Student Abstracts

RESEARCH & CREATIVITY SYMPOSIUM

SIMPSON COLLEGE

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Table of Contents

Oral Presentations **2**
- Division of Business Administration & Multimedia Communication . . . 2
- Division of Humanities . . . 6
- Division of Natural Science . . . 7
- Division of Social Science . . . 8
- Division of Visual and Performing Arts . . . 9

Poster Presentations **11**
- Division of Business Administration & Multimedia Communication . . . 11
- Division of Education and Sport & Health Sciences . . . 11
- Division of Humanities . . . 13
- Division of Natural Science . . . 14
- Division of Social Science . . . 21
- Division of Visual and Performing Arts . . . 21

Class Panels **26**
- Division of Business Administration & Multimedia Communication . . . 26
- Division of Education and Sport & Health Sciences . . . 27
- Division of Visual and Performing Arts . . . 28
- Career Services . . . 28

Index of Participating Students **31**

Oral Presentations

Division of Business Administration & Multimedia Communication

1. **Bob Dylan: Uncovering Blood On the Tracks**

   Faculty Advisor: Brian Steffen

   Student: Jason Bell

   Abstract:

   Bob Dylan is a significant figure in American music history, he's one of the founding creators in American music and considered one of the first real rock stars. To uncover the mysteries of one of his most famous albums "Blood On The Tracks" we must research deep into Dylan's personality and thought process at the time of creating the masterpiece that went on to touch the hearts of Americans everywhere. Dylan went through significant life changes during the creation of this album and due to these changes leading and impacting his life, Dylan was a different man pre and post creation of Blood On The Tracks. Dylan's family life and motor crashes significantly impacted his mentality at the time of creating the album which had a significant impact on his musical style at the time. Dylan was one of the world's greatest writers and most brilliant minds so I only find it just that someone takes a deep dive into his most impactful album that shaped the entirety of folk rock.

2. **Why are There Low Percentages of Faculty of Color in Higher Education?**

   Faculty Advisor: Brian Steffen

   Student: Maddy Lynn Stinson

   Abstract:

   Why are there such low percentages of faculty of color in higher education? This is a question that I have pondered for a while, so I took it upon myself to conduct research. While the likely answer to the question is disappointing and disheartening, it is not surprising. Based on the many academic articles and journals that relayed the experiences of many faculty of color, I found a pattern that was similar across the board. Many faculty of color face microaggressions, isolation, imposter syndrome, and outright discrimination in the field of higher education. These faculty members are on the receiving end of relentless behaviors and speech perpetuated by fellow faculty and students. It is these issues that are causing faculty of color to leave higher education or feel miserable staying. The institutions that hire these members usually do so for the sake of diversity and never follow up to ensure these members are flourishing in their departments. It is because institutions ignore their faculty of color that it feels almost pointless to report discriminatory behavior that these members face because they almost know for certain that nothing will be done, and they will only be seen as problematic. By using data, research, and many personal accounts and experiences of faculty of color from different institutions, I believe I found an answer to this question.

3. **Digital Authoritarianism: How Authoritarian Regimes Use Social Media as a Weapon**

   Faculty Advisor: Lisa Carponelli

Student: Colbee Cunningham

Abstract:

This research paper analyzes the broad-ranging, multi-faceted ways that authoritarian states exploit the power of social media and use it as a political weapon, both domestically and abroad. To this end, the paper provides a detailed account of the global emergence of social media and examines the rise of authoritarian actors on different social media platforms in the aftermath of the Arab Spring. The paper goes on to explore the many tactics by which various authoritarian regimes, including China, Russia, and Iran, weaponize social media in an effort to preserve regime legitimacy and political hegemony. Five main social media weaponization strategies are analyzed: nationwide blackouts, social media censorship, automated pro-regime bots, meddling in foreign democratic processes, and fundraising. The paper repeatedly emphasizes the undemocratic nature of weaponizing social media and underscores the importance of Western intervention in combatting this growing digital problem.

4. **Higher Education: A Lackluster Commitment to Social Justice**

   Faculty Advisor: Brain Steffen

   Student: Jake Sweeten

Abstract:

How has higher education Responded to social activism and student movements? For my research, I focused on the civil rights movement of the 1960s as well as the recent Black Lives Matter protests that occurred in the wake of George Floyd's murder in 2020. I believe that it is important to find out whether the institutions that we attend are willing to support student protests and if they are as committed to social justice as many institutions claim they are. I conducted my research using journal articles and news articles that reported on the respective events. My findings indicate that in the 1960s colleges and universities were hostile toward students who would protest. This has changed somewhat in the 21st century instead of being hostile many schools are apathetic. Many claim to push for societal change, though when you look at the school's actions it can be seen that they have done little in this regard. While there are exceptions it seems that Higher Education is not the champion of social justice and civil rights that it sometimes claims to be.

5. **Past, Present, and Future of the Pell Grant**

   Faculty Advisor: Brian Steffen

   Student: Joseph Butcher

Abstract:

Work/research in progress: I plan to present the findings of my research about the past, present, and future of the Pell Grant. I take a look into how it started and has changed to become what it is now. I look into who it affects and how it affects them, and finally I predict what I think the future of the Pell Grant will be like based on all the evidence I've gathered.

6. **Race and College Admissions**

   Faculty Advisor: Brian Steffen

Student: Skyler Blessman

Abstract:

This paper will be investigating the effects of race on college admissions. It is important to consider the effect a person's race might have on their admission to secondary education because the preference of certain races can have both positive and negative implications. Affirmative action legislation promotes the acceptance of women and minorities above anyone outside of this domain. Ultimately, the decisions made in the admission process affect the social and academic environments of the campus. I will first present the current situation with college acceptance and then delve into the implications. I have read scholarly articles and peer-reviewed journals in order to more broadly understand how race affects college admissions. There are two current Supreme Court cases I will also touch on. I have found race does have an effect on college acceptance and to a certain extent this is a good thing. Test scores alone should not determine one's access to higher education because realistically, everyone does not have access to the same resources. I have also found that increased diversity on campus can foster social growth and help bridge racial gaps potentially found elsewhere. I looked at private, public, and elite universities and have determined private/elite universities are getting the most attention because of their strict admission policies. It is important to develop admissions programs in order to make them equitable, not equal.

7. **Racism in Golf: It still exists**

Faculty Advisor: Brian Steffen

Student: Lane Sundberg

Abstract:

Golf is a sport that's been around for centuries and has become a symbol of wealth, success, and privilege. Golf is also one of the most racially divided sports. Racism in golf is evident in many aspects of the sport, including the lack of diversity among professional golfers, the underrepresentation of people of color in golf courses, and discriminatory practices within the industry.

One of the most glaring signs of racism in golf is lack of diversity among professional golfers. Over the years, the sport has been dominated by white male golfers, with few people of color making it to the higher levels of the game. This lack of diversity can be attributed to various factors such as limited access to resources, historical social prejudice, and discrimination in the selection process.

Another form of racism in golf is the underrepresentation of people of color in the golfing community. Golf courses cater to a predominantly white clientele, with very few facilities catering to people of color. Moreover, discriminatory practices such as imposing unfair rules, restricting membership based on race, and implementing biased dress codes, further perpetuating the racial divide.

Furthermore, the media plays an essential role in shaping public perception towards golf, and the way it represents people of color. Media coverage of golf events often reinforces harmful stereotypes about people of color, portraying them as inferior or incapable of succeeding in the sport. Such negative representations contribute to a culture of exclusion and further entrench the racial divide in golf.

In conclusion, racism in golf is a complex issue that requires collective efforts to address. The sport must embrace diversity and inclusivity, create opportunities for people of color to participate at all levels, and eradicate discriminatory practices within the industry. Only then can golf truly become a sport for everyone.

8. **Ninjago: Putting a New Spin for LEGO's Innovation in the 21st Century**

   Faculty Advisor: Dr. Scott Seyrek

   Student: Gabriel Madson

   Abstract:

   LEGO has become an important part of childhood for many generations with it being named the Toy of the Century in the early 2000's and continuing to grow into one of the strongest toy companies in the world. This world toy superpower seems to just breed success with its many themes becoming profitable cash inflows, but this almost 100 year old company almost didn't survive the turn of the century. LEGO had worked on developing their plans to lead the company to a better place, but these approaches end up causing more harm, and they had to respond immediately if they wanted to keep the company afloat. With David C. Robertson's book titled "Brick by Brick: How LEGO Rewrote the Rules of Innovation and Conquered the Global Toy Industry", I will analyze how LEGO changed their thought process to better manage their products and services with having too many "eggs in one basket" and how Ninjago as a "Big Bang" for the company resulted in a new vision for LEGO competing in this rapidly changing, and digitizing, market. It is thanks to these new spins of classic innovation strategies that helped keep this incredible Danish company from going under, and turning failure into success!

