

brother joseph w.

stander. symposium

Spring 2015

Dear Members of the UD Community,

We are delighted to officially welcome you to the annual Brother Joseph W. Stander Symposium. The Stander Symposium showcases individual and collaborative undergraduate and graduate research, creative endeavors, and academic achievements. Above all, the Symposium and your participation showcase our shared values as members of the University of Dayton community. This is the 25th year of the Symposium, honoring the late Bro. Joseph W. Stander, S.M., Professor of Mathematics and Provost (1974–1989).

This University-wide celebration of academic excellence exemplifies the Marianist tradition of learning in community. The Symposium's alternate day of learning includes poster sessions, hands-on activities, performances, art exhibits, oral presentations and highlights of capstone course work. The achievements and collaborations on display throughout the Stander Symposium reflect the continuing commitment of students and faculty to this great tradition.

The Stander Symposium would not exist without an extraordinary effort from across the campus community – students, faculty and staff. On behalf of the Stander Symposium Steering Committee, we thank you for your support and participation.

Sincerely,



Margie Pinnell, Ph.D.
Co-Chair, Stander Symposium
Associate Professor,
*Mechanical and Aerospace
Engineering Department*



Randy Sparks, Ph.D.
Co-Chair, Stander Symposium
Associate Professor,
*Mechanical and Aerospace
Engineering Department*



**Brother Joseph W.
Stander, S.M.**

Professor of Mathematics
Provost (1974–1989)

Honoring the late Brother Joseph W. Stander, S.M., Professor of Mathematics and Provost (1974-1989), the Stander Symposium celebrates academic excellence, rich collaborations and many forms of intellectual, artistic, and spiritual growth. The career of Brother Joe embodied the spirit of collaboration and the Stander Symposium stands as a continuing tribute to him and all who carry on the Marianist tradition of education through community.

A distinctive spirit permeates student research at the University of Dayton. The faculty and students of the University are determined that “a community of learners” is not a cliché but a realistic goal. Thus the University fosters an atmosphere that nurtures productive collaboration and a shared search for excellence in learning and in research. The Stander Symposium is a day-and-a-half long event, and constitutes the University of Dayton’s principal annual celebration of academic excellence. The Symposium features a keynote speaker, poster sessions, hands-on activities, performances, exhibits, oral presentations and highlights of capstone course work.

All students at the university engaging in research, creative endeavors, and other forms of innovative thinking are encouraged to participate in this student research symposium. Student attendees are key members of a critically reflective audience for their peers. Faculty members serve as mentors and leaders for many of these projects and are the driving force behind scholarship in their fields. The efforts of students, faculty, and staff are critical to making this event successful year after year.

The Brother Joseph W. Stander Symposium Steering Committee thanks the students, faculty, and staff for their many contributions and university-wide collaboration in the planning of this year's symposium. With over 1,700 presenters, performers, artists, and faculty mentors participating, the Stander Symposium is a lasting tribute to Brother Joseph Stander and to the Marianist principles of higher education.

For generous support, we specifically owe gratitude to the Office of the President, the Office of the Provost, the Offices of the Deans in the College of Arts and Sciences, School of Business Administration, School of Education and Health Sciences, School of Engineering, Graduate Academic Affairs, and University Libraries. We extend this gratitude to the Ryan C. Harris Learning Teaching Center, the University Honors Program, the Research Institute, Enrollment Management, Student Development, Student Government Association, and University Advancement.

In addition to the units represented by the Steering Committee membership, the Committee specially acknowledges the essential and considerable planning and staff assistance received from Kennedy Union, Campus Ministry, Roesch Library, KU Box Office, ArtStreet, Department of Recreational Sports, Department of Art and Design, Department of Music, Keck Lab, and University of Dayton Information Technology (UDit).

Finally, very special thanks are due to students Danielle Weigand and Erin Fox for their efforts in developing and creating this year's visual design.

Co-Chairs

Margie Pinnell, Associate Professor, School of Engineering

Randy Sparks, Associate Professor, School of Business Administration

Steering Committee

David Darrow, University Honors Program, Department of History

Shannon Driskell, Department of Mathematics

Re'Shanda Grace-Bridges, Student Development/New Student Orientation

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Amy Lopez-Matthews, Student Involvement

Grant Neeley, Department of Political Science

Patrick Reynolds, Department of Music

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Michelle Hayford, Director, Theatre Program

Judith Huacuja, Chair, Department of Visual Arts

Brian LaDuca, Director, ArtStreet

Jason Pierce, Interim Dean, College of Arts & Sciences

Patrick Reynold, Department of Music

Graphic Design

Danielle Weigand, Graphic Design, Department of Art and Design '15

Erin Fox, Graphic Design, Department of Art and Design '16

Celebration of the Arts Intern

Caroline Goodill

Jessica Urban

Stander Coordinator

Andrea Meyer Wade

Apr 8

CELEBRATION OF THE ARTS

Schuster Performing Arts Center

6:30 P.M. Interactive Art Installations in the Wintergarden

8:00 P.M. Performance in the Mead Theatre

The Celebration of the Arts is an annual showcase of student performance and artwork. The ninety minute performance includes music, dance, and theatre. Individual student artwork and large-scale collaborative installations are on display in the Wintergarden before and after the performance.

Tickets are free but required. Tickets for UD students, faculty and staff are available at the Kennedy Union box office with a valid university ID. Tickets for the general public are available by calling Ticket Center Stage at 937-228-3630 or online at ticketcenterstage.com.

Free transportation to the Schuster Center from campus provided by Greater Dayton RTA. Roundtrip chartered buses will depart from the corner of Stewart and Alberta (near A lot) at 6:35 p.m. and 7:20 p.m. on April 8.

Apr 11

UD SPEAKER SERIES CO-SPONSORED TALK BY ANNA DEAVERE SMITH

7 P.M. | Kennedy Union ballroom

Co-sponsored by the University of Dayton Speaker Series.

On Grace

Playwright, actor and professor Anna Deavere Smith uses her unique brand of theatre to highlight issues of community, character and diversity in America. Smith has been listening to people across the country from all walks of life for the last several years and using those conversations as inspiration with the goal of bringing “people across the chasms.” During the course of her presentation Smith performs portrayals of people she has interviewed, recreating a diversity of emotions and points of view on controversial issues.

Free and open to the public. Parking is available in B and C lots only. Parking in any other campus lot requires a permit.

Apr 14

OPENING MASS

12:05 P.M. | Chaminade Hall Chapel

At the liturgical opening of the Stander Symposium, we celebrate together through Mass, which calls down the Spirit's gifts of Wisdom, Learning and Creativity to be the animating force for the research and creative performances we celebrate at Stander.

Apr 15

DAY AT THE STANDER: A Day of Student Research, Creativity and Discovery.

8 A.M.—5 P.M. | UD Campus Locations

Full schedule at stander.udayton.edu or via Guidebook mobile app

For over 25 years, the Stander Symposium has acted as an annual showcase where both undergraduate and graduate students are invited to showcase their research, creative endeavors and academic achievements. We celebrate the symposium as a day of alternate learning by canceling all regularly scheduled courses and meetings-instead inviting the whole University to engage in conversation, learning and panel discussions - outside of the classroom.

Oral presentations, panel discussions, performances and visual arts displays

8:00 A.M.—5 P.M. | Various Campus Locations

Free Breakfast

8–9:30 A.M. | RecPlex, Main Gym

Poster Sessions

RecPlex, Main Gym

9–10:15 A.M. Session I

10:45 A.M.—12:00 P.M. Session II

SOCHE National Issues Forum

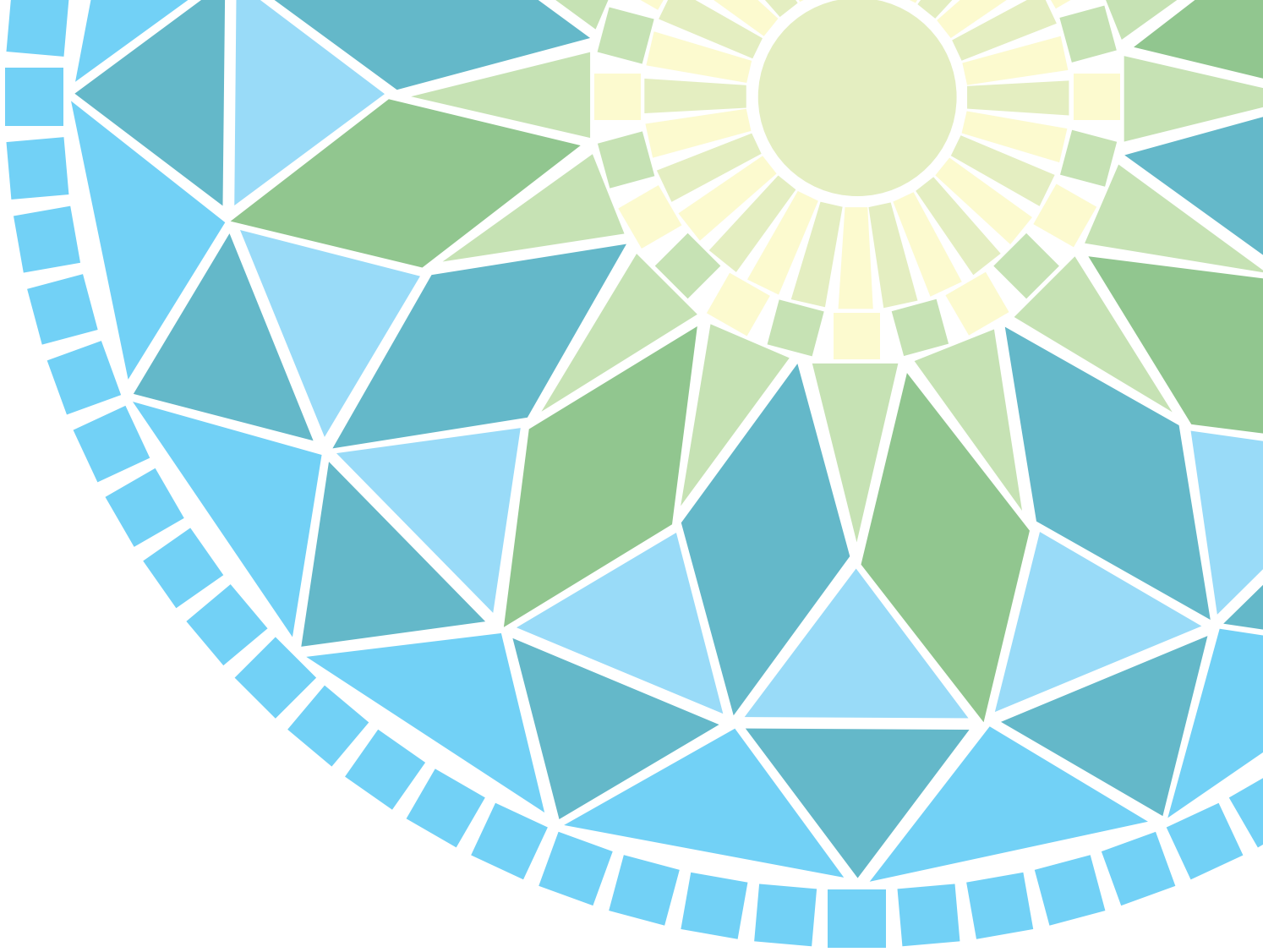
1:00 P.M.—3:00 P.M. | Roesch Library Knowledge Hub

The Changing World of Work: What Should We Ask of Higher Education?

