

Accepted Abstracts

Ribbons of Excellence

2020



March 31, 2020

Hello,

Well, 2020 has not gone as anyone expected with the global COVID-19 pandemic many things about this academic year have had to change including our annual Ribbons of Excellence Day conference. This year was to be the 12th annual conference to celebrate student achievements but due to social distancing requirements and a stay home order imposed by the Governor of the State of Michigan we had to cancel the conference.

The history of the Ribbons of Excellence Program resides in the Cane Ceremony tradition of tying a ribbon with the names of graduates to the Shepherd's Crook. This tradition has been carried on since 1887; in 2007 the academic community at Adrian College developed its academic vision of the Ribbons of Excellence Program. The Ribbons of Excellence are what each and every member of our community strives for; the Ribbons of Excellence are what we want Adrian College to be known for: *caring for humanity and the world; learning throughout a lifetime; thinking critically; crossing boundaries and disciplines; and developing creativity.*

The ROE Conference has come to be one of the favorite days of every academic year. Students, professors, staff, administrators and community come together to celebrate the academic accomplishments of our students. It is a day of learning and reaching outside of our disciplines and routines to see all the great things happening on campus. My heart is heavy knowing that we will not have that chance this year. I know that we will come out of this crisis and be able to be together on campus once again.

This book of accepted abstracts is a collection of all the presenters that were supposed to present at the ROE conference this year, while it is just a small piece of what was accomplished hopefully it can in some small way honor the work of the students and mentors. All of the underclassmen with accepted presentations have been offered an automatic acceptance of their work to present in ROE day 2021. To the seniors, my heart breaks for all of you as I know this was not the senior year any of you wished for and this is only one of many opportunities that will be lost to this pandemic. I know the faculty is also mourning the loss of this time with you as well.

On behalf of the Ribbons of Excellence Program Committee, I would like to especially thank the mentors and students who worked so hard on research and projects they hoped to present on this day. Not being able to present in no way diminishes the work you put in and academic gains you received. I would also like to thank all the committee members for their work and support of this program as well as the continued support of this program by the Office of Academic Affairs and President Docking.

Kind regards,

A handwritten signature in black ink that reads "Elizabeth A McGaw". The script is cursive and fluid, with the first letters of the first and last names being capitalized and prominent.

Elizabeth A. McGaw, Ph.D.

Director, Ribbons of Excellence Program

Associate Professor and Chair, Department of Chemistry & Biochemistry

The Feminine Spirit and The Female Sex

Presenter: Isabelle Anderson

Mentor: Dr. Michael Martin

Ribbons: **Thinking Critically, Crossing Boundaries and Disciplines, and Learning Throughout a Lifetime**

Session/Time/Location: 1A. 9:30-9:50, Jones 110

Abstract: The Romantics were constantly exploring spirituality in hopes of achieving wholeness. However, this wholeness was rejected by their society which dictated that the feminine and masculine spirit must be separate. This separation and disconnect of the spirit is shown through various works, both poetic and artistic. The feminine spirit was often overlooked, disregarded by males as being unacceptable to connect to their masculine side. However, the Romantics I will be discussing, Novalis and William Blake, highlighted this feminine spirit in several ways, through Sophia, Sophie, Mary, and the Mother. They were creating their own mythos while combating religious and societal limitations. Disagreeing with the limitations and stigmas placed upon sex, the Romantics reformed the way the world was viewed, even if it was not always accepted.

Victorian Women and the “City of the Sultan”

Presenter: Sydney Foster

Mentor: Dr. Deborah Field

Ribbons: **Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity**

Session/Time/Location: 1A, 9:50-10:10, Jones 110

Abstract: During the Victorian Era, the British Empire was expanding its influence into the Ottoman Empire, increasing the public’s interest in the “orient.” Due to their secrecy, harems were of particular interest; men were not allowed inside, leading to an abundance of erotic harem fantasies. English women with the means to do so traveled to these harems, with some publishing travel narratives about their trips. Their depictions of the harems changed as the genre grew and women’s rights evolved. Reviews of narratives and periodical literature provide information about women travelers and more broadly ideas about women’s roles. I argue that, while Victorian ideals specified that a woman’s place was in the home and that proper women’s sexuality should remain hidden, the reviews and success of these books reveal a more complex viewpoint in practice. In addition, these women revealed their own opinions on women’s rights and roles at home through their analysis of what they saw and the biases they revealed, even when they stated that they were trying to leave their western prejudices behind. Even today we must recognize the contrast between our ideals and our reality, and that our view of others is shaped by our own lives.

Women Aren't Just for Gazing

Presenter: Kaitlin Parisi

Mentor: Dr. Christy Mesaros-Winckles

Ribbons: **Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity**

Session/Time/Location: **1A, 10:10-10:30, Jones 110**

Abstract: The purpose of this paper is to analyze Victoria's Secret use of the male gaze critical media theory in their advertising. I will be examining Victoria's Secret "The Perfect Body" campaign, as well as their fashion shows throughout the years. I will also be comparing Victoria's Secret to companies such as Aerie, who have a more positive outlook for customers. From body shaming, to feeling unhappy and unmotivated, it shows just how toxic advertising has become and the effects of Victoria's Secret models have placed on young and older women today. Women are **not** just for gazing, despite the labels society places on them. Women feel as though their bodies are ugly or not worthy in society, due to these stick figure models portraying a type of body many wish to have, but is unrealistic. There is no such thing as the perfect body and we dive into what the advertising world has done to our society to make people believe this is true.

Behavior of the Linea Alba During a Latissimus Dorsi Task in Diastasis Rectus Abdominis

Presenter: Rachel Smestad

Mentors: Prof. Victor Liberi, and Dr. John Goetschius

Ribbons: Thinking Critically, and Crossing Boundaries and Disciplines

Session/Time/Location: 1B, 9:30-9:50, Peelle 207

Abstract: **Background:** Diastasis Rectus Abdominis (DRA) is a condition that is defined as the magnitude of separation of the rectus abdominis muscle from the linea alba as a result of elastic changes placed on the abdominal wall from pregnancy.

Purpose: The goal of this study is to determine if a latissimus dorsi pull-down has positive or negative effects on DRA.

Design: Cross-sectional observational design

Setting: Adrian College and the Northwest Ohio Center for Pelvic Rehabilitation and Wellness

Participants: Eleven women with at least mild DRA were recruited via flyer and word of mouth.

Interventions: Ultrasound measurements of the DRA were captured for four conditions (rest, latissimus dorsi pull-down, Transverse abdominis latissimus dorsi pulldown, and a curl-up).

Main Outcome Measures: The magnitude of DRA was compared using an ANOVA with repeated measures.

Results: TBD

Conclusion: TBD

Effects of Ultrasound Biofeedback on Transverse Abdominis Activation in College Golfers with and without Low Back Pain

Presenter: Andrew Skibski

Mentors: Dr. Erin Garmyn, and Dr. John Goetschius

Ribbon: Thinking Critically

Session/Time/Location: 1B, 9:50-10:10, Peelle 207

Abstract: **Context:** Low back pain (LBP) accounts for up to 55% of all injuries in golfers. Movements where the spine is asymmetrically loaded in multiple planes of motion at the same time, such as the golf swing, may increase the risk of LBP. Rehabilitation of LBP focuses on improving transverse abdominis (TrA) activation to improve spinal stability; however, limited evidence suggests an impairment exists in those with LBP. Diagnostic ultrasound can measure TrA activation and provide real-time biofeedback with a goal of improving TrA activation.

Design: Crossover design.

Setting: Research laboratory.

Participants: College golfers with or without a history of LBP.

Interventions: Participants completed two visits separated by approximately 48 hours. At the first visit they completed LBP questionnaires and a demographics survey. For both visits they performed 10 TrA contractions (“draw the belly button to the spine”) in supine and 10 TrA contractions in their golf setup position, with resting and contracted images captured via ultrasound. Visits were randomized with one including verbal cueing alone, and one visit using real-time ultrasound biofeedback. The Biering-Sørensen test was performed twice during the final visit as a clinical measure of core stability.

Main Outcome Measures: We calculated mean TrA activation ratio (average contracted thickness/average resting thickness) in supine and the golf setup position for the final 5 contractions in each position. We recorded the best of the two Biering-Sørensen trials (seconds).

Results & Conclusions: This is an ongoing study; results will be completed by the presentation date.

Effects of Blood Flow Restriction on Muscle Activation during Y-balance Exercises for Individuals with Chronic Ankle Instability

Presenter: Michael Burkhardt

Mentors: Dr. Erin Garmyn, and Dr. John Goetschius

Ribbons: Caring for Humanity and the World

Session/Time/Location: 1B, 10:10-10:30, Peelle 207

Abstract: **Context:** Lateral ankle sprains are common musculoskeletal injuries in physically active population, and an estimated 70% who sustain a lateral ankle sprain develop Chronic Ankle Instability (CAI). CAI has been associated with chronic impairment in neuromuscular function during functional exercises. Blood flow restriction (BFR) has been shown to increase neuromuscular function during resistance exercises but have yet to be studied during functional exercises.

Objective: To determine whether BFR enhances muscle activation during Y-balance exercises in individuals with CAI compared to Y-balance exercises without BFR.

Design: Cross-Over design

Setting: Laboratory

Patients or Other Participants: A convenience sample of twenty-five (n=25) individuals aged 18-30 with a history of CAI.

Interventions: Participants completed two study visits. At each visit, participants performed two trials of Y-balance exercise. At one visit, Y-balance exercises were performed with BFR and at the other visit Y-balance exercises were performed without BFR (Control). For the Y-balance exercises, participants balanced on their CAI ankle, while cycling through reaches with their contralateral limb in the anterior, posteromedial, and posterolateral directions. For each trial, participants performed four sets of reaches with 30x-15x-15-15x repetitions.

Main Outcome Measures: The primary outcome was muscle activation of the tibialis anterior, fibularis longus, soleus, and vastus lateralis muscles, collected through surface electromyography (EMG). Secondary outcomes included Ratings of Perceived Exertion (RPE) and Ratings of Perceived Stability (RPS) both collected using questionnaires.

Results & Conclusions: This study is ongoing, results and conclusions will be presented at the Ribbons of Excellence conference.

The Influence of an Intergroup Dialogue-Based Workshop on Athletic Trainers' Cultural Competence

Presenter: Jolene Pangani

Mentors: Dr. Tina Claiborne, and Ms. Jillian Kochanek

Ribbons: **Caring for Humanity and the World, Learning Throughout a Lifetime, Crossing Boundaries and Disciplines, and Developing Creativity**

Session/Time/Location: **1C, 9:30-9:50, Peelle 212**

Abstract: **Context:** With growing diversity and therefore health care disparities in the United States, it has been shown that improving providers' cultural competence may be an important aspect of quality health care. Intergroup Dialogue-based workshops give practical strategies to engage across difference and can provide a safe environment to improve cultural behaviors. Previous research in athletic training shows that athletic trainers have a baseline level of cultural competence, however it is unclear whether knowledge translates into clinical behaviors.

Objective: To determine whether an intergroup dialogue based-workshop on cultural competence influences cultural awareness and sensitivity, and behaviors of athletic trainers.

Design: This study is a cross-sectional cohort design, using a mixed-methods approach to examine qualitative and quantitative data.

Setting: Midwest Division III College Classroom

Participants: A total of 20 certified athletic trainers volunteered for this study.