9. **The Gender Gap in Higher Education**

   Faculty Advisor: Brian Steffen

   Student: Kate Huisinga

   Abstract:

   For centuries, the number of men who attended colleges and universities was significantly higher than the number of women. It was not until the fight for women's rights in the mid-to-late twentieth century that the number of women in higher education rose to match that of men. However, in the 1970s, the number of women surpassed the number of men, and this gap only continued to grow, and has not reversed since. This trend has been observed not only in the United States, but in most other OECD (Organization for Economic Co-operation and Development) countries as well. This causes one to wonder what happened to cause this shift in higher education enrollment. Research on this topic has provided a variety of explanations, ranging from the impact of familial factors and societal expectations to cognitive and noncognitive skills to behavioral factors. I will be exploring each of these explanations, and examining how they could each be contributing to the gender gap in higher education.

10. **DEI in Catholic Higher Education**

    Faculty Advisor: Brian Steffen

Student: Claire Schmitz

Abstract:

This research paper analyzes how Catholic higher education institutions go about DEI principles. Many factors come into play when involving Catholic institutions with DEI principles. Different Catholic institutions go about DEI in different ways, affecting everyone differently. How various institutions take on DEI issues shows and tells a lot about that particular institution specifically at Notre Dame, Loyola Marymount University, and Villanova University. Looking into institutions' websites about DEI and stories involving Catholic higher education helps understand how these institutions have taken on DEI issues and principles. DEI issues have been rising, so it is essential to know its impact and effect on Catholic higher institutions and the institution's members.

11. **DEI Issues in Higher Education: Male Collegiate Athlete Mental Health**

Faculty Advisor: Brian Steffen

Student: Jake Edenburn

Abstract:

My presentation will be about how college athletes, specifically men, go through higher rates of mental health issues than society thinks. I will also present how men's mental health, specifically athletes, is not taken as seriously by society and there are not many resources for men to use to help with mental health. I sent out a survey to the baseball team here at Simpson College about mental health. I will present the statistics I found from that survey, and the results help back up my original claim. Mental health issues are on the rise, and they have reached all-time highs among collegiate student-athletes.

Division of Humanities

1. **"Menaces to Society": Coercive Sterilizations in Iowa from 1948-1952**

Faculty Advisor: Nick Proctor

Student: Allie Tubbs

Abstract:

Iowa was one of the first states to pass laws allowing for the involuntary sterilization of people deemed "mentally unfit" to reproduce in 1911. In 1929, Iowa created their Board of Eugenics which was responsible for identifying anyone believed to be too mentally deficient to reproduce and would have children that would become "burdens" on the state. The Board of Eugenics was responsible for the authorization of the involuntary sterilization of more than 2,000 Iowans in the span of 40 years. Sterilizations decreased nationally after World War II in attempts to distance American eugenicists from Nazis eugenicists and their actions during the Holocaust. However, Iowa actually increased sterilizations to a record peak from 1948 to 1952. Utilizing records from the Board of Eugenics, including meeting minutes, applications for sterilization, and index files of all applications, this thesis seeks to explore this phenomenon. Through statistical analysis, this thesis examines sterilization applications from these five years to identify patterns regarding diagnoses that qualified an individual, mental health institutional referral trends, and demographics of all applicants. This thesis

also analyzes ethical justifications of sterilizations as well as political and legal trends that influenced eugenic policies. Iowa is one of 31 states that currently allows coercive sterilizations to be performed if a guardian gives consent. Examining the history of coercive sterilizations in Iowa, especially during its peak, may help turn a critical eye on eugenics and sterilizations in Iowa today.

2. **The Inequities of Technological Progression**

   Faculty Advisor: John Pauley

   Student: Alyssa Whitham

   Abstract:

   In this essay, I assess the detrimental effects that technological progression has on society and how it is inherently racist, sexist, and classist in nature. The main argument of this essay demonstrates how ”masters of technology” have created the narrative that technological progression is always equated to societal progression, while often disregarding the well-being of a large percentage of the U.S. population. I provide thorough examples of the damaging effects of ”technological progression” and analyze how each has affected marginalized groups while claiming to benefit everyone. I argue within this analysis that the ”masters of technology” need to be held accountable for their actions through a checks-and-balances system to ensure the power dynamic is dismantled. I conclude that democratic action is necessary to restrain the ”masters of technology” and these steps require authentic communal involvement.

Division of Natural Science

1. **Data Augmentation for Tabular Data Sets**

   Faculty Advisor: Marilyn Vazquez

   Students: Jeffrey Roberts, Christina Dietrich, Jason White

   Abstract:

   Often after performing case studies, insufficient data is collected to create accurate predictive models. For this reason, data augmentation has become an increasingly popular research area. The goal of data augmentation is to create new data points without collecting any new data since it can be a costly and time-consuming process. We are developing new methods of augmenting tabular data. To demonstrate the data augmenting capabilities of our methods, we apply them to various data sets. By inflating the data while maintaining the intrinsic patterns, the new synthetic data set helps to get better predictions.

2. **Identifying Autophagy in Zebrafish Cardiomyocytes**

   Faculty Advisor: Jackie Brittingham

   Student: Daniel Ordaz

   Abstract:

   The number one cause of death, cardiovascular diseases, has become a center of focus for research efforts globally. Myocardial infarction (MI) is one example of a cardiovascular disease that can lead to permanent heart damage and loss of normal function. Zebrafish are a valuable model organism for better understanding human cardiovascular diseases due to conserved

physiology and genetic targets. Zebrafish possess a unique ability to regenerate heart tissue through several cellular repair mechanisms, including autophagy. Autophagy is a complex metabolic process that is regulated by the microtubule-associated protein known as light chain 3B (LC3B) making it a reliable marker for autophagic activity. We established a protocol to detect LC3B expression patterns in zebrafish cardiomyocytes to further our understanding of the role of autophagy in cardiac remodeling following MI in humans. Cardiomyocytes were treated with chloroquine, an inhibitor of lysosomal activity, and rapamycin, an inducer of autophagy. We expected the combined effect to increase the activity of autophagy in the cardiomyocytes. Immunocytochemistry on methanol-fixed cardiomyocytes employed an LC3B primary antibody followed by detection with an Alexa Fluor 488-conjugated secondary antibody and DAPI for counterstaining nuclei. Our immunofluorescence results identified low levels of autophagy activity in these cardiomyocytes. Future studies can utilize this protocol to pharmacologically alter autophagic pathways in zebrafish to further understand how autophagy activity impacts cardiomyocyte regeneration.

3. **Predicting wether a Function Contains a Vulnerability Using Abstract Syntax Trees and Graphical Neural Networks**

   Faculty Advisor: Katherine Vance

   Student: Samuel McCoy

   Abstract:

   There have been past use of machine learning to classify whether a function contains a vulnerability, emphasizing natural language processing. However, this research is about classifying whether a code snippet contains a vulnerability by creating an abstract syntax tree and a C/C++ parser library within python to identify the program structure by parsing the created abstract syntax tree into nodes and connections between nodes. Then, training and testing the code snippets' classification using a graphical neural network based on those nodes' connections. The hypothesis is that this method will have reduced training time without a significant loss in accuracy compared to other methods of code classification.

Division of Social Science

1. **Social Media and Political Polarization**

   Faculty Advisor: Adrienne Gathman

   Student: Andrew James Russell

   Abstract:

   To what extent does social media, in general, contribute to political polarization, if at all? The theory I will make use of to answer this question is a theory presented by the literature relevant to this discussion, known as the epistemic vulnerability theory. Every person, when they are determining what qualifies as truth or knowledge goes through an epistemic stage in which they observe the facts of a situation and take, from those facts, what they believe to be true, and we call this knowledge. When on social media, which has grown in a direction that favors an algorithmic system, spaces are theoretically created, known as echo chambers and filter bubbles. Echo chambers/filter bubbles are, in essence, spaces where you are exposed to content that reinforces your prior beliefs or interests to a greater extent than beliefs that

challenge your prior beliefs and interests, due to the algorithmic nature of social media today. This is relevant to my discussion because this could provide one way that social media potentially polarizes its users. Empirical evidence is hard to come by in regards to proving the existence of echo chambers and filter bubbles, rendering it purely theoretical at this point. This is the issue that I aimed to resolve in my research design, and my research design brings forth how others could build off my research design to proceed in finding empirical evidence. I conducted an independent study on Twitter, with accounts that are unattached to myself, to determine the magnitude to which posts that I interact with on these accounts are reinforced. This should give some clarity on the possibility of the creation of echo chambers/filter bubbles on social media, even if to a small extent, that could be replicated at a larger scale, given more time and resources.