To learn more and RSVP visit stander.udayton.edu

Stander Symposium closing reception & Annual Horvath Awards presentation

5–7 P.M. | Gallery 249, Fitz Hall



COLLEGE OF ARTS & SCIENCES

Integrating Visual Culture: Bridging the Boundaries of Discipline and Art

College of Arts and Sciences: Art and Design | Oral Presentation - Course Project, VAE 232 01

STUDENTS Jenna N Baechle, Morgan C Kurtz, Aedan M Mangan, Rose Q Reynolds, Christine E Wehby

ADVISORS R. Darden Bradshaw

LOCATION, TIME ArtStreet Studio C, 1:00 PM–2:00 PM

Students in VAE 232: Integrating Visual Culture present individual inquiry projects that demonstrate their individual and communal understanding of the ways in which visual culture impacts and informs the social, political, and technological conditions of our times. Jenna Baechle investigates the relationship of the Education Gap to the field of science and math education in the K-12 setting. Morgan Kurtz inquires into the cultural phenomenon of Adventure Play in which adults are primarily absent and children co-construct the visual and material culture environments of play. Rose Reynolds deconstructs the relation-

ship of visual culture as a means of communication in photography and analyzes the ways in which viewers make meaning of visual imagery while Aedan Mangan investigates the visual constructs that define or guide engineering as a field of study. Christine Wehby studies the personal perceptions of the visual to the linguistic through drawing in response to poetry. In this group presentation, each student will anchor their inquiry through visual culture theory, material culture theory, spectatorship theory and/or the concept of bricolage.

Senior Seminar: Portfolio and Paper

College of Arts and Sciences: Art and Design | Oral Presentation - Capstone Project

STUDENTS Andrea M Bottalla, Anne M Cardilino, Ian Moran | ADVISORS Joel A Whitaker

LOCATION, TIME ArtStreet Studio B, 1:00 PM–2:00 PM

Seniors from the Department of Art and Design Photography Program will present their Senior Capstone Projects. These projects examine the student's individual approach, as well as understanding and use of the photographic medium. Each student will

make a 12-15 minute presentation that utilizes a formal thesis paper and extensive visuals to contextualize their photographic work and development as photographers.

Senior Fine Art Majors Portfolio Presentation

College of Arts and Sciences: Art and Design | Oral Presentation - Capstone Project

STUDENTS Sara T Bender, Erin E Cunningham, Maxwell C Feldmann, Sarah E Kane, Xuchuan Liu, Keionn A M

Seabrook, Seth Wade, Rebecca K Washington | ADVISORS Michael Gary Marcinowski

LOCATION, TIME ArtStreet Studio B, 2:00 PM–3:30 PM

The Stander Symposium presentation is the product of the portfolios of the senior Fine Art majors. As part of their senior capstone course, students build a portfolio of work from their past studio courses that best defines their artistic voice in a pro-

fessional setting. The class allows them to explore who they are as individuals, professionals, and artists. Students will present their portfolios in a professional format on the day of Stander Symposium as a culmination of this capstone course.

An Exploration in Young Adult Cancer Book Design

College of Arts and Sciences: Art and Design | Oral Presentation - Capstone Project

STUDENTS Wesley A Fowler-Johnson | ADVISORS Judith L Huacuja

LOCATION, TIME Marianist Hall Learning Space Commons, 3:00 PM–4:20 PM

For my Senior Capstone research project I present images, discuss cover designs and show packaging material for a book I plan to write about my battle with Hodgkins Lymphoma. My goal with this project is to create cover designs that appeal to a particular age range, from young teens to young adults. Having gone through a grueling 17 month battle with cancer at this age, I feel this age demographic is under represented in the world of cancer patient resources, with a majority of said resources specifically targeting older patients as well as young children and their parents. I am presenting a front cover, a back cover, as well as additional support imagery that may be used throughout the book. In addition to compiling imagery for this book I will set up the design aesthetic in a way that makes the book jump

off the shelf, grab the viewer's full attention, and clearly convey the tone of the pages within. For this project I have gathered in-depth research in regards to how to design a book cover, market a book to young adults, and create an impactful design that distinctly represents the attitude I wish to communicate. In particular, I have studied aspects of design that create a ripped and torn motif with images visible through the scarred design. Additionally, I studied typefaces, analyzing those that convey the attention grabbing aesthetic while still being legible and visually appealing to the user. Lastly, I took all these research aspects and narrowed it through the lens of what an adolescent/young adult viewer, making sure that all my design choices were in line with what someone this age would want to see.

Going to the River

College of Arts and Sciences: *Art and Design* | *Oral Presentation - Capstone Project*

STUDENTS Emma M. Stiver | ADVISORS Judith L Huacuja

LOCATION, TIME Marianist Hall Learning Space Commons, 3:00 PM–4:20 PM

This summer I spent 9 weeks in Appalachia with students from the University of Dayton; our goal in being there was to be a presence in the community. UD's Summer Appalachia Program (UDSAP) has been one of the most challenging experiences of my life. Aside from the challenges of living in community, I had to put myself out there each and every day, and love as hard as I could with my whole being. Returning home caused me to become interested in everything Appalachia: the history, the art, the music, and understanding the poverty that is so prominent in the area. Now the big question is what can be done about the

poverty and negative perceptions of Appalachia? The way I combat these injustices currently is through the photographs I create. My artwork aims to grow awareness of the injustices that occur in Appalachia by challenging typical Appalachian stereotypes through illustrating what everyday life is like for the people I have created relationships with as well show the Appalachia I have grown to know and love. My next step is to better understand how the people I have met view themselves, as well as their opinions of where they live.

Graphic Design and its Influence on Philanthropic Marketing

College of Arts and Sciences: *Art and Design* | *Oral Presentation - Capstone Project*

STUDENTS Mary Kate Kesic | ADVISORS Judith L Huacuja

LOCATION, TIME Marianist Hall Learning Space Commons, 3:00 PM–4:20 PM

I am a Visual Arts major and Marketing minor. For my Senior Capstone, I have completed a project that incorporates elements from both my major and minor, as well as deals with something that I am passionate about. Throughout the semester I have researched graphic design and its influence on philanthropic marketing. I have used the findings of my research to re-brand and redesign my sorority, Alpha Phi's, philanthropy website. The Alpha Phi Foundation supports programs and research that study heart disease in women- specifically its symptoms, its treatment, and its prevention. Through the support of these initiatives, the Alpha Phi Foundation is helping millions of people live longer, richer lives. Even though Alpha Phi is involved with so many important philanthropic events internationally, you would never know the extent of it by looking at their current philanthropy website. Branding the foundation versus branding the sorority

itself are two very different things. I have researched articles that deal with graphic design for non-profit organizations, branding and product design, graphic design and health education, gender marketing, and how to use the power of branding to increase awareness of heart disease in women. I also familiarized myself with the Alpha Phi Foundation's website and the layouts of other philanthropic organization's web page designs. Through my research I have selected the symbols that I think most effectively brand the Alpha Phi Foundation: the anatomically correct heart and the American Heart Association's Red Dress that is synonymous with both women's cardiac care and Alpha Phi. Along with following the guidelines I have established through my research on how to successfully market to women, I have created a web layout that is very stream-lined, and that uses these logos, symbols, and brands effectively.

Mequitta Ahuja: Expressions of Cultural Diversity

College of Arts and Sciences: *Art and Design* | *Oral Presentation - Capstone Project*

STUDENTS Nahdi Patterson | ADVISORS Judith L Huacuja

LOCATION, TIME Marianist Hall Learning Space Commons, 3:00 PM–4:20 PM

Mequitta Ahuja is a contemporary American artist. Her works are primarily comprised of paintings on canvas and illustrations on paper. Much of her artwork is influenced by her personal identity. My research and presentation explores how Ahuja incorporates African American and Indian cultural and historical content in her pieces. My presentation also addresses how Mequitta Ahuja unites feminist themes with cultural and historical content in her work. For example, she depicts strong, independent and intelli-

gent female figures in her works "Spark" and "Meecoo Mocoo". These are two of her works that demonstrate matters of gender, identity and diversity seen through her use of vibrant colors and bold patterns. My interest in Mequitta Ahuja's work comes from my being a multiethnic woman as well. I find her work to be influential, empowering and rich in historical content as it encourages viewers to accept different cultures.

Palimpsest

College of Arts and Sciences: *Art and Design* | *Oral Presentation - Capstone Project*

STUDENTS Lauren M Unverferth | ADVISORS Judith L Huacuja

LOCATION, TIME Marianist Hall Learning Space Commons, 3:00 PM–4:20 PM

PALIMPSEST something reused or altered but still bearing visible traces of its earlier form. (Merriam Webster Dictionary) This is a series of weathered and historic architectural remnants assem-

bled in a new way giving new life and new purpose, to support human function. I've always felt inspired by architecture, its structural elements and all of the possibilities that it holds. For

this project, I have gone to several places in search of interesting pieces that have evidence of their past structural value and character but are no longer being put to use. I'm attracted to objects that have an antique and rustic look to them. I take these objects and create multimedia assemblages. Each object collected comes with its own unique form, age, and history that reveals shadows of its past. These objects are not altered to an unrecognizable state. Rather, they are kept in their forms and combined with others, each with their own architectural look and feel. These forms together are given new life and now have structure and presence that is bold, strong, and steadfast. These pieces

are created not only as an artform but as a functional piece, in this case furniture. Furniture serves the purpose of supporting human use. In creating these, I can restore value to old architectural remnants that may not otherwise have been used for this specific purpose and allow them to have a new role. This allows the architectural remnants to be considered in new context and change the way that they are viewed. Using these elements, allows me to create a sense of comfort in the old. I also hope to achieve a sense of intellectual discovery of balance and taking the very different materials to create something new and change perception.