Interventions: Certified athletic trainers participated in a single 90-minute intergroup dialogue-based workshop that aimed at influencing cultural competence. Cultural awareness and sensitivity, as well as behaviors were measured quantitatively using the Cultural Competence Assessment and qualitatively via written answers to questions regarding the workshop experience. Three time points were assessed to determine participants' cultural awareness and sensitivity, and behaviors before and immediately after the workshop, and one month post.

Main Outcome Measures: A 2x3 ANOVA was performed to determine differences in cultural awareness and sensitivity, and behaviors over time. Written answers were evaluated for common themes.

Results & Conclusions: This study is an ongoing study; results will be presented at the Ribbons of Excellence symposium.

Knowledge and Awareness of Diversity and Inclusion to Provide Culturally Competent Care

Presenter: Courtney Young

Mentors: Dr. Heather Schuyler, and Mr. Jeremy Marra

Ribbons: **Caring for Humanity and the World, Learning Throughout a Lifetime, and Crossing Boundaries and Disciplines**

Session/Time/Location: **1C, 9:50-10:10, Peelle 212**

Abstract: **Context:** Cultural knowledge and skills are essential for upcoming professionals. With the changing demographics in today's society, all healthcare providers must be equipped to adapt with a variety of cultures to provide culturally competent care.

Objective: Investigate athletic training students' current cultural awareness, sensitivity, and behavior levels and determine if their knowledge and awareness after diversity and inclusion training will increase their ability to deliver culturally competent care.

Design: Cross-sectional study with a case study approach.

Setting: Midwest Division III college.

Patients or Other Participants: First, second, and third-year students enrolled in an accredited athletic training program.

Interventions: The Cultural Competent Assessment (CCA) determined students' cultural awareness, sensitivity, and behavior levels before and after diversity training. An online module; Diversity, Equity, and Inclusion was utilized to develop skills related to behaviors, self-care, and creating inclusive spaces.

Main Outcome Measures: A Paired Sample T-Test determined if there was a significant change between athletic training student's CCA scores before and after diversity training.

Results & Conclusions: The study is ongoing; results and conclusions will be completed by Ribbons of Excellence.

The Effect of Mindfulness Based Stress Reduction Meditation on Depressive Symptomology in College Student-Athletes

Presenter: Dakota Morgan

Mentor: Dr. Heather Schuyler

Ribbons: Caring for Humanity and the World, and Crossing Boundaries and

Disciplines

Session/Time/Location: 1C, 10:10-10:30, Peelle 212

Abstract: **Context:** As many as 25% of college student-athletes may be clinically depressed. However, many endure subclinical levels of depression that don't necessarily warrant professional help. Mindfulness Based Stress Reduction Meditation (MBSR) is an individual therapeutic technique that has been proven to reduce stress and anxiety in the general population.

Objective: To determine if MBSR is effective at reducing depressive symptomology in a sample of college student-athletes.

Design: Cross-sectional study.

Setting: Private, Midwestern Division III college.

Participants: A total of 15 Division III athletes aged 18-25 representing seven different sports teams.

Interventions: Subjects were randomly assigned to the intervention or control group. The intervention group completed 30-minute group meditations once per week and were encouraged to meditate daily on their own. Each week both groups repeated a survey measuring their depressive symptomology, stress, and mindfulness.

Main Outcome Measures: The Patient Health Questionnaire was used to measure depressive symptomology. Stress was measured using the College Student Stressful Event Checklist, and mindfulness was evaluated using the Mindfulness Attention Awareness Scale. A repeated measures ANOVA was used to analyze and compare each of the group scores over time.

Results: There was not a significant effect detected in depressive scores over time. However, the pattern of means shows steadily decreasing scores each week.

Conclusions: The findings show that MBSR should be further investigated for its potential as an intervention to reduce depressive symptomology in college student-athletes.

Analysis of Blood Vessel Patterns Using Statistical Methods

Presenters: Jessica Ryder, and Robert Nowik

Mentors: Dr. Marti Morales-Ensign, and Dr. Dorin Dumitrascu

Ribbons: **Thinking Critically, and Crossing Boundaries and Disciplines**

Session/Time/Location: **1D, 9:30-9:50, Rush 116**

Abstract: Adequate blood flow is essential for gas exchange, healing damaged tissues and delivering pharmaceuticals to the correct location in the body. It has been proposed previously that branching slows down the rate of blood flow for the purposes of gas exchange in the capillary. Wilhelm Roux, a zoologist from the 19th century, observed some relationships between vessel diameter and bifurcation angles. John A. Adams (2011) proposed equations describing the branching patterns observed by Roux and discussed the implications of vessel structure and hemodynamics. We took more photos of vessels and used GeoGebra to measure the diameters and bifurcation angles. Then we performed a statistical analysis that compares this actual data of bifurcation angles to the theoretical model, as it applies to the heart. This research expands the research of former Adrian College students Rachel Wathen, Ashely Oram, and Gabe Lopez. Our work embodies the ribbons of “thinking critically” and “crossing boundaries and disciplines.”

Monitoring Nutrient Levels in the River Raisin Watershed

Presenters: Mark Henderson, and Corrin Logan

Mentor: Dr. Jim Martin

Ribbons: **Caring for Humanity and the World, Learning Throughout a Lifetime, and Thinking Critically**

Session/Time/Location: **1D, 9:50-10:10, Rush 116**

Abstract: Agricultural practices in the South Branch of the River Raisin have been identified as potential hot spots for nutrient additions into the River Raisin and ultimately Lake Erie. We have been testing a number of tile drains coming off of farms as well as directly from streams and the river itself. Excess agricultural runoff has been implicated in cyanobacterial blooms in the recent past. Our study has entered its fourth year, and now we can begin to speak to the dynamics of the portions of the systems that we are monitoring. We have also recently expanded our study sites to include an artificial wetland designed to catch nutrients and hold them in place. This aggregate sampling technique is also in place on the tile drains. Our research embodies both “Thinking Critically” and “Caring for Humanity and the World”. Critical thinking, for us, means understanding our study systems, the limitations of our tools, and the fluxes and flows associated with moving water. Caring for Humanity and the World for us, means using our data to promote best management practices that could lead to a healthier world.

Petrographic analysis of andesite cobbles from western Montana

Presenter: Rebecca Goughnour

Mentors: Dr. Thomas Muntean, and Dr. Sarah Hanson

Ribbons: **Learning Throughout a Lifetime, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity**

Session/Time/Location: **1D, 10:10-10:30, Rush 116**

Abstract: The Bell River Hypothesis posits that from approximately 25-16 Ma the proto-Colorado River flowed northward from the Colorado Plateau (CP) and was captured by the ancestral Bell River system. This study hypothesizes that if the proto-Colorado River converged with the ancestral Bell River system, then there will be evidence of CP sediments within the Bell River deposits. This study petrographically analyzed the mineralogical composition of porphyritic andesite cobbles collected from western Montana and compared them to porphyritic andesite from the Henry Mountains (HM) laccolith of the CP. The HM laccoliths have distinct geochemical signatures, and their presence in western Montana would support the project hypothesis. Results showed four distinct compositional groupings based on plagioclase, biotite, and hornblende (Groups 1-4), and one distinct compositional group based on plagioclase, pyroxene, and hornblende (Px Group). Group 1 was defined by the compositional range of the HM samples, and represents the best candidates for geochemical analysis and comparison to published CP laccolith geochemical data. Of the 32 samples analyzed, 14 samples fell into Group 1, five of which also plotted in the Px Group. Several local Montana volcanic units could be the source of samples plotting in Groups 2, 3, and 4, but further geochemical analysis is necessary to constrain these relationships. Yellowstone River samples showed the greatest compositional diversity, with cobbles plotting within all compositional groups. Other streams lacked a wide compositional range, which is likely the result of differences in watershed size and sediment capture area.

Shattering Myths: How to Break a Glass with Your Voice

Presenter: Laurel Hammis

Mentor: Dr. Kristin Clark

Ribbon: **Crossing Boundaries and Disciplines**

Session/Time/Location: **1E, 9:30 – 9:50 am, Rush 124**

Abstract: Shattering a glass with one's voice would appear to some to be impossible but through the intense exploration of music, math, and science, this seemingly impossible task is now in reach. This project demonstrates the core values of what the Ribbons of Excellence are. Being able to shatter a glass with one's voice crosses boundaries and disciplines because of the need to use both music and physics principles. Utilizing principles from different areas of study helps to obtain a well rounded understanding of the reasons behind this phenomenon. This project also cares for humanity and the world because art and science are inherent principles to culture. This creative use of both of these areas of study to create something new also demonstrates thinking critically. Shattering a glass with one's voice seems to be impossible but through problem solving and critical thinking, this impossible task will be achieved. And as a whole, this project is extremely creative and demonstrates creativity along with learning through a lifetime. Opera singers go their whole lives trying to accomplish the seemingly impossible task of shattering a glass with their voice. I have personally been trying to accomplish this feat for as long as I have been a singer and it hasn't been easy. But shattering this myth encompasses all the values of the Ribbon's of Excellence and it shows the prevalence of these values in areas of creative problem solving of near impossible tasks.

The History and Chemistry of Lighting for the Stage

Presenter: Alan Gibson

Mentor: Dr. Michael Claus

Ribbon: **Crossing Boundaries and Disciplines**

Session/Time/Location: **1E, 9:50 – 10:10 am, Rush 124**

Abstract: Actors are said to live in the limelight. Theatre production therefore is greatly dependent on light to make the actor, set and production look amazing. Since the beginning of theatre, actors have used light to their advantage. Light, first and foremost, ensures the audience can see the action occurring on stage. Light also plays a crucial part in setting the mood of a scene, coloring the stage in ways paint cannot, and providing highlight and shadow to transform a scene from eerie to cheery. This presentation examines the chemistry and physics of light on the stage through the history of the theatre, starting with the sun, to today's LEDs. This project embodies the ribbon crossing boundaries and disciplines as it explores the concept of light from multiple perspectives.

Exploring Crystalline Glazes

Presenter: **Emily Archer**

Mentor: **Prof. Travis Erxleben**

Ribbon: **Crossing Boundaries and Disciplines**

Session/Time/Location: **1E, 10:10 – 10:30 am, Rush 124**

Abstract: As part of Adrian College's Ribbons of Excellence Day, I propose to deliver a lecture focusing on my current research exploring the crossovers between the ceramic arts and science. Specifically, this lecture will delve into the chemistry and geological understandings needed to create crystalline glazes. Crystalline glazes, unlike traditional ceramic glazes utilize carefully controlled kiln firing and cooling processes paired with meticulously calculated formulas of zinc, silica, and metallic oxides to stimulate the growth of crystals in varying shapes and sizes. These artistically intriguing, but also scientifically captivating finishes are highly sought after for their visual beauty, scientific complexity, and the artistic virtuosity required for their successful creation. This research offers an exemplary illustration of the successful outcomes that can be attained by focusing on one's strengths and interests and crossing boundaries and disciplines.

Williams Cup Oratorical Competition

Presenters: **Alexis Brodie, Lyric Davis, Elliott Edsall, Emily German, Samantha Stewart, and Danielle Worden**

Mentors: **Dr. Theresa Stowell, Prof. Stephen Mitchell, Dr. Renuka Uthappa, Dr. Katie Rasmussen, and Dr. Andrew Winckles**

Session/Time/Location: **1F, 9:30 – 10:30 am, Downs Hall Theatre**

Abstract: In Academic Foundations II (AF II), the second course in Adrian College's Core Curriculum, students continue to develop their knowledge and practice of the rhetorical strategies used in academic, professional, and civic discourse. AFII aims to cultivate an ethic of inquiry that connects students with the value of the college's Ribbons of Excellence.