2. **Vicious Vouchers: How Voucher Programs are Impacting Low-income Families**

   Faculty Advisor: Adrienne Gathman

   Student: Mallory Burkhart

   Abstract:

   Iowa has become a battleground in the nationwide debate over school voucher programs. This presentation explores the extent to which school voucher programs are affecting the educational attainment and housing of students in low-income areas, in comparison to their wealthier counterparts. Voucher programs negatively impact students in low-income areas because of minimal funding as well as economic and racial segregation in public schools. This is due to focus being taken away from those students and they won't receive the resources they need for educational attainment. Through the Spatial Assimilation Theory, this research will discuss how these families are gentrifying these areas and harming the public education that low-income children receive. These low-income families are seeing their neighborhoods being taken over by wealthy, predominantly white, families who are no longer tied to the public school system. Public schools are becoming more racially segregated due to white families choosing to send their children to private predominantly white schools; housing values in states with voucher programs show this effect. This research will discuss how Wisconsin and Florida's expanding voucher programs have changed how less wealthy children receive an education.

Division of Visual and Performing Arts

1. **Jazz, The Rubber Hose Cartoon, and Early Animation**

   Faculty Advisor: Adrian Ruiz

   Student: Lyza Cue

   Abstract:

   Jazz music can be largely if not solely attributed to the African enslaved peoples in New Orleans and, more specifically, the blending of two cultures. The "Uptown Downtown" theory suggests that jazz was born through the combination of African Rhythm and Soul and Creole classical training when the two cultures were forced to coexist during the Jim Crow era beginning in 1865. However, there was also another blend of mediums that kickstarted in the 1920s, Jazz music and Entertainment. This project aims to discuss not only the effect jazz

had on the cartoon and animation industry, but also the racial injustices that various jazz artists faced due to the popularity of their music amongst white audiences and companies. Finally, it aims to examine jazz's lasting impact on the entertainment industry and media as a whole, and what reparations have been extended to the artists that had their work paired with harmful stereotypes in the past.

2. **EAE Enterprises**

   Faculty Advisor: Justin Nostrala

   Student: Esther Escalante

   Abstract:

   I will be presenting on a rebranding project I created in Graphic Design III. I will show my growth, inspiration, works, and skills that this project can display. This presentation will also talk about my process through this finalized project, any obstacles I faced, and the future use of this project.

3. **Music: A Catalyst for Social Change**

   Faculty Advisor: Brian Steffen

   Student: Claire Schneider

   Abstract:

   Throughout history, music has played an essential role in activism and furthering social movements. Music was used throughout history as an alternative way to frame various social issues and create a collective identity among a group of activists. It was a way for similar minded people to share grievances and express emotion. This was most apparent during the various social movements that occurred in the mid to late 1900s and was prominent among groups of young people, and especially on college campuses. Regardless of its many benefits, music is losing its value in society. The primary purpose of the research conducted is to present the importance and significance of music in social movements and to explain how music is essential to the future of society. Through the use of various journals, books, and articles written throughout history by experts of sociology, musicology, and history, the importance and relevance of music will be expressed. The importance of analyzing how music shaped the past is that music is a catalyst for social change and is essential to shaping the future of society.

4. **Black**

   Faculty Advisor: Dana Sloter

   Students: Trenity Rosenberg, Noel Roberts

   Abstract:

   Marc Mellits is a leading modern American composer of his generation. His works are characterized by colorful orchestrations that have a driving sound and rhythm. Black by Marc Mellits, composed in 2008, is one of his pieces that contain these driving elements. This piece was originally composed for Jonathan Russell and Jeff Anderle, a bass clarinet duo called Sqwonk. The duet features melodic fragments played by each performer, which combine to create a unified melody. Throughout the duet, one can hear contrasting meter changes and

rhythmic styles. The members performing this duet are: Noel Roberts, playing B-flat clarinet, and Trenity Rosenberg, playing bass clarinet. The instruments provide a unique tone color with a one-octave difference between the two voices. Thus, a live performance of Black is engaging and enjoyable for the performers and the audience.

5. **Lululemon Rebranding Project**

   Faculty Advisor: Justin Nostrala

   Student: Bethany Lachona-Luda

   Abstract:

   Looking at the current designs of the well-known brand Lululemon, I found improvements in the form of a rebranding were needed. The brand is a very structured, athletic, futuristic, and put-together brand. Therefore they needed both a logo and font upgrade that helped captured their essence as a company and brand. I also updated their color schemes to enhance the changes.

   Using several adobe programs and graphic design techniques, I was able to create 3 products for the brand to help launch their rebranding. I created a mini-brochure, tri-fold brochure, and poster brochure. I created them to be cohesive with each other and reflect the new brand I designed.

Poster Presentations

Division of Business Administration & Multimedia Communication

1. **For the Workers: Appeal to Reason and the marketing of socialist ideas in America**

   Faculty Advisor: Brian Steffen

   Student: Ryan Magalhaes

   Abstract:

   Beginning in the 1860s and culminating in the 1910s, socialist ideas and politicians enjoyed relative popularity in American society. When socialist party leader Eugene Debs won 6% of the popular vote in the 1912 presidential election, it was viewed as the beginning of the path to a socialist revolution in America. The path to that moment was paved by many notable people and groups, but *Appeal to Reason* is likely the most influential socialist publication of all time. The business acumen of editor Julius Wayland and later Fred Warren and the excellent rhetoric of writers like Eugen Debs helped propel the paper to that status, which in turn lifted socialism into a legitimate political party. Today we ask the question: how did *Appeal* do it? To that end, I will first contextualize *Appeal to Reason* in the early 1900s, then I will examine the business and writing strategies *Appeal* used in legitimizing socialism and lastly, I will discuss the events after 1912 that eventually led to a massive decline of support for socialism in America.

Division of Education and Sport & Health Sciences

1. **The Effects of Menstrual Phase on Physical and Perceived Performance in Eumenorrheic Female Athletes**

Faculty Advisor: Katie Smith

Student: Maya Gault

Abstract:

Despite a tremendous increase in female sport participation over the past 50 years, there remains significant under-representation of women in sport and exercise research. Traditionally, exercise studies have primarily utilized male participants because female hormone fluctuation makes them more physiologically variable. However, more recent studies have begun to study hormone fluctuation directly and explore the differences between male and female exercise physiology. This research has demonstrated that the hormone fluctuations throughout the menstrual cycle may affect the female athlete's metabolism, basal temperature, endurance performance, and rate of injury. While recent research has begun to reveal correlations between the menstrual cycle and various aspects of exercise, there are inconclusive results about the effect of hormone fluctuation on anaerobic exercise. The purpose of the research is to further explore the potential relationship between menstrual cycle phase and female athletic performance.

Participants were recruited from the Simpson Women's softball and soccer teams and asked to track their menstrual cycle using the FitrWomen app. Participants were currently participating in their organized strength and conditioning sessions and sport practices. Athletes completed a weekly survey which asked questions regarding their sport, the nature of their menstrual cycle, current phase of their menstrual cycle, perceived energy and performance, and potential injuries. In addition to a weekly survey, participants completed a weekly Fly-10 test during their strength and conditioning sessions as a measure of anaerobic performance. Fly-10 performance and survey answers will be analyzed to explore potential relationships.

It is necessary to further understand these differences so coaches, clinicians, and trainers can optimize female athlete performance by adjusting exercise programs, recovery time, or nutritional intake based on menstrual cycle phase. A better understanding of female athlete needs may lead to improved performance and decreased rate of injury.

2. **Accessibility of Safe Sex Products on Simpson College's Campus**

Faculty Advisor: Dr. Katie Smith

Student: Dalaney Reese

Abstract:

Safe sex products are not exclusive to male-latex condoms, even though they are what most people think of first. Other products, such as a variety of male condoms (i.e., latex/latex-free, larger size, smaller size, etc.), female condoms, latex dams, and sexual lubricants, can also be important when promoting inclusive safe-sex behaviors.

