11th Annual

Undergraduate Research Conference

Monday, April 13, 2015
& Tuesday, April 14, 2015
8:00am – 5:30pm
UBH North & South

Event Organizers:

Toby Arquette (COM)
Paula McGuire (CSD)
John Rosen (HIS)
Leila Samii (MKT)

A special thank you to Grace Smith and Ashley Finlon, two seniors in Communication, for their extensive support in planning and running this conference.
## Monday, April 13, 2015

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<tr>
<th>Time</th>
<th>UBH North</th>
<th>UBH South</th>
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<tbody>
<tr>
<td>8:00am – 8:30am</td>
<td><strong>An Artist's Inspirations and Ideas</strong> by Nicole Hamblen (Individual Presentation, sponsored by Prof. James Kao)</td>
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<td>The student will be presenting a collection of art pieces done throughout the four years of education. The presentation will also include research done during the production of art projects throughout the senior year.</td>
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<td>8:30 am – 9:00am</td>
<td><strong>Nutrition &amp; Comorbidity Medication Dependency in Autism Spectrum</strong> by Jessica Anaya (Individual Presentation, sponsored by Prof. Kim Williams)</td>
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<td>A plant-based diet can greatly reduce medication dependency for those affected with comorbid diseases with Autism Spectrum. This presentation will cover the relationship between co-occurring disorders and how nutrition can heal the body of inflammatory conditions.</td>
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<td>9:00 am – 9:30am</td>
<td><strong>Perceptual Deterrence in AU Students</strong> by Haley Pessina, Honors Program Senior Presentation (Individual Presentation, sponsored by Dr. Stephanie Whitus)</td>
<td><strong>Animal/Human Interaction</strong> (Class Poster Presentation, sponsored by Prof. Becky Tugman)</td>
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|               | The purpose of this study is to determine perceptions of deterrence in Aurora University students for minor offenses. Multiple theories explain deterrence. The first suggests that social bonds, such as family, influence deterrence. The second suggests that threat of punishment, such as incarceration, impacts deterrence. The third suggests that formal and informal sanctions, such as temporary suspension of a driver license, influences feelings of deterrence. Lastly, research suggests that physical harm to oneself impacts deterrence. A survey was administered during the Fall 2014 semester to a random sample of students for data collection. Students most often cited strong morals/values and a fear of formal punishment as reasons for not committing minor offenses. Implications of this research will be used to help promote future policies for crime prevention and how to use resources effectively in order to prevent crime for traditional university-aged students. | - **Puppy Mills** by Ashley Miller, Racheal Warnack, and Natalie Dietrich
- **Ocean Pollution** by Amber Koenig, Melissa De Loach, Amber Smith, and Evelyn Mendez
- **Hunting Benefits** by Paige Fisher, Adam Stevens, and Kolten Koch
- **Wild Boar Overpopulation** by Alex Duncan, Thomas Massman, and Luca Melone
- **Pets and Human Health Benefits** by Leslie Martinez, Melanie Findlay, and Hannah LaCroix
- **Factory Farming and Slaughterhouse Conditions** by Jazmin Maya, Anthony Rohde, and Paul Mascitti
- **Animal Use to Further Science and Health** by Juan Ibarra, Luke Hebert, and John Paul Reese |
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<tr>
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| 9:30 am - 10:00 am | **Antibiotic Resistance Gene Transfer Between Bordetella bronchiseptica and Bordetella pertussis** by Tyler Senft, Senior Honors Program Presentation (Individual Presentation, sponsored by Dr. Mark Zelman)  
Bordetella bronchiseptica and Bordetella pertussis are closely related species of bacteria that are known for causing upper respiratory infections in both non-human mammals and humans. Antibiotic resistance development in pathogens has recently become a widespread public health issue. This study assessed the possibility that antibiotic resistance in one species of Bordetella could lead to the development of resistance in the other through cohabitation in an ideal, in vitro environment. |
| 10:00 am - 10:30 am | **ATR4990 Athletic Training Senior Seminar/Board of Certification Prep** (Individual Presentations, sponsored by Dr. Oscar Krieger)  
Students in ATR4990, Athletic Training Senior Seminar will be presenting the findings of their year-long research project on an athletic training related topic. Each student selected a topic of special interest with the intentions of developing expertise in that area and formulating recommendations for future research. A focus on evidence-based practice is emphasized as students investigate best-practices in the field of athletic training. This research project represents the culminating educational activity of their undergraduate career in athletic training.  
- **Sickle Cell Disease in the Athletic Population** by Rachel Rivera  
- **Investigation of Conservative versus Aggressive Treatment for Lumbar Spine Conditions** by Sunie Amerlan  
- **The Ideal Pre-participation Physical Exam** by Christopher Donner |
| 10:30 am - 11:00 am | **A Theoretical Outbreak of Multidrug-resistant and Extensively drug-resistant Tuberculosis in the United States** by Kaitlin Houghtby, Honors Program Senior Presentation (Individual Presentation, sponsored by Dr. Jane Davis)  
Tuberculosis is a mycobacterium that is most known for affecting the lungs in humans. It is transmitted through the coughing, spitting, or sneezing of an infected individual in an enclosed space with limited ventilation. The treatment for humans that contract this disease is a course of antibiotics that are given on a regimen. But unfortunately, tuberculosis is gaining antibiotic resistance as some humans do not follow the directed course for antibiotic treatment, giving the tuberculosis mycobacterium a chance to build resistance as it does not completely kill the organism. In the United States, a tuberculosis vaccination is not required and many individuals do not contract it. Therefore, if an outbreak of multidrug-resistant and extensively drug resistant tuberculosis were to occur in the United States, it could be devastating to its citizens. I will demonstrate some of the effects of what would occur if an outbreak of this disease happened in the United States. |
| 11:00 am - 11:30 am | **Fish DNA Barcoding** by Elvira Berisha, David Garza, Bryson Williams, Jordan Kidd, Kayla Kostaka, and Mitchell Kramer (Class Presentation, sponsored by Dr. Alma Rodriguez) |
Mislabling happens commonly throughout the preparation, packaging, and distribution of fish products. DNA barcoding is a technique involving molecular identification of organisms to the species level through sequencing of specific genes. Because different species of fish accumulate mercury differently, they could present a health risk when consumed by pregnant woman or young children. We purchased samples of tuna, flounder, red snapper, sole, and rockfish from different stores, including a traditional Japanese market. For this project, we hypothesized that the common grocery stores are more likely to sell less expensive fish than the Asian market, which has a more discerning customer base. Mitochondrial DNA was extracted from fish muscle. A fragment of 650 bp of the COI (cytochrome c oxidase subunit I) gene was amplified through polymerase chain reaction (PCR) and sequenced. The identification of fish will be done by matching the sequences of the COI gene with an international database hosted by the Barcode of Life Database (BOLT). In this presentation, preliminary results will be discussed.