The speakers in this session represent oratorical achievement in AF II. These students were nominated by their instructors and advanced through an elimination round to compete on Ribbons of Excellence Day for the top prize.

Each speaker will present a short Informative Speech. One of these speakers will be awarded the Williams Cup, which was historically given to the member of the Literary Society with the best oration in head-to-head competition. Members of the Adrian College faculty moderate and judge the competition.

Construal Bias in Language II

Presenters: Hunter Casebolt, Emily Dupont, Mariah Ellison, Hannah Jakaus, Emalee Kerr, Tianna Lavalle, Abby Tourison

Mentors: Dr. Seth Knox, Dr. Stacey Todaro

Ribbons: **Crossing Boundaries and Disciplines**

Session/Time/Location: **2A,10:45-11:05, Jones 110**

Abstract: The goal of this research is to examine construal bias in language. Prior research has demonstrated a general preference for assigning male beings or masculine nouns to agent/trajector roles in linguistic construals of events (e.g., John kissed Mary is a more probable construal than Mary kissed John) (Esaulova & von Stockhausen, 2015; Rodriguez, Burigo, & Knoeferle, 2015). In our prior research, we have shown that participants processed male subjects significantly faster in transitive constructions, but not intransitive constructions. This suggested that agency, rather than topicality, was responsible for the preference for male subjects in the transitive constructions. Moreover, this effect was moderated by gender bias, such that those with high gender bias were more affected by a female in the subject slot. To further explore the role of agency versus topicality in this effect, we added passive constructions to the experimental design. We hypothesized that agency would exert a greater effect than topicality such that there would be no difference in processing times for male and female subjects in passive constructions.

How to Write a Novel

Presenter: Lillian Brueckman

Mentor: Dr. Linda Learman

Ribbons: **Caring for Humanity and the World, Crossing Boundaries and Disciplines, Learning Throughout a Lifetime, Thinking Critically, Developing Creativity**

Session/Time/Location: **2A, 11:05-11:25, Jones 110**

Abstract: To write a novel is to begin and end a journey. Though it's a rather long journey, difficult to concoct and intertwine together, a novel can both inspire and encourage creativity. The question is, how do you begin and effectively end that journey? This presentation is the accumulation of almost seven years of imagining, developing, and writing. And in just twenty minutes, I'm going to explain to you how I did it. In this presentation, first I will explain the origins of the plot I began developing almost seven years ago. How the protagonist, Marcus Walker, became who he is now versus who he was when I first began crafting the piece in 2013. Following his evolution as a character, I will focus on the evolution of plot and the influences that impacted it. How did my personal interests and the content I engaged in while in my youth change my ideas and influence my writing? And finally, I will explain the writing process that allowed me to finish it.

From Laboratory to Newsroom: Science Journalism in the 21st Century

Presenter: Emily Little

Mentor: Prof. Renee Collins

Ribbons: **Crossing Boundaries and Disciplines, Learning Throughout a Lifetime, Developing Creativity**

Session/Time/Location: **2A, 11:25-11:45, Jones 110**

Abstract: As scientific discovery becomes more and more prominent in society, it is important to relay this information to the general public in a meaningful and understandable manner. Science journalism rose as a field of study to take complicated research and make it accessible. Through this presentation, the audience will learn about what makes a good science journalism piece and how writers grab attention in their articles. This will use several articles as examples from Scientific American, Nature, and other similar publications.

A Comparison of Fluorescent Green and Ethidium Bromide Stains using the Accuris SmartDoc 2.0 Imaging System

Presenter: Kaitlyn Alicz

Mentor: Dr. James Leslie

Ribbons: **Learning Throughout a Lifetime, Thinking Critically**

Session/Time/Location: **2B, 10:45-11:05, Peelle 207**

Abstract: Ethidium Bromide has been a common stain used by Adrian College for UV illumination in gel electrophoresis for many years. Though a reliable staining procedure, ethidium bromide also acts as both a carcinogen to humans and an irreversible contaminant if spilled onto equipment. Furthermore, UV light is known to cause mutations and vision damage in individuals who do not adhere to certain guidelines. In an attempt to improve the gel electrophoresis experiments and make them safer for students, I have collaborated with Dr. Leslie to perform research comparing the effects of ethidium bromide and UV light with the use of a fluorescent stain and the Accuris SmartDoc 2.0 Imaging System. This independent study was conducted throughout the course of the Fall 2019 semester and utilized both agarose and 5% polyacrylamide gels to carry out the experiment. The results of this study showed that the use of the Accuris SmartDoc system in place of a UV transilluminator will allow students to use their mobile phones, instead of film, to take pictures of their gels. Furthermore, the use of a SmartGlo fluorescent stain in place of ethidium bromide will provide students with a new, and just as effective, staining procedure that is neither carcinogenic nor contaminating.

The Use of Arts Based Observational Skills and Descriptive Language in Today's Medical Field

Presenter: Maria Granger

Mentor: Prof. Travis Erxleben

Ribbons: **Crossing Boundaries and Disciplines, Caring for Humanity and the World, Thinking Critically, Developing Creativity, Learning Throughout a Lifetime**

Session/Time/Location: **2B, 11:05-11:25, Peelle 207**

Abstract: One of the biggest problems facing contemporary medical care is a need to make doctor-patient dialogues more efficient and effective. Some of the main problems facing patient care in today's medical field include the failure to communicate in understandable laymens' terms; the lack of justification for expensive tests and treatments; the absence of transparency when discussing possible adverse reactions and side effects. Often times, patients feel unheard and doctors fail to communicate results and potential treatment options with compassionate candor. This presentation will explore how utilization of the observational skills and descriptive language learned in art programs can allow the medical field to bridge the communication gap and yield more positive doctor-patient interactions and medical experiences.

There is a general consensus that most people are either creatively minded artistic types, or logically minded scientific types. Being a medical illustration student allows me the unique position to exist somewhere in the middle of the spectrum. I am able to see both sides without being fully involved in one or the other. I am able to objectively look at the problems of both systems and apply my creative knowledge to a field that most consider to be highly systematic and vice versa.

Using the observational skills taught in art and creative fields as well as the methods of communicating these details a common language between the medical community and patients can be built and better care and understanding for patients can be restored.

Hypothyroidism: Introduction to Scientific Research

Presenter: Addison Bergman

Mentor: Dr. Keith McCleary

Ribbons: **Crossing Boundaries and Disciplines, Caring for Humanity and the World, Thinking Critically, Developing Creativity, Learning Throughout a Lifetime**

Session/Time/Location: 2B, 11:25-11:45, Peelle 207

Abstract: Hypothyroidism is a disorder that plagues 4.6 percent of the American population. Ten times more likely in women, this disorder has many symptoms that affect overall quality of life. Hypothyroidism most commonly stems from an underactive thyroid gland and there are many maintenance techniques to ensure an effect. Though people are frequently diagnosed with this disorder, there has yet to be an actual cure or best pathway of treatment determined. As someone who has this disorder, it was important for me to understand what causes hypothyroidism, its' symptoms, and hopefully the most effective treatment.

I spent my time this semester doing literature research starting with the most basic information on the endocrine system and ending with the question: "What is the best treatment for someone with subclinical hypothyroidism?" I have found with my research thus far that though levothyroxine is the standard treatment for hypothyroidism, there are compounded thyroid medications that have also gotten positive results. I have collected all of my research in a systematic manner and will be moving into the lab this semester in order to test metabolic levels of rats given different dosages of artificial thyroid supplements in order to learn how the body is affected by differing amounts of the thyroid hormone.

Helmet Fit Characteristics in Collegiate Ice Hockey Athletes

Presenter: Kyle Schulz

Mentors: Prof. Vector Liberi, Dr. John Goetschius, Ms. Meg Sharp

Ribbon: Learning Throughout a Lifetime

Session/Time/Location: 2C, 10:45-11:05, Peelle 212

Abstract: **Background:** Previous helmet fit studies done at the youth level have suggested the majority of ice hockey helmets do not fit properly. Improperly fitted helmets have the potential to increase the risk and severity of injury for the athletes wearing their helmets improperly.

Purpose: The purpose of this study is (1) to determine the prevalence of improperly fitted helmets in collegiate ice hockey, (2) to determine what helmet fitting criteria are most commonly missed, and (3) to determine if any additional factors affect helmet fitting.

Design: Cross-sectional observational design

Setting: Arrington Ice Arena

Participants: Seventy-nine collegiate ice hockey players (40 male/39 female) ages 18-24 years old participated in the study and were recruited via email and word of mouth.

Interventions: Helmet fit was examined using a 13-point helmet fit checklist. Also, an informational survey containing factors that may influence the helmet fit was completed by each participant.

Main Outcome Measures: The primary dependent variable is overall helmet fit. If any of the helmet fit criteria failed, the helmet was deemed to fit incorrectly.

Results: TBD

Conclusion: TBD

Comparison of the Impact Attenuating Capabilities of Ice Hockey Helmets With and Without XRD Foam

Presenter: Hannah Emerson

Mentors: Prof. Vector Liberi, Dr. Tina Claiborne

Ribbons: Thinking Critically, Caring for Humanity and the World

Session/Time/Location: 2C, 11:05-11:25, Peelle 212

Abstract: **Context:** In ice hockey, the rates of concussion continue to rise with little evidence regarding the efficacy of helmets. Although not proven in peer reviewed literature, some companies claim that incorporation of XRD foam in helmets and skullcaps will help to attenuate linear accelerations put on the skull.

Objective: To compare the impact attenuating capabilities between ice hockey helmets manufactured with and without XRD foam, and the Second Skull skullcap at reducing head accelerations.

Design: Ice hockey helmets with and without the skullcap were fit onto a Hybrid III 50th Head Form Head and dropped onto the left temporal side (height: 50 inches). Using a tri-axial accelerometer, data was collected at a rate of 4kHz, and low pass filtered at 1kHz. Signal was conditioned at a gain of 10mV/g and converted to digital format via an A/D board. Peak linear accelerations in g were calculated using Labchart 8.

Setting: Controlled laboratory

Interventions: 1) XRD foam helmet (Bauer RE-AKT 95); 2) XRD foam helmet with Second Skull; 3) No XRD foam helmet (Bauer IMS 5.0); and 4) No XRD foam helmet with Second Skull. A total of 25 drops were performed for each condition.

Main Outcome Measures: Average peak linear acceleration (g) in the vertical direction was calculated. A 2X2 ANOVA with repeated measures and a LSD post-hoc will be used to analyze the data.

Results & Conclusion: Data collection is ongoing, and the results of the study will be presented at the Ribbons of Excellence symposium.

"In the Shadows of Two Towers": The Search for New York in 9/11

Presenter: Gina Buono

Mentor: Dr. Deborah Field

Ribbons: **Caring for Humanity and the World, Learning Throughout a Lifetime, Crossing Boundaries and Disciplines, Thinking Critically**

Session/Time/Location: **2D, 10:45-11:05, Rush 116**

Abstract: The terrorist attacks of September 11, 2001 incited reactions across the globe and continue to have an undeniable effect on current events. Undoubtedly understanding what happened before, during, and after that day is of critical importance for understanding the roles of America and the Middle East today. When analyzing the way politicians, newspapers, the public, and scholars have talked about 9/11, what they talk about and the perspectives they come from heavily influence the interpretations of that day's events. I argue that national media emphasized topics of cultural unity, civic unrest, and imminent threat. This contrasts with New York's interpretation of events, which concentrates on individual experience and the short and long term effects of the attacks on the city itself. Furthermore, I also highlight the lack of information and a rise of misinformation among a generation that has little firsthand experience of the events themselves. A lack of education stands to significantly impact their ability to understand current events, and demonstrates the importance of improving both the scholarship and the pedagogy in tandem.

