“Latino Students and the Unequal Educational Opportunities”

For my presentation at the Scholarship Symposium, this project will be shedding light on the Government Boarding Schools that were for Native American children. This project will be talking about how the government would forcibly steal and separate Native American children from their parents and their tribes to "kill the Indian in him and save the man." Over several decades, there have been over 150 of these schools around the country. In these schools' "teachers" would force these children to speak English, forbid their cultural practices, cut their hair and use "American names." This project will also be talking about how these schools would cause separation without families when these kids returned, and how inhumane the actions from these schools really were.

Flanagan, Abigail

Faculty Sponsor: Dr. Martha Ritter

“The Importance of Advocacy”

In ECG 300, Building Civil Society, we have learned the importance of a vibrant civil society that fights for the dignity of all people. In Zambia, a civil society organization, Home of Hope, works to assist children who have been displaced or abandoned due to the lack of financial struggles. The research address the questions: How does Home of Hope support the dignity of the children and their families? How can we engage in advocacy to support Home of Hope and the children and families they serve? Why is this advocacy important?

Heipp, Maddie

Faculty Sponsor: Dr. Crystal Anderson

"Equity and Equality of Educational Opportunity of Latino Students"

The Latino community faces immense discrimination and pigeonholing across the nation. More specifically, our nation's schooling system is failing the education experience of Latino students and their abilities to learn and thrive. In the United States, there's often a misconception that students in the Latino community don't value education. However, upon research and studies, it's evident that these students do not receive the same support, resources, and treatment compared to others that are not part of the community. One of the main factors that takes away the potential of Latino students to learn, is the language barrier that is very much present throughout schools in the United States. The school system fails to provide resources for English language learners to grow and develop academically. The purpose of this research is to bring attention to the flaws in the system that lead to false illustrations and stereotypes of students within the Latino community, and how such failures are not allowing these students to succeed. Collected research and resources will be provided at the Cabrini symposium.

Holstein, Ryan

Faculty Sponsor: Dr. Crystal Anderson

"Equity and Equality of Educational Opportunity of Latino Students"

This Signature Assignment is on the Equity and Equality of Educational Opportunities of Latino Students. The purpose of this assignment is to research how marginalized people have been denied equal educational opportunities in the United States over the years. This question is important to answer because we want to examine all sides of this issue. Research will be done on the teachers' perspectives of this issue as well as the students' perspectives of the issue and the results will be compared. The results of this question have not yet been completed and will be available at the Symposium.

Massaquoi, Ejinaiyah

Faculty Sponsor: Prof. Cynthia Ross

"Human trafficking psychological impact"

My poster will discuss human trafficking psychological impact. It will also explain what type of mental health issues that most victims went through and diseases they came across and how we have to acknowledge everyone dont matter the shape size or race.

Ocasio, Gianni and Skye Hunter

Faculty Sponsor: Dr. Crystal Anderson

"Equity and Equality of Educational Opportunity of Latino Students"

This project will highlight research on the Latino/a community and how they can have a better education experience. Our experiences have taught us about the struggles they have faced in the education system and with a little more research, a project will be developed that will positively impact the Latinx community. Topics that would be covered are the unfair stereotypes surrounding Latinos and education and why. The goal for the project is to identify and analyze the facts on why some of the Latinx community seems to struggle more in the school system and to find ways to support the Latinx community when it comes to education.

Olvera, Andrew

Faculty Sponsor: Prof. Cynthia Ross

“How many slaves work for you?”

To educate the community on human trafficking, and how it affects the supply chain which eventually affects the community. It will go over in the US how trafficking affects us, then globally how trafficking affects us and the goods we purchase.

Rantanen, Aaron

Faculty Sponsor: Dr. Crystal Anderson

“Equality and Equity for Latino Students In The American School System.”

This presentation will be identifying the inequality in the nation's school systems and lack of help for Latino students. They face prejudice from teachers, language barriers, and a lack of school funding. This project will better expand knowledge of how we got here and where we should go next.

Rauner, Brady, Mason Lenart, and Zack Riegler

Faculty Sponsor: Dr. Crystal Anderson

“Equity and Equality of Educational Opportunity of Latino Students”

This project will cover the struggle Latino students face in accessing equal educational opportunities in the United States and globally. Despite efforts to reduce disparities in education, Latino students continue to experience unequal outcomes compared to their peers. In the United States, Latino students face multiple barriers to educational attainment, including limited access to quality schools, limited resources, language barriers, and discrimination. These barriers create unequal educational opportunities, resulting in lower graduation rates and limited access to higher education, limiting their opportunities for economic mobility. Globally, the challenges facing Latino students are similar. Latin America is home to significant educational disparities, with many students lacking access to quality education due to poverty, inadequate resources, and limited infrastructure. These challenges are further compounded by discrimination and a lack of cultural competence in educational systems. Addressing these challenges requires a multifaceted approach that includes improving access to quality education, increasing resources, promoting cultural competency, and reducing discrimination. Additionally, addressing global challenges such as poverty, inequality, and lack of infrastructure can also have a significant impact on improving educational outcomes for Latino students. Ultimately, addressing educational disparities for Latino students is critical for promoting equity and creating a more just society. By investing in education and promoting equal opportunities for all students, we can create a better future for Latino students and their communities.