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<td>11:30 am -</td>
<td><strong>Latinos and Latinas in the United States Research Project Introductions</strong> by Alexa Diaz, Melissa Garcia, Leslie Campos, Natalie Gonzalez, Lilia Camargo, Gabriela Rios, Yesenia Felix, Jairo Sarinana, Angela Trevino, Mariela Juarez, Joshua Rojas, Joseph Siciliano, and Melynda Bueno-Dominguez (Class Presentation, sponsored by Dr. Eva Serrano)</td>
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<td>12:00 pm -</td>
<td>Students in LTS 1300 are asked to work on a final research paper. These poster presentations will offer a look at students' early stages of the research process that will ultimately guide the final paper, presented at the end of the semester. Audience feedback aids students in sharpening their research focus and guiding questions. Topics will be representative of the diversity of issues under examination vis-a-vis Latinos and Latinas in the United States.</td>
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<td>12:00 pm -</td>
<td><strong>Bilingual and Bicultural: How We Got From There to Here</strong> by Kym Farmer, Sherry Maschmeyer, Mayra Moreno, and Katherine Patton (Class Presentation, sponsored by Dr. Denise Hatcher)</td>
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<tr>
<td>12:30 pm -</td>
<td>Each student was asked to reflect upon her journey learning the Spanish language and to identify one of her most meaningful experiences or lessons as she became bilingual and bicultural. With this thought in mind, each student was then required to develop a plan as to how she will use her language skills in her life beyond AU. During this presentation, each student will showcase how she arrived &quot;from there to here.&quot;</td>
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<td>1:00 pm -</td>
<td><strong>Cotton and Its Impact on Society for IDS 2030</strong> by Gerardo Ayala, Scott Dunham, Rosalyn Dunson, Adriana Emiiliano, Manuela Getzinger, Kaylyn Gilmer, Zach Gordon, Abel Herrera Carrillo, Jenice Heyob, Grant James, Emily Kears, Alana</td>
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<td>1:00 pm -</td>
<td>1:30 pm - 2:00 pm</td>
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UGRC Spring 2015 – Detailed Program of Events
Students in ATR4990, Athletic Training Senior Seminar will be presenting the findings of their year-long research project on an athletic training related topic. Each student selected a topic of special interest with the intentions of developing expertise in that area and formulating recommendations for future research. A focus on evidence-based practice is emphasized as students investigate best-practices in the field of athletic training. This research project represents the culminating educational activity of their undergraduate career in athletic training.