British Soldiers in The First World War: The Shifting Motivations of Fighting Men

Presenter: **Andrew Moore**

Mentor: **Dr. Deborah Field**

Ribbon: **Caring for Humanity and the World**

Session/Time/Location: **2D, 11:05-11:25, Rush 116**

Abstract: On the Western Front from 1914-1918, British soldiers were subjected to new and increasingly deadly forms of warfare. What motivated these men to fight in such a life-threatening conflict? Society was tasked with replacing those killed and wounded on the battlefield with a continuing stream of new soldiers. Tactical propaganda, newspaper articles, and draft law were employed to influence these men into military service. Once in the trenches of Europe, they left behind diaries, letters, postcards, and poems that reveal their personal wartime experiences and motivations. Much of the scholarship concerned with The First World War, however, has been focused on the military tactics or wide scale results of the war. Even those historians who have begun to consider the individual men that fought, have concentrated on the impact that they had on society and literature after the war's conclusion. I argue that British soldiers were compelled into service based on a variety of societal pressures, but once introduced to the horrors of the Great War, some became motivated by their own self-confidence, leadership, and their brothers-in-arms to see their tours through. These soldiers were real people that feared, hated, and loved as vividly as we do today. Their lives and stories matter, and I think that they earned the right to speak for themselves. Caring for humanity and the world should be something we continue to strive for both in the past and the present.

A Tale of Two Cities*Presenter: Kevin Clipper**Mentor: Dr. Philip Howe**Ribbons: Caring for Humanity and the World, Thinking Critically, Crossing Boundaries and Disciplines**Session/Time/Location: 2D, 11:25-11:45, Rush 116*

Abstract: Two and a half thousand years ago, as the Peloponnesian War was raging, the Athenian historian Thucydides offered a powerful insight: “It was the rise of Athens and the fear that this inspired in Sparta, that made war inevitable”. Others identified many factors that contributed to the cause of the conflict, but Thucydides went to the core of the matter, focusing on the inexorable, structural stress caused by a rapid shift in the balance of power between two rivals. Thucydides identified two key drivers of this dynamic. The first, the rising power’s growing entitlement, sense of its importance, and demand for greater say and sway. The second was the fear, insecurity, and determination to defend the status quo this causes in the established power.

The Thucydides’s Trap refers to a situation “when one great power threatens to displace another, war is almost always the result”. Today we are able to observe a Thucydides Trap developing between the United States and China. Due to China’s historical, cultural, and ideological background, it is not similar to the West, will not submit to the American led world order, and has the potential to change the world in profound ways. This, along with its economic power, which has the ability to translate to military power, rising to the point where it challenges the United States, suggests that China is a rising power threatening the position of the United States’ role as the world’s established power and the world order it has created.

Inconvenient Woman*Presenter: Kylee Doty**Mentor: Dr. Christy Mesaros-Winckles**Ribbons: Caring for Humanity and the World, Thinking Critically, Crossing Boundaries and Disciplines, Learning Throughout a Lifetime, Developing Creativity**Session/Time/Location: 2E, 10:45-11:05, Rush 124*

Abstract: Debord discusses this issue in *Society of the Spectacle* by detailing how the lives of celebrities are meant to showcase a type of lifestyle that appears perfect, and serves as a sort of entertainment for normal people. Pop/alternative superstar Halsey challenges the same perception of entertainment as Debord through her art and her life by being upfront and honest about the struggles that people constantly go through, but feel hesitant to reveal. This presentation will compare Debord’s concept of society with Halsey’s album *hopeless fountain kingdom* (2017) to critique the dominant popular narrative of art as spectacle and not a method of social protest.

A Voice to a Voiceless Woman: A Feminist Biblical Interpretation of Sarah Blake's Novel "Naamah"

Presenter: **Freya Holferty**

Mentor: **Prof. Scott Elliott**

Ribbons: **Thinking Critically, Learning Throughout a Lifetime**

Session/Time/Location: **2E, 11:05-11:25, Rush 124**

Abstract: The stories and lives of women in the Bible are often overlooked and left untold due to the Bible's androcentric nature and patriarchal culture from which it emerged. This is the case for Naamah, a woman who is never directly named in the Bible, despite being the wife of Noah whom God told in Genesis to build the ark in order to escape the flood. We all know the story of Noah but we don't know the story of the woman who stood beside him. Who was she? What must it have been like for her? How does the story of Genesis look when viewed through her eyes? Through a literary analysis of Sarah Blake's novel, "Naamah," I demonstrate the value of fiction in feminist biblical interpretation. In changing the lens through which the story is viewed and shifting the focus, I argue for the importance of her life and her contributions to this myth. Further, I make the case that Naamah's life, once considered in relation to her story on the ark, invites us to think about larger questions of womanhood and what makes a woman. The novel exposes the realities of the flood while also being otherworldly in Naamah's experiences on the ark. Reading this novel gives a voice to a voiceless woman, reclaims the myth from a patriarchal view, and demonstrates a woman's struggle of faith. Naamah's very existence invites interpretation. Interpretation incites understanding. This is a crack in the Bible where her story cannot be unheard.

The Narrative Paradigm in Kendrick Lamar's "To Pimp a Butterfly"

Presenter: Gage Dansby

Mentor: Dr. Christy Mesaros-Winckles

Ribbons: **Caring for Humanity and the World, Thinking Critically, Crossing Boundaries and Disciplines, Learning Throughout a Lifetime, Developing Creativity**

Session/Time/Location: **2E, 11:25-11:45, Rush 124**

Abstract: This text analyzes and interprets the meanings and messages incorporated within *To Pimp a Butterfly*, a Grammy award-winning album by Compton, California rapper Kendrick Lamar that has garnered an influx of critical praise since its release in March of 2015. *To Pimp a Butterfly* details Lamar's pitfalls and exploitation from the music industry before breaking free from his capitalistic oppressors so he can use his fame as a voice for the African American community. More specifically, this analysis looks at how Lamar uses the Narrative Paradigm. A theory coined by the University of Southern California professor Walter Fisher stating that human beings are at their core, storytelling creatures that communicate through narrative plots (Fisher, 1984). Lamar uses the Narrative Paradigm structures of coherence and fidelity, along with a paradigmatic narrative structure and incorporation of the Illusion of Life music theory to construct a cohesive story of self-reflection and criticism of the music industry and American society.

Representation of Female Composers in Art Song: Collection and Analysis of a Database of Songs

Presenter: Charlie Penn

Mentor: Dr. Kristin Clark

Ribbons: **Caring for Humanity and the World, Thinking Critically, Crossing Boundaries and Disciplines, Learning Throughout a Lifetime, Developing Creativity**

Session/Time/Location: **2F, 10:45-11:05, Downs Hall Theatre**

Abstract: As a recipient of the 2019 Undergraduate Summer Research Grant at Adrian College, this research was conducted over many months. My faculty mentor and I collected data from musicians of all levels in order to see the prevalence of female composer's works in the modern-day repertoire.

This research was conducted through a survey of over 100 musicians of all levels from all around the world. The survey asked what repertoire, if any, the musician had performed that was written by a female composer, what female composers they knew of without searching, and other questions such as what music they had rehearsed or come into contact with by female composers that they didn't perform.

This information collected will be converted into a catalog of music to serve as a resource to other musicians looking to increase diversity in their programming. It is our hope that through this catalog we can expand awareness and accessibility of these works with the aim of improving the prevalence of art songs by female composers in public performance. An additional result of this research is that I will be performing a Capstone Senior Recital comprised of many works by female composers. In this presentation, I will expound upon the findings of my research, and I will also perform songs from my upcoming Capstone Recital.

Black American Composers on the Classical Concert Stage

Presenter: Briyanna Wilson

Mentor: Dr. Kristin Clark

Ribbons: **Caring for Humanity and the World, Thinking Critically, Crossing Boundaries and Disciplines, Learning Throughout a Lifetime, Developing Creativity**

Session/Time/Location: **2F, 11:05-11:25, Downs Hall Theatre**

Abstract: The contribution of black American composers is well known in the spheres of popular and sacred music such as jazz, R&B, gospel, and spirituals. However, there has been an undeniable neglect of works by black composers on the concert and opera stages in America. While social malady and injustice have caused many of these works to be buried or unpublished, there is in fact a treasure trove of art songs and arias that display equal creative excellence to many of the works the classical world celebrates. Through this presentation, I will explore classical songs for soprano and piano written by black American composers. I will present biographical information on the composers, as well as perform a handful of their songs. Through this, I aim to spread awareness of this repertoire, as well as provide a lens into the creative talents and historical contributions of the black American composers who paved the way toward greater diversity in the world of classical music.

One Step Closer: A Senior Recital by Alexandra McCarty

Presenter: Alexandra McCarty

Mentor: Dr. Kristin Clark

Ribbons: **Caring for Humanity and the World, Thinking Critically, Crossing Boundaries and Disciplines, Learning Throughout a Lifetime, Developing Creativity**

Session/Time/Location: **2F, 11:25-11:45, Downs Hall Theatre**

Abstract: Singing actors are required to demonstrate a depth of musical skill, while also personifying a wide range of human traits and emotions. Through the preparation of a role or recital, performers must learn to effectively communicate the stories of others. In order to do this, we must explore the diversity of human thought and experience empathy for the subject matter. We develop this through background research on the plots and texts, and we study historical, cultural, and social influences. We must also critically examine the intricate relationships between music, rhythm, and texts in our repertoire. Furthermore, we must understand that our performances can impact our audiences emotionally, as well as instill in them a thirst for musical knowledge. The process of combining these efforts into a well rounded and unique performance is the embodiment of the singer's creative process. This presentation will demonstrate the complexity of the singing actor's creative and intellectual processes through the performance of selections from Western Opera, Art Song, and American Musical Theatre.

Comparing Stigma Surrounding War Induced Post-Traumatic Stress Disorder, Traumatic Brain Injury, and Depression

Presenter: Alexandra Fluent

Mentors: Dr. Michelle Beechler, Dr. Amy Hillard

Ribbon: Thinking Critically

Session/Time/Location: Poster Session, 11:45-12:30, AT Room

Abstract: This study evaluated stigma surrounding war induced post-traumatic stress disorder (PTSD), traumatic brain injury (TBI), and depression. Fifty-four undergraduates read a vignette in which a mental disability was present, (i.e., TBI, PTSD, depression, or none), and answered two different questionnaires which evaluated participants' ratings for stigma and social distance. It was expected there would be higher levels of stigma and social distance surrounding both TBI and depression than PTSD. Secondly, it was expected there would be higher levels of stigma and social distance for TBI than depression. Finally, it was hypothesized there would be less stigma and social distance in groups reading one of the three disability vignettes. The levels of stigma across all four conditions were insignificant, $F(3,48) = 0.36$, $p = .79$. The levels of social distance across the three disabilities were also insignificant, $F(2,38) = 3.63$, $p = .78$. Results were also insignificant when evaluating the social distance levels across disorder by participant, $F(2, 104) = 1.32$, $p = .27$. Findings depicted no difference in stigma or social distance when compared across PTSD, TBI, and depression conditions.