The purpose of this project is to examine the accessibility of safe sex products on the Simpson College campus. The hypotheses include: there is currently a perceived lack of accessibility to these products for students as they are only available in Health Services and from the Community Advisors (CAs) in the residence halls; students are not as familiar with non-male latex condom products; students want more access to free safe sex products via more distribution locations; and students want additional access to products other than male-latex condoms.

A survey will be administered to examine the current accessibility of these products and to determine if there is a need to adjust the availability for students. The survey will not only ask students about how they utilize the current locations with safe sex products but will also ask about other possible campus locations students would like to see these products. The survey will also evaluate students' current familiarity and experience with safe sex products to determine if there is a need for education on the topic.

The results from the survey will be used to inform Student Development about the current distribution techniques and how they may/may not be meeting students' needs to ensure they are serving the student population on campus in the best way possible.

3. **Genders Differences in Strength and Conditioning Coaching**

   Faculty Advisor: Katie Smith

   Student: Christian French

   Abstract:

   Coaching athletes is not a one size fits all profession, and many factors can play a part in how athletes perceive coaches and how coaches can best build effective and professional relationships with their athletes. Previous research has looked at hormonal differences in the gender of the athletes and how it likely impacts the coaching process, but there may be factors that are more psychological that can impact the quality of the coach-athlete relationship.

   The purpose of this study is to determine differences, if any, in the perceptions that athletes at Simpson College have towards the gender of their strength and conditioning coach. Participants include both current and former athletes at Simpson who currently or have previously trained with the strength and conditioning staff.

   Methods used in this study include a survey along with a randomized case study as well as an optional focus group. The case study entails a scenario about a new strength and conditioning coach being hired. The only difference between the two randomized groups was the gender and name of the coach, while the coach's education, experience, and certifications remained identical. The focus group centers on open ended questions about how gender impacts how athletes view their coaches, how comfortable they are around them, as well as what athletes look for in a coach as far as characteristics and coaching style.

   More needs to be investigated as far as how athletes perceive their coaches based on gender, the preferences they have in coaching styles, and how strength and conditioning coaches can use this information to cultivate better relationships with their athletes.

Division of Humanities

1. **The Technological Bias of Violence: A Cross-Cultural Analysis Between the United States and Spain**

   Faculty Advisor: John Pauley

   Student: Trenity Rosenberg

   Abstract:

   Technology in the 21st century is ever-evolving, omnipresent, and is considered a normative aspect of society. When critically assessing technology and its role in our society, it

is important to ask the epistemological question concerning how technology influences our understanding of reality. Then based on the assumption that if technology influences our reality, then it must influence our social practices. The feminist philosopher of technology, Corlann Gee Bush, argues that all technology contains an inherent bias. In this paper, I investigate Bush's thesis that guns are "valenced" toward violence. Then, I compare this bias with Spanish culture to see if guns and the inherent bias of violence can carry across cultures. I argue further that this cross-cultural philosophical analysis can create an opening for a deeper cultural understanding, especially with violence in the United States.

2. **The Compounding Effects of Agriculture on the Water Quality Crisis in the State of Iowa, USA: A Local and Global Ecological Crisis**

   Faculty Advisor: John Pauley and Aswati Subramanian

   Students: Trenity Rosenberg, Brody Crouse, Dayton Gatewood, Katie Pantzar, Kyle Werner, Sky Delzell, Elijah Keopuhiwa-Carvalho

   Abstract:

   Recent research has questioned if Iowa's streams and rivers are recoverable from pollution damage. Stormwater run-off already poses a serious threat to water quality across the U.S. Additionally, the agricultural industry's presence in Iowa compounds the issues that other states face. Evidenced by Iowa's disproportionate contribution to the Gulf of Mexico Hypoxia "dead-zone," as well as the decrepit state of Iowa's natural waterways, agriculture creates a multi-faceted water quality issue that must be addressed on many fronts. Run-off from row-crop fields and Concentrated Animal Feeding Operations (CAFOs) into nearby streams and rivers presents a source of pollution that is unique to rural-industrial farming societies and thus must be uniquely confronted. Other toxic pollutants that the agricultural industry presents to the crisis of water quality include antibiotics, growth hormones, forever chemicals, biosolids, herbicides, pesticides, and animal waste. In this paper we analyze the consequences of Iowa's water pollution as it currently stands, both known and unknown, and weigh inductive possibilities for the future of Iowa's waters. Seeking solutions to Iowa's local problems is ecologically synonymous to seeking solutions to national and global problems.

Division of Natural Science

1. **Polyglycylation Impact in Ciliary Motility on Tetrahymena**

   Faculty Advisor: Aswati Subramanian

   Student: Paul Llamas

   Abstract:

   Tetrahymena thermophila is a single-celled, ciliated protozoan. The cell is lined with hundreds of cilia, hair-like organelles that help the cell move and feed. Inside each cilium, large tubular structures called microtubules move unidimensionally to eventually give rise to ciliary movement. Microtubules are modified in different ways to ensure proper functioning. One modification is through polyglycylation. Polyglycylation is when a glycine chain is added to the microtubules to improve the overall stability and integrity of the cilium. Data has shown that Tetrahymena mutants with defective polyglycylation show defects in cellular

growth; however, the role of polyglycylation remains to be studied. This raises the question of whether polyglycylation impacts ciliary motility in Tetrahymena. Using the Tetrahymena strain B2KO-1, we analyzed the impact of polyglycylation on swimming speed, beating frequency, and cilia waveform phenotypically. Video microscopy for swimming speed was performed using an Olympus SZX-12 stereo microscope to record cell path length. Image J was used to complete image processing to analyze the path length of cells. Future studies will aim at video microscopy to determine the beat frequency and the ciliary waveform of polyglycylation-defective Tetrahymena mutants and wild-type cells. We predict that there will be a change in the swimming speed of the B2KO-1 mutant cells compared to wild-type cells. Overall, our research on ciliary motility in Tetrahymena will help us understand the function of microtubule modification and movement of cilia in complex human cells. Since these structures are conserved across species, we can gather important information regarding disease conditions in humans caused due to ciliary dysfunction.

2. **Capturing art and design in the hidden world through microscopy**

   Faculty Advisor: Aswati Subramanian

   Student: Jared Oosterhuis

   Abstract:

   Microscopy is inherently an interdisciplinary study, highlighting aspects of science, art, and mathematical analysis in imaging. Nature displays the best design, and changes to the inherent design of biological and physical samples can dramatically change their function. The rationale behind this study is to display an artistic representation of samples found in the physical and natural world, which is significant to understanding form and function in biology. Highlighting geometry and patterns and comparing these aspects across wild-type and aberrant samples is essential for clinical and foundational research. Through this project, I will learn microscopy techniques, image analysis, and modification through representations of natural structures. To begin, I selected viable samples from the physical world for imaging. Some examples include soap bubbles, insect wings, and cellular structures. Using relevant microscopy techniques, I observed these samples under a compound microscope. I used bright-field microscopy and fluorescent techniques in this process. Examples of bright field techniques include Kohler's illumination and phase-contrast microscopy. A crucial aspect of imaging is composition because the result depends on the data captured, which is subsequently analyzed to produce the final image. While observing images, I focused on highlighting essential structures by scanning the field of view to highlight the ideal area of the sample. After developing the image composition, I performed external analysis through the HCI Imaging program. Examples of external analysis include: 1. External colorization of images (when necessary) 2. Balancing resolution with contrast 3. Practicing noise reduction techniques 4. Other relevant aspects of overall photo composition. Through this project, I want to exhibit a world hidden due to restrictions of its microscopic size. In an interdisciplinary study of a world seldom seen, aspects of art, science, and math are woven into a beautiful display of design through microscopy.

3. **Access to Care for Individuals with Down Syndrome**

   Faculty Advisor: Heidi Berger

Students: Katelyn Smith, Allison Young, Kenneth Norris

Abstract:

This project focuses on analyzing digital healthcare decisions made by families of individuals with Down syndrome. Currently, there are 71 Down syndrome specialty clinics across the country in 34 different states. It is estimated that 5 - 20% of eligible patients are enrolled in specialty clinics (King, Remington, & Berger, 2022).

To enable better access to specialty clinics, the Down Syndrome Program and Lab of Computer Science at Massachusetts General Hospital (MGH) launched a virtual asynchronous clinic called Down Syndrome Clinic to You (DSC2U). A national survey was conducted to understand the frustrations and concerns of caregivers of individuals with Down syndrome to gain perspective on how both physical and virtual clinics can be improved to better serve the DS community.