- **Reduction of ACL Injury Incidence in Sport** by Trevor Deppe
- **Alcohol and its Impact on Athletes and their Athletic Performance** by Ashley Kellenenber
- **Mental Health Disorders in Athletes** by Grace Edwards
- **Preventing, Recognizing, and Treating Sudden Death in Sports** by Luke Dettlo
- **Effectiveness of Manual Therapy on Tissue Healing** by Eric Peruski
- **The Relationship between Athletic Performance and the Special Needs Population** by Stephanie Gebbia
- **Diagnosing and Managing Stress Fractures in Runners** by Mitchel Fox

2:00 pm - 2:30 pm

2:30 pm - 3:00 pm

3:00 pm - 3:30 pm

3:30 pm - 4:00 pm

4:00 pm - 4:30 pm

4:30 pm - 5:00 pm

5:00 pm - 5:30 pm

NOTE: This session focuses specifically on media studies projects (audio, video, journalism, and graphic design) and academic research projects.

Senior Communication and Media Studies majors report on the planning, implementation, and evaluation of yearlong senior projects in academic research, applied practice, and/or media production and analysis. One of the key outcomes of the yearlong senior experience in the Department of Communication is for students to demonstrate effective time management, problem-solving skills, and interpersonal leadership in order to orchestrate...
research, applied practice, and/or media production and analysis. One of the key outcomes of the yearlong senior experience in the Department of Communication is for students to demonstrate effective time management, problem-solving skills, and interpersonal leadership in order to orchestrate a significant, self-directed communication project. Through individual presentations, students will explain how their projects integrated theoretical and practical aspects of their chosen area of study, with special emphasis on developing communication project management skills. Students will provide evidence of the success of their projects, specifically addressing achievement of course learning outcomes.

- **Year in the Life** by Brendan McGee & Kaylee Swearingen
- **Lights Short Film – Behind the Scenes** by Haley Noelle Cummings
- **The History of Perry Theatre** by Rachael Downing
- **Theatrical Set Design: Suburbia** by Jessica T. Stone
- **Professional Design and Photography Portfolio** by Abigail S. Pavona
- **Cyber-Bullying Promotional Video and PSA’s** by Janice Faith Binghay
- **Laser Tag Digital Design** by Tara Young and Connor Bonam
- **AU Men’s Basketball: Journey to the Tourney** by Chaon Denlinger and Ryan Harreld
- **Time Jump** by Jason Rugg
- **East vs. West: Illinois Longest Football Rivalry** by Devon M. Ortiz
- **The Truth About Greek Life** by Lidovic Muntu-Mosi
- **Storytelling, Authorship, and Video Gaming: A Case Analysis of Dark Souls** by Joseph Falls
- **Digital Distribution and the Issue of Digital Piracy** by Ernesto Perez

a significant, self-directed communication project. Through individual presentations, students will explain how their projects integrated theoretical and practical aspects of their chosen area of study, with special emphasis on developing communication project management skills. Students will provide evidence of the success of their projects, specifically addressing achievement of course learning outcomes.

- **Hangry to Happy** by Lisa Bajkowski
- **Kids in the Krease** by Loretta Johnson, Brittany Roydhouse, and Lorelei Ritzert
- **Ubuntu: I Am Because We Are** by Christina Gonzales
- **Dapper E-Liquid Online Business Strategy** by Miranda Callan and Tyler Brendle
- **Blackhawk Sports Boosters: A Public Relations Plan** by Ana Botezatu
- **Undergraduate Research Conference: Planning and Implementation** by Ashley Finlon and Grace Smith
- **Building Publicity for the Fox Valley Career Center** by Melissa J. Oko
- **Fashion Show Fundraiser** by Melissa Schneeberger and Castigan Ngiramowai
- **Strategic Communication Plan for Crossfit Oswego** by Alex Laub
- **The Belles of the Ball presents... The Monroe Experience** by Precious D. Clay
- **Spartan Games: A Strategic Communication Plan** by Justin Phipps
- **Heroes with Hope 5K** by Brigid Mackey
**Tuesday April 14, 2015**