Stokes, Tanay

Faculty Sponsor: Dr. Crystal Anderson

“Equity and Equality of Educational Opportunity of Latino Students”

Non-academic barriers to Latino student success will be investigated, with an emphasis on sociocultural problems that influence Latino student school success and how schools and communities can work to enhance Latino academic achievement. This includes an examination of the lack of culturally competent school personnel working with Latino populations, home and school partnerships that can help Latino students succeed, and other strategies that can be developed to connect Latino parents and communities to the schools where their children are educated.

Toure, Aminata

Faculty Sponsor: Prof. Cynthia Ross

"Statistics of Human Trafficking"

Human trafficking is a worldwide criminal enterprise that affects millions of people. It involves tricking and deceiving men, women, and children into situations of exploitation.

The School of Business, Education and Professional Studies

Computer and Information Sciences Department

Dracup, Noah

Faculty Sponsor: Dr. Shijun Tang

"Tank.IO"

The objective of the research was to explore the portrayal of disabilities in children's literature. The goal of the research was the curation of a list of texts that positively portrayed disabilities to educate children. Teachers teach their students to be kind, accepting, and caring. One way this can be done is by teaching empathy and inclusion. Today's classrooms are more diverse than ever and should be safe, aware, and inclusive spaces where everyone is accepted for who they are. In the elementary classroom, the best way that this could be done is through children's books. The world of Children's literature is huge, but the section of books about disabilities and differences is small and harder to find but; the messages they include are invaluable to the elementary classroom. The research was completed using sources from online databases and a variety of children's literature texts.

Eagle, Jacob and Jalen Hammond

Faculty Sponsor: Dr. Shijun Tang

"Daily Weather App"

Our goal for this project is to make a simple program that will show the daily weather data and also the data for the current day at whatever location you please while also being presented in a challenging and interactive design. Our project will be coded using python. The project's output should be able to take any city or location that was input into the program. There will also be data on the temperatures, precipitation percentages, inches, wind gusts, etc. As a standard weather app has hourly updates, our program will be the same but can be adjusted by an interactive clock. The interactive clock will allow users to click and drag the clock face hands to the specified time and the output will show the weather forecast for the time selected. Another benefit is that our program will have the ability to make the temperature either Fahrenheit or Celsius to cover users who operate with different units. To complete this project, we will call a weather API to gather the data needed. After that, we will build a GUI that will have an interactive clock on it that will display the data.

Kekatos, Matthew

Faculty Sponsor: Dr. Daniel Wu

“Steadfast - Full Stack Web Application”

Steadfast is an all-in-one self-development web application designed to entice users to focus on getting more done by building healthier habits through routines. This project was developed using a MERN (MongoDB, Express, React, and, Node) technology stack, popular among web developers for developing scalable business apps with relative speed. Far too many people can attest to the fact that web surfing and instant-easy entertainment at their fingertips create a habit of laziness and procrastination of assignments or important work. By using Steadfast my goal is to aid the user whoever they may be, by helping them develop a more scheduled routine of mind and body in their day-to-day. The project is still currently in development but my results will include the finished software, the software architecture, the user operating manual, and some feedback from user testing available at the symposium.

Maria, Elmi, Abdoul Ibidakpo, and Israel Jackson

Faculty Sponsor: Dr. Shijun Tang

“Student Planner - Full stack Website”

Our goal is to create a tool that will help aid students everywhere to stay on track toward academic success. Therefore, my team and I, are creating a website called “Student Planner.” Student Planner or S.P. is a website that allows the user to enter an assignment/task and sort the assignments/task in order by the due date. We are students ourselves and we know how important organization is and want to limit falling behind due to a lack of prioritization and organization. The overall concept of the website is to be useful, the more the individual uses this website for the purpose of organizing and prioritizing the more they will be better equipped to tackle their academic activities ahead of time. The website will be developed using HTML, CSS, JavaScript, Node.js, Express, and MongoDB. As we work to complete the website the results of this project will be available at the symposium.

Teacher Education Department

Allison, Jennifer

Faculty Sponsor: Dr. Colleen Lelli

“Disabilities Portrayed in Children's Literature”

My project's purpose is to serve as a simple video game meant to be a fun and entertaining experience for the end user. The game is intended to be played by two players and will revolve around destroying the other players' tank to win the game. This project is important for the purposes of one, furthering my knowledge of code. Two, help build my resume for future careers yet to come. Three, encourage other like minded individuals to try and develop their own game for others to experience. The project will be developed in the coding language Python and will be using a Python package referred to as Pygame to allow for easier development times. In its current form the game is unfinished, finalized results will be available at the Symposium.