Place Branding downtown Dayton: Image Communication to a Target Market

College of Arts and Sciences: Art and Design | Oral Presentation - Capstone Project

STUDENTS Brigid C Campbell, Christina L Disco, Danielle Christine Weigand | ADVISORS Jayne Matlack Whitaker

LOCATION, TIME ArtStreet Studio B, 4:00 PM–4:40 PM

Place branding is a relatively new umbrella term encompassing nation, region, and city branding. Invariably related to the notion that places compete with other places for people, resources, and business, students enrolled in the senior level Graphic Design III course were charged with creating a brand language in support of bringing momentum back to downtown Dayton, a working initiative of Citywide Organization and the Downtown Dayton Partnership. In collaboration with Citywide, students developed innovative design systems to convey the values of its targeted audience while considering factors such as age, lifestyle, and education. In addition to a logo design and tag line, each student

created a large way-finding map, environmental signage, and an extensive system of cohesive design elements that collectively identify and brand the place. Their visual identity systems reflect a real world approach to brand development with the specific intention of transforming the heart of downtown into a vibrant residential, pedestrian-oriented, socially conscious, thriving and sustainable urban environment. The projects being presented are a selective sampling. Additional logos, maps, signage, and design systems will be on display during the day of the Stander and closing reception of the Horvath Exhibition in the Department of Art and Design in Fitz Hall.

A nutrient analysis on *Lonicera maackii* and its contribution to stream nutrient availability and cycling

College of Arts and Sciences: Biology | Poster - Independent Research

STUDENTS Hannah L Ocallaghan | ADVISORS Rachel E Barker, Ryan W McEwan

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Riparian forests mediate terrestrial-aquatic resources, especially nutrient availability and cycling in aquatic systems. *Lonicera maackii* is an invasive riparian shrub with leaves high in levels of nitrogen (N) and phosphorus (P). These nutrients are essential for algae in aquatic ecosystems; however, excess concentrations may result in alterations in nutrient cycling and availability, supporting harmful algal blooms. We investigated the concentration of N and P in leachates created from *L. maackii* berries and leaves compared to a control treatment (DI water). Nutrient concentrations were similar between the leachate treatments (all

$P > 0.05$); however, honeysuckle berries consistently had greater N and P concentrations compared to the other treatments. Total suspended solids (TSS) was significantly greater in honeysuckle leachates compared to the control, with the berry leachate containing the greatest TSS ($P = 0.0003$). These results suggest that *L. maackii* may contribute to increased nutrient levels in streams and ponds. Further analysis is needed in order to determine if *L. maackii* directly and/or indirectly contributes to nutrient transformation in aquatic systems.

Drosophila eye model to demonstrate the role of microRNA-277 in Alzheimer's disease

College of Arts and Sciences: Biology | Poster - Course Project, 201480 BIO 421 P1

STUDENTS Ginny Marie Long, Ankita Sarkar | ADVISORS Amit Singh

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Alzheimer's Disease (AD) is a progressive neurodegenerative disorder associated with gradual cognitive impairment and memory decline. As the most common form of dementia, AD currently affects more than 5 million Americans and is expected to affect over 16 million Americans by 2050, according to the Alzheimer's Association. This disease is characterized by the accumulation

of Amyloid-beta 42 ($A\beta$ -42) polypeptides, resulting from the hydrophobic nature of an improperly cleaved transmembrane protein called the amyloid precursor protein (APP). When the APP is cleaved to be 42 amino acids long instead of 40, plaques are formed that alter cellular pathways, inhibit synaptic activity, and initiate neuronal death. Using *Drosophila melanogaster*

as a transgenic model system, we misexpressed A β -42 in the differentiating photoreceptors of the developing *Drosophila* eye. Misexpression of A β -42 in the eye results in a strong neurodegenerative phenotype. This project focuses on the impact of a specific microRNA, mir-277, on amyloid-beta-42 mediated neurodegeneration. MicroRNAs act as post-transcriptional regu-

lators of gene expression and work by binding to complementary sequences of mRNA to induce effects such as target degradation, or translational repression. By doing so, microRNAs are capable of preventing protein assembly associated with specific mRNA targets. The results from our studies will be presented.

Investigation of the Impacts from *Lonicera maackii* Riparian Forests on Plant Organic Matter Availability in Headwater Streams

College of Arts and Sciences: Biology | Poster - Independent Research

STUDENTS Charlotte Anne Shade | ADVISORS Rachel E Barker, Ryan W McEwan

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Lonicera maackii (Amur honeysuckle) is one of the most pervasive invasive species in southeast OH, creating riparian near-monocultures along headwater streams. Honeysuckle riparian forests create dense canopies over streams, potentially impacting the overall abundance and temporal availability of the terrestrial organic matter (OM) available in headwater streams. We investigated how *L. maackii* riparian forests impact seasonal plant OM availability in a headwater stream via a riparian removal experiment. *Lonicera maackii* was removed along a 160m stream reach creating a removal reach and an up-stream honeysuckle (control) reach. All terrestrial plant OM was collected weekly during September 2013 – December 2015 within 30x30 cm plots within riffle (n=5/reach) and run (n=3/reach) habitats. Samples were brought back to the lab, sorted, identified to genus when possible, and processed using standard ash-free-dry-mass

techniques. Preliminary results indicated that removal of riparian *L. maackii* did not impact the abundance of terrestrial plant OM in the stream (all $P > 0.05$); however there were some interesting patterns. Generally total plant OM was greater in the honeysuckle reach, but *Platanus* sp., *Fraxinus* sp., *Populus* sp., and *Acer* sp. were greater in the removal reach compared to the honeysuckle reach. *Lonicera maackii* leaf, berry, and flower OM was greater in the honeysuckle reach compared to the removal reach. These preliminary findings suggest that *L. maackii* could have potential impacts on headwater stream habitats as they contribute an additional amount of OM that would otherwise not be added to the stream. This research adds to the many discovered negative effects from invasive Honeysuckle species on surrounding habitats.

Lonicera maackii riparian invasion effects aquatic macroinvertebrates biomass and secondary production in a headwater stream

College of Arts and Sciences: Biology | Poster - Course Project, BIO 421 P1

STUDENTS Claudia Marie Garner | ADVISORS Rachel E Barker, Ryan W McEwan

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Amur Honeysuckle (*Lonicera maackii*) is a successful invasive shrub throughout the Midwest and eastern United States. This invasive grows well in riparian zones where it outcompetes native vegetation, altering the riparian plant community structure and function. Changes in riparian zones can alter terrestrial subsidies that serve as critical food and habitat resources for the aquatic biota. The goal of this research was to assess the potential impacts of riparian *L. maackii* forests on aquatic macroinvertebrate secondary production. Riparian removal of *L. maackii* occurred August – September 2010 along a 160 m stream reach alongside a 3rd order headwater stream in southwestern OH, creating a honeysuckle removal and an upstream control (honeysuckle) treatments. Aquatic macroinvertebrates were Surber sampled monthly from August 2010 to December 2014 within both reaches (n = 5/reach). Macroinvertebrates were identified to genus when possible, classified into standard functional feeding groups (FFG), and length-mass allometric equations were

used to estimate biomass for each taxon and FFG. Preliminary results indicated macroinvertebrate biomass was not statistically influenced by the removal of honeysuckle; however, interesting patterns were observed. Removal of honeysuckle during September – December 2010 was associated with 6 \times less macroinvertebrate biomass in the removal reach compared to the honeysuckle reach. *Hydroptila* sp. and *Ceratopsyche* sp. contributed the most biomass in the honeysuckle reach, whereas *Cheumatopsyche* sp. and *Planariidae* contributed the most biomass in the removal reach. The Shredder FFG contributed the greatest biomass overall, but were 97% greater in the honeysuckle reach compared to the removal reach. These preliminary results indicated removal of a riparian invasive shrub may result in changes in macroinvertebrate biomass at the taxonomic and functional level, potentially impacting aquatic food web dynamics and stream ecosystem function and processes.

THE REMOVAL OF A RIPARIAN FOREST INVADER (*LONICERA MAACKII*) ALTERS MACROINVERTEBRATE ABUNDANCE AND DYNAMICS

College of Arts and Sciences: Biology | Poster - Course Project, BIO 421 P1

STUDENTS Patrick Vrablik | ADVISORS Rachel E Barker, Ryan W McEwan

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Lonicera maackii (Amur Honeysuckle) is a highly aggressive invasive woody shrub that has pushed rapidly into the eastern and Midwestern United States. A riparian invader, it has major impacts on the dynamics of rivers and streams. We investigated the effects of Amur honeysuckle, on macroinvertebrate density, diversity, and functional feeding group dynamics in a headwater stream. In August 2010, riparian honeysuckle was removed along a 160m stream reach creating removal and upstream honeysuckle-present treatments. Macroinvertebrate Surber samples were collected monthly from August 2010 – December 2014. Specimens were identified to genus and classified into functional feeding groups (FFG). Preliminary results indicated

macroinvertebrate taxon richness increased in the removal reach a year later ($P = 0.0279$). Further, total macroinvertebrate density was greater in the removal reach, and appeared to be driven by a significant increase in *Simulium* sp. ($P = 0.0365$) in the fall and Chironomidae and Hydroptila sp. larvae and pharate adults in the summer (all $P < 0.0002$). Gathering-collectors and filtering-collectors dominated the FFG and were significantly greater in the removal reach ($P < 0.01$). These findings suggest that the removal of a riparian invasive shrub alters the density and taxon richness of aquatic macroinvertebrate populations, potentially impacting macroinvertebrate community dynamics and stream ecosystem processes.

A Drosophila Brain Tumor Model to Study Interclonal Interactions

College of Arts and Sciences: Biology | Poster - Honors Thesis

STUDENTS Julie M Cowan, Austin J Roebke, Indrayani Waghmare | ADVISORS Madhuri Kango-Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The current standard of care for Glioblastoma (GBM), the most common form of primary brain tumors, involves surgery followed by radiation/chemotherapy; however, analysis of patient samples reveal a difference in the composition of the tumor that could account for differences in response to the current standard of care. Therefore, there is a need to model these brain tumors. We have created a simple glioma in *Drosophila melanogaster* (fruit fly) to study these tumors. We have identified three cell

death causing genes shown to have a role in these brain tumors in *Drosophila* and humans. Thus, we tested if these three genes are required for tumor growth in two different glioma models in *Drosophila*. Furthermore, we tested if *Drosophila* glioma cells can initiate tumor repopulation following radiation treatment, a common issue with glioma patients. Our progress with these models will be discussed.