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<td>8:00am - 8:30am</td>
<td><strong>Effects of Anaerobic Training on Endurance Athletes</strong> by Emily Paull (Individual Presentation, sponsored by Dr. John Lloyd)</td>
<td><strong>ATR4990 Athletic Training Senior Seminar/Board of Certification Prep</strong> (Individual Presentations, sponsored by Dr. Oscar Krieger)</td>
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|              | This study explores the effects of anaerobic energy training, such as High Intensity Interval Training (HIIT), on endurance/aerobic athletes. HIIT is practiced in many sports performance businesses, where athletes are trained to improve speed and vertical jumps. These specialties are needed for more anaerobic athletes for their specific sport movements. When diagnosing an endurance athlete, the need for speed and jump are unnecessary for success in the sport. This investigation elucidates how using speed intervals and plyometric jumping improves endurance performance. Both specialties are improved by training the ATP-PC, or anaerobic energy system, and the fast twitch muscle fibers in which are integrated. There are three different energy systems the body uses when exercising; ATP-PC, glycolytic system, and the oxidative energy systems. Endurance runners specifically train in the oxidative energy system. The oxidative energy system is used when the body undergoes more than two minutes of constant exercise (Heffernan, 2012). Researchers find that endurance athletes that train in the ATP-PC system can increase anaerobic capacity which can offset the negative effects during endurance running (Stevens, Oliver, Lemon, 2015). Anaerobic capacity training in endurance athletes will enhance the body’s buffering capacity during muscle acidosis and increase the number of muscle enzymes and fibers which will lead to more efficient muscle contractions during exercise (Mikhail 2013). All of these physiological changes from anaerobic training have a positive effect on improving performance and efficiency for endurance athletes. | Students in ATR4990, Athletic Training Senior Seminar will be presenting the findings of their year-long research project on an athletic training related topic. Each student selected a topic of special interest with the intentions of developing expertise in that area and formulating recommendations for future research. A focus on evidence-based practice is emphasized as students investigate best-practices in the field of athletic training. This research project represents the culminating educational activity of their undergraduate career in athletic training.  
- **Psychosocial Factors That Hinder Athletic Performance** by James Garcia  
- **Sudden Cardiac Arrest in Athletes with Hypertrophic Cardiomyopathy** by Sarah Paver |
<p>| 8:30 am - 9:00 am |                                                                                                                                           |                                                                                                                                                   |
| 9:00am - 9:30am |                                                                                                                                           |                                                                                                                                                   |
| 9:30 am - 10:00 am |                                                                                                                                           |                                                                                                                                                   |</p>
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<td>10:00am - 10:30am</td>
<td><strong>Periodization: A Foundation for Strength and Conditioning Program Design</strong> by Gavin Walker (Individual Presentation, sponsored by Dr. Jennifer Buckley)</td>
<td>Periodization is defined as the logical and systematic sequencing of training factors in an integrative fashion in order to optimize specific training outcomes at pre-determined time points. This presentation will provide a brief overview of what periodization is, why knowledge of this concept is critical to any strength and conditioning program, and how it can be implemented and applied to prepare athletes for success in the athletic arena. A sample program will also be provided from an internship experience this past spring in the Aurora University weight room.</td>
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<td>10:30 am - 11:00 am</td>
<td><strong>Global Justice: An Unalienable Human Right</strong> by Rakan Ammari, Francisco Cabrera, Caritina Cervantes, Angelica Diaz, Yesenia Felix, Daniel Flores, Rodrigo Gonzalez, Sarah Harmon, Nancy Ibarra, Diamond Jackson, Aniyah Jones, Travianna Jones, Andrea Kappelman, Bailey Lauder, Tim Malone, Marisela Mascote, Taylor Moore, Shelby Nalley, Brentton Neander, Morgan Newhouse, Deidra Pico, Meriah Quintanilla, Jocelyn Rios, Bailey Smith, and Jose Tapia (Class Poster Presentations, sponsored by Dr. Debra Kennedy)</td>
<td>Global justice is an unalienable human right. Unfortunately, it is denied to many people throughout the world. This poster session will examine diverse violations of global justice through the exploration of different forms of global injustice and case studies that show the ways injustice occurs in the modern world.</td>
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<td>11:00am - 11:30am</td>
<td><strong>IDS 2030 Science and Society</strong> by Zachary Carpenter, Brie Carter, Jon Cirone, Niharica Deb, Francisco Ibarra, Tyler Jackson, Whitney Keller, Jordyn Kennay, Nina Knight, Tyler LeSage, Colleen MacDougall, Luisa Maciel, Shaquille Perez, Arturo Ramirez, Daniel Rodriguez, Abbey Rosenow, Ricardo Salinas, Kylie Stoneberg, Tanner Testerman, Lanisha Towner, Elizabeth Tully, Kyle Weiner, Nina Gulczynski, and Alec Zierer (Class Presentation, sponsored by Dr. Chetna Patel)</td>
<td>The students will showcase their Take Apart projects on clothing and present the manufacturing and technological advances on materials and the science of these materials such as metals, cloth, polymers, and speakers. The students will discuss the applications as well as their impact on society.</td>
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<td>11:00am - 11:30am</td>
<td><strong>A Materials Study of Polymers used in 3D Printing: A study of durability and elasticity in regards to children’s hand prosthetics - An Independent Research Study Funded by the Monticello Foundation</strong> by Vereena A Messieha (Individual Poster Presentation, sponsored by Dr. Sharon Miller)</td>
<td>The use of 3D printers in American industry has catapulted into the forefront of biotechnological application. A useful new application of 3D printing is the making of prosthetics. With a quicker assembly time and an inexpensive technique compared to traditional prosthetic making, 3D printing is being explored for industrial use, especially in the application of children’s prosthetics. Children in need of prosthetics pose a higher degree of complexity in selecting the best prosthetic for their needs. While most children are active and need durable prosthetics, the biggest concern is the rate at which children grow. As a child grows, they need to replace their prosthetic with a larger sized model for proper functioning. In this study, material specimens of different polymers were created using Makerbot and Stratasys 3D printers. These samples were tested in 3-point stress studies in order to uncover the durability and strength of the polymers that can then be used to manufacture a child’s hand prosthetic. As expressed, prosthetics can be expensive to replace or upgrade. By studying the materials used in 3D prosthetic printing, consumers can be reassured that although they are saving money in replacement costs, they are</td>
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A prevailing thought throughout the mycologist community is that mycorrhizal fungi have a mutualistic relationship with nearly every plant species. Mycorrhizal fungi promote nutrient intake by plants and have positive effects in plant fitness and survival. The effects of a commercial mycorrhizal mix in corn (Zea mays) plant development were studied. Two variables, soil nutrients and presence of fungi, were tested in all possible combinations for a total of four treatments. Treatment 1 had nutrient-depleted soil and no mycorrhizal fungi. Treatment 2 had nutrient-depleted soil and mycorrhizal fungi. Treatment 3 had nutrient-rich soil and no mycorrhizal fungi. And treatment 4 had nutrient-rich soil and mycorrhizal fungi. Plant height and aerial and root biomass were recorded and the data was statistically analyzed. Results indicated that nutrient-rich soil increased Z. mays height by 12.7% compared to nutrient-depleted soil, while presence of fungi made near zero statistical difference. However, root and aerial biomass was significantly influenced by nutrient content in the soil, presence of fungi, and their interactions. The overall increase of root biomass for plants growing in nutrient depleted soil with fungi was 76.6% over plants growing in nutrient-rich soil with fungi. Treatment 3 produced 29.1% more aerial biomass than treatment 4, 70.2% more than treatment 2 and 86.5% more than treatment 1. Under these experimental conditions, the effects of mycorrhizal fungi became unfavorable because when the soil was rich in nutrients, plants growing with fungi accumulated less aerial biomass than plants growing without fungi. These results could indicate a parasitic interaction between Z. mays and mycorrhizal fungi under nutrient-rich soil conditions.