Walsh, Brianna

Faculty Sponsor: Mary Budzilowicz

"UDL and Social Justice"

The purpose of the project is to demonstrate equitable classrooms through using Universal Design for Learning. This is important because equitable classrooms provide opportunities for all students. Teachers have a special role of creating and establishing just and equitable classrooms that value students of various background and experiences. Universal Design for Learning identifies the barriers of learning and provides strategies to overcome the barriers. "There are no labels in UDL. There are only fabulous, amazing students with different levels of variability." - Katie Novak

Graphic Design Artwork Exhibition

Trumbore, Kendall, Jeremy Allen, Grace Campagna, Antonio Chiaravalloti, Jaden Covington, Diana Guerrero Galvan, Cherry Kempisty, Leah Jones, Matthew McDonnell, Armani Parker, Lauren Perkins, Misty Spang, Julia Smith, and Steven Woolard.

Faculty Sponsor: David Copestakes

"Same/Difference Poster Initiative"

The students of GRA 425: Studio Design explored the concept of accessible, integrative, and inclusive futures in the form of posters. These explorations help promote positive thinking by enabling students to interact with a variety of aspirations for the world which embrace joy, hope, and Cabrini University's mission of social justice. Students explored their concepts through a blend of illustration and photo manipulation and submitted the designs to the UCDA 2023.

Undergraduate Oral Presentations

Session #1 12:30 - 1:30 pm

1.1 Founder's Hall 207

Moderator: Dr. Gifty Akomea Key

Loren Smith

Faculty Sponsor: Dr. Gifty Akomea Key

"Borderline: The Break Down"

Like other mental illnesses, Borderline personality disorder also known as BPD is an illness that severely impacts a person's emotions, thinking, or behavior. Borderline personality disorder is a disorder that affects an individual's ability to be able to regulate their emotions. As a result they may experience mood swings, shifting self image, unstable relationships, fear of abandonment, self harm, feeling out of touch with reality, random anger outburst, and impulsivity. According to the Alcohol, Drug Addiction, and Mental Health Services Board, approximately 1.6% of the adult U.S population has BPD, but it could be as high as 5.9% and nearly 75% of individuals diagnosed are women. This means the diagnosis is vastly spreading and continuing to affect factions of people across the country. Although BPD is on the rise there are ways to conduct a positive change among those who are affected. In "Borderline: The Break Down", I will dive deeper into the affects, causes, symptoms, treatments; as well as giving a closer view at what borderline personality disorder looks like and consists of.

Bahira Salami

Faculty Sponsor: Dr. Gifty Akomea Key

"A Closer Look"

This is an educational documentary about body dysmorphia, a mental health condition in which you can't stop thinking about one or more perceived defects or flaws in your appearance. This disorder can lead to low self-esteem, social isolation, major depression or other mood disorders, suicidal thoughts or behavior, obsessive-compulsive disorder, and eating disorders. Some common signs and symptoms that I mention in this documentary are attempting to hide perceived flaws with styling, makeup, or clothes, constantly comparing your appearance with others, frequently seeking reassurance about your appearance from others, having perfectionist tendencies, seeking cosmetic procedures with little satisfaction, avoiding social situations. I aim to elaborate on what people with body dysmorphia have to go through and how it can affect a person's life. My mission is to educate and make body dysmorphia known to the audience.

Victoria Camacho

Faculty Sponsor: Dr. Gifty Akomea Key

“Substance Abuse Among College Students”

A major issue in America that is not talked about enough is substance abuse in college students. It's important because college students who are suffering from substance abuse don't know they are suffering until it becomes a bigger problem leading to overdose, death, domestic violence, and decrease in cognitive performance. “Studies show that 37% of college students abuse drugs and alcohol.”(College Drug Abuse) Collectively the goal of colleges nationwide should be to spread awareness about substance abuse in college students, and to educate others on different ways to find healthy coping mechanisms. The Collegiate Recovery Programs is a great place to start, offering resources and counseling services to help struggling students. There are a total of 100 Collegiate Recovery Programs in the United States. (Hazelden Betty Ford) These programs talk about what addiction does to the body and the benefit of living a sober lifestyle. Throughout my research I was able to interview Dr. Patrick J. Brown, who has seen what active addiction looks like firsthand. He has shared some very insightful thoughts on the treatment process, and how to help those in need. A student has also shared their experience with collegiate substance abuse. Students who utilize Collegiate Recovery programs have a 90% graduation rate compared to those who do not. (Hazelden Betty Ford) How can you help a student in need? What are ways to cope from addiction, and how do we, as a campus community continue to strive for a change?