Abiotic Autumnal Organic Matter Deposition and Grazing Disturbance Effects on Epilithic Biofilm Succession

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Jennifer M Lang | ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Community assembly of stream epilithic biofilms is frequently described using ecological theory, and a particular focus is on successional patterns that are influenced by environmental factors. Autumn leaf senescence is an annual resource subsidy to streams, but the physical effects of leaves settling on epilithic biofilms have not been investigated. We used an in situ experimental manipulation to investigate abiotic effects of leaf deposition (shading and reduced flow) and biotic (snail grazing) disturbances governing community assembly of epilithic biofilms. Biofilms were developed on unglazed ceramic tiles under three conditions: ambient (control), inclusion (reduced light/flow with snail grazing), and exclusion (reduced light/flow without snail grazing). They were sampled on 14, 24, and 38 days and characterized by algal biomass, total biomass, the ratio of algal/total biomass, and community profiles. Bacterial and eukaryotic profiles were described using automatic ribosomal intergenic spacer analysis (ARISA) to elucidate patterns of community composition. Taxonomic diversity of bacteria within pooled replicates

was described using 454-pyrosequencing. Ambient biofilms had greater algal biomass at 24 and 38 days (two-way ANOVA, $P < 0.001$) and distinct ARISA community profiles when compared to inclusion/exclusion biofilms. There were no significant differences between inclusion and exclusion treatments, suggesting that abiotic factors rather than invertebrate grazing drove biofilm characteristics. Yet, bacterial community richness determined by 454 pyrosequencing increased as predicted by the intermediate disturbance hypothesis. Interestingly at 38 days, all treatments grouped together in nonmetric multidimensional scaling ordination space and had similar algal/total biomass ratios due to ambient biofilms having significantly greater total biomass (ANOVA, $P < 0.001$). We suggest algae had a priming effect that promoted this shift, but that priming is dependent upon successional timing of algal establishment. These data demonstrate that abiotic effects are more influential than local grazing disturbance on biofilm succession and imply that leaf deposition includes physical effects.

Acute lipopolysaccharide administration induces sustained sex-dependent serotonergic neurochemical signatures in the mouse brain

College of Arts and Sciences: Biology | Poster - Independent Research

STUDENTS Evan R Birmingham, Anthony A Franceschelli, Joseph N Mauch, Eric D Schneider, Jonathon P Sens, Connor F Thelen

ADVISORS Pothitos Pitychoutis

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The innate immune response is an important component of the immune system that serves to isolate and prevent further infection from pathogenic organisms. A part of the response involves complex immune-to-brain communication pathways that lead to proinflammatory cytokine production within the brain that manifests into sickness symptoms (i.e. decreased locomotor activity, anorexia) and depressive-like neurobehavioral outcomes (i.e. anhedonia, social withdrawal, alterations in central monoaminergic neurotransmission). Indeed, patients that suffer from chronic inflammatory diseases, such as rheumatoid arthritis, have an increased risk of developing major depressive disorder (MDD). Of note, administration of the proinflammatory agent lipopolysaccharide (LPS) in rodents has been shown to induce both sickness and depressive-like behaviors. Despite the greater prevalence of MDD in women, the role of sex in this inflammatory model of depression remains elusive. Herein, we investigated whether acute immune stimulation with LPS induces sex-dependent serotonergic neurochemical responses in the prefrontal cortex (PFC)

and the hippocampus (HIP), two brain regions implicated in the neurobiology of MDD. Mice were injected with LPS (1 mg/kg) or saline (0.9% NaCl), and were sacrificed at two different time-points; at 6h (i.e. when sickness symptoms reach their plateau) and at 24h post-LPS administration (i.e. when sickness symptoms are alleviated but depressive-like symptoms are still evident). Ex vivo neurochemical responses in the PFC and the HIP were assayed with high performance liquid chromatography (HPLC) with coulometric detection. Collectively our data showed that LPS administration induced sex-dependent serotonergic neurochemical effects at both time-points. Our efforts now focus on how these neurobiological alterations ultimately play out in an effect on basic behavior. Taking into account the higher prevalence of affective disorders in women, a focus of basic science on sex differences underlying this inflammatory model of depression is imperative to delineate the neuroimmunological substrate in the appearance, course and outcome of these conditions.

Alternative antimicrobial agents: The effect of *Pseudomonas aeruginosa* bacteriophages on an in vitro human lung cell co-culture

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Joseph R Shiley | ADVISORS Jayne B Robinson

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Antibiotic resistance is a major threat to human health. Because of the rise of antibiotic resistant *Pseudomonas aeruginosa* bacterial infections in cystic fibrosis and other immunocompromised patients, many individuals are left with untreatable and potentially lethal lung infections. Novel methods of treating such infections, such as the use of bacteriophages, may provide new means to attenuate these dangerous, antibiotic resistant bacteria. The goal of this project is to determine the toxicity and innate immune response of the lung cells to these antimicrobial agents using an in vitro model. The model system employed in this project is a human lung tissue co-culture used previously to determine the toxicity and immune response generated by nanoparticles in the lungs. Human lung tissue is replicated in the lab by growing

two types of cells in co-culture: type II lung alveolar cells and macrophage cells. Two lytic bacteriophages were applied to the tissue culture cells at two concentrations. After 24 hours, *P. aeruginosa* bacteriophage PEV2 was found to elicit both anti-inflammatory and pro-inflammatory cytokines, while *P. aeruginosa* bacteriophage DSM3 at higher concentrations was found to only elicit pro-inflammatory responses. We anticipate that a mixture of the two phages may alter their individual effects on the innate immune system. Similarly, we aim to determine if bacteriophages can prevent infections in an in vitro model or even facilitate the innate immune response without direct interaction with their hosts.

Assessing the Effects of Shear Stress and Statins on Vascular Endothelial Cells in vitro.

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Kyle P McGrail | ADVISORS Carissa M Krane

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The human saphenous vein (HSV) is commonly used in coronary artery bypass grafts. The patency of the vein graft in an arterial environment is limited, thereby requiring a high percentage of autograft recipients to repeat the bypass surgery within 5 years. The main problem that ensues with HSV grafts is due to the development of intimal hyperplasia (IH) which compromises vessel function. The mechanistic reasons for the development of IH and limited HSV patency are not currently understood. However, it has been proposed that the change from venous to arterial shear stress may be a trigger. Aquaporin 1 (AQP1), a water channel protein, is expressed in the plasma membrane

of vascular endothelial cells. It is hypothesized that enhanced AQP1 expression may be an early biomarker for the development of IH. It is also well known that statins, a group of cholesterol lowering drugs that reduce the progression of atherosclerosis may also function to prevent or lessen the development of IH in these grafts. The goal of this study was to assess the effect of shear stress on AQP1 expression in cultured endothelial cells. However, the process(es) by which 1.) IH is triggered in the HSV grafts, and 2.) statins may help to prevent the development of IH is currently unknown. Primary vascular endothelial cells seeded on a gelatin-coated Ibidi flow chamber grown in static conditions

expressed low levels of AQP1 protein that localized around the nucleus. AQP1 was present in vesicles throughout the cytoplasm in increasing abundance in cells subjected to low shear stress

(6 dynes/cm²) vs. high shear stress (16 dynes/cm²)($p < 0.01$). As a consequence, we hypothesize statins may target and control AQP1 expression, thereby preventing the development of IH.

Biomolecule Detection using a Resonant Capacitive Sensor

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Danielle N Bane | ADVISORS Karolyn M Hansen, Guru Subramanyam

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The goal of this research is to design sensors capable of detecting two biomarkers: orexin A (a biomarker of cognitive function) and trimethylamine (a biomarker of the disease trimethylaminuria). For this purpose, resonant capacitive sensors will be fabricated with a peptide functionalized guanine dielectric layer. The peptides integrated into the dielectric have an affinity to orexin A and trimethylamine and thus bind selectively to their corresponding biomarker. This binding event will trigger a shift in the resonant frequency, amplitude, and phase of the sensor thereby indicating the biomarkers' presence. Guanine has not been widely used for electronic applications, so characterization of this biopolymer is necessary. For characterization purposes, guanine was deposited as the dielectric layer in capacitive test structures (CTS). The dielectric constant of guanine was

determined by comparing the measured scattering-parameters to an electrical model of the devices. Subsequently, guanine was deposited as the dielectric layer for the resonant capacitive sensor to determine the resonance of the guanine integrated structure and to serve as the sensor platform. The next step is to functionalize the guanine. Currently, two methods for the functionalization are being investigated: spin-coating and chemical tethering. Following functionalization, the resonance of the sensors will be determined pre-exposure to determine a baseline and following exposure to positive (orexin A in aqueous phase and trimethylamine in vapor phase) and negative controls. An anticipated benefit of these sensors is for the assessment of health and human performance.

Changes in Relative Abundance and Spatial Distribution of Dominant Overstory Taxa in an Old-growth Forest Over 30 Years

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Julia I Chapman | ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The temperate deciduous forests of eastern North America are subject to an array of ecosystem drivers including anthropogenic disturbance, gap dynamics, and both local and regional climate events. An ongoing "mesophication" trend has been observed in many of these forests where communities are shifting from oak dominance (*Quercus* spp.) to more mesophytic, shade-tolerant species (*Acer* spp.). Using a 30-year dataset (1979–2010) collected in an old-growth forest in southeastern Kentucky, we examined decadal patterns of distribution and relative abundance of dominant overstory taxa: oaks (*Quercus* spp.), maples (*Acer* spp.), hickories (*Carya* spp.), and beech (*Fagus grandifolia*). Overstory stem data were divided into three size classes, small (2.5–10 cm dbh), medium (10–25 cm dbh), and large (> 25 cm dbh), to assess regeneration patterns over time. Relative abundance and frequency of large oak and hickory stems were fairly consistent through time, but small and medium stem frequency and abundance decreased. On the contrary, small

and medium sugar maple (*A. saccharum*) and beech were more frequent than large stems and generally increased in relative abundance over time. The observed spatial patterns suggested that oak species are persisting mainly as mature canopy trees with little recruitment in mesic areas of the study site, becoming more restricted to xeric ridgetop areas over time. Hickories did not exhibit a strong spatial pattern but showed an overall lack of recruitment in smaller size classes. Mesophytic species (maple, beech) appeared historically restricted to certain habitats (as evidenced by the clustered, limited distribution of mature trees) but are currently recruiting across a broader area of the watershed. This widespread "mesophication" trend in eastern deciduous forests is predicted to have important ecological and economic impacts, and understanding these changes in the context of multiple ecosystem drivers (fire, climate, human activity) is key for effective conservation and management.