Effects of Subtypes of Women on Ambivalent Sexism and Perceptions of Competence and Warmth

Presenter: Kristina Jones

Mentors: Dr. Michelle Beechler, Dr. Amy Hillard

Ribbon: Caring for Humanity and the World

Session/Time/Location: Poster Session, 11:45-12:30, AT Room

Abstract: Sexist remarks and perceptions have negative consequences such as self-doubt and low self-esteem. Previous studies have found that although sexism can harm anyone, women often suffer from sexist ideology more than men (Glick & Fiske, 1997). Extending this research, the present study examined how manipulating female subtypes (i.e., career woman, homemaker, and feminist) influenced the degree of ambivalent sexism (i.e., hostile and benevolent) and perceptions of warmth and competence toward those subtypes of women. Participants (N = 55) completed measures of sexism altered to include the female subtype labels and also rated the subtypes on warmth and competence. It was hypothesized that 1) career women would receive greater hostile sexism compared to other female subtypes, and 2) homemakers would receive greater scores for benevolent sexism and perceptions of warmth with lower competency scores compared to career women and feminists. It was found that those who remained within the traditional stereotype (i.e., homemaker) received higher benevolent and warmth scores. Those who strayed from the tradition (i.e., career woman and feminist) received more hostile sexism but were seen as more competent. Thus, different subtypes of women elicit different forms of sexism and perceptions.

Progesterone Levels in Neonatal Calves

Presenter: Arianna Woodrow

Mentor: Dr. Ben Pawlisch

Ribbons: Caring for Humanity and the World, Crossing Boundaries and Disciplines

Session/Time/Location: Poster Session, 11:45-12:30, AT Room

Abstract: Neonatal Maladjustment Syndrome (NMS) is a well-known disease in foals. The cause of this disease is yet unknown; however, recent research by Dr. Jim Madigan suggests a role for neurosteroids. During pregnancy, elevated neurosteroids, including progestins, are suggested to prevent injury to the foal and mother by limiting movement in the womb. Under normal circumstances, neurosteroids quickly decrease following birth such that foals are able to nurse quickly after being born. In foals with NMS, it has been shown that progestrins, including progesterone and its metabolites, remain elevated once foals are born, and their symptoms include lethargy and failure to nurse. We tested a group of neonatal calves to see if they would have elevated levels of progesterone after birth as NMS foals did. Then, potential treatments could be used in cows that currently used in horses. Additionally, cows are more likely to have twins than horses making them a better model for understanding how birth order may influence NMS in future research questions. At 48 hours after birth, concentrations of progesterone do not fall, but remain similar to concentrations after birth. There is a trend for males to have higher concentrations of progesterone, but sex does not appear to significantly influence progesterone concentrations. Calves assessed by veterinarians as slow to stand and nurse tended to have higher levels of progesterone than did the calves that normally nursed. These results are similar to research done on foals with NMS, suggesting a possible diagnostic tool for NMS and potential treatments.

Rewind: Why people would have laughed at Trump in the 18th Century

Presenters: Mary Turner, Tess Horowitz

Mentor: Prof. Renee Collins

Ribbon: Learning Throughout a Lifetime

Session/Time/Location: Poster Session, 11:45-12:30, AT Room

Abstract: We will be examining the 1788-1789 presidential election and the current 2020 presidential campaign. Specifically, we will compare and contrast these events through the lens of political humor and satire. Our presentation will include political cartoons from the 18th century, video of current comedians and political pundits, and a study of how humor has been used as a platform for conveying political truths throughout the centuries.

Fish Species and Distribution at Walden West

Presenters: Myles Jackman, Zach Graham

Mentors: Dr. Sarah Hanson, Dr. Thomas Muntean

Ribbons: **Thinking Critically, Crossing Boundaries and Disciplines**

Session/Time/Location: **Poster Session, 11:45-12:30, AT Room**

Abstract: This project was conducted to provide insight on the fish population in the pond at Walden West, located in the upper portion of the River Raisin watershed near Tipton Michigan. Fish were caught from September through October in 2019. Five zones with different characteristics were mapped within the pond. They include a shallow flat, transition zones, lily pad zone, and a sparse vegetation zone. Fish were collected using conventional fishing tackle a rod and reel. Thirty-three Largemouth Bass, eight Bluegill and three Northern Pike were caught. The Largemouth were the predominant species and the shallow flat zone had the biggest population of fish. Largemouth were so predominant in the shallow flat zone due to the time of the year that the fish were collected. During the Fall transition, Largemouth bass feed heavily before the winter season when their metabolism slows down. The bait fish were most prominent in the shallow flat zones also which leads to the biggest population of fish being there and supports the high feeding habits that largemouth bass acquire during the Fall transition.

Nutrient Levels in the South Branch River Raisin in Relation to Adrian Compost Facility

Presenter: **Brendan Koziol**

Mentors: **Dr. Sarah Hanson, Dr. Thomas Muntean**

Ribbons: **Thinking Critically, Caring for Humanity and the World**

Session/Time/Location: **Poster Session, 11:45-12:30, AT Room**

Abstract: The River Raisin Watershed, located in southeast Michigan, is an area dominated by agricultural practices. This study focused on total phosphorous and total nitrogen, as well as pH, conductivity, and total dissolved solids within the South Branch River Raisin. Water was collected from two sampling locations upstream from the Adrian compost facility and one downstream to determine if there was any further contamination from the composting operation. It was hypothesized that the water downstream from the Adrian Municipal Compost Facility will have an increased nutrient load due to wastewater runoff into the South Branch River Raisin. Following six weeks of water testing in the late summer, the results were consistent with the hypothesis. Total phosphorous levels ranged from low to moderately high while total nitrogen levels ranged from low to very high. Results for pH were fairly inconsistent but wavered between 7 and 8 which is fairly neutral. Further pH testing will be needed to draw any conclusions on its relationship with nutrient levels. Results for conductivity and total dissolved solids had an interesting tie with river discharge. As river discharge increased, dissolved solids decreased as they became diluted. This dilution resulted in a lowered conductivity level in the river system. Altogether, the increase of these parameters downstream was slight because small composting operations like the City of Adrian's have a minimal impact on nutrient levels as compared to large agricultural practices and their unfortunate side effects.

Costumes Out of this World

Presenter: Abby Coogan

Mentor: Dr. Annissa Morgensen-Lindsay

Ribbon: **Thinking Critically**

Session/Time/Location: **Poster Session, 11:45-12:30, AT Room**

Abstract: Abby Coogan researched Edwardian fashion for both men and women in order to design historically accurate costumes for the show *Silent Sky* by Lauren Gunderson. Throughout the process Coogan became familiar with the important role costumes play in historical productions. It is vital the costumes represent not only the period but also the character. Since the characters of Gunderson's play are based on real figures, it is especially important to understand the background of these women. The process has included developing a clear understanding of both the history of fashion, as well as the life of Henrietta Leavitt, an early female astronomer. Coogan's goals for the project included understanding how to professionally approach costume design as well as to understand the historical significance of the play. In this process, Coogan developed inspiration statements and boards as well as collected historical patterns to adapt in the creation of Henrietta's costume. This project relates to the ribbon *Thinking Critically*. It required in depth research into the historical period in order to understand why they wore what they wore and the historical significance of this style. At the conference Coogan presents a poster board with images of the costumes as well as research used as inspiration for the work.

The Effect of the Cold Pressor Test and GTN Administration on the Hierarchy of Vascular Tone

Presenter: Alexandra Fluent

Mentor: Dr. Tim Rotarius

Ribbon: Thinking Critically

Session/Time/Location: Poster Session, 11:45-12:30, AT Room

Abstract: Vascular tone is the balance between sympathetic vasoconstriction and humoral vasodilation. The cold pressor test (CPT) enhances resting vascular tone by increasing sympathetic outflow, while Glyceryl trinitrate (GTN) elevates arterial diameter and blood flow without affecting mean arterial pressure (MAP). By combining CPT and GTN, the vasoconstriction caused by CPT may possibly be offset by the GTN-induced vasodilation. The purpose of the study was to observe the effects of GTN on blood velocity and MAP during the CPT. 4 males completed 3 separate visits: GTN, CPT, and GTN + CPT. Two minutes of baseline was completed before each protocol then 0.4 mg GTN was administered while measuring mean blood velocity (MBV) for 4 minutes. For CPT, subjects placed their foot in an ice slush for 2 minutes while MAP and blood velocity were measured. A one-way repeated measures ANOVA was used to analyze mean differences in MBV. MAP was significantly greater during CPT and GTN + CPT (95.2 ± 10.5 mmHg; 101.7 ± 8.9 mmHg) compared to Rest and GTN (86.5 ± 10.7 mmHg, 87.1 ± 11.1 mmHg; $p < 0.05$), respectively. Mean blood velocity was not significantly different between Rest, GTN, CPT, and GTN + CPT (17.5 ± 8.2 cm/s, 15.0 ± 16.4 cm/s, 11.2 ± 8.5 cm/s, and 10.9 ± 6.2 cm/s; $p > 0.05$), respectively. Although not significant, MBV was lower following GTN + CPT compared to resting values. Thus, it is possible central sympathetic mediation is more responsible for regulating vascular tone than local vasodilation.

Phosphates and Nitrates in Streams at Walden West

Presenter: Shannon Garvey

Mentors: Dr. Sarah Hanson, Dr. Thomas Muntean

Ribbons: Thinking Critically, Caring for Humanity and the World

Session/Time/Location: Poster Session, 11:45-12:30, AT Room

Abstract: Over a four-week period, nitrates and phosphates were measured from two inflow and one outflow streams to the pond at Walden West, located in Tipton, Michigan. These nutrients are essential in water but too many of them are a problem for ecology and health of humans and pets. Phosphates are introduced through fertilizers, manure and organic waste. Nitrates are found in areas where runoff of agricultural components occurs. Over the sample period, total phosphorus (TP) ranged from 0 to 359 mg/L while total nitrogen (TN) ranged from 0 to 2.73 mg/L. High values for TP and the highest TN were noted in sample week 3 around October 7th after a period of increased rainfall. These values are low based on the nutrient scorecard developed by the River Raisin Watershed Council. Low values likely occur because Walden West is located at the headwaters of the watershed and is not heavily impacted by the abundant agricultural activity throughout the watershed. The increased TP and TN likely occurred because of high surface runoff after the rainfall. Although levels were noticeably higher on days following the rainfall, they did not remain a problem for very long. These data suggest that the nitrates and phosphates are influenced by the weather and not significantly influenced by nearby agricultural areas. Thus, the pond is generally a healthy water body with acceptable levels of nutrients.

Stage Management of Silent Sky: Challenges of a Site Specific Production

Presenter: Alan Gibson

Mentor: Dr. Annissa Morgensen-Lindsay

Ribbon: Learning Throughout a Lifetime

Session/Time/Location: Poster Session, 11:45-12:30, AT Room

Abstract: In theatre, the stage manager is a crucial position in the rehearsal process and run of a production. Some of the main duties of a stage manager include recording the blocking (movement) of all actors on stage and ensuring they continue to use the same blocking throughout the rehearsal process and during shows, coordinating designers and ensuring deadlines are met, and setting all cues for the production. Recent technology and advances in software have allowed for new methods in which this movement is collected and distributed to actors. This poster project covers the use of a new stage management software, StageWrite, in its use in Adrian College's production of Silent Sky, and explore some of the challenges that occur when stage managing outside of a theatre, in this case, a planetarium. This poster project exemplifies the ribbon learning throughout a lifetime as the project was designed to examine what modern day technology and communication systems can bring to an ancient art form.