4. **Fluorescent Protein Synthesis**

   Faculty Advisor: Derek Lyons

   Students: Sam Derning, Dillon Berg

Abstract:

Expression of proteins within a cell provide form the basis for the cells' internal and external functions. Protein expression responds dynamically to changing conditions and environmental signals, providing complex interaction among cells and tissues. Misregulation of protein expression is a hallmark of disease, but observing the expression of a specific protein is difficult due to the dynamic changes that occur and the thousands of different proteins within the cell. Most importantly, many expression assays cannot be completed in a living cell, making observations over time difficult. Fluorescent proteins from aquatic species like the jellyfish Aequorea Victoria, attached to the target protein provide a strong optical signal that can be observed in living cells over time by microscopy. Many crucial cell functions arise by the association of multiple proteins. To observe only the association events, the fluorescent protein can be split into two parts and linked to each of the target proteins. Only when the two target proteins are in close proximity, the split fluorescent protein can reassemble and provide an observed colored signal.

Engineering the split fluorescent protein for this use case benefits from the brightest signal. In a collaborative project between biochemistry and synthetic chemistry groups, we developed a method for rapid screening mutations by chemically synthesizing one peptide strand from the protein, which combined with the remaining recombinantly produced protein can be assayed for optical properties. In the spirit of Simpson College, we are improving two fluorescent proteins of red and gold colors.

5. **Entomotoxicology**

   Faculty Advisor: Adam Brustkern

   Student: William DeBoer

Abstract:

Forensic entomology, the field of forensic science primarily focusing on the study of arthropods and their development on the decaying bodies of victims of crime has been shown recently

to have an intriguing link to other fields of forensic science; forensic toxicology and forensic DNA typing. Studies focusing on the links between these two fields have shown the effects of exogenous compounds still in the body during the post-mortem period can have an affect on the growth and development of maggots and their later life form, pupae. This is important as their development is typically utilized by forensic entomologists to determine post-mortem interval, due to the consistent pacing of the life stages of maggots. It has also shown that certain compounds can still be found in almost all arthropod life stages to a degree which can be quantitated. Furthermore, some arthropods have been used to determine the DNA typing of individuals, potentially making some arthropods useful in the determination of the DNA of individual perpetrators or victims. This presentation will provide an overview of the growing field of entomotoxicology as well as the uses of arthropods for DNA typing. It may also contain the results of experiments done on Simpson to determine quantitation of ethyl alcohol, the primary solute or solvent in alcoholic beverages, from a source of maggots feasting on bloodmeals with ethyl alcohol content.

6. **Multiple Choice vs Short Answer**

   Faculty Advisor: Katherine Vance

   Student: Franchesca DeVore

   Abstract:

   Over the years, starting as young of an age as four, individuals will take hundreds of mandatory multiple choice exams throughout their lives. Some of these multiple choice exams are the SAT, ACT, and State Testing. Do students do better on summative assessments that are multiple choice problems or short answer problems? For this research project I compared how high school students did on three mathematical quizzes that have a variety of short answer and multiple choice questions. I have collected my data from my Advanced Algebra II students Topic 6 quizzes. I re-wrote the curriculum of the quizzes from Topic 6 into a variety of short answer and multiple choice style questions. From the data that I have collected, I am trying to measure if there is any significant difference between how students do on short answer style questions compared to multiple choice questions. I have created an excel spreadsheet that includes the data from all three quizzes that includes the average of the class, the number of questions, the types of questions, and what questions each student got right and wrong. From this data, I will then create multiple graphs to analyze the data in an R-Studio Cloud Project. I will then undergo hypothesis testing to get my results from the data. My goal for this research is to measure if multiple choice questions are the most effective style of question to measure students understanding of a concept.

7. **Uncovering the Catalytic Mechanism of Sortase A Using Molecular Dynamics Simulations**

   Faculty Advisor: Jay McCarty

   Student: Clarissa Huisman

   Abstract:

   Sortase enzymes are primarily found in gram-positive bacteria. These enzymes are crucial for attaching proteins to the cell wall, assembling pili through the ligation process, and are targets for treating bacterial infections. Further, sortase enzymes are tools for sortase-mediated

ligation protein engineering. Unfortunately, we lack an atomic-level understanding of the catalytic mechanism, which includes ligand association and ligation. In this work, we use molecular dynamics simulations combined with enhanced sampling methods to study the conformational dynamics of the peptide in the corresponding enzyme's active site. We are also able to determine transition and meta-stable states. For our work, we compare the bound state of sortase A from S. pyogenes and from S. aureus. Our simulations show a few different transition states between two meta-stable states commonly referred to as "Thr-In" and "Thr-Out" states. These states are characterized by the orientation of the P1 Threonine side chain. We calculate the free energy surface along the coordination numbers between atoms in the active site in the enzyme and atoms in the P1 Threonine residue or atoms in the P2 Alanine residue of the peptide. These collective variables allow us to apply bias in order to sample regions of low probability to help us uncover the complexities of the catalytic mechanism.

8. **The maintenance running behaviors through estrogen-mediated signaling in the dorsal striatum of female rats**

   Faculty Advisor: Lauren Points

   Student: Emma Lowden

   Abstract:

   Previous studies show rat running behaviors begin with an acquisition phase which leads into a maintenance phase. Female rats display cyclical running behaviors throughout their estrous cycle, with the highest running coinciding with their estrogen peak during proestrus. We hypothesized that the binding of estrogen to its receptors, ESR1 and ESR2, in the CNS alters gene expression which impacts the intrinsic motivation to run. The dorsomedial (DMS) and dorsolateral (DLS) striata are nuclei implicated in motivation and exercise. This study utilized the striatal tissue of ovariectomized rats to investigate connections between running activity and ESR1/2 expression. Data analysis correlated running distances to gene expression determined by RT-qPCR. Results revealed positive correlations in animals that previously underwent the acquisition phase and no correlations in animals that did not. Based on these results, striatal ESR1/2 may be relevant for the maintenance of running behaviors, whereas the acquisition phase may use a different pathway or nuclei.

9. **Data Engineering Databases of Biology Experiments**

   Faculty Advisor: Ross Sweet

   Students: Parker Lee, Jace Howard, Joey Sams

   Abstract:

   Data engineering involves managing different sources of data, which need to be combined in various ways for data analysis. In the context of PowerPollen, a company with multiple datasets in three different formats, this research aims to develop an automated system that can import these data sets into a database and enable their integration. The study utilizes VBA and SQL, as well as the Microsoft Excel extension, QueryStorm, as tools to accomplish this goal with Microsoft Access in mind as a long-term database workspace for the company. The project is significant because data engineering is a rapidly expanding field, and having an automated system to manage large amounts of data is essential for efficient and accurate decision-making.

10. **Automated Computation of Pollen Germination**

    Faculty Advisor: Ross Sweet

    Students: Kayla Jensen, Jeffrey Roberts, Kate Huisinga

    Abstract:

    Pollen germination assays can be used to find pollen viability, but processing these assays by hand can be time consuming for skilled workers. Automating this process by using a convolutional neural network will save both time and money. We utilized PyTorch to implement the YOLO algorithm for object detection. We've created a model that can take an image of pollen germination assay and calculate a germination percentage, the ratio between tubes and the sum of all grains. This model will be implemented by the company PowerPollen to increase efficiency of their analysis.

11. **Variations of Nim: How to Always Win**

    Faculty Advisor: Kathrine Vance

    Student: Aimee Graham

    Abstract:

    Through observing combinatorial impartial games like chess or tic-tac-toe, where the only difference between two players is which player goes first, we can design new methods to win. We can also improve how we think about strategies that guarantee an outcome and strategies dependent on chance. Nim is one of these games; however, you lose if you are the player to remove the last object which is called a misére game. By modifying a game of Nim with one of its existing variations called Stairs, we seek to discover an alternative to the already existing nim-sum strategy to continue winning despite the changes of the game. The nim-sum strategy is to have a zero sum for each binary digit which means each object has an equal pair with no remainders. The goal of Stairs is to get all objects to the bottom step and the player to move the last object to the bottom step losses. Players take turns moving any number of objects from a step, but the objects can only be moved down one step each turn.

    The objective for this project is to use the existing nim-sum strategy for Nim to determine a winning strategy for Stairs and its variations. We will be manipulating rules to the Stairs original game play to force a change within the nim-sum strategy. For example, we will adjust the rules where player movement is somehow determined by the previous move of the opposing player. We will also adjust the rules where each player can only take a set number of objects like only being able to move one, two, or three objects instead of being able to move any number of objects from a step.