Characterization of the p53 Signaling Pathway in Urodele Amphibians during Lens Regeneration

College of Arts and Sciences: Biology | Poster - Honors Thesis

STUDENTS Kathryn C Oehlman | ADVISORS Panagiotis A Tsonis

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Urodele amphibians such as the red spotted newt, *Notophthalmus viridescens*, and axolotl are commonly used to study organ regeneration due to their remarkable ability to regenerate organs such as limb, tail, spinal cord and lens. The newt is

able to regenerate the lens solely from dorsal iris pigmented epithelial cells in 30 days following removal. Axolotls, neonate salamanders, invoke curiosity because they can only regenerate their lens two weeks post hatching although they have the same

regeneration potential as newts for limb, tail, and spinal cord. Using these animal models the role of the p53 protein, a tumor suppressor protein, in regeneration and cell cycle regulation can be further examined. Previous studies showed that when p53 is disrupted using pharmacological reagents limb regeneration is

impaired. In this study, p53 protein expression was inhibited and activated and histology was performed to determine the effect on lens regeneration. The outcome of this study will help in the understanding a potential new role of p53 and its signaling partners during lens regeneration.

Coding DNA into Music: An Alternate Way of Analysis

College of Arts and Sciences: Biology | Poster - Honors Thesis

STUDENTS Samuel J Fesenmeier | ADVISORS Mark G Nielsen, Tobias Rush

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Our study's purpose is take a completely different approach to understanding DNA, specifically non-coding segments. How we will do this is through coding DNA into music. By applying a system that codes known information of DNA into sound, music could prove to be a powerful means of finding patterns in DNA. It is possible that hearing the segments could allow our brains

to pinpoint patterns that are not found through computational or experimental analysis. Music may also open up the expression of complex patterns that are visually hidden. The application of DNA to music will also allow for very long segments to be analyzed in a short period of time. Ideally, discovering certain patterns will lead to a better understanding of function.

Cyclin-Dependent Kinase 5 Modulates the Ability of Malignant Human Melanoma Cells to Invade and Migrate in Response to Neurotrophin Signalling

College of Arts and Sciences: Biology | Poster - Honors Thesis

STUDENTS Nicholas C Borkey | ADVISORS Dr. John Letterio, M.D., Robert J Kearns

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Malignant melanoma demonstrates a higher propensity for central nervous system metastasis than any other cancer. Additionally, both melanocytes, which are the cells that develop into melanoma, as well as neuronal cells have a shared embryologic origin in the neural crest. This results in shared characteristics such as dependence on neurotrophin signaling. Cyclin-dependent kinase 5 (CDK5), an enzyme highly expressed in neurons, is a mediator of neurotrophin signaling in a pathway that determines neuronal cell survival and migration. This study aims to determine if this interplay between CDK5 and neurotrophin signaling

shown in neuronal cells is also seen in malignant melanoma cells. In order to pursue this aim, transwell assays were utilized to model malignant melanoma cell invasion and migration; two key events in melanoma metastasis. Utilization of these assays revealed that neurotrophins act as a chemoattractant for malignant melanoma, promoting invasion and migration. Furthermore, this invasion and migration ability was found to be proportionate to CDK5 activity, and thus selective inhibition of CDK5 diminished the cells ability to invade and migrate.

defective proventriculus (dve) a new member of DV patterning in the eye

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Neha Gogia | ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

In multi-cellular organisms, axial patterning is required to generate three-dimensional organ from its primordia during organogenesis. *Drosophila* eye serves as an excellent model to study patterning and growth. In *Drosophila* eye, Dorso-ventral (DV) patterning is the first lineage restriction event in the developing eye. The early eye primordium begins with the default ventral fate on which the dorsal eye fate is established by expression of a GATA-1 transcription factor, pannier (pnr). We have identi-

fied defective proventriculus (dve), a K50 homeodomain gene as a novel dorsal gene that plays a crucial role in *Drosophila* eye development. We have found that dve acts downstream of pannier (pnr) in the developing eye. Loss-of-function phenotypes of both pnr and dve results in the dorsal eye enlargement. We will study role of dve and pnr in growth regulation during development. The results from these studies will be presented. Keywords: Axial Patterning, Differentiation.

Defining the regulatory loci and their target gene interactions for a model developmental and evolutionary trait.

College of Arts and Sciences: Biology | Poster - Honors Thesis

STUDENTS Claire C Kony, Maxwell John Roeske | ADVISORS Thomas M Williams

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Morphological traits are the developmental products of networks of genes whose activities are interconnected at the level of gene regulation. These connections, or regulatory linkages, consist

of transcription factors interacting with binding site sequences in target gene cis-regulatory elements within a dynamic chromatin environment. The genes and regulatory linkages struc-

turing several gene networks, and their concomitant chromatin environments have been well studied. However, the mechanisms by which network structure and chromatin environment evolve remains poorly understood. Ideal traits to study network evolution are those for which phenotypic diversity has evolved over short evolutionary time scales. One suitable developmental and evolutionary network is that governing fruit fly abdominal pigmentation. These patterns have diversified at the intraspecific and interspecific levels, which include the derived male-specific pattern possessed by the model organism species *Drosophila melanogaster*. While abdominal pigmentation is known to be controlled by a few prominent transcription factors that assign spatial

and sex-specific patterning information, the breadth of network transcription factors and chromatin remodeling proteins has remained poorly characterized. Thus, we have evaluated over 558 and 20 genes that respectively encode transcription factor and chromatin modifying proteins for loss-of-function effects on this dimorphic trait. From this screen, to date this screen has identified over 20 transcription factors and several chromatin modifying proteins involved in this pigmentation network and our ongoing studies aim to resolve their specific network functions and whether these genes were mutational targets for cases of pigmentation evolution.

Differential Effects of Commercially Available Probiotics on *Listeria monocytogenes* Virulence

College of Arts and Sciences: Biology | Poster - Independent Research

STUDENTS Eric Edward Newton, Ashley N Zani | ADVISORS Yvonne Sun

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Listeria monocytogenes is a foodborne pathogen which can cause lethal infections in immunocompromised individuals. These infections involve meningitis in the elderly or spontaneous abortions of neonates--both scenarios result from *Listeria* crossing the intestinal barrier. The conditions that promote *Listeria* invasion during the intestinal phase of infection are not clearly defined. We have evidence that suggests intestinal fermentation acids as potential signals for *Listeria* virulence regulation. Therefore, we hypothesized that probiotic bacteria, which generate different fermentation acids, will exhibit different levels of inhibition against *Listeria* virulence. To test how different probiotic bacteria affect *Listeria* virulence, we used two commercially available probiotics from Phillips, Colon Health and Digestive Health Support, each containing a unique mixture of bacteria. First, a co-culture experiment between probiotic bacteria and *Listeria* was conducted to determine the probiotics ability to inhibit *Listeria* growth. Second, we tested *Listeria* survival in the fermentation products generated by these probiotic bacteria. Finally, we tested

how the fermentation products affect *Listeria* production of the virulence factor listeriolysin O (LLO). *Listeria* growth was reduced when co-culturing with either of the two probiotics with both probiotics showing similar levels of suppression. After five hours of incubation in the supernatant of probiotic cultures, *Listeria* survival was significantly reduced in the Digestive Health Support probiotic compared to the Colon Health probiotic. Exposure to supernatant from the Digestive Health Support probiotic also significantly reduced LLO production. Taken together, Digestive Health Support probiotics exhibited stronger overall inhibitory activity against *Listeria* fitness and virulence. Future investigations will focus on determining the chemical composition of the probiotics fermentation products to explain the different responses in *Listeria*. Probiotics are quickly gaining popularity which argues for better understanding of their effects. Understanding their effects on foodborne pathogens will pave the way for applying appropriate probiotics as effective preventative and treatment strategies.

Drosophila C-terminal Src Kinase (d-Csk) Regulates Growth via the Hippo Signaling Pathway

College of Arts and Sciences: Biology | Poster - Honors Thesis

STUDENTS Hailey Kwon | ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The Hippo signaling pathway is involved in regulating tissue size by inhibiting cell proliferation and promoting apoptosis. Hippo signaling coordinates a timely transition from cell proliferation to cellular quiescence, and ensures proper cellular differentiation. Aberrant Hippo pathway function (due to mutations or amplification of genes, epigenetic silencing, and oncogenic transformation) is often detected in human cancers and correlates with poor prognosis. The *Drosophila* C-terminal Src kinase (d-Csk) is a genetic modifier of warts (wts), a tumor-suppressor gene in the

Hippo pathway, and interacts with the Src oncogene. Reduction in d-Csk expression and the consequent activation of Src are frequently seen in hepatocellular and colorectal tumors. Previous studies show that d-Csk regulates cell proliferation and tissue size during development. Given the similarity in the loss-of-function phenotypes of d-Csk and wts, we have investigated the interactions of d-Csk with the Hippo pathway. Here we present multiple lines of evidence suggesting that d-Csk regulates growth via the Hippo signaling pathway.

Engineering the salamander genome using crispr -cas9 triggered genomic tailoring

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Matthew J Comment, Abijeet S Mehta, Georgios D Tsisios | ADVISORS Panagiotis A Tsonis

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

It is important to study regenerative capacity of salamanders at the molecular level as this will enhance our knowledge to induce same effect in other non-regenerative models, with an ultimate goal to apply to *Homo sapiens*. To make it possible it is not only important to study animal models at the genetic level, but also to efficiently tailor their genes. The aim of our lab is to study regeneration of eye lens using newts, which is one of the salamander specie. Regeneration of the lens in newts is quite a unique process, but as salamanders have a very complex genetic makeup, which is yet to be explored, so it is difficult to move ahead with the project without engineering a tool that can efficiently manipulate genes. Thus to control genetic makeup of salamanders we need to optimize a technique that has 100% efficiency in gene tailoring. Till now clustered regularly interspaced short palindromic repeat (CRISPR) method has proved to be a

powerful tool to manipulate genetic signaling in various species covering from *C.elegans* to in vitro human cell lines. Morpholino or transcriptional activator-like effector nucleases (TALENs) are being used to tailor genetic makeup of salamanders, but both have many shortcomings, and are not that authentic. I want to use CRISPR-Cas9 system to manipulate salamander's genetic circuit, suspecting to play a role in regeneration. To address the problem, this summer I will try to regulate Pax6 gene in iris pigment epithelial cells of *Notophthalmus viridescens*, in vitro, by using CRISPR-Cas9 system. As a preliminary data I have already engineered desired constricts, and virtually their feasibility to create mutation has been verified using in silico tools. After successful optimization of CRISPR-Cas9 system, in future we will use same technique to manipulate other newt specific genes, which have role in regeneration of eye lens.