Use of Evaporative Cooling by Bosque del Apache Painted Turtles by Emily Roetman (Individual Poster Presentation, sponsored by Dr. Carrie Milne-Zelman)

Painted turtles, like many reptiles, possess temperature dependent sex determination with midrange temperatures between 23° and 27° C producing males, and temperatures above and below this range producing females. This species of turtle is found throughout much of the United States and parts of Canada, and the temperatures that determine sex remain the same for all regions, despite drastically different climates. In this study, painted turtles from the Bosque del Apache National Wildlife Refuge were observed in order to give further evidence to the hypothesis that this population uses evaporative cooling to ensure that an all-female population does not arise. Soil samples were taken from both nest sites and random sites between May and August of 2014 so that their water content could be analyzed. Also, observations were taken of the amount of shading over the nest and random sites to demonstrate that the turtles were not simply nesting in shaded areas in order to create cooler nest temperatures. Data are still being analyzed; however preliminary results show that the Bosque del Apache turtles do indeed use evaporative cooling to mediate nest temperatures.

HON 3970 Honors Project I (Honors Program Juniors’ Poster Presentations, Sponsored by Dr. Toby Arquette)
The Benefits of Foreign Language Programs by Kelly Dubbins, Junior Honors Student (Individual Poster Presentation, sponsored by Dr. Terri Schroth)

Foreign language programs in school settings have become more commonplace. Many students participate in these programs for a variety of reasons. My project is designed to observe the benefits of participating in a Foreign Language program in Secondary and post-Secondary settings. These benefits can range from academic to personal. Some studies note that there is a difference in overall academic performance between students learning a foreign language and those who are not. The focus of the research is primarily on foreign language programs that encompass French, German, and Spanish, while noting any benefits that are both language specific and non-specific.

Bilingual Businesses: Key to Success by Sherry Maschmeyer, Junior Honors Student (Individual Poster Presentation, sponsored by Dr. Denise Hatcher)

The world of business is constantly evolving through change and growth. This growth will benefit any business that can function in a bilingual environment. It will be able to grow, create strong relationships with its customers, gain valuable employees, and take advantage of the growing number of minorities in the United States. This project will address these topics in three different lights: the marketing realm of business, the customer realm, and the global business realm. It will detail how a business can reap advantages from its ability to speak and understand more than one language and how these benefits positively impact its success.