1.2 Founder's Hall 210

Moderator: Dr. Sheryl Fuller-Espie

Theodhora Qyshkollari

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“Development of a Flow Cytometry Method to Investigate Poly I:C Stimulation in Coelomocytes of Eisenia hortensis”

The goal of this study was to investigate the cellular effects of polyinosinic – polycytidylic acid (poly (I:C)) in the earthworm *Eisenia hortensis*. Poly (I:C) is a double-stranded RNA mimetic that also acts as a Toll-like receptor 3 (TLR3) agonist, known to be involved in stimulating antiviral interferon and inflammatory responses of innate immunity. This stimulant has also been used to study innate immunity in other invertebrates, including the Pacific oyster *Crassostrea gigas*, and the Chinese mitten crab *Eriocheir sinensis*. Coelomocytes were extracted from *E. hortensis*, cultured with poly (I:C), and treated with dihydroethidium (DHE) to determine if inflammatory responses are induced in vitro by measuring reactive oxygen species (ROS) production using flow cytometry. DHE is a fluorescent marker used for the detection of hydrogen peroxide. Using gating techniques, analyses were confined to hyaline, and granular amoebocyte subpopulations to exclude the autofluorescent chloragocytes. Fluorescence was measured using the FL-1 detector of the flow cytometer. Data was analyzed using WinList software and Microsoft Excel. Statistically significant results, as determined by the student t-test, were obtained in two independent assays for two of the three coelomocyte populations tested in each assay. These preliminary results suggest that poly (I:C) is capable of increasing inflammatory immune responses in coelomocytes of *E. hortensis*, as shown by higher levels of ROS production. In future studies, it would be interesting to analyze the effects of poly (I:C) on phagocytosis, and also examine the signaling pathways involved in the innate immune response of this invertebrate species to poly (I:C).

Barbara Martins

Faculty Sponsor: Dr. Alexis Moore Crisp

“The Kinematics of Gopher’s Forelimbs: A Comparison of Retraction and Protraction.”

Improving understanding of forelimb kinematics across mammal species can enlighten and drive hypotheses concerning the typical posture and flexibility in early eutherian forelimbs. This study characterizes the kinematics of forelimb digging movements in pocket gophers (*Thomomys bottae*). Using calibrated x-ray videos of digging pocket gophers and an open-source program called DLTdv8, a computer was trained to track the three-dimensional protraction and retraction of three points: paw, elbow and shoulder. The deep learning option from DLTdv8 tracked multiple points on about 200 frames for each digging trial. Data show that the elbows extend before impact and flex after impact. Focusing on movement in the y-axis, each digging cycle was divided into periods of forelimb protraction and retraction to calculate velocity for each. An ANOVA was used to compare velocity of each point of the limb during protraction and retraction. The results showed no significant difference ($p=0.931$) between and protraction and retraction velocity. However, differences between the velocity of each tracked point on the forelimb (shoulder, elbow, or paw) were statistically significant ($p<0.001$) with the shoulder moving at significantly slower velocity than the elbow or paw ($p<0.001$). This result is expected because the shoulder is the most proximal joint of the forelimb, but the paw and elbow have great dislocation because of their more distal position. Understanding the kinematics of the humerus, elbow and paw of gophers can enlighten and drive hypotheses concerning the typical posture and flexibility in early eutherian forelimbs. The ulna is one of the forearms bones that connects the elbow and the paw, its conjunction makes up the antebrachium and it is confined to flexion extension in a parasagittal plane. To test the hypothesis that forelimb kinematics change predictably with distance and/or velocity, a computer was trained using DLTdv8 to track the protraction and retraction of three points: paw, elbow and humerus. Videos taken from gophers were calibrated using XmaLAB. The deep learning option from DLTdv8 tracked multiple points on different frames for each gopher trial. In average, each video had about 200 frames. Once the data was collected, points that were located on y-axis was analyzed for each retraction and protraction period. To understand better than relationship between distance and velocity, MANOVA was used. The results showed that retraction and protraction are not significant when comparing velocity and distance of all three points. However, we determined that such changes are a result of alterations in velocity and/or simply the duration available for movement for each point. Which proves that as shoulder protracts the humerus is depressed below the horizontal, therefore not changing as much when analyzing but the paw and elbow have great dislocation because of the ulna conjunction. Data shows that the elbows extend before impact and flex after impact.

Avery Byrnes

Faculty Sponsor: Dr. Sheryl Fuller-Espie

“Development of a new pedagogical approach to investigate endospore formation in Bacillus subtilis using flow cytometry”

