2015 academic showcase
Tuesday, April 21

Presenter Information & Schedule of Events
Hastings College
Academic Showcase
Travel & Experiential Presentations
Monday, April 20 • 7-10 PM

7:00 PM

Student Names:
Mirae Nakouzi ’15 Psychology with Political Science minor
Makayla Wendland ’15, Political Science & Sociology
Rachel Lee ’15, Psychology & Political Science
Joey Kemler ’15, Economics with Political Science minor
Tonette Gonzales-Hunter ’14, International Studies & Spanish
Sarah Easter ’15, International Student

Hometowns: North Platte, NE; Arapahoe, NE; Loveland, CO; Omaha, NE; Guide Rock, NE; Germany

Faculty Sponsor: Dr. Ingrid Bego

Travel Presentation Title: Forging Global Alliances: Practicing Diplomacy at National Model United Nations

Location: Wilson Auditorium

Abstract: In March, eleven students attended the National Model United Nations conference in New York City along with thousands of other college students from around the world. We spent the week representing the country of Niger and negotiating resolutions to solve world issues in a collaborative multilateral manner. We attended General Assembly meetings and discussed key issues of international relations and diplomacy. During this experience, we gained hands-on knowledge about the successes and challenges of the United Nations and what that means for us in rural Nebraska.

Student Names:
Brooke Ballou ’15, AgriBusiness & Marketing
Haley Gebers ’16, AgriBusiness

Hometowns: Wilsonville, NE; Nora, NE

Faculty Sponsor: Dr. Amy Black

Travel Presentation Title: Aspiring Women in Agriculture

Location: Daugherty Center

Abstract: We both attended Top Producer’s Executive Women in Agriculture Conference in Chicago in December 2014. This one-and-a-half day business seminar was dedicated exclusively to women in agriculture. It provided us with an opportunity to hone our business skills and network with agriculture enthusiasts from across the country, each representing diverse farming operations and sharing very different experiences. We learned much from these women about how to be successful in a male-dominated career field. We also developed and used networking tactics to make numerous noteworthy connections during the conference, including meeting people such as Julie Borlaug, Associate Director for External Relations, Borlaug Institute for International Agriculture at Texas A&M AgriLife.

Both of us grew up on family farms in which our moms are partners with our dads in our operations, and we will provide firsthand accounts of the role women in agriculture play on family farms today. We will also discuss women’s role in the industry from a business perspective based on our own personal internship experiences in the field. Finally, we’ll discuss where we see ourselves in this industry in the future.
During my semester abroad in Pyatigorsk, Russia, I was one of a number of foreign students studying Russian at the State Linguistic University. We all studied at the same university and took the same courses, but all had remarkably different experiences. I will explore cultural differences of various countries by comparing the experiences my fellow foreigners had in Russia. Thus, this presentation will paint a picture of not only Russia, but of how Russia is perceived from different cultural lenses. My data shall be gathered by interviewing British, French Egyptian, Spanish, Turkish, Korean and Polish friends I made while living abroad in Pyatigorsk.

During a 10-Week Medical Physics Internship at University of Maryland Medical Center in Baltimore, I was able to conduct the hands-on research typical of a graduate student in a Medical Physics Program by working on Quality Analysis (QA) and an independent research project, commissioning a new program for clinical use. Working in a hospital setting proved to be a great learning experience; I watched as many patients improved, but some were unable to win the battle against cancer. By completing this program, I felt confident that this is the career path I would like to follow.

After the presentation, the audience will have an opportunity to view the complete short film Push.
Student Names:
Kasey Lammers ’18, Art
Kirsten Berns ’17, Art
Vanessa Cox ’17, Art
Maria Lara ’17, Art
Hometowns: Grand Island, NE; Blue Hill, NE; Rising City, NE; Anaco, Venezuela
Faculty Sponsor: Turner McGehee
Travel Presentation Title: Art and Science
Location: Daugherty Center
Abstract: In J-Term 2015, we participated in a course that studied the work of naturalist artists, such as Leonardo da Vinci, Galileo, Vesalius, John James Audubon and Roger Tory Peterson. Most of our class time was spent in various natural history collections where we interviewed biologists, archeologists and museum curators. We interviewed Gary Staab through Skype. For one week, we were in residence at Sylvan Dale Ranch in Loveland, CO, where one of the owners is Dr. David Armstrong, retired chair of Biology at the University of CO in Boulder. Dr. Armstrong gave lectures on the history and philosophy of natural science, and guided us in study of the flora, fauna, geology and natural history of the local terrain. All students produced a large trove of on-site drawings and field notes throughout the semester. Many of the students in the class were not art students, but all reached an astonishingly high level of drawing accomplishment. Our work demonstrates the power of direct observation and contemplation of interesting artifacts, combined with expert consultations and steady practice of studio techniques.