12. **Categories and Gender**

    Faculty Advisor: Ross Sweet

    Student: Lara Kallem

    Abstract:

    Gender theory is a complex interdisciplinary study that can be explored through numerous perspectives. Eugenia Cheng explores gender theory using a mathematical concept called category theory in her book "X+Y." This independent study sees how Cheng explores gender

theory through the lens of mathematics. We also collaborated with gender theory professionals to gain more insight into concepts discussed in Cheng's work. Finally, after learning the basics of category theory and applying it to new knowledge of gender theory, we critiqued Cheng's findings.

13. **Quantum Eraser Experiment Using Quantum Optics**

Faculty Advisor: David Olsgaard

Student: Buck Eagleburger

Abstract:

A quantum eraser experiment was utilized to illustrate fundamental quantum mechanical principles that seem counterintuitive to many common-sense assumptions. A very important quantum mechanical principle is that light behaves both as a wave and a particle. At the core of quantum mechanics is that an observation or a measurement of a quantum mechanical system collapses the wave properties of the system to a particle system. If a photon is sent into an interferometer that has two paths the photon can take and then recombines the paths later an interference pattern between the two paths can be observed as if the photon took both paths. Now, if a measurement of which path the photon took occurs before the two paths are recombined, then no interference pattern is observed. This is because the measurement of the path collapsed the wave system to a particle system. Now, the quantum eraser experiment performed was able to measure the path of the photon in a Mach-Zehnder interferometer and then "erase" that knowledge through an independent measurement of the photon after the paths were recombined to create a wave like interference pattern. Thus, in theory this experiment was able to "take back" or "erase" the collapse of the wave function after the fact. This seems very counterintuitive as it would suggest in theory that one could rewrite the past. However, this result can be explained with quantum mechanical principles that will be discussed in my presentation.

14. **Carver Living Wall Project**

Faculty Advisor: Dr. Aswati Subramanian

Students: Haylee King, Amelia Bothwell, Cassandra Hauser

Abstract:

Educational environments can be areas of high stress for students and faculty. One way to improve this environment is by implementing more green spaces by creating a living plant wall. This project aims to create a green space for the Carver Science building by developing a soil-free plant wall with a watering system. This system allows for the growth and control of the plants grown on the wall. Usually, living walls are made by placing potted plants on a shelf or with a soil substrate, but the uniqueness of our plant wall is that no soil is used; instead, a nutrient-filled, water-based system allows the plants to grow. In place of the soil, we have used a felt substrate for the plants to root in. To water the plants efficiently, we created a self-watering system with a PVC pipe frame and a water pump with a timer. The water supply pumps from a tank with the PVC frame attached above, and airline tubing runs through the PVC pipe frame to distribute the water. Small holes are placed on the top of the PVC frame for water to run down the felt. We will monitor the growth of plants in this setup over the next couple of months. Another goal of our small-scale structure is

determining the plants that work well with our felt-based substrate. The success of our design will be assessed by plant survival and abundant growth. Once we have established this proof of concept, we plan to scale up our system to a 7 feet x 7 feet installation. Furthermore, the sustainability of the large-scale system involves constant student participation in maintaining the green wall. Therefore, this project is an excellent gateway for students to get involved in a community-based project in the Carver Science building.

Division of Social Science

1. **What is Abortion? Individuals' perceptions of abortion versus medical procedures**

   Faculty Advisor: Dr. Amanda Martens

   Student: Jenna Pfeiffer

   Abstract:

   Abortion has been and will continue to be a topic of intense discussion; yet there is a paucity of social psychological research about the language we use and how it influences how we perceive abortions. As such, our research seeks to examine perceptions of different types of abortions when they are described as medical procedures verses when they are described as an abortion. Study 1 is a 2 (Type of Abortion: Elective vs. Traumatic) by 2 (Terminology: Abortion vs Medical Procedure) between groups design. Participants will be randomly assigned to vignettes that describe one of the four conditions (i.e., Elective abortion, elective medical procedure, Traumatic abortion, traumatic medical procedure). We predict that, overall, because of the public rhetoric surrounding abortion, that when the term abortion is used, individuals' perceptions will be more negative than when the same procedure is describe as a medical procedure. We also predict that individuals will be more favorable of situations in which a medical procedure is performed to protect the life of the pregnant person or because the fetus was not viable (i.e., Traumatic) as compared to when an abortion is performed because a pregnant person does not wish to be pregnant (i.e., Elective). We also plan to extend and replicate this study into a program of research that examines individuals' perceptions of additional types of abortions (e.g., spontaneous abortion, various types of traumatic abortions: ectopic pregnancy verses genetic abnormality). Additional studies will also add individual difference measures (e.g., Right wing authoritarianism, social dominance orientation, ambivalent sexism, and additional measures of political and religious ideology) as potential moderators. Given the current political climate and various laws being implemented or proposed that ban abortion, this line of work has both timely and critical practical implications.

Division of Visual and Performing Arts

1. **Props Design Cabildo and Cendrillon**

   Faculty Advisor: Kara Raphaeli

   Student: Jess Doster

   Abstract:

   My poster will be focusing on the props that I designed as a student designer for Cabildo and Cendrillon. I will focus on the creation of the props list, the pulling, creation, and changes

that were made throughout the show. I will bring physical props that I have designed as part of my poster presentation to show off some examples of items used in the shows. It will highlight the process I used when it came to creating the properties seen in the shows.

2. **Stage Manager - Little Women**

   Faculty Advisor: Kara Raphaeli

   Student: Abigail Hintz

   Abstract:

   During the Fall 2023 semester, I was Stage Manager for Simpson Productions' Little Women. Being Stage Manager put me in the position of running rehearsal and tech rehearsal, being the communication point for both the design team and the company. I also called the show during the performance. The position was one of the most challenging yet rewarding accomplishments I have done. My poster will show the process of what I did for the show, showing my rehearsal reports, and tech rehearsal reports, I will have my script that contains the light cues and sound cues that I called during the show. I will also have my script with the blocking (actor's movement during the show) that I wrote down during rehearsal. It will also cover all the meetings I had to attend and schedule, including costume fittings. Overall, the poster will depict the behind-the-scenes happenings of Little Women and dive deep into what happens behind and even above the stage.

3. **Lighting Design Twilight Bowl**

   Faculty Advisor: Kara Raphaeli

   Student: Kenneth Norris

   Abstract:

   The Twilight Bowl reminds me of the bowling alleys, bars, and restaurants that I would visit in my own hometown: gritty, worn, and a place where working-class people would gather to share drinks and chat after a long day's work. While the play is set in the modern day, there is nothing particularly modern about this bowling alley anymore. I based many aspects of my design on the familiarity I have with the warm, dim lights of gritty bars and starkly contrasting bright neon signs that advertised in the spaces I knew and loved growing up.

   The most important thing I had to consider while lighting the physical space of the play is that the actors will need to be lit from the front and the back due to the style of audience seating; whether the actors are at the bar or shifting between tables in the space, their faces will be illuminated with a mixture of warm and cool light at all times.

   The bowling lanes are alluded to exist behind a half-wall to the audience, which means that it is up to the creativity of the lights to ensure that this space is illuminated in a way that brings the bowling alley to life.

   Lighting and scenic design collaborated in this play due to the multiple set pieces that require electricity. Our ambitions included two neon signs, one of which we intended to "animate" through programming to illustrate bowling pins being knocked over.

   The house lights we used for audience seating are the same that we used as set pieces over the staging tables in the playing field to create an immersive experience in the intimate setting of the bar. These were more atmospheric and were never used as stand-alone lighting.

4. **Props Design - Trouble in Tahiti/Gallantry**

   Faculty Advisor: Kara Raphaeli

   Student: Mollie Hinkle

   Abstract:

   This past fall, I was the props designer for Trouble in Tahiti/Gallantry, the double-bill opera. A props designer's task is to work with the director and production team to design show and period-accurate props that bring the director's creative vision to life. The goal of the props was to create realistic, accurate pieces that ground the audience within the stories. Trouble in Tahiti and Gallantry both take place in the late 1950s, so it was imperative that the props I created fit into the time period; otherwise, the audience could have been taken out of the story. My poster will contain detailed descriptions of the research, design, collaborative, and building processes of the show's props and set dressings. I will elaborate on the challenges I overcame while researching and designing period-accurate foods, utensils, and logos and obtaining period-accurate set dressings. I will also cover the challenges I overcame while building specialty pieces for the shows. Overall, my poster will portray the process of props design to an audience unfamiliar with the behind-the-scenes work of a production team that helps bring a story and setting to life.