Some bacteria adapt to harsh environmental conditions, such as nutrient deprivation, by forming dormant endospores for survival. Endospores provide protection against heat, chemicals, desiccation, and UV or gamma radiation, and are produced only by certain Gram-positive bacteria, including the genera *Bacillus* and *Clostridium*. This study used microscopic techniques and flow cytometry to investigate endospore formation in the bacterium *Bacillus subtilis*. The Schaeffer - Fulton method was used to stain the endospores with malachite green for microscopic examination, whereas the fluorescent dye SYTO-13 was used for flow cytometric analysis. After developing the

pedagogical materials, background on endospore formation and flow cytometry was taught to Cabrini University's General Microbiology class. Students completed a pretest, and then learned the background information before performing the lab procedure. The students took the same test at the conclusion of the experiment to evaluate improvement. Results from pretest and posttest confirmed that the learning objectives of this lab exercise were achieved. Students used three cultures grown for 1, 8, or 13 days on tryptic soy agar, and determined the proportion of endospores versus vegetative cells using flow cytometry. Dot plots and histograms were created using forward scatter, side scatter, and FL-1 fluorescence parameters. Day 13 had significantly higher numbers of endospores compared to days 1 and 8 ($p < 0.05$ using the student's t-test), confirming that as time of incubation increased, so did the proportion of endospores. Future studies will focus on different environmental stressors on vegetative cells of *B. subtilis*, and consequential effects on endospore formation.

1.3 Founder's Hall 211

Moderator: Prof. Ann D. Servey

Kyleigh Brunotte, Jim Dilks, Zack Donlen, Jordyn Guldin, Mere Collins, and Arlinda Mitchell-Davis
Faculty Sponsor: Prof. Ann D. Servey

"ECG200.A People, Planet, and Profit - Connecting the World Peace by Piece"

The Vision of Hope (VoH) organization cares for exploited and trafficked girls and young women in Lusaka, Zambia, providing safe living and learning spaces. Cabrini University partnered with VoH to create a social business, Peace by Piece. The girls at VoH craft products with unique designs, serving as a form of therapy, skill building, and income generation. This semester, our ECG team expanded Peace by Piece by improving the online and offline presence, generating profits to further VoH's mission to empower young women in Zambia.

Michael Marburger, Patrick Toal, Trent Moltz, and Michael Graham

Faculty Sponsor: Prof. Ann D. Servey

"ECG200.A People, Planet, and Profit "The Power of Rabbits: A Pathway to Food Security and Economic Empowerment for Zambian Youth"

The St. Lawrence Home of Hope (HoH) organization cares for neglected, traumatized, and exploited boys and young men in Lusaka, Zambia. Our ECG200 team is partnering with HoH to create a social business with the boys and young men to raise rabbits. Caring for the rabbits will provide therapeutic benefits and the development of transferrable skills while providing essential nutritional benefits and food security. Our team raised funds for the start-up costs of the social business. Initially, this social business will provide a sustainable food source and ultimately become an income-producing profit venture for Home of Hope.

2.1 Founder's Hall 207

Moderator: Dr. Lyn Berenato

Rebekah Cunningham

Faculty Sponsor: Dr. Gifty Akomea Key

"Fentanyl's Decision on Your Life or Death"

The topic of this documentary is the dangers of fentanyl and overdose. Fentanyl is an extremely dangerous synthetic opioid that kills thousands of people each year. Within this documentary there are interviews of people that have had their lives impacted by fentanyl overdose directly or through family. Fentanyl effects everyone in some way whether you use drugs or your family member or friend use drugs. There are ways of helping people when they are overdosing such as using Naloxone. Naloxone is an opioid antigen that counter reacts the effects of opioids. There are also testing strips that one can use on a drug to see if it is laced with fentanyl. The goal of this documentary is to educate people on the topic of fentanyl and hopefully decrease the number of drug users. Even if the documentary doesn't encourage people to stop use of drugs completely, hopefully it encourages people to be safer while using.

Johnson Jemahwuo

Faculty Sponsor: Dr. Gifty Akomea Key

"The Torturing Effects of Depression"

Depression is not just a mere sadness or mood change as it may sound. Mood change or sadness of depression goes beyond the duration of mere sadness or swing of mood. It destroys the strength and capability of a person who suffers from it, impacting his function at work and ability to concentrate. Hopelessness and worthlessness are some of the dominant's symptoms of depression. Depression is the cause of the highest global disability. About 298 million people suffer from depression which makes it a global concern. Other studies show that people with depression are most likely to commit suicide. In this study, the participant(s) narrate the effects of depression on their lives through in-person interviews with audio or video recording. This study shows that more people who experience depression are more likely to wish to take their lives due to the pain and torture of depression. As this study is limited to a single participant narrative, future application of this research may include more participants for more data and accuracy.

Cianni Smith

Faulty Sponsor: Dr. Gifty Akomea Key

"The COVID-19 Impact on Health Administration and Clinical Workers"

My study will be conducted through a series of personal interviews, which will be audio and video recorded. Interviewing with the camera is a condition of participation. The objective of this project is to bring awareness to the COVID-19 Impact on Health Administration and Clinic workers. My interviewees' are family and friends, who have the experience of being educators and healthcare professionals. The three interviews will capture their story of how the Coronavirus has impacted society and increased the need for psychological services of all communities. My three interviews will be held in the private locations of their home; approximately for 30 minutes. With the interviewee's perspectives, I plan to create a storyline of awareness for the mental health crisis that will be informative to viewers. The impactful message I would like my audience to have after

viewing this documentary is that mental health is essential and the stereotypes behind seeking professional help are demolished, when a world full of people are struggling with the same issue. The study data will be used as an academic assignment and symposium presentation. The data will be destroyed following completion of the assignment at the end of May 2023. All data will be kept confidential, which means steps are taken to protect the participants identity, personal, and private information from being revealed to anyone except the researcher and faculty mentor. Research data will not be anonymous, which means that the data can be traced to individual participants.