Following the presentation, the audience will be able to view some of the artwork and discuss it with the individual artists. This exhibit will be reprised at the Hastings Museum in April 2015.

9:00 PM
Showing of Matt Brooks’ short film Push
Location: Wilson Auditorium

“Art and Science” artwork exhibit
Also available for viewing during presentations Tuesday
Location: Daugherty Center

Academic Showcase
Poster Presentations
Tuesday, April 21 • 9 AM-3 PM
Hazelrigg Student Lounge

12:30-1:30 PM - Poster Presenters will be available to discuss posters and answer questions.

Student Names:
Brooke Snyder ’15, Biology
Rachel Miller ’15, Biology
Molly Messersmith ’15, Biology
Hometowns: Mitchell, NE; Greeley, CO; Hayes Center, NE
Faculty Sponsor: Dr. Amy Morris
Poster Presentation Title: Antimicrobial Effectiveness of Household Spices
Abstract: Bacteria are a primary cause of food spoilage as well as infections of the skin and other tissues. Recent research has pointed to the use of herbs and spices as effective antimicrobials. In this preliminary study, we tested the antimicrobial properties of tea tree, oregano, and white thyme oils at concentrations of 10%, 25%, 50% and 100% against three bacteria species, Staphylococcus aureus, Escherichia coli, and Micrococcus luteus. S. aureus and M. luteus are common flora of human skin, while E. coli are common intestinal bacteria. Using the agar-well diffusion method, the oils were tested on their ability to inhibit growth of the bacteria. The highest oil concentrations produced the greatest growth inhibition. In all cases, the oils were able to inhibit bacteria growth, with oregano oil performing the best. E. coli were found to be least susceptible to the oils. This work further supports the research that essential oils can serve as antimicrobial agents and could be used as natural preservatives in preventing food spoilage or as natural remedies for some bacterial infections.

Student Name: Paige Skillett ’16, Chemistry
Hometown: Lincoln, NE
Faculty Sponsor: Dr. Neil Heckman
Poster Presentation Title: Developing a Microchip Electrophoresis Method Using HKGreen-3 to Determine the Concentration of Peroxynitrite in Macrophage Cells
Abstract: Peroxynitrite (ONOO⁻) is a strongly oxidizing species that is produced in vivo by the reaction of excess superoxide (O₂⁻) and nitric oxide (NO). Peroxynitrite generation in vivo has been linked to cancer, as well as cardiovascular and neurodegenerative diseases. ONOO⁻ has a very short half-life (~1 sec under physiological conditions), making its direct detection difficult. Therefore, this research is focused on the development of an indirect method for monitoring ONOO⁻ production in macrophage cells using a novel fluorescent probe, HKGreen-3. HKGreen-3 has been shown to be selective towards ONOO⁻. Initial studies used peroxynitrite standards and the effect of pH on the yield of the fluorescent product was investigated. Due to the generation of side products during the reaction, a separation method was necessary for accurate quantitation of the desired product. This was accomplished using microchip electrophoresis with laser induced fluorescence detection. In order to obtain optimum resolution between the parent compound, HKGreen-3, side products, and the peroxynitrite product, both normal and reverse polarity electrophoretic separations were studied while varying surfactant concentrations.
Student Name: Haley Snyder ’15, Chemistry  
Hometown: Mitchell, NE  
Faculty Sponsor: Dr. Amy Morris  
Poster Presentation Title: Effects of Alcohol-based Hand Rub on the Bacterial Population of Participants’ Hands over a Period of Ten Days  
Abstract: The purpose of this study was to analyze the effect of alcohol-based hand rub on the bacterial population of participants’ hands over a period of ten days. Participants were assigned to use alcohol-based hand rub or avoid alcohol-based hand rub. Participants’ hands were swabbed on days one, five and ten from a 9cm² area of the palm. Collected samples were grown on agar medium and quantified. Compliance was determined throughout the study. Results showed that there was a reduction in colony-forming unit (CFU) from baseline (day one). Day five showed an 84.41% reduction from baseline, while increased levels of GluR1 and GLT-1 were not apparent.