5. **Props Designer Little Women**

   Faculty Advisor: Kara Raphaeli

   Student: Tanner Striegel

   Abstract:

   In the fall semester of 2022, I designed the props for Simpson Productions' production of Little Women. This was a new adaptation written by Kate Hamill but based on the classic novel written by Louisa May Alcott. The new take on the story asked deep inquisitive questions that were more suitable for a modern-day audience. Jo questioned her gender identity, Meg questioned her place in society as a woman, Laurie and Jo did not end up together in the end, and the show ended tragically with the death of Beth. Designing props (or stage properties) for this show entailed research on the time period (right around the American Civil War) and making authentic detailed designs in order to immerse the actors deeply into the world of the play.

   For those unfamiliar with the technicalities of theatre, a prop is an object that is held or utilized by an actor onstage. This could be anything from silverware to a cane to books and even a piano. In this production, there was some overlap between wardrobe and scenery with what we considered to be props. For example, during the ballroom scene where Jo meets Laurie for the first time, Jo and Meg were holding fans. The fans were technically props, but they needed to match the costumes accordingly. Therefore, Caroline Frias, the costume designer, and I worked together to find the appropriate materials, and eventually, the fans remained with the other costume pieces for simple organization. This is just one example of the many forms of communication and organization that is necessary in putting up a show.

   For the Creativity and Research Symposium, I will present a poster design that displays evidence of my work and explains the process I undertook to fulfill my job successfully for the production.

6. **Stage Manager Trouble in Tahiti & Gallantry**

   Faculty Advisor: Kara Raphaeli

   Student: Ashley Kientoff

   Abstract:

   This poster presentation will walk you through the stage management role in last Fall's opera double bill, Trouble in Tahiti and Gallantry: A Soap Opera. The presentation will include: personal philosophy, production meetings, the rehearsal process, paperwork, and calling the show. Viewers will have the opportunity to browse the "show bible", the master binder of information needed to manage the show as well as digital paperwork.

7. **Sound Designer - Twilight Bowl**

   Faculty Advisor: Kara Raphaeli

   Student: Masumo Mwenyi

   Abstract:

   As the sound designer for Twilight Bowl, I focused on creating an immersive sonic experience that reflects the play's themes of change and self-discovery. My design process began with thoroughly analyzing the play's themes, characters, and settings, ensuring that the sound design complements the play's overall mood and tone.

   To achieve this, I decided to use a combination of folk and pop music genres, adding slow R&B tracks. Folk music brought authenticity to the production and reflected the rural American setting, while pop music brought a contemporary feel to the play. I also considered the various sources of noise in capturing the environment of a bowling alley, such as bowling balls rolling down the lanes and striking the pins, the sound of pins being reset, the squeaking of shoes on polished wooden floors, the hum of the ball return machine, the electronic scoring machines, and the murmur of conversation and laughter from patrons.

   I created five original songs for the play and its scenes as part of my design process. I started by reading the play, conversing with the director, writing lyrics that reflected and enhanced the play's themes, and finally, building the music that complemented the mood. By carefully considering the play's themes, characters, and settings, I hoped to enhance the theatrical experience and create a performance that resonated with the audience.

   My poster will explain my design process and what I created for the show. The poster will detail the genres of music I used, the sources of noise I considered, and the original songs I created. Overall, I hope my poster will provide an in-depth but simplified look into the sound design process for Twilight Bowl and showcase the importance of sound design in creating an immersive theatrical experience.

8. **Our Story, Our Show: Dramaturg Presentation for the production of Little Women**

   Faculty Advisor: Kara Raphaeli

   Student: Gabriel Madson

   Abstract:

Louisa May Alcott's work is a classic that was ahead of its time as a fictional biography of their own personal life. My work as a dramaturg was to show this history to the cast and crew to help the authenticity of the production. I also worked with getting information on all aspects of the production process from costume & set design, to the final dress rehearsals before opening night. I wanted to catalog our time together because we all did our part for this performance, and it truly is "Our Story, Our Show!"

9. **Trouble In Tahiti/Gallantry Set Design**

   Faculty Advisor: Kara Raphaeli

   Student: Tanner Tillotson

   Abstract:

   The poster will go over the process in which I followed to create the set design for the double bill operas last fall.

10. **Costume Designer: Trouble in Tahiti/Gallantry**

    Faculty Advisor: Kara Raphaeli

    Student: Alexia Tebben

    Abstract:

    The double bill that I designed was set in the 1950's, and each had a different color palette, Trouble in Tahiti's being technicolor, and Gallantry's being greyscale. This gave me a great challenge to represent both shows as period pieces. For Trouble in Tahiti by Leonard Bernstein I focused on using color to bring out characters attributes and correlations because the second show was all in greyscale. I also wanted to personify each character through their costumes. For an example, I gave Dinah, a middle-class suburban housewife, a modest dress and apron, while her husband wore a business suit, as he was the breadwinner. I connected this couple with the color green, signifying their envy for different wants they had in their life. The jazz trio in Trouble in Tahiti were all dressed as 50's style lounge singers, as they personified media representation. For the other show Gallantry by Douglas Moore, I focused a lot more on silhouette, since I was restricted by color. I was inspired by 50's makeup ads, since a big portion of the show is "interrupted" by the announcer trying to sell her products. Since I couldn't place her in red, I wanted to make sure she had an eye-catching dress. I gave her this by using a reflective fabric and more scandalous design. I also used different tones of gray to connect the characters. The nurse, Lola, and Donald, the patient were in lighter gray, to signify their innocent love. While the Doctor was put in darker grays to portray his betrayal and lust. My poster will go into further detail about my project as well.

11. **Costumes, Hair, and Makeup Designer Twilight Bowl**

    Faculty Advisor: Kara Raphaeli

    Student: Allison Blades

    Abstract:

    Twilight Bowl written by Rebecca Gilman was first produced in 2019. It is a comedic and slice-of-life play that takes place in a small-town, Wisconsin bowling alley and bar over the time span of around 2.5-3 years. Twilight Bowl is about six young women who create and find

opportunities to have abetter future for themselves. My goal with costumes, hair, and makeup was to translate the difference in time, show the characters personality's, social class', and the development each character has made. I did this through style and some colors schemes. Although I want to note that the colors that each characters wear were very intentionally chosen to compliment their skin tone and overall character.

Throughout the process I have had to research and develop ideas with a color palate and different style trends that have developed over the last couple of years because the play takes place during present time. There was a lot of paper work that I had to complete such as a designer core action statement, costume run sheets, and directions involving application of makeup for actors. I have also had to experience directing the costume crew how to properly maintain and dress wigs on performers. Additionally, I had to cut and style both of the wigs that are being used in the show.

12. **Twilight Bowl Props Design**

    Faculty Advisor: Kara Raphaeli

    Student: Dorian Burke

    Abstract:

    Although props seem to be just a small part of a show, they are all vital to it. I want to focus on making sure that each prop enhances the show and its characters. I want to establish character differentiations with the character's personal props. This is especially true when it comes to class differences. I want to have a variety of items that immediately bring to mind the feeling of a working-class bowling alley. There are a multitude of props that, while not mentioned in the script, would still be at a bowling alley (napkins on the table, salt and pepper, pretzels). Twilight Bowl is set in a small, Midwestern town in a family owned bowling alley. Family owned small businesses have a very specific energy and feeling to them - especially bowling alleys. After reading the director's concept statement, I envision this bowling alley to be loved by the people who work in there, and the design of the props should agree with that. Though the business may not have enough money for new props all the time, the ones that they do have should be well-kept. To begin my design process, I read through the play several times, and then created the initial props list. This list showed the prop, who used it, where it was on stage, and any other special notes. Then, on the props list, we categorized it into how we would acquire the props - buy them, pull them from our props collection in the Mezzanine, create it from scratch, or rent it. A lot of the props in this show are modern. A fair amount of them were purchased, or specifically created to match current items on the market. However, the props within the bar itself were easier to pull or make.

Class Panels

Division of Business Administration & Multimedia Communication

1. **Building Capacity for HSL capstone internships**

    Faculty Advisor: Jacy Downey

    Students: Judith Meyer, Donivan Kinghorn

    Abstract:

This panel discussion will feature HSL students who have previously or are currently engaged in a HSL internships. I will invite HSL students who have yet to register for internships to participate in the discussion so that they will be better armed to be an advocate for starting conversations with potential host sites about developing high-quality, rigorous internship experiences. Currently, I have been developing internships for students, one-at-a-time, using a project-based model. This process is not sustainable nor does it empower students to engage with the professional community.