2.2 Founder's Hall 210

Moderator: Dr. Sheryl Fuller-Espie

Bryan Koshy

Faculty Sponsor: Dr. Vinayak Mathur

"Molecular Characterization of a Class 1 integron gene in three Pseudomonas bacteria and investigating its role in antibiotic resistance"

Pseudomonas bacteria species are aerobic, non-spore forming gram negative bacteria that are characterized as human pathogens and shows a high level of antibiotic resistance. Research has shown that there are several ways that bacteria acquire antibiotic resistance including transposons, bacteriophages, plasmids and integrons. For our study, we focused on characterizing a Class 1 integron gene (intl1) in three closely related species of Pseudomonas bacteria, namely P. aeruginosa, P. stutzeri and P. putida. All intl1 gene sequences found in the three species were downloaded from the NCBI database. We performed a phylogenetic analysis to analyze the similarity between the gene sequences between the three species. Based on the relatedness from the clades on the tree, we grouped the gene sequences into four different categories and conducted a synteny analysis using the Progressive Mauve software. Based on a literature search, these class 1 integrons in Pseudomonas are associated with high levels of antibiotic resistance in these bacterial species and are also a proxy for environmental health. This study provides insights into the spread of intl1 gene within bacteria and its implications on human health.

Nicholas Holmes and Patrick Muller

Faculty Sponsor: Dr. Vinayak Mathur

"Investigating the role of the major capsid protein as a biomarker for Horizontal gene transfer between bacteria and bacteriophages"

Horizontal gene transfer (HGT) plays a beneficial role in the evolution and survival of bacteriophages and bacteria. The extent of HGT between Streptococcus bacteria and associated bacteriophages, focusing on viral major capsid proteins, was studied utilizing a bioinformatics approach. Evidence of HGT was identified via the community science analysis pipeline and the BLAST database. Evolutionary relationships were assessed using MEGA software to construct phylogenetic trees. Overall relationships were then represented as networks via the Gephi application. Literature has shown that the major capsid protein in bacteria works analogously to bacterial microcompartments, protecting genetic materials and organelles. These observations, as well as genomic locations of genes coding for major capsid proteins, DNA polymerases, DNA topoisomerases, and other associated molecules, could lead to their use as biomarkers of potential HGT cases. The results provide evidence of extensive HGT between bacteria and bacteriophages, which helps in understanding their evolution and potential therapeutic uses.

Jamie Falgie

Faculty Sponsor: Dr. Caroline Nielsen

“Sustainability Grant Writing”

Since the industrial revolution, the mean surface atmospheric temperature has continuously risen, mainly due to the excessive amount of greenhouse gasses, especially carbon dioxide (CO₂), that have been released into the atmosphere as a result of burning fossil fuels. These gasses are harmful to the environment because they trap heat, consequently increasing atmospheric temperatures. In the spring of 2022, a sustainability report was produced regarding ways in which our campus could help mitigate the effects of climate change and lower its carbon footprint. During research for this report, it was found that for each MegaWatt hour of electricity produced by solar energy, 672.8 lbs of carbon is saved. This is due to the fact that solar power is able to convert energy directly from the sun without releasing pollutants. As a result, one of the recommendations of this report was to invest in solar energy. It was decided that currently, the best way to invest in solar energy equipment was through seeking grants. Letters of Intent were sent out to seven different foundations seeking funds for different types of solar equipment. In addition, a grant application was submitted to the Sun Club Grant from Green Mountain Energy, a 100% renewable energy company. In this grant three solar powered outdoor work stations along with 30 outdoor solar lights from the company Archasol were requested. With a core value of respect for our environment, it is important that Cabrini decreases their carbon footprint.

2.3 Founder’s Hall 211 Moderator: Dr. Natacha Bolufer- Laurentie

Capriana Murphy

Faculty Sponsor: Dr. Natacha Bolufer- Laurentie

“El voto femenino y los derechos de las mujeres después de la Guerra Civil Española”

From the time between the Second Spanish Republic to the time after the Spanish Civil War, women in Spain experienced two polarizing extremes of liberation and oppression. In the Second Spanish Republic, due to changes in the laws that allowed women to vote, women began to be seen as equal to men. However, their liberation quickly diminished after the civil war as they were forced to conform to the new oppressive norms of society. During this time, the only future women were offered was to become a housewife and raise children. Additionally, unjust laws created after the civil war restricted women's ability to participate in public life.