Beneath the Surface: Variations on a Theme of Identity

Presenters: Michele Pisano-Spence, Kristina Jonas, Emily Archer

Mentors: Prof. Travis Erxleben, Prof. Garin Horner

Ribbons: **Caring for Humanity and the World, Thinking Critically, Crossing Boundaries and Disciplines, Learning Throughout a Lifetime, Developing Creativity**

Session/Time/Location: **Meet the Artist, 12:15 – 1:00 pm, Valade Gallery in Shipman Library**

Abstract: In partial fulfillment of the requirements for the Studio Art Bachelor of Fine Arts Degrees in the Department of Art and Design, students must present a capstone art exhibition during their senior year. The exhibition represents two semesters worth of preparation that includes the fabrication of a portfolio of work around a theme, the creation of marketing materials and implementation of a marketing plan, and the installation of their artwork in the college's Valade Art Gallery. Through this process, students demonstrate professional, practical, and creative proficiency as artists while grounding their art in theory and history. This experience allows students to demonstrate skill and knowledge that is critical to their future success in an art related field.

This year's capstone class will present their group exhibition *Beneath the Surface: Variations on a Theme of Identity*, from March 21, 2020, to April 21, 2020. The exhibition features two and three dimensional works that explore varying interpretations of Identity. Michele Pisano-Spence compares the contrast of surface identity to what lies below the masks we wear. Kristina Jonas excavates her ancestral past by recontextualizing family photographs and raising them in stratus from seemingly mundane to spiritually sacred. Emily Archer's work derives from stresses caused by a need to constantly oscillate between presenting oneself as introverted or extroverted in a chaotic world. The artists will host a reception during Ribbons of Excellence Day and will be available to discuss their work.

AAF Case: Adobe Experience Cloud for Advertising

Presenters: Katie Bellaire, Bethany Dziekan, Kaiya Olsen, and Joseph Herrera

Mentor: Prof. Patrick Quinlan

Ribbons: Learning Throughout a Lifetime, Thinking Critically, and Developing Creativity

Session/Time/Location: 3B, 2:00-2:20, Peelle 207

Abstract: We will be presenting on Adobe from Professor Quinlan's Advertising and Promotion class. In our presentation we will introduce our constructive plan from an allocated budget highlighting Adobe's target market using primary research. We will also be comparing Adobe to their competitors and their overall position in the market. Using our SWOT Analysis we identified areas that can be improved, are already developed and could be potential threats in the company. We will track dates and expenditures through a timeline that would coordinate with the overall market plan. Overall, we will introduce what benefits the company is known for as well as developing an advertising strategy for them to utilize.

Rize Education

Presenters: Lillian Brueckman, and Nolan Duda

Mentor: Mr. Kevin Harrington

Ribbons: Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity

Session/Time/Location: 3B, 2:20-2:40, Peelle 207

Abstract: The backbone of Adrian College has always been innovation, but with recent college enrollment disadvantages in the last decade, it has become difficult to simultaneously innovate and budget efficiently. The Rize Education, a start-up company on the verge of uncovering the solution to the enrollment crash, is a project that was started here, at Adrian College. The main purpose of this start-up is to help boost private, liberal arts education and the students that attend these schools. Nolan Duda and I have interned at this company for the last three months, carefully examining the ins and outs of the crisis that has plagued higher education. With this presentation it is our goal to share exactly what the mission of Rize Education is. Several students on Adrian College's campus are currently taking classes offered through the help of Rize, yet they aren't informed on the purpose. This is precisely why we want to inform. The Rize Education platform is revolutionary when it comes to the education that is being offered to students at Adrian College, and eventually all across the country.

A Mission for Peace

Presenter: Justin Steggerda

Mentor: Dr. John Eipper

Ribbons: **Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically, and Crossing Boundaries and Disciplines**

Session/Time/Location: **3B, 2:40-3:00, Peelle 207**

Abstract: After graduation, I head to Ecuador to serve in the Peace Corps. In this Ribbons of Excellence presentation, I will discuss the application process, give a brief overview of the history of the Peace Corps, and the personal and professional benefits of volunteer service after graduation. I will also consider theoretical questions on the troubling aspects of “soft power” and how to avoid ethnocentrism. Since President Kennedy signed the Peace Corps into existence in 1961, few people have had the passion and desire to travel across the world to volunteer their time for 27 months. The traditional track for undergrad students is either to go to grad school or to start a career. Going on a mission as a volunteer is not what universities and colleges advertise. The Peace Corps is not a traditional option; however, more than 235,000 Americans have served the United States in a total of 141 different countries around the world. The Peace Corps and other mission opportunities need to be advertised to students as an option that will hone their professional skills. It has 6 diverse options that include Youth in Development, Agriculture, Community Economic Development, Education, Health, and Environment. This research analyzes the Peace Corps’ life-changing benefits for the countries it serves and for the volunteers who serve. The presentation will discuss current work that the Peace Corps volunteers do across the globe and inform them about the ongoing needs.

Realistic Paths of Care in Select Southeastern Michigan Secondary Schools

Presenter: **Scott Mattern**

Mentors: **Prof. Victor Liberi, Dr. Tina Claiborne, and Dr. John Goetschius**

Ribbons: **Caring for Humanity and the World**

Session/Time/Location: **3C, 2:00-2:20, Knight Auditorium (Valade 130)**

Abstract: **Context:** Sudden cardiac arrest has been defined as the leading cause of death in youth athletes. This study was conducted to discover the availability of automated external defibrillators (AED) in ten Michigan secondary schools for six different sports venues.

Objective: Realistic paths of care (RPC) aimed to determine if select secondary schools in Southeast Michigan are following the standard of care regarding AED location in relation to their sports venues.

Design: Observational Study

Patients or Other Participants: Participants included ten Southeastern Michigan secondary schools.

Interventions: For this study, the independent variable was the distance to the nearest AED from the furthest point from each school's soccer, baseball, softball, football, gymnasium, and track venues.

Data was collected using the Runkeeper application that calculated distances using GPS.

Main Outcome Measures: Time to each AED was determined using average jogging (3.18 m/s) and walking speed (1.38 m/s) per sports venue.

Results: A significant difference was found utilizing a one-way repeated measures ANOVA when comparing sports venues. The gymnasium was shown to have an AED in reach within the acceptable time frame when compared to all other sports venues in both the walking and jogging conditions ($P < 0.001$).

Conclusions: The RPC method for determining AED distances has concluded that the majority of AEDs are not within a sufficient distance from individual sports venues to meet the standard of care.

The Effect of Sport Specialization on Subjective Arm Function in Collegiate Baseball Players

Presenter: Jason Croci

Mentors: Mr. Jim Nicknair, and Dr. John Goetschius

Ribbons: **Caring for Humanity and the World, and Learning Throughout a Lifetime**

Session/Time/Location: 3C, 2:20-2:40, Knight Auditorium (Valade 130)

Abstract: **Context:** Shoulder and elbow injuries are the most common injuries in collegiate baseball. Sports specialization, defined as year round intensive training in a single sport while excluding others, may increase the risk of shoulder and elbow injuries and dysfunction in collegiate baseball players.

Objective: To determine if baseball sport specialization has an effect on upper extremity injury history and subjective throwing arm dysfunction in college baseball players.

Design: Retrospective cohort design.

Setting: Data was collected during a formal team meeting during the mid-season of the 2019 baseball season.

Patients or Other Participants: Participants were 18-30 year old players from local college baseball teams and participated in baseball activities during the week prior to data collection.

Interventions: Our primary independent variable was participants' self-reported baseball specialization level at age 13 (high, moderate, or low). Participants completed a 3-point Sport Specialization questionnaire and they were stratified in high, moderate, and low specialization groups based on their responses to the questionnaire.

Main Outcome Measures: Our dependent variables included participants' self-reported history of severe shoulder or elbow injury (missed 2-weeks of activity), shoulder or elbow surgery and participants current score on two patient-reported outcome questionnaires, the Functional Arm Scale for Throwers (FAST) and the Kerlan-Jobe Orthopaedic Clinic Shoulder and Elbow (Kerlan-Jobe) questionnaires. Injury and surgery history and the patient reported outcome scores were compared between the three specialization groups using Chi-squared and Kruskal-Wallis tests.

Results/Conclusions: This study is ongoing. Final results and conclusions will be presented at the Ribbons of Excellence conference.

Student Athlete and Their Parent's Satisfaction with the Athletic Trainer's Care in the Secondary School Setting

Presenter: Briana Chamberlain

Mentor: Dr. Heather Schuyler

Ribbons: **Caring for Humanity and the World, and Learning Throughout a Lifetime**

Session/Time/Location: **3C, 2:40-3:00, Knight Auditorium (Valade 130)**

Abstract: **Context:** Patient and parent satisfaction has been a tool used to measure quality of patient centered care (PCC) throughout all different health care professions. In athletic training, patient nor parent satisfaction has been measured to asses quality of care in the secondary school setting.

Objective: To determine if student-athletes are more satisfied with the athletic trainer's (AT) care than their parents in the secondary school setting and if increased interactions with the AT increases satisfaction of care.

Design: The study is a cross-sectional design with a case study approach. Our independent variables are the parents and student-athletes. Our dependent variable is satisfaction of care.

Setting: This study was conducted at two high schools in south western Michigan and north western Ohio.

Participants: Participants include student-athletes grades 9-12 and parents of student-athletes at the participating schools. If a student-athlete was in 9 th grade and hadn't yet participated and completed a sport season at the time of the survey distribution, they were excluded. Complete pools of participants are to be determined.

Instrumentation: The Student Athlete Response Form was adapted om its original use by Unruh et. al. (2005).

Main Outcome Measures: Independent samples t-tests were run to identify mean differences between student-athlete vs parent satisfaction, male vs female satisfaction, and high profile sport vs low profile sport satisfaction. A Pearsons R correlation was run to determine if greater interaction correlates to an increased satisfaction of care. Main outcomes TBD.

Results: TBD

Conclusions: TBD

Promoting and Supporting Student Health and Well-Being

Presenters: **Brittany Kuemin, and Lauren Shammo**

Mentor: **Prof. Cheryl Nutter**

Ribbons: **Caring for Humanity and the World, and Learning Throughout a Lifetime**

Session/Time/Location: **3D, 2:00-2:20, Alumni Lounge (Valade 125)**

Abstract: Through our experience as interns at the Lenawee County Health Department, we learned about services and resources that the Health Department provides that we believe college students need to be informed about. We also realized how important student health is, and how it is important for students to take an initiative to live a healthier life. This presentation would promote and educate Adrian College students on their health and the resources that are available to them. We believe that this information is vital and can highly benefit the students at Adrian College. Through this presentation, we will open more doors to college students to better educate themselves on their own health and safety. With the information we plan to present, we hope it will shine a light on the importance of health and well-being.

I Want You to Know: Survivors on Healing and Support After Sexual Assault

Presenters: **Sydney Foster, Brianna Boley, and Faith Deline**

Mentor: **Dr. Jennifer Towns**

Ribbons: **Caring for Humanity and the World, Learning Throughout a Lifetime,**

Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity

Session/Time/Location: **3D, 2:20-2:40, Alumni Lounge (Valade 125)**

Abstract: Every 73 seconds, an American is sexually assaulted. Every nine minutes, that person is a child. Survivors and those supporting them often feel lost or helpless, unsure of what the “right” thing to do or say is. Sexual harm comes with a stigma that creates barriers to education and discussion, keeping some people from seeking the help they need. In this presentation, three survivors will start the conversation about healing from sexual harm and how to offer support. By sharing their knowledge and experiences, each presenter becomes stronger and moves forward in their healing process. Topics include how they continue to heal, what they needed from others, and available resources. You know someone that’s been sexually harmed. It’s time to start talking about it.