Student Name: Brooke Snyder ’15, Biology  
Hometown: Mitchell, NE  
Faculty Sponsor: Dr. Amy Morris  
Poster Presentation Title: Evaluation of the Effect on Hand Micro Biomes after Periodic Exposure to Alcohol-based Hand Rub  
Abstract: A sizeable proportion of bacteria thrive on the human body attributing their survival to a commensal relationship; however, there is the potential to harbor pathogenic bacteria. Alcohol-based hand rubs rapidly kill bacteria by denaturing proteins upon contact. The purpose of this study was to analyze the effect of alcohol-based hand rub on the bacterial population of participants’ hands over a period of ten days. Participants were assigned to use or avoid alcohol-based hand rub. Participants’ hands were swabbed on days one, five and ten from a 9cm² area of the palm. Collected samples were grown on agar medium and quantified. Compliance was determined throughout the study. Results showed that there was a reduction in colony-forming unit (CFU) from baseline (day one). Day five showed an 84.41% reduction from baseline, while increased levels of GluR1 and GLT-1 were not apparent.

Student Name: Heidi Roth ’15, Biochemistry/Molecular Biology  
Hometown: Grand Island, NE  
Faculty Sponsor: Dr. John Bohmfalk  
Poster Presentation Title: The Role of Mobile Protons in Collision-Induced Dissociation of a Model Glycopeptide  
Abstract: It is often a challenge for scientists to determine all of the sugars on a glycoprotein and their locations. One important tool for this is tandem mass spectrometry (MS/MS). Collision induced dissociation (CID) is one type of MS/MS method that has been extensively used for glycopeptide analysis. It was hypothesized that by conducting CID of many glycopeptides at many collision energies, a method to predict what kinds of fragments are formed and at what collision energies can be developed. It was further hypothesized that the number of charge carrying hydrogen ions relative to the number of highly basic sites on the peptide will determine how much energy is needed to obtain each kind of fragment. To test these hypotheses, a model glycoprotein, ribonuclease B, was cleaved enzymatically and purified. The samples were analyzed using a Water Synapt G2 mass spectrometer. The result of this experiment will be used to develop a plot that can be helpful to understand the effect of basic amino acid sites and mobile protons present in glycopeptides.
**9-9:30 AM: Oral Presentations Session I**

**Student Name:** Trina Knight '15, Criminal Justice, Psychology  
**Hometown:** Hastings, NE  
**Faculty Sponsor:** Dr. C. Austin McDonald  
**Presentation Title:** Live or Die?, Make Your Choice: Finding Post 9/11 Spectacle Horror in James Wan's *Saw* (2004)  
**Location:** Wilson Auditorium  
**Abstract:** In 2011, film scholar Adam Lowenstein proposed an innovative method of reading horror films called “spectacle horror”. With the success of films like *Saw* (2004) and *Hostel* (2005), Lowenstein’s methodology challenges the popular term “torture-porn” as an insufficient and shallow concept which merely states what the films are rather than what the films do. Distinct from notions of voyeurism and identification (Clover, 1993), Lowenstein’s “spectacle horror” proposes that the staging of spectacularly loud and realistically visceral scenes actively engage viewers on a participatory “sensory adventure” – a way viewers may experience what he calls “feeling history.” For example, today’s viewers may find that *Saw*’s torture scenes resonate with real-life torture associated with terrorist groups, such as ISIS. Because methods of identification have limited theoretical discussion of so-called torture porn films, it is important to re-read through a new and potentially fruitful framework. Thus, this project examines the 2004 film *Saw* through Lowenstein’s spectacle to better understand film-viewer relationships within a post-9/11 socio-historical context.