Gabriela Chauca

Faculty Sponsor: Dr. Natacha Bolufer-Laurentie

“Guatemala experience”

I will share my experience in Guatemala over spring break with my EGC 300 class. I will comment on the activities we did, what I have learned from this immersion experience, and the struggles of translating while I was there. Presentation will be in Spanish.

Alayna Lloyd, Niamah Washington, and Tiffani Bundy

Faculty Sponsor: Dr. Emily Slonecker

“Relationship between Extracurricular Involvement and Sense of Belonging at Different Class Levels.”

Countless clubs, organizations, and teams on college campuses help students identify with and support their community with pride. However, it is important to assess how this involvement predicts a sense of belonging on campus and whether this effect varies by class level (i.e., freshman, sophomore, junior, senior). Previous studies have identified associations between an undergraduate's sense of belonging within a classroom and multiple contributing factors, such as academic motivation, faculty perceptions, and overall campus below (Freeman et al., 2007). However, few studies have identified the role class level plays in moderating these effects. This study was designed to examine how involvement in extracurricular activities during the school year predicts belongingness of students based on years spent at the university (i.e., class level). Identifying how extracurricular involvement influences students' sense of belonging at each class level could help universities implement effective strategies to ensure they are providing the necessary tools for undergraduates to succeed socially and academically. With a heightened sense of belonging, students seem to perform better academically and gain more connections. Full-time, undergraduate students between the ages of 18-24 at Cabrini University completed an online survey assessing extracurricular activity involvement, sense of belonging, and years spent at the university. Data collection is ongoing through the end of March 2023. At the symposium, we will present our results exploring the relationship between sense of belonging, extracurricular activities, and class level.

Session #3 3:00 - 4:00 pm

3.1 Founder's Hall 207

Moderator: Dr. Gifty Akomea Key

Andrew Lunardi

Faculty Sponsor: Dr. Gifty Akomea Key

“Staying Alive: an exploration of service related suicide”

This documentary is an investigative look into why current or past military service elevates suicide risk among individuals so drastically, what is being done by the department of defense to address this and the effectiveness of current solutions. Through research and interviews from both the perspective of a mental health professional in the military and a veteran with insight into the topics discussed, we begin by examining the statistics surrounding suicide committed by veterans and active-duty servicemen and their possible connection to the global war on terror which has been ongoing since the beginning of the new millennium. We examine PTSD as an explanation for the majority of these cases and speak about how that plays into the public perception of the issue. Additionally, attention is given to the discrepancies in the narrative that PTSD is solely responsible for military service leading to such high suicide rates and what other factors could possibly be at play. Lastly, we review the response from the behavioral health sector within the military and the department of veteran's affairs to discuss whether the department of defense is delivering an adequate response, where it may be lacking and how it could do better in the future. Overall, this project seeks to deliver a comprehensive overview of this rather nuanced issue that effects so many in the military and veteran community and hopefully spark new conversations and allow for novel perspectives on the how and why of an often oversimplified and underrepresented issue

Alyssa Kolasa

Faculty Sponsor: Dr. Gifty Akomea Key

“Trying Not to Forget”

Trying Not to Forget is a documentary that encapsulates the struggles of daily life with dementia. Dementia accounts for 55 million diagnoses globally, and ranks in at the seventh leading cause of death worldwide (World Health Organization, 2022). Defined as a severe neurodegenerative disease, dementia regresses one's cognitive abilities over a period of time. The study focuses on Kathleen Sullivan, a woman living with dementia. Through interviewing neurology experts, a closer look of how dementia biologically impacts the brain offers insight on what it is like to experience life with dementia. Interviews with those who offer daily care to Sullivan were also conducted to show how a disease like dementia can completely alter one's personality while experiencing some major symptoms such as memory loss. These series of interviews illustrate to viewers firsthand the lack of memory retention, both short and long term. Although there is currently no cure for dementia, early detection and diagnosis are key in slowing the progression of dementia.

Mayebay Kamara

Faculty Sponsor: Dr. Gifty Akomea Key

“How I See Me”

How I See Me is a documentary investigating body dysmorphic disorder (BDD), a mental health condition that affects about 6.6 million Americans (Veale et al., 2016). This condition causes individuals to obsess over parts of their body they view as flawed (Rossell, 2023). Sufferers of BDD frequently compare their appearance with other people, avoid social interactions, and obsessively examine their appearance (Rossell, 2023). The film showcases personal stories and experiences from a range of young adults (18-22) dealing with BDD and issues relating to BDD. The documentary also showcases the constant feeling of isolation, shame, and anxiety BDD victims go through daily, as well as, raise awareness towards the issue.