Beat Domestic Violence: Creating Awareness Among College Students by Christina Young, Junior Honors Student (Individual Poster Presentation, sponsored by Dr. Leila Samii)

There is a lack of information available to local non-profits on how to spread awareness of social causes to Aurora University (AU) students. Having this information would give local non-profits insights on how to efficiently target AU students in marketing, fundraising, and awareness campaigns, increasing the success of their cause. After observing other successful prosocial marketing campaigns targeted towards Millennials via case study analyses, I have designed a questionnaire to gain insight on the overall perspectives and preferences of college-aged Millennials towards non-profit awareness and engagement. The questionnaire will be completed by AU students in Fall 2015 and will be administered online as well as handed out around campus. Statistical analysis will be done on the responses to determine recommendations on the best way for a local non-profit organization to engage college students on the topic of domestic violence.

Research Experience for Pre-Service Teachers - Monticello Foundation Research Project by Jennifer Bentley (Individual Poster Presentation, sponsored by Dr. Sharon Miller)

Immersion research experiences for pre-service educators are not common for elementary education undergraduates. Being given the opportunity to work in a laboratory, read primary literature, and use lab protocols, has given me confidence in approaching technology and lesson planning. In particular, energy transfer via sound waves is a content area prevalent in the Next Generation Science Standards (NGSS) and the Benchmarks for Science Literacy (American Association for the Advancement of Science) that middle school teachers require a solid foundational knowledge to teach effectively. This research experience has provided support on both content (how
mechanical waves and microphones work) and technology (using 3D printers to make sound waves tangible for children). The work presented will highlight how a research immersion experience has increased my content knowledge, provided comfort with technology, and supported curricular freedom in designing a tangible sound lesson for middle school children.

**Bone Tissue Engineering: The Ideal Bone Scaffold** by Rebecca Mohan (Individual Poster Presentation, sponsored by Dr. Sharon Miller)

Osteoinductive biomaterials that meet the requirements to stimulate bone regeneration can be incorporated in bioengineering to design bone scaffolds that are more versatile and readily available for bone transplants. Bone grafts or bone scaffolds in patients are used to repair diseased bone by supporting the growth and regeneration of new bone. While allograft and autograft are the traditional methods of conducting bone transplants to stimulate regeneration of bone, these methods are not guaranteed to work or be available for every type of bone treatment. Today, bioengineered bone scaffolds are readily available for skeletal reconstruction and are designed to incorporate similar biological and mechanical properties to actual bone such as biocompatibility, similar tensile and compressive strength as cortical and cancellous bone, similar macroporosity to actual cancellous bone for proper diffusion, and the ability to degrade at a safe rate to make space for new bone tissue to grow. This research focuses on the initial procedure for proper sterilization methods of 3D printed polylactic acid (PLA) using varied sterilization techniques (ethanol, autoclaving), and then mineralizing (PLA) based biomaterials with 1X modified stimulated body fluid (SBF) to detect bone bioactive behavior in stimulating osteogenesis and bone cells. In the future, physical and chemical properties of hydroxyapatite and carbonate apatite in actual bone will be compared to see what makes hydroxyapatite ideal for engineered bone scaffolds. Designing a 3D printed scaffold that is able to incorporate the biomechanical precursors such as strength and porosity to stimulate proper bone regeneration will also be investigated.

**1:00 pm - 1:30 pm**

**Nest-site selection and natural history of the painted turtle (Chrysemys picta) in a desert habitat**

by Jesse Hacker (Individual Presentation, sponsored by Dr. Carrie Milne-Zelman)

Many reptiles have temperature-dependent sex determination (TSD), in which the incubation temperature of the egg determines offspring sex. However, little is known about the geographic variation in nesting behavior, nest microhabitat, incubation temperatures, and sex ratios of geographically widespread species with TSD, such as the painted turtle (Chrysemys picta). We report the first of a three year investigation on these characteristics in a population of painted turtles in New Mexico, which experience a much hotter and drier climate than their conspecifics in the Midwest. We are evaluating the population sex ratio, the timing of nesting, nest temperatures and offspring sex ratios, and compared nest microhabitat variables to randomly selected sites in the area to characterize nest-site selection in this population. This population has experienced a change in nest
1:30 pm - 2:00 pm  | **Revenue Recognition for ACC 4140** by Jonathan Fraser, Shane Samuels, Erik Labrador, Caleb Felker, and Mario Mancione by Jonathan Fraser (Class Presentation, sponsored by Dr. Timothy Moran)

A demonstration of the effects of the changes in revenue recognition as a part of the Generally Accepted Accounting Principles and how it affects a reader's understanding of financial statements.