**Student Name:** Hayley Buckman '15, English with an emphasis in Literature, Communication Studies  
**Hometown:** Strasburg, CO  
**Faculty Sponsor:** Dr. John Perlich  
**Presentation Title:** Love/Hate: The Role of Cultivation Theory and Gang Violence in Ireland  
**Location:** Daugherty Center  
**Abstract:** George Gerbner’s Cultivation Theory contends that television directly affects the way individuals perceive the likelihood of violent acts occurring in their presence or being perpetrated against them personally. The Irish television drama, *Love/Hate* was found to be an applicable example of this theory. Irish individuals who had watched the program consistently perceived gang life in Dublin to be similar to that as indicated on the show; however, gang violence and gang activity were not as dominant or invasive in reality as they were portrayed via the scripted series. Additionally, *Love/Hate*’s origin as an Irish-produced series lends to Gerbner’s idea of Mainstreaming and Resonance in that the geographical locations and characters of *Love/Hate* create a strong influence over the beliefs and perceptions of Irish citizens. As a foreign consumer of the show, *Love/Hate* facilitated false expectations of a crime ruled Dublin, proven false in real life experience and assessment. Both Irish and foreign consumers of *Love/Hate* experienced Resonance as a result of the program’s authentic geographical representation and character development. Additionally, *Love/Hate*’s inclination towards dramatic violence caused viewers to have a higher mistrust of people and increased fear of becoming a victim to criminal activity while in Dublin.
9:45-10:15 AM: Oral Presentations Session II

Student Name: Becca Brandt ’15, Mathematics
Hometown: Holyoke, CO
Faculty Sponsor: Dr. Bobbi Buchholz
Presentation Title: A League of Their Own: Using Mathematics to Analyze “League of Legends” Gameplay
Location: Wilson Auditorium
Abstract: This project applies mathematical techniques to analyze the video game “League of Legends.” Using champion statistics and previous tournament results, I will look for the optimal team composition and make predictions about game play. A simulation will be used to model game play to see how well each of the selected champions performs. The results can then be compared with actual players’ results.

Student Name: Maggie Johnson ’17, Studio Art
Hometown: Loveland, CO
Faculty Sponsor: Turner McGehee
Presentation Title: The Irish Harp
Location: Daugherty Center
Abstract: In October of 2014, I was given the opportunity to study in Ireland as part of the Hastings College Irish Fellows Program. While there, I conducted directed study research on the Irish harp and the role this instrument has played as a symbol in Irish history. This also included the history of the Irish harp, its place in the ancient and modern identity of the Irish, and its role in modern Irish cultural life. My scholarship focuses on the different perceptions surrounding the harp as the national symbol of Ireland as well as a lively contemporary musical instrument and how these two separate elements have worked together to create a shared identity for the Irish people. I also had the great fortune of being able to take harp lessons with one of the world’s finest Irish harpists, Paul Dooley. In this presentation, I will offer insights into the role that the harp has played in the history of Ireland and conclude with a musical performance of one or two of the songs I learned while I was a resident in County Clare.

10:30-11 AM: Oral Presentations Session III

Student Names:
Mirae Nakouzi ’15, Psychology with a minor in Political Science
Jocelyn Delgado ’15, Psychology with a minor in English
Madeleine Sharp ’17, Psychology with a Sociology minor
Melissa Burke ’17, Psychology and Health Systems
Hometowns: North Platte, NE; Brighton, CO; Omaha, NE; Denver, CO
Faculty Sponsor: Dr. Stephanie Furrer
Presentation Title: Does type of activity impact the positive effect of nature on 5th-grade students’ attention and mood?
Location: Wilson Auditorium
Abstract: Research suggests that being outdoors is beneficial to the overall well-being of children, particularly with respect to positive affect and cognitive processes such as attention and concentration. Although such findings strengthen the argument to “get outside,” little experimental research has focused on whether the type of activity that children engage in outside matters or if the same benefits may occur with certain activities conducted indoors. In this study, 5th-grade students were randomly assigned to either an indoor or outdoor group and engaged in either a structured or unstructured activity. Preliminary analyses suggest that engaging in unstructured activities, regardless of being inside or outside, positively influences children’s mood. A secondary aim was to examine correlations between both students’ and parents’ attitudes toward nature and time spent engaged in outdoor activities versus with technology (e.g., cell phones, TV, computers). Both students and parents completed a survey with questions related to these issues. Data analysis is currently underway, the results of which will be presented during our presentation. We will also discuss study limitations and lessons learned.