Identifying the mechanism of *dronc* regulation by the Hippo pathway*College of Arts and Sciences: Biology | Poster - Independent Research*

STUDENTS Kristine R Garcia, Indrayani Waghmare | ADVISORS Madhuri Kango-Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The Hippo pathway is a network of tumor suppressor genes that regulates both cell proliferation and programmed cell death. Aberrant Hippo pathway functioning leads to improper cell growth or death. Study of the Hippo pathway can prove extremely valuable for the investigation of diseases such as cancer which is caused by excessive cell growth resulting in tumors. It is known that *dronc* is an essential gene for programmed cell death. We reported that *dronc* is a transcriptional target of the Hippo pathway, and is an apical caspase of the intrinsic cell death pathway. Currently, *dronc* is the only target known that is negatively regulated by the Hippo pathway to regulate growth. As *dronc* is a transcriptional target of the Hippo pathway, activation of the Hippo pathway upregulates *dronc* expression. Similarly, suppression of Hippo expression leads to the suppression *dronc*

expression. The aim of this project is to find the minimal Hippo response element on the *dronc* promoter. By using transgenic flies that express different regions of the *dronc* promoter linked with the reporter gene *lacZ*, *dronc* activity will be tracked. We will use standard genetic experiments to make small mutant patches (GFP negative) in the imaginal discs of the developing larvae in which Hippo pathway is inactivated, while the surrounding cells are wild type (GFP positive). We will check for status of *dronc* transcription in these mutant patches of cells and compare the mutant cells to the wild type. By tracking *dronc* activity, we aim to find the promoter region that contains the minimal Hippo response element required for correct gene expression. Our progress on this project will be presented.

Inspecting the Regulatory Architecture of a Toolkit Gene Locus Governing Trait Development and Evolution*College of Arts and Sciences: Biology | Poster - Independent Research*

STUDENTS Eric M. Camino, Lauren M Schimmoeller | ADVISORS Thomas M Williams

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Complex spatial and temporal patterns of gene expression are crucial to animal development and changes in expression patterns are a common mode of evolutionary innovation. Thus, understanding development requires answering: (1) what are the DNA elements, so called CREs, controlling expression, (2) how the DNA sequences of CREs encode gene regulatory capabilities, (3) whether and how CREs work together to make complex expression patterns, and (4) how CRE sequences identify their gene target(s) of regulation in a 3-dimensional nucleus? These answers will aid studies to reveal the mechanisms of gene expression, and thus animal, evolution. A model to address these questions is the *bab* locus of fruit flies. This locus contains the duplicate *bab1* and *bab2* genes that shape a derived pattern of

pigmentation in the species *Drosophila melanogaster*. The relevant *Bab* expression pattern is controlled by two CREs which we found to interact in a non-additive, or synergistic, way to yield this pattern. Ongoing studies seek to trace: when and how CRE synergism evolved, which CRE sequences encode their synergistic activity, how these CREs interact with the *bab* gene promoters, and whether synergistic regulation extends to additional gene loci. Ultimately, this work aims to connect how animal form is programmed into 1-dimensional DNA sequence and how this program evolves.

JNK-Yki Mediated Signal Amplification Loop Promotes Tumorigenesis in Epithelial Cells

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Hailey Kwon, Austin J Roebke, Shilpi Verghese, Indrayani Waghmare | ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The inter-cellular interactions via short- and long-range signaling are critical for normal development, physiological functions of cells, and maintenance of tissue homeostasis. These inter-cellular interactions are also critical for pathological processes like tumorigenesis and metastasis. To uncover the intercellular signals that promote tumorigenesis we analyzed the loss of function of *Drosophila scribble (scrib-)* gene in different microenvironments. We present several novel findings that contribute significantly to our understanding of how oncogenic RasV12 uncovers the tumorigenic potential of scrib- cells. The distinct changes in levels and localization of Wg, Dronc, JNK and Yki in growth competent scrib- cells underlie their growth potential. We found that multiple pathways (JNK, Dronc, Yki, Wg) play a tumor-promoting role, and are required for aggressive tumor growth. We demonstrate that these signals form a context-dependent signaling module wherein JNK and Yki form a positive feed-back

signal amplification loop, which promotes the sustained aggressive growth of RasV12, scrib- tumor cells. In the absence of this JNK-Yki signal amplification loop tumor growth is suppressed. scrib- can autonomously and non-autonomously induce Yki, JNK and Wg in a Yki overexpressing sensitized background. Further, we show that increased Yki activity can cause aggressive growth in scrib- cells in the absence of oncogenic Ras due to the establishment of the JNK-Yki mediated signal amplification loop. Lastly, oncogenic Ras restricts non-autonomous induction and promotes autonomous induction of Yki, JNK and Wg in scrib- cells. Oncogenic cooperation between activated Ras and loss of scrib also occurs in multiple mammalian cancer models. Overall, this study provides a strong genetic evidence for oncogenic cooperation between scrib- and RasV12 and the signaling framework within which they cause tumorigenesis.

Manipulation of the Wnt Signaling Pathway and Analysis of Gene Expression in Axolotls

College of Arts and Sciences: Biology | Poster - Honors Thesis

STUDENTS Jessica L Beebe | ADVISORS Panagiotis A Tsonis

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

After injury humans produce scar tissue as part of the wound healing process. This process does not generate new tissue, but prevent the remaining tissue from further damage. Without the ability to create new tissue, humans are limited in their capacity to regain lost function after severe injury. However, axolotls have the ability to regenerate a variety of organs within the first two weeks of hatching, allowing for complete recovery of tissue function. Specifically lens regeneration is studied due to the dynamic changes that occur in the surrounding iris tissue following lens removal. Dorsal and ventral iris cells proliferate and eventually regenerate the missing lens. Since axolotls are not able to

regenerate the lens succeeding two weeks from hatching, this is the control group representing non-regenerating tissue. These axolotls contain the same genes which allows for specific manipulation of iris tissues and examination of the different outcomes in hope of revealing the cause of regeneration. The goal of the current project is to study tissue regeneration at the molecular level, by influencing target genes through drug treatments within a specific biological pathway, in order to gain further insight about the mechanism of regeneration. When the mechanism of tissue regeneration is entirely understood, this research could be used to provide treatment in humans with severe tissue damage.

Patterns in Evolution: Tracing the Genetic and Molecular Basis for a Convergent Fruit Fly Pigmentation Pattern.

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Sumant Grover, Victoria Rene Spradling | ADVISORS Thomas M Williams

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The genetic basis by which organisms adapt to an ever changing world remains a topic of great interest to the fields of evolution, development, and conservation biology. It is understood that animal genomes contain over ten thousand genes and distantly related species possess many of the same genes due to common ancestry. What is less well understood is how new traits evolve using these shared genes and whether the genetic basis for evolution favors certain genes over others. At the heart of trait development are genes that encode proteins that regulate the expression of other genes, notably transcription factors and chromatin modifying proteins. Traits can evolve through changes

in the expression patterns for these genes or through changes in which target genes they regulate. However, case studies connecting gene expression changes to trait evolution remain few in number. Additionally, it is unclear whether gene expression evolution favors alterations in certain genes over others. In order to understand how a novel trait evolves and to determine whether evolution can prefer certain gene targets for modification, we are studying the convergent evolution of fruit fly pigmentation in the lineages of *Drosophila melanogaster* and *Drosophila funebris*. These two species can be considered biological replicates for the evolution of male-specific pigmentation on the A5 and A6

abdominal segments. To understand the genes involved in the formation and evolution of these similar pigmentation patterns, we are utilizing candidate gene and comparative transcriptomic approaches. Completion of this work will provide novel insights

on the genetic changes responsible for a trait's origin, and whether development constrains evolutionary paths to certain genes.

Role of DPP Signaling Pathway in Promoting Survival of Retinal Neurons in A β 42 Mediated Neurodegeneration

College of Arts and Sciences: Biology | Poster - Independent Research

STUDENTS Jason N Kleppel, Ankita Sarkar | ADVISORS Amit Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Alzheimer's disease is a progressive neurodegenerative disorder with no known cure to date. One cause of Alzheimer's neuropathy is the generation of Amyloid-beta-42 (A β 42) aggregates that trigger cell death by unknown mechanisms. Using a transgenic *Drosophila* eye model misexpressing human A β 42, we observed the AD-like neuropathy. In a forward genetic screen we have identified Decapentaplegic (Dpp), a morphogen, as one of the

genetic modifiers of A β 42 mediated neurodegeneration. Dpp acts as the ligand for the dpp pathway, which exhibits suppression of retinal neuron's cell death. The Dpp signaling pathway involves several key components. We examined the Dpp signaling pathway and its members in modifying A β 42 mediated neuropathy. The results from our studies will be presented.

Role of inflammatory cytokines in tumor microenvironment: Effect of metabolic pathways on tumor growth and progression

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Kirti Snigdha, Indrayani Waghmare | ADVISORS Madhuri Kango-Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Cancer cells differ from normal cells in several aspects and are surrounded a unique milieu generated by the interactions between the normal cells surrounding the tumor cells which constitute the Tumor microenvironment (TME) that supports the survival and proliferation of tumors. Interestingly, host immune response causes tumor growth. It is known that cancer cells induce inflammation, and the TME responds by activation of anti-inflammatory response. In response to cytokine secretion, inflammatory pathways like Jun N-terminal Kinase (JNK), Tumor Necrosis Factor (TNF) and Toll-like Receptor (TLR) are activated. However the exact role of inflammation in tumorigenesis remains unclear. Many questions remain unanswered e.g., is inflammation essential for tumor progression and growth, which cells secrete the cytokines, and how cancer cells suppress cell death despite activation of inflammatory cytokines? Using a simpler (genetically tractable) model system- *Drosophila melanogaster*, we tested if the Toll pathway- a key inflammatory pathway is induced in

cancer cells. Using transgenic flies, we co-activated oncogenic Ras or Yki activities in scribble mutant epithelial cells. These flies were susceptible to tumor formation in a stripe of epithelial cells in their wing discs and thus simulate both the tumor and its microenvironment in a small group of cells, and effectively help in study of the different interactions. Our data showed that Toll signaling is indeed induced non-cell autonomously (in and around the cancer cells) suggesting that it may be a critical link or signal between the TME and cancer cells. The inflammatory Toll pathway is up-regulated in cancer cells and its neighboring normal cells. Further we also studied the extent to which Toll pathway up regulation and cytokine production affect the tumor growth and progression. Our research opens up a new avenue to understand how inflammatory pathways play a critical role in tumor progression, and if targeting cytokine production in the TME or cancer cells is a useful strategy to suppress the growth and spread of cancer.

