

SCHOLAR Day Formal Presentations in Alphabetical Order:

**Amy Achenbach (History and French)**

**Mark Allen (History)**

**Laura Buchanan (Early Childhood Education)**

**Leon Kimmelfield (History)**

**Faculty Sponsor:** Jennifer Martin, Department of Education

**Title:** What Does A Feminist Look Like? Gender Intervention with High School Students

**Abstract:** The topic of feminism has recently become a popular news item with celebrities claiming sides. In high schools, students are unsure of what side to fall on based off of their favorite celebrity battles. The importance of gender based intervention in high schools in the format of conferences and workshops has now come into question. Further, what is the importance of educating students on gender issues such as feminism and domestic violence? Our Multicultural Education class planned and executed a day long gender intervention conference for Alliance High School seniors where they learned about domestic violence, gender based micro-aggressions, and heard first person accounts from their peers. After the conference, the Alliance High School students in attendance took surveys and provided qualitative feedback on their experiences at the conference. We found that the conference was beneficial to students and that their opinions on feminism and other gender issues were effected.

**Jessica Mae Berner (?????????)**

**Faculty Sponsor:** Kevin Kern, Department of Theatre

**Title:** But, for mine own part, it was Greek to me: Shakespeare's Relevance in Today's Society

**Abstract:** "Friends, Romans, countrymen, lend me your ears." William Shakespeare has created some of the most romantic sonnets, hilarious comedies, and terrifying tragedies, but are his 16th century plays still relatable to audiences in this digital age? For years there has been an argument that Shakespeare is irrelevant and this idea comes mostly from the fact that his writing style is unlike anything seen today. Throughout the theatre world, William Shakespeare's plays are considered classic and necessary for theatrical training to perform in any style of theater although the rest of society would consider his writing to be useless in modern times. In order to see if William Shakespeare's plays can still be relatable to modern audiences, I examined three monologues from some of Shakespeare's most famous female leads. Examining these monologues allowed for the ability to provide examples of modern day social occurrences that these characters faced centuries before our time. This research will allow for students to understand that even if they don't comprehend every word they can always find something in common with one of William Shakespeare's characters.

**Kourtney Betler (?????????)**

**Faculty Sponsor:** Jennifer Martin, Department of Education

**Title:** Core+More

**Abstract:** This project examines the effectiveness of a behavior and academic intervention program, Core+More, which was implemented at a local high school during the 2014-2015 school year. The program is designed as an intervention for high school students who have displayed deficiency in three or more core content areas but do not display learning disabilities. Response to Intervention is a multi-tier approach to the early identification and support of students with learning and behavior needs. In Tier 1 (80% of students), students receive high quality instruction in the general classroom. In Tier 2 (10 -

15% of students), students not making adequate progress in the core curriculum are provided with increasingly intensive intervention matched to their needs, and in Tier 3 (1 - 5% of students), students receive individualized intensive interventions and typically have learning disabilities. The Core+More program is a Tier 2 intervention that was implemented for the 2014-2015 school year at a high school of approximately 700 students. Data were collected to examine the effectiveness of the intervention over a nine-month period. The data were collected every 4.5 weeks and was a triangulation of grades, test scores, and student surveys on their perceptions of the impact of their learning behaviors. The intervention was found to be mostly effective and will be used as a regular Tier 2 intervention in upcoming school years. This project is important because it helps to diagnose student needs and provide students the necessary support for school success.