2. **Is Time Running Out For TikTok?**

   Faculty Advisor: Mark Green

   Students: Ethan Humble, Brenden Godbout, Madison Wiertzema, Caleb Geer, Andrew Gibb, Taylor Brommel

   Abstract:

   TikTok is the fastest-growing social media platform in the digital era. TikTok originated in China, and concerns about data security and data privacy are growing in the United States and elsewhere. State and federal governments are prohibiting the app on government-issued smartphones. Some colleges and universities have restricted or banned use of the app on campus WiFi networks and work phones. This panel will examine the pros and cons of TikTok relating to cybersecurity issues and the growing geopolitical tension between the United States and China.

3. **Rage Against the Machine: ChatGPT's War on Higher Education**

   Faculty Advisor: Mark Green

   Students: Kegan Trebilcock, Dylan McChesney, Eldred Boria, Mallory Burkhart, Hannah Foster, Dylan Holland

   Abstract:

   The artificial intelligence platform known as ChatGPT has taken the tech world by storm and has generated a great deal of controversy. For example, concerns over student misuse of the software are being raised in the education community. Will the integrity of artistic works be called into question if they are computer generated? This panel will highlight some of the issues AI has brought to our doorstep. Is ChatGPT the precursor to Skynet? Or, will it revolutionize society and culture on a global scale?

4. **Honors Program Capstone Presentations**

   Faculty Advisor: Mark Green

   Students: Maya Gault, Caleb Geer, Ethan Humble, Kylie Jones, William Keck, Donivan Klinghorn, Paisley Kintigh, Madison Luderman, Noah Nelson, Scout Peer, Alyssa Whitham

   Abstract:

   Participants in the Honors Program Capstone will present final projects.

Division of Education and Sport & Health Sciences

1. **An Artist's Answer: Health at Every Size**

Faculty Advisor: Katie Smith

Students: Layna Depping, Mary (Elly) Flaherty, Maya Gault, Ellie Gray, Katherine Hendrickson, Kylie Jones, Donivan (Donni) Kinghorn, Jadyn Mortenson, Hannah Mulligan, Sarah Roberts, Katelyn Smith, Jessica Stringer, Victoria (Tori) White, Alyssa Whitham, Madison Wiertzema, Madelyn (Maddie) Williamson, Emma Winterboer

Abstract:

Students in the *Honors Health at Every Size* course will display and speak of their final drawings in the course that express the relationship of their inner and outer selves. Throughout this course, students explored their personal relationship with food via intuitive eating and mindfulness digging deeper into the concepts of weight, health, and body positivity.

Division of Visual and Performing Arts

1. **Editing and Performing Forgotten Renaissance Works**

Faculty Advisor: Jon Arnold

Students: Lyza Cue, John Galm, Abby Jennings, Drew Lundquist, Eric Martin, Dylan McKinley, Max Meyers, Claire Schneider, Aaron Scholes, Tanner Striegel, Max Wearmouth-Gweah, Halle Wulfkuhle, Miranda Young

Abstract:

Much of the music written during the Renaissance period has been lost to history due to neglect and lack of modern editions. One of the underrepresented composers whose work was neglected was Vicente Lusitano. Lusitano, who was born in 1520 and died in 1561, was a Portuguese, mixed race man and is believed to be the first published black composer. Despite his short life, Lusitano made significant contributions to the musical world. Lusitano's Liber Primus Epigramatum, a book of motets for five, six, or eight voices, was dedicated to the son of the Portuguese ambassador to the Holy See.

We chose to transcribe the piece "Clamabat autem" from Lusitano's Liber Primus Epigramatum based on the text and a lack of a modern edition. The transcription process will consist of each section taking its respective part book and transcribing the original mensural format into modern notation. This process will involve the insertion of bar lines, modern clefs and rhythmic note values. Once this is completed, we will concatenate each part into a single score. The complete score made through this process will contain all five voices along with the Latin text. We will then perform the music as well as discuss the composer and our process in the symposium.

Considering Lusitano's heritage and the cultural biases of the time and our repertoire, our research will diversify Renaissance choral music. Publishing works by Lusitano allows further study and comparison to be done with other pieces and composers. By posting our edition on the Choral Public Domain Library (CPDL), this newly transcribed and lesser-known piece will be free for public use and will encourage further research.

Career Services

1. **Internship Panel**

Faculty Advisor: Kelsey Bolton

Students: Katie Burns, Zach Harnden, Lexi Johnston, Ana Davis, Allie Tubbs

Abstract:

Interns will present about their experiences. Majors include graphic design, health and exercise science, history, interdisciplinary studies, and political science. Come learn about the importance of internships on professional development, beginning the search and application process, and student tips to make the most out of your internship!

Index of Participating Students

Bell, Jason, 2
Berg, Dillon, 16
Blades, Allison, 25
Blessman, Skyler, 4
Boria, Eldred, 27
Bothwell, Amelia, 20
Brommel, Taylor, 27
Burke, Dorian, 26
Burkhart, Mallory, 9, 27
Burns, Katie, 29
Butcher, Joseph, 3

Crouse, Brody, 14
Cue, Lyza, 9, 28
Cunningham, Colbee, 3

Davis, Ana, 29
DeBoer, William, 16
Delzell, Sky, 14
Depping, Layna, 28
Derning, Sam, 16
DeVore, Franchesca, 17
Dietrich, Christina, 7
Doster, Jess, 21

Eagleburger, Buck, 20
Edenburn, Jake, 6
Escalante, Esther, 10

Flaherty, Mary (Elly), 28
Foster, Hannah, 27
French, Christian, 13

Galm, John, 28
Gatewood, Dayton, 14
Gault, Maya, 12, 27, 28
Geer, Caleb, 27
Gibb, Andrew, 27
Godbout, Brenden, 27
Graham, Aimee, 19
Gray, Ellie, 28

Harnden, Zach, 29
Hauser, Cassandra, 20
Hendrickson, Katherine, 28
Hinkle, Mollie, 23
Hintz, Abigail, 22
Holland, Dylan, 27
Howard, Jace, 18
Huisinga, Kate, 5, 19
Huisman, Clarissa, 17
Humble, Ethan, 27

Jennings, Abby, 28
Jensen, Kayla, 19
Johnston, Lexi, 29
Jones, Kylie, 27, 28

Kallem, Lara, 19
Keck, William, 27
Keopuhiwa-Carvalho, Elijah, 14
Kientoff, Ashley, 24
King, Haylee, 20
Kinghorn, Donivan, 26
Kinghorn, Donivan (Donni), 28
Kintigh, Paisley, 27
Klinghorn, Donivan, 27

Lachona-Luda, Bethany, 11
Lee, Parker, 18
Llamas, Paul, 14
Lowden, Emma, 18
Luderman, Madison, 27
Lundquist, Drew, 28

Madson, Gabriel, 5, 24
Magalhaes, Ryan, 11
Martin, Eric, 28
McChesney, Dylan, 27
McCoy, Samuel, 8
McKinley, Dylan, 28
Meyer, Judith, 26
Meyers, Max, 28
Mortenson, Jadyn, 28
Mulligan, Hannah, 28
Mwenyi, Masumo, 24

Nelson, Noah, 27
Norris, Kenneth, 16, 22

Oosterhuis, Jared, 15
Ordaz, Daniel, 7

Pantzar, Katie, 14

Peer, Scout, 27
Pfeiffer, Jenna, 21

Reese, Dalaney, 12
Roberts, Jeffrey, 7, 19
Roberts, Noel, 10
Roberts, Sarah, 28
Rosenberg, Trenity, 10, 13, 14
Russell, Andrew James, 8

Sams, Joey, 18
Schmitz, Claire, 6
Schneider, Claire, 10, 28
Scholes, Aaron, 28
Smith, Katelyn, 16, 28
Stinson, Maddy Lynn, 2
Striegel, Tanner, 23, 28
Stringer, Jessica, 28
Sundberg, Lane, 4

Sweeten, Jake, 3

Tebben, Alexia, 25
Tillotson, Tanner, 25
Trebilcock, Kegan, 27
Tubbs, Allie, 6, 29

Wearmouth-Gweah, Max, 28
Werner, Kyle, 14
White, Jason, 7
White, Victoria (Tori), 28
Whitham, Alyssa, 7, 27, 28
Wiertzema, Madison, 27, 28
Williamson, Madelyn (Maddie), 28
Winterboer, Emma, 28
Wulfkuhle, Halle, 28

Young, Allison, 16
Young, Miranda, 28