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2:00 pm - 2:30 pm  | **The Response of Artists and Musicians to Nature** by Vereena A Messieha (Individual Presentation, sponsored by Dr. Lisa Fredenburgh and Prof. James Kao)

The history of art and music seem to be nearly inseparable. Although movements in art and music may have started in one study, in time the other profession responded. We as humans are responsive organisms, when things change in our environments we are moved, inspired, and in an essence we respond. Neuroscientific research supports that the human race is naturally wired for musical and artistic expression. While we are able to express certain aspects of our lives in words, certain things are truly inexpressible via verbiage; rather art and music overcome the human spirit.

My inspiration and focus for my works came from humanity’s tie to the natural world. As art and music have changed over the centuries, an element that has remained as a focus for many artists and musicians are aspects of nature. The elements: water, air, earth, and fire, seasons, landscapes, trees, natural disasters, and much more are found in art and music. These themes seem to tie from the earliest recordings of human history to the present. My works are an expression of my relationship with nature and the ties and outreach of nature across the globe and history of humanity. The study and realization of my focus will be discussed in certain musical and artistic works ranging from sound installations, performance, and other creative forms.

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2:30 pm - 3:00 pm  | **Maternal Health Care** by Maria Montalvo-Neumann (Individual Presentation, sponsored by Dr. Barbara Strassberg)

Predators in the past 15 years, which we observed has changed some nesting behavior in the females, but not major characteristics in their selection of nest-sites.

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**Marketing Research Presentations** (group presentations, sponsored by Dr. Brian VanderSchee)

Students work in groups to plan and execute a quantitative research project for a local business client. The project begins with formulating research questions that can help address a marketing problem presented by the client. After conducting secondary research, student groups develop and administer a customer-based survey. The results are then analyzed using the statistical software package SPSS. The final product is a comprehensive report that highlights implications for the business client with recommendations for future research moving forward.

- **Hopvine Brewery: Crafting the Ideal Midday Motivation** by Marina Nuckles, Dayna Olson, and Kaylee Swearingen
- **River’s Edge Café: Assessing the Right Blend of Target Preferences and Menu Options** by Samantha Cadena, Alexandra Clausen, and Jennifer Smith

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The Jenks Memorial Collection of Adventual Materials, a special collection housed in the AU Library, presents China, Japan, and...
The systems that drive the well-being of mothers and infants in the U.S. and France are examined. Though the design and implementation of prenatal care receives attention, the importance of postnatal care is generally not equally emphasized. Many of the socioeconomic issues experienced by minorities have negatively impacted rates of pre- and postnatal care. An additional component of maternal health care is paid maternity leave that has not been fully developed in the U.S. yet. As a result, the U.S. lags far behind other developed nations in many aspects of maternal health care.

**Aurora College/ University: A Look at the Asian Collection of Aurora University, the History and the Preservation of the Past.** By Anna Pierce and Nicole Hanlon (Group Presentation, sponsored by Dr. Mark Soderstrom and Prof. Meg Bero)

The Jenks Memorial Collection of Adventual Materials, a special collection housed in the AU Library, presents China, Japan, and Aurora College/ University: A Look at the Asian Collection of Aurora University, the History and the Preservation of the Past. The collection includes garments and other artifacts collected by Advent Christian missionaries during their mission trips to China and Japan during the early part of the twentieth century. The collection includes such artifacts as Imperial robes, foot binding shoes, children’s clothing, banners, books, and so much more. The presentation, itself will begin with a talk on how the artifacts were originally stored, and then were assessed, catalogued, and eventually properly stored. The presentation will also focus on the missionaries themselves and their work in China and Japan. Specifically providing information on the provenance on some of the artifacts, and briefly touching on a history of the turmoil in certain regions of China and Japan in the early twentieth century. The goal of the presentation is to promote both Aurora University and the Adventist community at large, the vast wealth of information contained within this collection in regards to missionaries and their trips overseas. It is the goal of the archives at Aurora University that these artifacts should not be forgotten nor the stories they carry with them but by showcasing the methods of how the artifacts were properly stored and cared for we hope to better preserve a piece of history. We plan to showcase the methods in which these artifacts received proper archival storage in the hope of better preserving a unique piece of Aurora College history.