**Gabriela Botzman (?????????)**

**Paula Kyser (?????????)**

**Chloe Bortmas (?????????)**

**Alyssa Suffron (?????????)**

**Alexis Parsons (?????????)**

**Zach Maenz (?????????)**

**Kayla Dunlap (?????????)**

**Cassidy Ott (?????????)**

**Faculty Sponsor:** Jennifer Martin, Department of Education

**Title:** Who Are We? Finding Identity in a Society Bound by Stereotypes

**Abstract:** Where do you fit in? Do you see people like you accurately portrayed in the media? Or do you agree with the more than 76% of people who feel they do not, according to our research? Modern American culture often promotes false messages and damaging stereotypes through the media. The missing component in education is how to see beyond the flashy surface to the truth of these messages: a skill called media literacy. Our service-learning research sought to find ways to promote diversity through media literacy to create a healthier culture in an educational context. We conducted workshops with students in eighth grade, twelfth grade, and college and collected qualitative and quantitative data. We specifically focused on self-recognition of race, gender, sexuality, and body image to better examine the effects of harmful media messages. Additionally, we studied the implications of service-learning on understanding adolescent's experience with media and identity. By encouraging students to view media messages through these lenses, we ourselves discovered how deep the cycle of stereotypes and self-fulfilling prophecies are embedded into our own backgrounds and able to realize the challenges of implementing culturally responsive environments in our future classrooms. After analyzing the service component as well as student data, we have concluded that multicultural and media literacy education does help to promote individual identity development. So, who are we? This presentation will encourage you to defy the media's definition of self and go forward to carve out your own identity and join us in defying stereotypes.

**John Bruketa (?????????????)**

**Faculty Sponsor:** Morgan Bagley, Department of Human Performance and Sport Business

**Title:** Why do Athletes have Anxiety Issues

**Abstract:** This research based study discusses why athletes have anxiety issues when it comes to their sports. Its aim is to figure out the reasons why athletes perform acts such as pre-game rituals and why

they are so afraid to come back from an injury that they will do things such as avoid participation as long as possible when they have been cleared to play. According to Barlow's concept of anxiety, it is a future oriented mood or state associated with preparation for possible upcoming events. Athletes have been shown to develop anxiety for several reasons. A segment of these stated by Patel and Omar, in the journal article titled Sport-related performance anxiety in young female athletes, are achievement goals, coaching behaviors and styles, coping skills, fear of failure, experience, level of competition, motivational climate, self-confidence, and social support . Anxiety disorders are very common in the general population so it is not uncommon for majority of athletes to have them since their jobs hold much more pressure over them than the majority of the general population's jobs. Anxiety disorders can be treated with a variety of medications but some have adverse side effects. There needs to be research in the development of a drug(s) that can reduce or eliminate anxiety signs and symptoms so athletes can participate and not be affected by anxiety.

**Hayley C. Buzulencia (?????????????)**

**Faculty Sponsor:** Charles McClaugherty III, Department of Biology

**Title:** Building Risk Assessment Models for Hydraulic Fracturing: What's Going On Beneath and On the Surface in Ohio

**Abstract:** The increased demand for energy resources has caused a dynamic surge of natural gas exploration throughout the United States. In eastern Ohio, the current focus is on the extraction of natural gas from the underlying Marcellus and Utica shale formations. This shale basin is projected to have the potential to produce a promising 53 billion cubic meters of natural gas. When put to use, the gas extracted could fuel our homes, transportation, and liberate us from dependence on foreign oil. Through hydraulic fracturing (popularly dubbed "fracking"), successful extractions have been completed through horizontal directional drilling techniques. The area of interest for this research is not far from Mount Union, encompassing neighboring counties (Carroll, Jefferson, Harrison, and Columbiana). The 1169 square kilometer area of interest spans from Salem, Ohio to Scio, Ohio. Requiring an extensive network of infrastructure, the extent and scale of this infrastructure boasts 394 wells, 122 well pads and 12.6 kilometers of buried pipelines. The extractions are providing economic stimulus to our region, but at what cost to our wetlands, streams, and lakes? Using geographic information software (ArcGIS 10.2), these features have been analyzed from high resolution aerial photography to detect any potential risks to water resources. You will find out how fracking could be helping or hurting our environment.