The Experiences of Adults Receiving EMDR Treatment for Past or Current Interpersonal Trauma

Presenter: Katherine Jaeger

Mentor: Dr. Jennifer Towns

Ribbons: **Caring for Humanity and the World, and Thinking Critically**

Session/Time/Location: **3D, 2:40-3:00, Alumni Lounge (Valade 125)**

Abstract: The prevalence of interpersonal trauma within our society is widespread and non-exclusive to a particular gender, sexual orientation, race, or ethnicity. The present study will focus on the effectiveness of Eye Movement Desensitization and Reprocessing therapy (EMDR). Which is a psychotherapeutic technique used to help clients reduce the stress related to their trauma. Specifically, replacing negative cognitions created by the traumatic event by reprocessing traumatic memories in order to create new positive cognitions (EMDR Institute Inc, 2019). The goal of this study is to explore the experiences of EMDR treatment on the individual's social and emotional functioning. A single case study, using the bounded system of shared experiencing, specifically interpersonal trauma and EMDR treatment, will be used to obtain qualitative data. The target population are adults (age 18 years or older) that have already received or are currently receiving EMDR treatment. Semi-structured interviews will be conducted to obtain information about their experience with EMDR treatment. After the initial interview and transcription, a thematic analysis will be used to interpret the data using Erikson's stages of psychosocial development and Bowlby's attachment theory as the conceptual framework. Through the use of word mapping, using Dedoose software, the researcher will look for emergent themes within the interviews. Data collection for this study is currently in process.

Hey, Look I Made It

Presenter: **McKenzie Pastor**

Mentor: **Dr. Annissa Morgensen-Lindsay**

Ribbons: **Thinking Critically**

Session/Time/Location: **3E, 2:00-2:20, Downs Hall Theatre**

Abstract: When McKenzie Pastor began research for her musical theatre recital, she looked to challenge society's standards for women. She used her musical theatre recital to show that strong and empowered woman do not have to look or act a specific way. Pastor also looked for dramatic material that would challenge her to step out of her comfort zone. Pastor examined characters such as a 1940's wife who stands up to her husband with "What You Don't Know About Women" from City Of Angels. She also showed a young woman who chose love but not marriage with "I Have A Dream" from Mamma Mia!. Finally, with "The Last Midnight" from Into The Woods, she explored a woman who chose to gain control back over her life and will not let anyone stand in her way. Under the ribbon, Thinking Critically, Pastor wants to raise questions about what it means to be an empowered woman in the minds of the audience who saw her recital by looking at characters with varied experiences and point of view. She also wanted to point out that empowered women do not all act the same way.

Look at Him Now

Presenter: **Devon Blake**

Mentor: **Dr. Annissa Morgensen-Lindsay**

Ribbon: **Learning Throughout a Lifetime**

Session/Time/Location: **3E, 2:20-2:40, Downs Hall Theatre**

Abstract: As Devon Blake began the process of creating an acting recital, he looked for ways to attack the negativity of today's society. Blake's recital acknowledges what people don't want to acknowledge. While preparing the recital, Blake intended to make a statement of equality by using characters that reflect what he feels is wrong with today's society: discrimination. Additionally, he wanted to show that people can play roles against their own sexuality type, showing his growth as an actor. However, he also wanted to examine the trauma he experienced in his lifetime through the lens of theatre. Under the ribbon of Learning throughout a lifetime, Blake uses characters to explore the fringes of society by asking important questions. He dives into characters that come from the LGBT community and portrays them as a normal human beings such as Angels In America Part 1, Millennium Approaches by Tony Kushner. In addition, he showcases what it is like to be in the mind of a serial killer in Frozen by Bryony Lavery. Furthermore, Blake performs the title role in Hamlet by William Shakespeare to explore the mind of someone who deals with mental disorders such as anxiety and depression.

Hope as an Art Form

Presenter: **Jacob Bowman**

Mentor: **Dr. Annissa Morgensen-Lindsay**

Ribbon: **Thinking Critically**

Session/Time/Location: **3E, 2:40-3:00, Downs Hall Theatre**

Abstract: Jacob Bowman sees acting as the truest form of art. Getting into the mindset of another person entirely is something that he has always wanted to do, and finally decided to go for it in college. Bowman's research consisted of finding a variety of challenging and unique characters, songs, and scenes that had one central, up-lifting theme. He was searching for songs and scenes that had positive messages about love, living your dreams, and being who you want to be. This presentation consists of "My Petersburg" from the musical Anastasia, "Speak Life" by TobyMac, and a monologue from Michael Weller's Fishing. This work encompasses the "Thinking Critically" Ribbon of Excellence. In Musical Theatre, it is a lot more than memorizing words on a page or lyrics. It is using those words and the emotions behind them to portray believable and realistic characters. Bowman approaches a character by asking questions about them or learning about their history, and by determining what brings them happiness and the goal that drives their actions.

The Impact of Physical Activity on Social and Emotional Development in the Preschool Classroom

Presenter: **Ashley Ray**

Mentor: **Dr. Dawn Milner**

Ribbon: **Caring for Humanity and the World**

Session/Time/Location: **4A, 3:15-3:35, Jones 110**

Abstract: This study suggests that allotted time for physical activity within the early childhood classroom has a positive effect on children's social and emotional development. This opposes the current practice of reducing physical activity access in preschool settings throughout North America, as well as the push for more academics-based curriculums. The author provides that information for correlations between physical activity and social and emotional development are plentiful for upper grades, but the literature is lacking for early childhood education. The author supports her argument with theory, data on student social and emotional development within her own classroom during times of reduced physical activity and similar studies. Opportunities for physical activity can potentially increase social and emotional competence, interaction with peers and adults, and academics.

Title IX Violations in High Schools

Presenter: **Ashley Johns**

Mentor: **Dr. Charles Reid**

Ribbons: **Learning Throughout a Lifetime, and Crossing Boundaries and Disciplines**

Session/Time/Location: **4A, 3:35-3:55, Jones 110**

Abstract: Title IX is a piece of federal legislation, passed in 1972, with a noted goal of increasing participation in women's sports in schools across the country (Women's Sports Foundation, 2019). Though this law was passed nearly 50 years ago, problems persist at the high school level. Title IX states, "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance" (U.S. Department of Justice, 2015). The case of *Franklin v. Gwinnett County Public Schools*, for example, a lawsuit that was filed by Franklin, a high schooler, for being constantly sexually harassed and abused by her teacher, Andrew Hill. Although the case was dropped, it's a great example of a Title IX violation (Cornell Law school, 2019). The goal of this project was to see how much high school AD's know about Title IX, its requirements, and how their school meets federal guidelines. This research also looks at recent violations, problems high schools have had with Title IX, and suggested solutions for future problems. Interviews were conducted with schools in the Adrian and in the Downriver area. The goal is to compare the two sets of data based on the population to see if location influences the knowledge and types of violations that occur. One of the most interesting findings in this study regards the lack of knowledge, across both locations.

FIFA Qatar World Cup Scandal

Presenter: Bailey Ault

Mentor: Dr. Charles Reid

Ribbons: **Learning Throughout a Lifetime, Thinking Critically, and Crossing Boundaries and Disciplines**

Session/Time/Location: **4A, 3:55-4:15, Jones 110**

Abstract: In 2010, Qatar was announced as host of the 2022 FIFA World Cup. Shortly after, multiple reports of bribery and corruption during the bid process surfaced. This included a \$1.6m payment to a high-ranking official for encouraging countries to vote for Qatar (Blake, 2017). During his investigation, former U.S. Attorney Michael Garcia outlined much of the alleged corruption, which led to the resignations of high-ranking officials, including the then-president Sepp Blatter. In his report, Garcia (2014) offered many recommendations on how to alter the voting process to avoid such corruption, such as having a third party audit company over see the bid evaluation process. In addition to bribery and corruption, many human rights violations were alleged in regards to the construction of the World Cup stadiums in Qatar. The alleged violations include unsafe working conditions leading to worker's deaths, substandard housing, unpaid wages (Amnesty International Qatar World Cup). The investigations into these human rights violations have further fueled the call for the event to be held elsewhere. Despite the issues, new FIFA president Gianni Infantino remains committed to hosting the 2022 World Cup in Qatar while also making changes to both FIFA's human rights policy and the bid process for future World Cups (FIFA.com). This research presentation goes in-depth into the corruption within FIFA that led to this occurrence, and analyzes the steps undertaken to prevent it from occurring again, along with recommendations to FIFA and other governing bodies on how to prevent such an egregious scandal from occurring.

When Thought Experiments Beg The Question

Presenter: Michael Phillips

Mentor: Dr. Antonis Coumoundouros

Ribbons: Learning Throughout a Lifetime, Thinking Critically, and Developing Creativity

Session/Time/Location: 4B, 3:15-3:35, Peelle 207

Abstract: The purpose of this paper is to identify when thought experiments fail by using circular reasoning. To do this, I will contrast two thought experiments: David Hume's 'missing shade of blue' and Robert Audi's 'cerebroscope'. I will demonstrate how Audi uses circular reasoning while Hume does not. To prove this, I will develop a three-step thought experiment consistency test called the 'probative process'. When this probative process is applied, it allows for the thorough analysis of thought experiments. In this paper, there are three sections. The first examines current discussions on evaluating thought experiments. The second elaborates on that discussion by explaining how my probative process allows us to identify when a thought experiment can fail. The third explains and contrasts Hume's and Audi's thought experiments. In the end, this paper aims to: (1) show how my concept of the probative process can be used as an evaluative tool in analyzing thought experiments, in general; and, (2) show how Audi's and Hume's thought experiments, despite a superficial similarity, differ concerning circular reasoning.

Empathy for the Monster; a Discussion of Monstrosity in Media

Presenter: Kathryn Trattles

Mentor: Dr. Andrew Winckles

Ribbons: **Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity**

Session/Time/Location: **4B, 3:35-3:45, Peelle 207**

Abstract: The genre of monstrosity has drawn viewers in for centuries. Watching a monster tear through buildings in films such as *Gojira* or experiencing the twisted desires of a monstrous serial killer unfold on the screen in horror films captivates us. Thinking about modern films such as *Sweeney Todd: the Demon Barber of Fleet Street*, we can't help but realize that our favorite characters are almost always the ones that do the most terrible things. This begs the question; why do we feel sympathy for the bad guy? Part of the answer is that our psyche guides us to seek out and understand the circumstances that make empathy possible for a character. Our sense of empathy and our understanding of the character's situation drive us to search for justice. If we feel that a character was treated unjustly, their actions are much easier to excuse. If the media makes us believe that a character did the monstrous act out of revenge, the viewer is likely to feel that justice was served. Additionally, we feel drawn to monsters because we understand that there is a strong element of fakeness to what we are watching or reading. We understand that it is not real, the monster does not exist, and no one was hurt. Our psychological processes, our own monstrosity, and the structure of film and media draw us to the most monstrous of characters, but our sense of reality tells us what is too far.

Looking at the Creature and Voldemort: What are the Roots of Monstrosity?