Role of Motif 1 Binding Protein (M1BP) during *Drosophila* eye development

College of Arts and Sciences: Biology | Poster - Independent Research

STUDENTS Ankita Sarkar, Katherine R Simpson | ADVISORS Amit Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Many genes in the *Drosophila melanogaster* have Pol II paused at the promoter proximal region, because the binding of either the GAGA factor or the Motif 1 Binding Protein (M1BP). M1BP is highly conserved across the species and encodes a 55kDa protein containing five C2H2 zinc-fingers domains. *Drosophila* eye development is regulated by a battery of highly conserved genes. Based on high throughput studies, it has been suggested

that M1BP may regulate gene expression during *Drosophila* eye development, but its exact role is unknown. Our aim is to study the role of M1BP during eye development. We found that absence of M1BP function in dorsal and ventral eye margins results in the suppression of eye fate. The results from our studies on M1BP will be presented.

Role of p53 and Wnt Signaling Pathways During Lens Regeneration in Newts

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Aidan D Bean, Austin E Hillman, Abijeet S Mehta, Georgios D Tsissios | ADVISORS Panagiotis A Tsonis

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Objective 1: Characterization of p53 and Wnt protein expression during different stages of lens regeneration. Objective 2: Identify difference in protein expression levels of p53 and Wnt proteins between dorsal and ventral iris. Objective 3: Modulation of p53 and Wnt activity to induce or inhibit lens regeneration. I. Methods: The proposed research will be accomplished using various molecular and cellular techniques such as Quantitative Real-Time PCR, histology and immunohistochemistry with antibody staining, TUNEL assay, and cell culture. Two surgical procedures will be involved for the purpose of this experiment. First surgical procedure will be the removal of lens (lentectomy) and the second will be the isolation of dorsal and ventral iris from the eye. Also loss and gain functions experiments will be performed in order to regulate the expression of p53 and Wnt. II. Significance:

Tissue and organ regeneration abilities of vertebrates, and more specifically newts, have been fascinated scientists over the years. Recent advances in technology and science aimed to gain a better understanding in the cellular basis of regeneration. Despite these advances, the molecular mechanisms that trigger these cellular events are still unknown and need to be explored. Here we propose a study to test the role of two known growth factors, such as Wnt and p53, during lens regeneration in newts. We hypothesize that these factors will play a role in reprogramming the cellular events of regeneration. If we are able to understand the molecular mechanisms that regulate regeneration in newts we can investigate the possibility of these mechanisms applying to other mammals including humans.

Role of Signaling Pathways in A β 42 mediated neurodegeneration*College of Arts and Sciences: Biology | Poster - Graduate Research*

STUDENTS Ankita Sarkar | ADVISORS Amit Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Alzheimer's disease is an age related neurodegenerative disorder. Accumulation of the A β 42 plaques is one of the vital reasons for AD mediated neurodegeneration. It has been suggested that A β 42 plaques triggers oxidative stress due to impaired signaling, which result in neuronal cell death. However the exact mechanism causing cell death is still not well understood. We employ a *Drosophila* eye model of AD by misexpressing high levels of A β 42 in the differentiating photoreceptors of the fly retina. Our aim is to discern the role of signaling pathways involved in neurodegeneration. In a forward genetic screen, we have identified *teashirt* (*tsh*), *crumbs* (*crb*) and other members of *Wingless*

(*Wg*) signaling pathways as genetic modifiers of A β 42 mediated neurodegeneration. It is known that *wg* is a negative regulator of differentiation in the eye. Our preliminary data suggests that by misexpression of *Shaggy* kinase (*Sgg*), a negative regulator of the *Wg* signaling pathway, suppress the neurodegeneration caused by A β 42 misexpression. We will test the role of *Wg* signaling in A β 42 plaques mediated neurodegeneration. Furthermore, we will analyze, if these modifiers act independent and/or parallel of each other or whether they have a linear relationship in triggering neurodegenerative response due to accumulation of A β 42.

Search for Eye-Specific Regulatory Sequences of an Axial Patterning Gene, Defective Proventriculus (*dve*)*College of Arts and Sciences: Biology | Poster - Honors Thesis*

STUDENTS Kevin M Farley | ADVISORS Amit Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The fruit fly, *Drosophila melanogaster*, serves as an important model system to study axial patterning, a process that transforms a sheet of cells into a fully functional organ. We have identified a new dorsal eye specific gene *defective proventriculus* (*dve*), a transcription factor, which is involved in this process. In the *Drosophila* eye, *dve* is expressed in the dorsal eye margin. The function of a gene is dependent on spatio-temporal gene expression, which is controlled by the regulatory sequences upstream

of the target gene. I propose to identify and characterize the upstream enhancer sequences that regulate *dve* expression in the early dorsal eye disc, pupal retina, and the adult eye. I have identified an eye specific enhancer (regulatory region of DNA which directs *dve* expression in the eye disc) of *dve* which better our understanding of the regulation of *dve* gene expression in the eye. Eye-specific enhancers for the genes *decapentaplegic*, *hedgehog*, and *hairy* have also been investigated.

Seeing gene expression in space, time, and color: evaluating new fluorescent proteins for the study of gene regulation in fruit flies*College of Arts and Sciences: Biology | Poster - Honors Thesis*

STUDENTS Mary Patricia List | ADVISORS Thomas M Williams

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Animals, including fruit flies and humans, use DNA sequences

called enhancers to switch genes "ON" in the correct cells

(space), and the correct point in life (time). Mutations in these sequences can cause switch activities to differ between individuals of one species, and over evolutionary time such mutations can be used to adapt populations/species to changing environments. Reporter transgenes are an effective tool to study the switch-like activities of enhancers, where the activity can be seen by detecting the production of a fluorescent protein. However,

comparisons of different enhancers in the same animal requires multiple fluorescent proteins whose color emission properties are clearly distinguishable and whose activity at one time point can be distinguished from those occurring at a later time point. My thesis project customized reporter transgenes to functionally study enhancers by making and comparing a set of fluorescent proteins in the fruit fly species *Drosophila melanogaster*.

Test the Role of Hippo Signaling in Tissue Remodeling

College of Arts and Sciences: Biology | Poster - Honors Thesis

STUDENTS Wujian Zhang | ADVISORS Madhuri Kango-Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The gene expression is controlled by different signaling pathways during the development of an organism. The Hippo pathway is one of the several signaling pathways that required for an organism's normal development by controlling organ size in animals through the regulation of cell proliferation and apoptosis. In general, our study focuses on the mechanism of tissue remodeling under this specific genetic transcription pathway (Hippo signaling pathway) in *Drosophila* cells. Because tissue remodel-

ing or transformation underlies many disorders including cancer (e.g. Barrett's precancerous condition, the changing of squamous cells to columnar cells, which is controlled by Hippo pathway), and is very similar for both *Drosophila* and human, the study of *Drosophila* tissue remodeling provides us a simpler system to study changes that occur in human cancer. Based on this basic idea, we specifically designed a model to look for the changes between cell types that related to human esophagus cancer.

The effects of low dam removal and kayak run installation on the biodiversity of fish and macroinvertebrates in the Great Miami River in downtown Dayton, Ohio

College of Arts and Sciences: Biology | Poster - Honors Thesis

STUDENTS Sarah A Stalder | ADVISORS Jeffrey L Kavanaugh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

In the past few years Five Rivers Metroparks and Miami Conservancy District have made plans to remove the upper portion of the Monument Avenue low-head dam in downtown Dayton due to the hazard it poses for recreation on the river and its negative impact on water quality and biodiversity. The proposal also includes the addition of a kayak course. The proposed changes

should improve water quality and biodiversity by returning the river channel to a more natural state. The goal of this project is to analyze the effects of low dam removal on macroinvertebrate and fish communities by measuring the communities before and after low dam removal.

The Effects of the Soy Protein Lunasin in the Alzheimer's Disease Model

College of Arts and Sciences: Biology | Poster - Independent Research

STUDENTS Angela N Giaquinto, Neil William Glenn, Ankita Sarkar | ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Alzheimer's Disease (AD) is a neurodegenerative disease caused by a number of factors. One of the leading factors behind the onset of AD is the accumulation of amyloid plaques in the brains of affected individuals. These plaques are formed with amyloid precursor protein (APP) is processed incorrectly and cleaved to be 42 amino acids long (A β 42) instead of 40 (A β 40) which are found within healthy individuals. These two extra amino acids cause the protein to become hydrophobic in nature and form plaques which aggregate around neurons in the brain. This aggregation induces oxidative stress on the neurons which then leads to cell death. Due to the conserved genetic properties of the *Drosophila melanogaster*, fruit fly, visual system with

that of humans we have developed a *Drosophila* eye model. In this model the A β 42 protein is misexpressed in the developing photoreceptors of the fly eye which results in extensive cell death of the photoreceptor neurons and produces a highly reduced eye field in the adult fly. My research focus is to understand the function of a soy protein called Lunasin in Alzheimer's disease. It has been shown that Lunasin acts as an anti-inflammatory within the somatic cells. Inflammation of the brain is an observed characteristic of AD. Therefore, we investigated the effects of Lunasin on A β 42 accumulation mediated neurodegeneration. Here we present the findings of our studies thus far.

The evolutionary origination and diversification of a dimorphic gene regulatory network through parallel innovations in cis and trans.

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Eric M. Camino | ADVISORS Thomas M Williams

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The origination and diversification of morphological characteristics represents a key problem in understanding the evolution of development. Morphological traits result from gene regulatory networks (GRNs) that form an interconnected landscape of transcription factors, which regulate multiple cis-regulatory element (CRE) sequences to control the coordinated expression of differentiation genes. The formation and modification of GRNs must ultimately be understood at the level of individual regulatory linkages (i.e. transcription factor binding sites within CREs) that constitute the network. Here, we investigate how elements within a network originated and diversified to generate a broad range of abdominal pigmentation phenotypes among *Sophophora* fruit flies. Our data indicates that the coordinated expression of two melanin synthesis enzymes, Yellow and Tan, recently evolved

through novel CRE activities that respond to the spatial patterning inputs of Hox proteins and the sex-specific input of Bric-à-brac transcription factors. Once established, these newly evolved activities were largely modified by evolutionary changes in the network's trans-regulatory landscape to generate large-scale changes in pigment pattern. By elucidating how yellow and tan are connected to the abdominal trans-landscape, we discovered that the yellow and tan abdominal CREs are composed of distinct regulatory inputs that exhibit contrasting responses to the same Hox proteins and Hox cofactors. These results provide an example in which CRE origination underlies a recently evolved novel trait, and highlights how coordinated expression patterns can evolve in parallel through the generation of unique regulatory linkages.