**Megan Clevenger (?????????????)**

**Faculty Sponsor:** John Recchiuti, Department of History

**Title:** Nazifying Christianity: Exploring Two Sects of Protestant Christianity in Hitler's Germany

**Abstract:** Christianity is often considered a peaceful, loving religion. Hitler's Nazi party stands in stark contrast to that image as one of the most disturbing, hateful regimes in modern history. It would seem, then, that these two ideologies have irreconcilable differences. This presentation asks: what role did Protestant Christianity play in mobilizing the German people **behind the Nazi regime?**

**Colin Combs (?????????????)**

**Mark Amabeli (?????????????)**

**Matt Jones (?????????????)**

**Lexi Scala (?????????????)**

**Faculty Sponsor:** Dhanunjay Boyalakuntla, Department of Engineering

**Title:** The Artificial Kidney

**Abstract:** The purpose of the Artificial Kidney Team Senior Design Project was to design improvements for the filtration unit of the Artificial Kidney. Computational fluid dynamics was utilized to study the blood flow through the device via the software ANSYS Fluent. The analysis results and design contributions were presented and added to the cumulative knowledge of artificial kidney technology. This design project was brought to the group by Dr. Shuvo Roy: an alumnus of Mount Union and the current leader of the project at the University of California-San Francisco.

**Alysun Daniel (????????????)**

**Faculty Sponsor:** Lori Braa, Department of Human Performance and Sport Business

**Title:** Differences in Campus Recreation Departments with a Focus on Institutions with Less Than 5,000 Students

**Abstract:** The purpose of this study was to examine the strategies and techniques of campus recreation departments with a focus on private institutions with less than 5,000 students. Using the case study approach, directors of campus recreation in selected north east Ohio institutions, including the University of Mount Union were surveyed on their daily operations. Findings demonstrated that the majority of institutions surveyed share their recreation facilities with the athletic department and student workers are the primary demographic for recreation staff. Results also found that each institution has a detailed procedures manual, risk management and emergency action plan for their department. Through this study, more research needs to be conducted in examining the campus recreation department structure of private institutions with under 5,000 students.

**Sean Donnelly (????????????)**

**Jason Paulovich (????????????)**

**Brendan Graves (????????????)**

**Faculty Sponsor:** Ron Mendel, Department of Human Performance and Sport Business

**Title:** Load-vector training and sprint performance in track-and-field athletes

**Abstract:** Introduction: The use of strength and conditioning (S&C) programs to increase sports performance is becoming increasingly relevant. Sprint performance, crucial to many sports, is largely dependent upon horizontal force propulsion via the hip extensors and knee flexors. Current S&C programs place much emphasis on axial-loaded (vertically-loaded) exercises, while little emphasis is placed on anteroposterior-loaded exercises. It is theorized that anteroposterior-loaded exercises can increase sprint speed and acceleration. The purpose of this study is to determine the influence of force vector production of weight room exercises on sprint performance. Methods: 30 track-and-field athletes were assigned into one of three training groups. The three training groups are as follows: the vertical (axial) training group, the horizontal (anteroposterior) training group, or the mixed training group. Testing measures include vertical jump, broad jump, and 60-meter sprint. Subjects performed these speed and power tests before and after a six-week training period. Results/Discussion: Data collection is ongoing. Conclusions have yet to be determined.

**Ashley Eckroate (Biology and Exercise Science)**

**Faculty Sponsor:** Charles McClaugherty III, Department of Biology  
3:30 p.m., Kolenbrander-Harter Information Center, Room 013

**Title:** Effects of Light Intensity on Photosynthesis Rates in *Caulophyllum thalictroides*

**Abstract:** Caulophyllum thalictroides, more commonly known as blue cohosh, is a member of the Berberidaceae family that grows in the eastern hardwood forests of the United States. The need for this plant first came to light with the Native American tribes who used blue cohosh as a medicinal herb for purposes of abortion as well as contraception. Though blue cohosh is not well known in America, perhaps the reason for this is the unknown mechanism of action. Therefore uncovering additional information about the function of photosynthetic rates can lead to significant data in correlation to the known medical effects. The primary aim of this research was to define the maximum photosynthetic rate at which this plant species thrived best under, during three different stages of growth when subjected to decreasing light intensities. A relation between the age of a plant and maximum photosynthetic rate was noted. This shows promising progress in discovering more about the mechanisms of action and the possibility of developing a safe herbal supplement from blue cohosh.