Presenter: Gabrielle Udell

Mentor: Dr. Andrew Winckles

Ribbon: **Caring for Humanity and the World**

Session/Time/Location: **4B, 3:45-3:55, Peelle 207**

Abstract: Monstrosity is something that we are all familiar with--it can take many shapes and forms with nothing but our imagination to limit what we see. The mass media loves to play on our minds by expanding our notion of what is considered monstrous. This expansion has led monstrosity to become a multifaceted term that is not easily defined. When looking at J. K. Rowling's *Harry Potter* series, she brings to light this multifaceted nature of monstrosity through her undeniably evil character: Voldemort. While looking through the lens of Mary Shelley's novel *Frankenstein*, there are many parallels that can be drawn from the creature and Voldemort himself along with the important theme of corrupt systems committing monstrous acts. Through these novels, we will look to see whether or not monstrosity is born or created and read to understand the power of an individual leader or organization and how abusing such power to oppress others can be classified as monstrous.

Power Structures in Ex Machina

Presenter: Hannah Brody

Mentor: Dr. Andrew Winckles

Ribbons: **Thinking Critically, and Crossing Boundaries and Disciplines**

Session/Time/Location: **4B, 3:55-4:05, Peelle 207**

Abstract: Ex Machina, a science fiction movie directed by Alex Garland and released in 2015, follows a young programmer's interactions with artificial intelligence created by his boss, a CEO of a powerful technology company. The movie includes elements of the theory of panopticism, presented by Michel Foucault, a French philosopher. Foucault's theory of panopticism states that through modern technology, power can become visible yet unverifiable, where the watched knows that the watcher exists, however, is unaware if they are actually being monitored by them. Foucault concludes that through this, an internal surveillance is created, where the watched begin to examine themselves and police their actions themselves in case they are being observed by the watcher. This power structure contributes to the creation of monstrosity. Garland uses both traditional and modern forms of power in his movie, comparing the two. This paper discusses Garland's use of both power systems and argues that Garland uses Ex Machina to critique the traditional enforcement of power while favoring modern enforcement. However, Garland also recognizes that this method of retaining power will inevitably deteriorate.

The Monsters of 'Doctor Who' and How They Reflect Life

Presenter: Katherine Buckley

Mentor: Dr. Andrew Winckles

Ribbons: **Caring for Humanity and the World, Thinking Critically, and Developing Creativity**

Session/Time/Location: **4B, 4:05-4:15, Peelle 207**

Abstract: Throughout history, monsters have been used in storytelling to breathe life and danger into our imaginations, but what is it about some of these creatures that dig at our psyches? What is it about these horrors that haunt us well after our books are closed and televisions are off? Despite the creepiness of boogeymen and aliens, the real terror lies in what those monsters truly represent. In most media, monsters are used to illustrate the fears that are shared by society, and popular BBC show Doctor Who is no exception. The show features a wide variety of mythical and supernatural horrors- each with their own real-life fear tethered to their conception. It not only allows audiences to be adequately terrified and relate to the on-screen sense of danger, but also gives them some perspective on what really scares them. It allows audiences to face their fears in a safe way. The Daleks are a prime example. These well-known aliens were originally created in order to represent the Nazis, a lasting fear of Western audiences during the show's premiere in the late sixties. This depiction of a widespread fear hit home with audiences and was fundamental to the show's success. By reflecting the anxieties of audiences, Doctor Who is able to adapt with the times and keep a long-running show thriving for years on end.

Turf and Incidence of Anterior Cruciate Ligament Injury

Presenter: Hanna Arntsen

Mentor: Dr. Heather Schuyler

Ribbon: **Thinking Critically**

Session/Time/Location: **4C, 3:15-3:35, Knight Auditorium (Valade 130)**

Abstract: **Background:** Research has shown that different types of turf, both artificial and natural, may have a higher incidence of non-contact ACL injuries. Injury may occur due to high tractional forces while the athlete plants the foot to cut on the field. Various factors may contribute to ACL injury, including shoes, environmental factors, and turf management.

Hypothesis: There will be a higher incidence of ACL injury in older, less managed, dry, and warm turf surfaces.

Study Design: Descriptive epidemiology study.

Methods: This study focused on two artificial turf surfaces in Southeast Michigan. Management records and incidence of ACL injury were obtained and reviewed to analyze any significant differences between the fields.

The Comparison of Body Mass Charts, Urine Specific Gravity and Urine Color to Determine Hydration Status.

Presenter: **Brittany Archambeau**

Mentors: **Dr. Tina Claiborne, Dr. John Goetschius, and Mr. Jamie Fetter**

Ribbons: **Caring for Humanity and the World, Learning Throughout a Lifetime, and Thinking Critically**

Session/Time/Location: **4C, 3:35-3:55, Knight Auditorium (Valade 130)**

Abstract: Context: Dehydration affects both athlete health and performance.

A way to assess hydration status is to track body mass loss over time, however this method has only been shown to be effective when compared back to a baseline body mass measurement using an average of three euhydrated days. If athletes are not properly hydrated at baseline, it is unclear whether change in body mass is a valid assessment of hydration status. As an alternative to body mass measurements, urine specific gravity and urine color are valid measures of hydration status but are not commonly used in the athletic setting.

Objective: The purpose of this study was to compare the ability of multiple clinical measures of dehydration to categorize participants as dehydrated or euhydrated during a college football preseason.

Design: Experimental design.

Setting: Midwest Division III college.

Participants: A total of 85 male (mean age = 18.99 ± 1.21 , mean height (in.) = 71.14 ± 2.97) eligible football players.

Interventions: Body mass, urine specific gravity, and urine color were measured pre and post practice over seven consecutive days of pre-season training camp.

Main Outcome Measures: Descriptive statistics were used to compare body mass measures, urine specific gravity and urine color. Sensitivity and Specificity were also calculated to assess the accuracy of each measure in diagnosing hydration status.

Results & Conclusions: This is an ongoing study; results will be completed by presentation date.

Sustainable Bioplastic Technology Using Cellulose Polymers Derived from Hemp Fibers

Presenter: **Nathan Tabbert**

Mentor: **Dr. Keith McCleary**

Ribbons: **Thinking Critically**

Session/Time/Location: **4D, 3:15-3:35, Alumni Lounge (Valade 125)**

Abstract: An important phenomenon that humanity has become increasingly aware of is the severity of our carbon footprint on planet Earth. Multiple factors contribute to this carbon footprint, and one that surrounds us is our pollution due to plastic. Specifically, our heavy reliance on petrol-based plastics. Petrol-based plastics do not biodegrade, rather, they degrade into continually smaller pieces until they are in some of their most dangerous forms, single molecules that freely float in our rivers, lakes, and oceans. This is an environmental issue for all biomes and the wildlife that live in them. If this disinterest you, look no farther than into our very species. Scientists have shown that bioaccumulation is a potential threat to humans. Wildlife consumes micro plastics, and we consume the wildlife that has been exposed. It should seem reasonable to desire a shift from these current practices to a cleaner, more productive and longer lasting alternative. Our research revolves around the vision of a functioning biodegradable plastic for global commercialization. With a cyclic system of agricultural production of the multi-functional plant known as hemp (*Cannabis Sativa*), our hope is to extract the cellulose polymer to chemically derive such a material. The current basis of our work is to hunt for cellulose polymerization reactions that can enable complete control in the longevity of the bioplastic and allow for unmitigated biodegradability. These are the first steps necessary for the future removal and takeover of the petrol-based plastics industry.

The Social Cost of Recycling

Presenter: Casey Labrenz

Mentors: Dr. Jeffrey Lake, and Dr. Sarah Hanson

Ribbons: **Caring for Humanity and the World, Thinking Critically, and Crossing Boundaries and Disciplines**

Session/Time/Location: **4D, 3:35-3:55, Alumni Lounge (Valade 125)**

Abstract: While recycling was originally thought to be the answer to our waste management problem, the process itself is by no means perfect. The waste must be transported, sorted, and cleaned before any recycling can take place, using large amounts of fossil fuels and water in addition to that used in the actual process of recycling. Most municipalities don't have the capacity to handle their solid waste, so it's transported long distances to reach its destination. In fact, most recyclable material collected in the U.S. is shipped to China and India, where there are lenient environmental laws. The exact figure shipped is disputed, but falls somewhere around 80% of all the recyclables collected throughout the country. This study aims to calculate the economic costs of recycling three different materials - aluminum, paper, and PET plastic - factoring in the express costs of recycling as well as the "social costs" associated with fossil fuels and water use, and using these calculations to determine whether or not recycling these materials in today's world is preferable to putting them in a landfill. After evaluating the social costs for each material, the social cost of disposing of the waste in a landfill was subtracted from the cost of recycling, producing negative net costs for aluminum and paper and a positive net cost for plastic. This indicates that it is more beneficial to recycle aluminum and paper, but when utilizing current recycling methods, recycling plastic has more negative impacts than putting it in a landfill.

Smart Practice: Academic Practice in Performance

Presenter: Kyra Adkins

Mentor: Dr. Kristin Clark

Ribbons: **Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity**

Session/Time/Location: **4E, 3:15-3:35, Downs Hall Theatre**

Abstract: Throughout a vocal performance major's academic career, one learns that music is just as much an academic practice as it is a creative art form. In order to bring a piece to performance ready standards, musicians must analyze the music from a broad scope of angles. In addition to notes and rhythms, musical practice requires research into historical and cultural contexts, exploration of musical shapes and phrasing, and attentiveness to proper technique. Further complicating the matter, every piece of music we study brings its own set of new challenges, requiring us to search for efficiency in the practice process. This presentation will include performances of pieces from my upcoming junior recital, demonstrating the wide variety of music that can be studied as a vocal performance major, while bringing attention to the academic practice techniques required to achieve a high standard of performance.

The Fine Art of Re-Vitalizing a Composition

Presenter: Blayk Olsen

Mentor: Prof. Pete Ford

Ribbons: **Learning Throughout a Lifetime, Thinking Critically, and Developing Creativity**

Session/Time/Location: **4E, 3:35-3:55, Downs Hall Theatre**

Abstract: I have recently composed a solo piece for trumpet with piano accompaniment for the fall 2019 semester for the purpose of showing and displaying my skills with composition in a formal environment. I have also developed skills in coordinating musician personnel and time/stress management as well. For this project, I am looking to work back through my piece to locate any areas within both parts to see if there are any ways to improve them (i.e. re-writing segments to make the piano accompaniment more comfortable for the pianist to play; replacing certain sequences in the trumpet part to match voicing with the accompaniment). The end goal is to be able to re-perform a new and improved piece of music with either a different lead instrument or added instruments, and to enhance its musical qualities so that the next time it is performed, whenever that may be, it will be a more exciting experience for the audience and less stressful for the musicians involved in the project.

Adapting Compositions to Fit Available Instrumentation

Presenter: **Nathan Bielskis**

Mentor: **Prof. Pete Ford**

Ribbons: **Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity**

Session/Time/Location: **4E, 3:55-4:15, Downs Hall Theatre**

Abstract: In this presentation, a group of Onsted High School concert band students will perform a brass quintet composed by a student teacher/composition student from Adrian College. This piece, titled *Scenes from the Irish Hills of Michigan*, was originally composed for college-level musicians, and the parts needed to be streamlined and slightly simplified for successful performance by high-school musicians. Adapting more complex music to be performed by less-experienced players has been an important skill for composers and arrangers since the early days of music, and will continue to be a challenge for many years to come. Composers throughout history have had to alter their compositions for the musicians at hand. This session explores how a composition is adapted to fit available instrumentation and historically how composers have overcome this issue.