Student Name: Sarah Wolf ’15, Flute performance, music education, English education, English literature
Hometown: Hastings, NE
Faculty Sponsors: Deb Johnson and Dr. Constance Malloy
Presentation Title: The Music of Agatha Christie’s Mystery Novels
Location: Daugherty Center
Abstract: After reading Agatha Christie’s autobiography, I became interested in exploring the statistical connection between her musical background and a sampling of twenty-four of her mystery novels. I wanted to discern if Christie’s music inclusions created a “people’s literature” that endorsed the values of the eras during which her books were written. I used comparative analysis to note each occurrence of music in the twenty-four novels and weighed each occurrence on a numerical scale based on plot relevancy. I then sorted my findings into five time periods and analyzed them. I concluded that Christie did use choose the music to “reflect the prevailing ethic” of each time period, although probably only unconsciously.

11:15-11:45 AM: Oral Presentations Session IV

Student Name: Eunice Adounkpe ’16, Biology and Sociology
Hometown: Omaha, NE
Faculty Sponsor: Dr. Kittie Grace
Presentation Title: Shrinking Women
Location: Wilson Auditorium
Abstract: An ABC news article from 2012 reports that “twenty years ago, the average fashion model weighed 8% less than the average woman. Today, she weighs 23% less.” Girls are relentlessly bombarded by images of engineered body parts that are toned, tanned and thinned. However, the imposition of such gender ideas begins at birth. A 2005 study found that parents of 3-year-olds worry that their boys don’t eat enough and that their girls eat too much. The manner in which a body takes up space is a territorial display of power – an unspoken rule in society. In my research, I analyze how this unspoken rule renders women meek and powerless. Additionally, I explore how visualized gender and race stereotypes represent, reflect, and create societal norms and expectations.

*As part of my presentation, I will perform a poetry program (approximately nine minutes in duration) and then present my research.
12:30-1:30 PM: ORAL PRESENTATIONS SESSION V

Student Name: Laurel Kay Teal ’17, History and Political Science
Hometown: Plum Creek, CO
Faculty Sponsor: Dr. Michella Marino
Presentation Title: Stories We Remember: The History behind the Wild West Legends of a Front Range County
Location: Wilson Auditorium
Abstract: This research seeks to trace the development and history behind the local myths of Douglas County, CO. My research specifically highlights the legend of Devil’s Head Mountain, where approximately $12,000 in gold coins has supposedly been hidden by the infamous Collins Gang train robbers in the 1870s. I have determined that the Devil’s Head legend was actually created by mistake, a mix-up between two different train robberies which occurred in two different states (Nebraska being one) at different times. I also include other stories I came across in doing my research, such as Plumb Creek’s “Green Monster” of the ’50s, Castle Pines’ UFO sightings in the ’60s, Sedalia’s railroad ghost of the early 1900s, and even a visit to Castle Rock by the Devil himself in the 1880s. These stories were all legends, certainly, yet all have basis in historical fact. Overall, these myths beg the question of identity: assuming that these stories are unique in that they could only be created by the land and people from there, I draw conclusions about what the memory of these stories says about the people and the land that created them.