**Dylan Garritano (Political Science)**

**Faculty Sponsor:** Lori Kumler, Department of Political Science and International Studies

4:10 p.m., Engineering and Business Building, Room 206

**Title:** The Wheels on the Bus: Examining the Relationship between Bus and Light Rail Transit

**Abstract:** Can two modes of public transportation work to complement a city's overall public transportation network by not competing against each other? There is debate among scholars on whether inter-modal cooperation exists. It has been recommended that the addition of new modes of public transportation should only be done if it will not negatively interfere with existing modes of public transportation. The argument that I make is that inter-modal cooperation exists in three cities with both Bus and Light Rail transit. To make this argument I examine the three relationships among cities' public transportation networks: the number of vehicles operated, operational costs, and overall transit ridership. The study examines three pairs of cities, each of which compares a city with both bus and light rail transit to a city with only bus transit. The results suggest that inter-modal cooperation can exist and that light rail transit improves upon a city's public transportation network. While this study cannot make the argument for the development of light rail transit, this study does provide support that light rail transit can improve upon bus transit in the same city.

**Brandon K. German (Criminal Justice and Computer Science)**

**Faculty Sponsor:** Andrew Bain, Department of Sociology and Criminal Justice

**Title:** Examining the crimes of the outlaw motorcycle gangs

**Abstract:** In 2009, Barker and Human published research on the Big Four motorcycle gangs which ranged from 1980-2005 (25 year period). In the research, they sought to further the understanding of the gangs and their criminal activities. However, this area is still under-researched and is need of more information. In this research, to maintain validity for the new data, similar methods to that of Barker and Human are being used to source articles. The articles will be found in the LexisNexis newspaper database from 2005-2014 (10 year period) to add to Barker and Human's findings and to create a 35-year span of information on the criminal activities of these outlaw motorcycle gangs. The results will further the area of knowledge as well as show areas where crime activity is most prevalent.

**Garrett Graber (?????????)**

**Faculty Sponsor:** David Thiele, Department of English

**Title:** Is: Narrative and History in Beloved

**Abstract:** "There is no was." Four words by author William Faulkner could not better define the true nature of human history. Time was not a series of linear events for Faulkner, rather it was all

intertwined: past, present, future ever rotating and affecting the moment. Toni Morrison's *Beloved* mirrors Faulkner's sentiment on time as her gripping, violent retelling of the Margaret Garner case employs a non-linear framework with the past and present interwoven and sometimes narrated simultaneously. I argue that Morrison didn't use a linear narrative because it would be limiting and prove inadequate in truly capturing the horrors and tragedies of slavery. Through a close reading of *Beloved's* prose, a reviewing of the Margaret Gardner case, and analysis of scholarship on narrative structure, I aim to show how *Beloved's* unconventional, non-linear narrative accurately portrays the misery of slavery, showing the treacheries of the past cannot be laid to rest; they will continue to haunt the present. *Beloved* is not a history of what was. It is a history of what is.

**Nichole Heaton (Biochemistry)**

**Faculty Sponsor:** Keith Miller, Department of Chemistry and Biochemistry

**Title:** Does Size Matter: Nanoparticle Immune Cell Activation for Cancer Treatment

**Abstract:** According to the American Cancer Society, in 2015 it is estimated that over 500,000 people will die from cancer. Cancer is a problem that society and scientists have yet to solve. Cancer is when a cell mutates in the body and begins to rapidly divide. Even with current cancer treatments, radiology and chemotherapy, the cases of cancer and the mortality rate are still high. One of the major problems with the current cancer treatments is that they do not specifically target cancer cells. Both radiology and chemotherapy kill rapidly dividing cancerous and healthy cells. Often times, the patient is already extremely ill from cancer and the treatment is harmful to the body. A new cancer treatment, immunotherapy, utilizes the body's own immune system. Cells within the immune system known as macrophages destroy any debris or foreign substances within the body. Macrophage activation to recognize cancer cells as foreign substances can lead to an effective immune response that will kill the cancer cells. In this research, nanoparticles, tiny particles that can carry a compound within it, have been used to activate macrophages. This allows the delivery of a compound that will activate the macrophage which will release chemicals to activate an immune response. The purpose of this research was to find how much activating cargo was necessary, as well as, what size of the liposome causes increased macrophage activation. It trended that smaller concentrations were better at macrophage activation than larger. Current studies are focusing on defining improved size limits.