3.2 Founder's Hall 210

Moderator: Dr. Sheryl Fuller-Espie

Leslie Hernandez

Faculty Sponsor: Dr. Mathur Vinayak

“Puentes de Salud”

Over the summer, I interned at local clinic located in the city of Philadelphia, Puentes de Salud, which is operated mostly by University of Pennsylvania Hospital (Upenn) and Thomas Jefferson University Hospital medical staff volunteers. Its primary target are people who do not qualify for health insurance for a variety of reasons. The clinic offers general doctor visits, gynecology, dental, and psychological services in the morning at a very low cost. During the evenings, different medical specialist come in such as pediatrics, dermatologist, neurologist, cardiologists, optometrist, etc. The kinds of specialist that come in vary each week. Throughout this internship, I was able to shadow, assist, and observe the different kinds of medical specialist who had unique medical cases to deal with at times. Aside from shadowing these doctors at this local clinic, I was able to shadow some of the same doctors at their local job which included UPenn Hospital and Children's Hospital of Philadelphia (CHOP). Lastly, through my phlebotomy certification I was able to administer different shots and draw out blood from patients. Alongside these tasks, it included specimen handling and charting.

Kathie Flores

Faculty Sponsor: Dr. Vinayak Mathur

“Accuracy of Intraoral Scanners compared to Traditional Dental Impressions”

Intraoral scanners have now been popularized and demonstrate different advantages when compared to traditional dental impressions. However, a lot of practices still use dental impressions which require highly accurate duplication of oral conditions. The objective of this paper is to look further into evaluating the accuracy of scanners, including the one used in the practice where the internship took place. The scanning accuracy include two aspects: accuracy which reflects systematic errors and precision which reflects random errors. Average accuracy of intraoral scanner is currently about 20 μ m, however this accuracy was obtained when scanning small objects and it could change when scanning full dentition. Three different intraoral scanners, TRIOS, iTero, and CEREC Omnicam are going to be evaluated and compared to traditional dental impressions. The average of intraoral scanner users is going to be evaluated and different points of view are going to be taken into consideration like the patients' and dentists'.

Brian Fuller

Faculty Sponsor: Dr. Vinayak Mathur

“Morphology and Phylogenetic Systematics on Late Cretaceous Lungfish Toothplates from Madagascar”

Extant lungfish (Dipnoi), Lepidoserendids, Protoperids and Neoceratodids are endemic to South America, Africa and Australia respectively. These landmasses combined and formed a prior supercontinent known as Gondwana. Extinct dipnoan organisms were much more cosmopolitan caused by constantly changing land masses. Volcanic and marine events changed the topography of Gondwana, which in turn caused bodies of water to fluctuate between marine, brackish and freshwater. Among the changes, was the isolation of Madagascar from Africa during the Cretaceous. In 1993 and 1998, the Mahajanga Basin Project led by researchers in the Department of Anatomy at Stony Brook University, recovered fossil specimens to understand Cretaceous faunal turnover. Specimens were retrieved from the Ankazomihaboka beds of the Mahajanga Basin, which is located on the northwest Madagascan coast. The Ankazomihaboka beds represent the Coniacian to Santonian age (~90 mya – ~84 mya) of the Upper Cretaceous epoch (~100 mya – ~66 mya). Several hundred specimens were discovered, consisting primarily of toothplates proposed to be of dipnoan origin. For identification, the tooth plates were analyzed morphologically and systematically. Toothplate characters used included toothplate shape, histological identifiers or lack thereof, remnants of anatomical structures, and when possible, associated jaw bone morphology. All tooth plates recovered had 4 or 5 ridges, an elongate and posteriorly reflecting R1 and distinct symphyseal process. In addition, there was evidence of an ascending pterygopalatine process or Meckelian groove as remnant structures.

3.3 Founder's Hall 211

Moderator: Dr. Shijun Tang

Capriana Murphy and Liam Dwinnell

Faculty Sponsor: Dr. Shijun Tang

"SPAN AI"

Often, Spanish learners, especially students, rely on translators to receive quick answers. However, this often hinders learners from developing their language skills and creates a superficial understanding of the language. SPAN AI is an English to Spanish translator that will not only be designed to facilitate communication and understanding between individuals, but also to teach Spanish learners about proper verb conjugation and verb tense usage in Spanish. The translator will achieve this through a detailed breakdown of each word in the sentence and an explanation lesson of the specific tense that the sentence was written in. The final product will be available at the Symposium.

Ryan Wellockand and Aiden Sheeran

Faculty Sponsor: Dr. Shijun Tang

"Creation of Custom Library Management System"

In this project, we will present a personal book collection manager, a Python application that allows users to store and organize information about their books. The application uses SQLite to create a single-file database that stores metadata such as title, author, ISBN, rating, tags, description, and cover image for each book. The application also provides a graphical user interface (GUI) that enables users to add, edit, delete, and search books in their collection. Additionally, the application integrates the Goodreads API to retrieve missing metadata based on the book's ISBN and allows users to store and read eBook files within the program. The motivation for this project is to help users keep track of their book collections, organize their bookshelves, and discover new books to read or reread. We evaluate our application by sharing it with our friends at school and collecting feedback on its usability, functionality, and design. We also discuss the potential of making our application open source and creating a competitor to Calibre, a popular e-library management suite.