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<th>Time</th>
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<td>3:00 pm - 3:30 pm</td>
<td><strong>Reflections on No Impact Week for IDS 2040 Global Justice</strong> by Gail Baltar, Jasmine Elabed, <strong>Consumer Behavior Presentations</strong> (Class Presentations, sponsored by Dr. Leila Samii)</td>
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3:30 pm - 4:00 pm
Brian Espinosa, Aliyah Ferrell, Gina Galanis, Daisy Gomez, Kelly Hauge, and Samantha Okubo (Class Presentation, sponsored by Dr. Julie Hipp)

Students will discuss the activities they created for No Impact Week in order to raise awareness about the importance of reducing consumption, eating locally-grown food, and conserving water and energy use. In doing so, they will reflect upon the challenges they encountered, the rewards they discovered, and the lessons they learned.

4:00 pm - 4:30 pm
Foreign Policy and Terrorist Targeting: A Comparison of Sweden and the USA by Ashley Monzel (Individual Presentation, sponsored by Dr. John Mehrtens and Dr. Dan Hipp)

In a 2004 speech, which received scant attention in the American media, Osama bin Laden argued that while the United States is an attractive target for those seeking to make a political statement through terrorist attacks, some other Western democracies (he mentioned Sweden, in particular) are not. This completely contradicts the dominant understanding of Islamic extremism perpetuated in the American public discourse, which focuses on the inherently radical nature of Islam and a subsequent and inevitable tension between Islam and the West while downplaying the role of American foreign policy, and specifically its history of interventionist behavior in the Middle East. In this paper, we examine the US and Sweden, first noting the similarities shared by the two nations, namely within their political structures, economic systems, and cultures, then observe the vast differences in their respective approaches to foreign policy. The results of our analysis indicate that it is US foreign policy, rather than Western democratic values, that fuels anti-American sentiment, including Islamic extremism. These findings are significant because an understanding of the negative impact of US foreign policy, with respect to America’s global relationships, can not only help the American people to understand anti-American sentiment, but analyses such as this may also prod US policy makers to adjust foreign policy and improve America’s standing in the international community.

4:30 pm - 5:00 pm
Extra-musical influences on “Pictures at an Exhibition” by Russian composer Modest

The students in the Consumer Behavior Marketing class at Aurora University are tasked with a qualitative research project. In the Interview, Observation and Focus Group project (IOF), the students discover the answer to a specific research question guided by theory and focus on one client to help frame their exploration. The IOF Project is done in stages, beginning with the students development of a research question followed by an in-depth literature review to guide the understanding of the exploratory research. The students then interview their client for more detailed answers to their question. Next, the students observe humans at 3 separate times in the client’s setting and document the factors connected to their research. Finally, the students conduct 3 focus groups to discover consumer preferences to their client’s industry and research question. The qualitative information is analyzed to determine trends in the student findings.

- Best Buy’s War on Clicks vs. Bricks by Lucas Gamboa, Michael Luetkemeyer, and Dylan Findlay (Group Presentation)
- The Connection Between Impulse and Product Placement by Kayla DeLong, Samantha Voice, Jamal Lawson, Sally Broker, and Shannon Horwitz (Group Presentation)
- The Effect of Group Influence on an Individual’s Workout by Paige Ely, Amanda Bello, Rene Schroeder, and Ryan Davlantes (Group Presentation)
- How Does Reference Group Influence Effect Product Selection After Exercise? by Jena Buss, Ashley Gonzalez, Jesus Quiroz, and Donata Misic (Group Presentation)
Mussorgsky by Nathan Sands (Individual Presentation, sponsored by Dr. Cristian Pastorello)

In 1874 Modest Mussorgsky composed a series of piano works with the intent to describe the content of ten paintings and drawings by his friend Victor Hartmann. The series in its entirety consists of ten “paintings,” as well as a “transitional” theme that is heard throughout called “Promenade” (the French word for "walk," which is meant to represent the listener walking between each painting at an actual exhibition). Throughout the performance of several of the starting movements, which will be Promenade 1, Gnomus (the Gnome), Promenade 2, and Bydlo (Oxen), I will attempt to explain how the pieces relate to each painting, and the significance of how each piece was composed.

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<tr>
<th>5:00 pm - 5:30 pm</th>
<th>Marketing Research Presentations (group presentations, sponsored by Dr. Brian VanderSchee)</th>
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<td>Students work in groups to plan and execute a quantitative research project for a local business client. The project begins with formulating research questions that can help address a marketing problem presented by the client. After conducting secondary research student groups develop and administer a customer-based survey. The results are then analyzed using the statistical software package SPSS. The final product is a comprehensive report that highlights implications for the business client with recommendations for future research moving forward.</td>
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<td>• Evenflo New Business Venture: A Trio of Awareness and Opportunities by Ben Keller, Kevin Raske, and Jasmine Sanchez</td>
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<td>• Arcedium Coffee House Research: Brewing Up Social Media Strategies by Erica Hankes, Heather Martinez, and Carols Suarez</td>
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