**Rachel Horseman (?????????????)**

**Heather Lee (?????????????)**

**Clarice Nock (?????????????)**

**Nicole Simons (?????????????)**

**Faculty Sponsor:** Kristine Turko, Department of Psychology and Neuroscience

**Title:** Gender Differences in Self-Reported and Actual Physiological Responses to Emotional Stimuli

**Abstract:** Gender-specific norms guide the roles that men and women act in everyday life. Due to these assumed roles, people may act appropriately in public, but may feel different internally. Emotional responses are explored in previous literature through violent text, films, and pure imagination. The purpose of the current study is to find the differences between actual and self-reported physiological responses to emotion in men and women. Participants were undergraduate students at the University of Mount Union (aged 18-23). The participants viewed four clips pertaining to specific emotions: neutral, happiness, fear, and sadness. Throughout the film clips, the participants were tested for their actual physiological responses through respiratory rate, heart rate, and sweat levels. After the conclusion of each emotion-eliciting clip, the students completed a questionnaire on self-reported physiological responses. The participants rated adjectives that are similar to emotions to compare to the emotions

experienced in each film clip. It was thought that fear would contribute to higher actual physiological responses by increasing heart rate, sweat levels, and respiratory rate. Women will most likely self-report emotions more strongly than males will. Males will not self-report their emotions the same as their actual physiological responses.

**Christopher M. Ifantiedes (Athletic Training)**

**Faculty Sponsor:** Morgan Bagley, Department of Human Performance and Sport Business  
10:40 a.m., Engineering and Business Building, Room 206

**Title:** Done for the Season: A Case Study on a Preventable Season Ending Injury

**Abstract:** Training surfaces (i.e. artificial turf, rubber track, natural grass) play a key role in an athlete's success and ability to play in competition. In "Why are stress injuries so common in the soccer player?", Knapp states that in 1994 about half of the U.S. women's soccer team was not able to perform at their maximum level because they were dealing with stress fracture in their lower legs. This is a problem seen in athletics continuously, but often not to the extent of half of a team. With the increase in athletic participation stress fractures are not going away. A case study approach was used with a soccer athlete who could have potentially had a career ending injury because of the training environment. It is hypothesized that research will show that training and playing on different surfaces plays a role in this. Whether you are physically active yourself or just a dedicated sports fan, these types of injuries can greatly affect your career or the season outcome of your favorite team.

**Tyler Lowe (???????????????)**

**Kristen Green (???????????????)**

**Lydia Gonzalez (???????????????)**

**Faculty Sponsor:** Kristine Turko, Department of Psychology and Neuroscience

**Title:** Why So Serious?: Advertising and Mood

**Abstract:** Participants will first complete a pre-test questionnaire about mood on SurveyMonkey. The purpose of the pre-test questionnaire is to determine a starting point in terms of the participants' mood. Having this, we can use these results as a control to see if they have a shift in their mood. After completing the survey, they will participate in all levels of the facial manipulation experiment. The levels are emotion (high-spirited and low-spirited) and expression (happy and neutral). Participants will watch a high-spirited and then a low-spirited dog adoption video, respectively, with either a happy or neutral facial manipulation via holding chopsticks in their mouths. Following the video, they will respond to a short Likert scale survey regarding their emotional state and their opinion on the persuasiveness of the advertisement. The purpose of this survey is to determine the persuasiveness of the video advertisement. Participants will be debriefed after completing the experiment.