Student Name: Katherine Amyot ’17, History and Sociology
Hometown: Hastings, NE
Faculty Sponsor: Dr. Laura Logan
Presentation Title: Sexual consent in popular media: A content analysis of “How I Met Your Mother”
Location: Daugherty Center
Abstract: This project focuses on the portrayal of consensual sex in popular media, based on a content analysis of a popular television show. “How I Met Your Mother” was chosen because it is popular among teens and young adults. In addition, it is a long running show about heterosexual relationships that permits me to focus on two cultural and historical periods, before and after 2010. During this year the idea of consensual sex was prominent in social and popular media through various social movements, including the SlutWalk, Anti-Street Harassment, and the Anti-Rape movements sweeping across U.S. college campuses. Using a random sample of 15 episodes from each period, I will try to establish whether or not the portrayal of consent changed over time. My findings will further our understanding of how the current generation learned about consent in sexual relationships through popular media.
The Northwest Caucasus Mountains are one of the most beautiful and diverse regions on the world. This diversity is personified through the many ethnic groups in the region. Except for the dominant Russians, their languages, traditions, and values – called “Circassian” – are very similar. However, they also self-identify as over twelve different language groups; this, in turn, contributes to different ethnic identities. These powerful feelings of national identity have seen cultural exchanges, conflicts and repression among groups. Russia has had a long, dominant hold over the Northwest Caucasus and its peoples. Russian national identity has also had a profound impact on these non-Russian ethnic groups by affecting Circassian language and social institutions. These include cultural traditions and economic mobility. The prevalence of Circassian nationalism has caused both Circassia and Russia to affect the national identity of ethnic groups living in the Northwest Caucasus. These feelings of national identity have changed over time; however, they have come into sharper focus after the fall of Communism and – given Chechnya to the east – have become more fraught.

For many years, the community of trading card games (TCG’s) has been primarily dominated by men. Women are in the extreme minority and sometimes face unwelcoming hyper-masculinity. This study investigates how communication varies between men and women in this competitive setting and also examines how both genders alter their communication styles when playing a person of the opposite gender. Despite their ability to act as a microcosm for other male-dominated cultures, TCG’s have been largely overlooked by academic research. Using Deborah Tannen’s Genderlect Theory (1990) as a guide, eight games of the TCG Magic: the Gathering were observed with all possible gender pairings represented. Instances of traditionally masculine and traditionally feminine communication were recorded. While men’s communication was consistently masculine, women were more likely to adapt masculine styles of communication when their opponent was male. In addition, gender differences in separating competition and socializing, as well as gender differences in negotiating face, were observed and could serve as important starting points for future research into gender differences in communication.
Theresa Droege '15, Psychology & History
Hannah McCorkindale '15, Psychology
Jessie Drelicharz '16, Psychology

Hometowns: Aurora, CO; Wayne, NE; Omaha, NE

Faculty Sponsor: Dr. Jeri Thompson

Presentation Title: The relationship between tune deafness and empathy

Location: Wilson Auditorium

Abstract: Studies in cognitive psychology suggest that the tone of one’s voice communicates an individual’s emotional state and that the rise and fall in emotional tone is similar to the rise and fall in musical tones. Research on emotional intelligence suggests that people who are more skilled socially may be that way because they are more sensitive to others’ emotions. Individuals who do not recognize these changes in emotional tone may then not be able to identify changes in musical tone. Inability to detect these indicators of emotion connects strongly to the theory of emotional intelligence. Emotional Intelligence is the ability to monitor one’s own and others’ emotions as well as to understand them. We as a research team were interested in the symptoms of autism as connected with a lack of emotional intelligence. If a person is insensitive to the emotional tones in music, does that also indicate a lack of emotional empathy? We administered an emotional empathy test and a tune-deafness test to Hastings College participants in an attempt to answer this question. However from the data collected, we only found one participant who was tone deaf, providing very little insight into the connection between emotional tone, musical tone and its connection to empathy. Join us as we continue down this psychological journey to investigate the connection between music, psychology, and the brain.

Student Name: Michael O’Neal ’15, Physics

Hometown: Highlands Ranch, CO

Faculty Sponsor: Dr. Jim Dugan

Presentation Title: HCEV: The Creation of an Electric Vehicle

Location: Daugherty Center

Abstract: With global warming being a current concern, many people have chosen alternatives to gas-powered vehicles. One of those alternatives is electric power. I converted a 1987 Volkswagen Scirocco from a 1.8 L internal combustion engine to a Warp 9 electric motor system. Experiments were then done to determine the fuel efficiency of both the internal combustion engine and the electric motor. The electrical motor used the Miles per Gallon electric (MPGe) calculations to determine the Miles per Gallon (MPG) equivalent. I then compared these numbers to demonstrate that the electric motor has increased fuel efficiency – but shorter range – than the internal combustion engine.

* After the presentation, the audience will be invited to step outside Daugherty Center to get a close-up look at the electric vehicle.
Sponsored by Alpha Chi and the 2015 Academic Showcase Committee

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