The rapid-acting antidepressant drug ketamine elicits sex-differentiated rapid and sustained neurochemical effects in C57BL/6J mice

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Anthony A Franceschelli, Jonathon P Sens, Connor F Thelen | ADVISORS Pothitos Pitychoutis

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

One of the most promising and exciting discoveries in the field of modern neuropsychopharmacology is the finding that a single sub-anesthetic dose of the N-methyl-D-aspartate (NMDA) receptor antagonist ketamine can induce both rapid and sustained antidepressant-like effects in treatment-resistant depressed patients and in animal models of depression. Despite the progress made in the identification of the behavioral and neurobiological mechanisms underlying the antidepressant-like effects of ketamine, knowledge regarding its effects in the female sex is limited. In the present study, male and female C57BL/6J mice were administered increasing doses of ketamine (i.e. 3 mg/kg, 5 mg/kg, 10 mg/kg) or saline (0.9% NaCl). The rapid and the sustained antidepressant- and anxiolytic-like behavioral effects of ketamine were assessed in the forced swim test (FST) and the novelty-suppressed feeding test (NSF) at 30 min or at 24 h post-administration, respectively. Our data showed that female mice responded to lower doses of ketamine than males in the

FST, at both time-points implemented, while no effects were evidenced in the NSF. Importantly, only the highest dose of ketamine implemented (i.e. 10 mg/kg) induced both rapid and sustained antidepressant-like effects in both sexes in the FST and was further selected for neurochemical estimations. Briefly, mice of both sexes were administered ketamine (10 mg/kg) or saline and were sacrificed at 30 min (rapid effects) or at 24 h (sustained effects) post-injection. Neurochemical analysis of serotonin, 5-hydroxyindoleacetic acid (5-HIAA) and excitatory amino acids (glutamate and aspartate) was conducted with high performance liquid chromatography (HPLC) in the prefrontal cortex and the hippocampus. Tissue levels of glutamate and aspartate, as well as serotonergic activity, were altered in a sex- and time-dependent manner in these two limbic brain regions. Taken together, present data revealed that ketamine treatment induces sex-differentiated rapid and sustained neurochemical and behavioral antidepressant-like effects in C57BL/6J mice.

The Role of the Hippo-Signaling Pathway and JNK-Signaling Pathway in Amyloid Beta 42 Mediated Cell Death in the *Drosophila* Eye

College of Arts and Sciences: Biology | Poster - Honors Thesis

STUDENTS Madison Nichole Irwin | ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Alzheimer's disease (AD) is a progressive neurodegenerative disorder with no effective cure. The clinical manifestation of AD involves gradual decline in cognitive functions of learning and memory due to selective atrophy of the brain. The neurodegeneration associated with AD also coincides with accumulation of amyloid beta 42 (A β 42) plaques. Understanding the fundamental mechanisms and the pathways that regulate amyloid accumulation can provide important insights into the pathobiology of AD.

The fruit fly *Drosophila melanogaster* is an excellent model for human diseases, including AD, because of its large repository of mutants and similar genetic makeup to humans. We have developed a *Drosophila* model of AD by over-expressing the human A β 42 peptide in the fly retina. Using this model we have shown that cell death pathways are activated in neurons leading to their death, identified a neuroprotective role for the Hippo pathway, and elucidated the nature of its interaction with JNK signaling.

The Role of Tricarboxylic Acid Cycle in *Listeria monocytogenes* Anaerobic

Virulence Regulation

College of Arts and Sciences: Biology | Poster - Graduate Research

STUDENTS Eric Edward Newton, Nathan C Wallace, Ashley N Zani | ADVISORS Yvonne Sun

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Listeria monocytogenes is a Gram-positive, facultative anaerobe and an enteric pathogen responsible for listeriosis in susceptible individuals. *Listeria* is able to proliferate and survive in places such as soil, packaged food products, and the mammalian gut, each display varying oxygen concentrations. As a model intracellular pathogen for probing immune functions and cellular signaling, *Listeria* has been studied mostly under aerobic conditions. It remains unclear how *Listeria* pathogenesis is affected by anoxic conditions. The lack of oxygen places a significant strain on bacterial metabolism, resulting in major adaptations that serve as potential signals for virulence regulation. Therefore, we aim to determine the mechanism by which *Listeria* modulates its virulence in response to anaerobic metabolism. One key anaerobic metabolic pathway in *Listeria* is the production of lactic acid from pyruvate fermentation. To test whether lactate accumulation serves as the inhibitory signal for anaerobic suppression of LLO production, we supplemented *Listeria* cultures with various

concentrations of lactate and assayed for LLO production. The presence of lactate did not suppress *Listeria* virulence under aerobic conditions, suggesting that lactate is not the anaerobic inhibitory signal. In addition to lactic acid production, tricarboxylic acid (TCA) cycle is another central metabolic pathway responsive to oxygen levels. This responsive behavior prompted us to hypothesize TCA cycle activity as a determinant in *Listeria* virulence regulation. To test this hypothesis, we supplemented *Listeria* cultures with TCA cycle intermediates and assayed for the degree of virulence activation. Acetate, citrate, and fumarate exhibited an activating activity on *Listeria* virulence under anaerobic conditions. These results suggest that TCA cycle activity is a strong regulatory signal for *Listeria* virulence during transitions between oxic and anoxic conditions. Better understanding of the underlying mechanisms will enrich our understanding of how metabolism modulates virulence in *Listeria* and other pathogenic facultative anaerobes.

Utilization of Electroantennography (EAG) to Determine the Response of Male *Lucilia sericata* Flies to Female Pheromones

College of Arts and Sciences: Biology | Poster - Honors Thesis

STUDENTS Clare A Kelly | ADVISORS Karolyn M Hansen

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The green bottle fly, *Lucilia sericata*, is an organism of great entomological and ecological significance, as it is one of the first fly species to colonize a decaying carcass. The age and presence of developmental stages of *Lucilia sericata* larvae serve as a valid indication of the post-mortem interval (PMI), or time since death. This species exhibits a stark sexually dimorphic behavior with respect to the odor stimulus that attracts the male and female adult flies to the carcass. While it is widely accepted that females respond to volatile organic compounds (VOC) that are characteristic of decomposition, as these odors indicate a protein source, the attraction stimulus for the males is highly debated. Previous research has found that females are attracted to the carcass for two functions: for a protein/food source and

for laying eggs. The males require very little protein in the diet so the presumed attraction to the carcass is for mating. This sexual dimorphism serves as the foundation of my research. Through the utilization of behavioral studies (choice response) and electroantennography (EAG; physiological response), I have measured and analyzed the response of male *Lucilia sericata* of various ages exposed to a suite of VOCs, including specific decomposition volatiles, as well as the response to female pheromones. This research will add to the body of work on the basic ecology and behavior of *Lucilia sericata* as well as further inform the process of blow fly utilization of decaying carrion with respect to forensic applications.

Removal of the invasive shrub *Lonicera maackii* from riparian forests influences headwater stream biota and ecosystem function

College of Arts and Sciences: Biology | Oral Presentation - Graduate Research

STUDENTS Rachel E Barker | ADVISORS Ryan W McEwan

LOCATION, TIME Kennedy Union 311, 1:00 PM–1:20 PM

Lonicera maackii is an invasive shrub that grows abundantly along riparian corridors, altering riparian plant community structure and function. We investigated linkages between this terrestrial invader and the aquatic biota and ecosystem processes via a riparian zone restoration experiment. All woody invasive flora was removed in August - September 2010 from a 1600 m² riparian buffer. Autumnal, in-stream leaf litter was assessed over 75d, while macroinvertebrate density and algal biomass was measured for three years and a nutrient limitation study was

conducted seasonally. Invasive *L. maackii* removal significantly reduced canopy cover, light availability and nitrogen, and differentially influenced the timing and abundance of leaf litter genera within the stream (all $P < 0.01$). For example, *Platanus* spp. contributed the most organic matter within the removal reach (35-40%) but was mainly absent in the control reach. *Lonicera maackii* leaf litter consistently contributed ~25% of in-stream leaf litter in the removal reach, but was mostly absent in the removal reach. Macroinvertebrate density significantly increased one year

after invasive removal, and was primarily driven by *Simulium* sp. These findings suggest removal of a dominant invasive shrub substantially impacts terrestrial organic matter and nutrient

subsidies into headwater streams, influencing the timing and abundance of leaf litter habitat and food resources for aquatic macroinvertebrates.

Sex differences in the rapid and the sustained behavioral antidepressant-like effects of ketamine in stress-naïve and “depressed” mice

College of Arts and Sciences: Biology | Oral Presentation - Graduate Research

STUDENTS Anthony A Franceschelli, Samantha L Herchick, Jonathon P Sens, Connor F Thelen | ADVISORS Pothitos Pitychoutis

LOCATION, TIME LTC Meeting Space, 1:00 PM–1:20 PM

During the past decade, one of the most striking discoveries in the treatment of major depression was the clinical finding that a single infusion of a sub-anesthetic dose of the N-methyl-D-aspartate (NMDA) receptor antagonist ketamine produces a rapid (i.e. within a few hours) and long-lasting (i.e. up to two weeks) antidepressant-like effect in both treatment-resistant depressed patients and in animal models of depression. Notably, converging clinical and preclinical evidence support that responsiveness to antidepressant drugs is sex-differentiated. Strikingly, research regarding the antidepressant-like effects of ketamine has focused almost exclusively on the male sex. Herein, we report that male and female C57BL/6J stress-naïve group-housed mice are more sensitive to the rapid and the sustained antidepressant-like effects of ketamine, assessed in the forced swim test (FST) at 30 min and at 24 h post-treatment,

respectively. In particular, female mice responded to lower doses of ketamine (i.e. 3 mg/kg at 30 min and 5 mg/kg at 24h post-injection), doses that were not effective in their male counterparts. Most importantly, a single injection of ketamine (10 mg/kg) induced sex-dependent behavioral effects in singly-housed mice subjected to the chronic mild stress (CMS) model of depression. Intriguingly, female mice were more reactive to the earlier effects of ketamine, as assessed in the open field and the FST (at 30 min and 24 h post-treatment, respectively) but the antidepressant potential of the drug proved to be longer-lasting in males, as assessed in the splash test and the FST (days 5 and 7 post-treatment, respectively). Present data reveals that ketamine treatment induces sex-dependent, rapid and sustained behavioral antidepressant-like effects in stress-naïve and “depressed” mice exposed to CMS.

Mapping the Physical Interaction between PriA and PriB Proteins in *Klebsiella Pneumoniae*

College of Arts and Sciences: Chemistry | Poster - Course Project, 201480 CHM 498 01

STUDENTS Victoria R Pryzdia | ADVISORS Matthew E Lopper

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

DNA possessed by microorganisms is very delicate and is frequently damaged by outside factors. DNA damage disrupts the cell's replication machinery, which can potentially limit reproduction. However, microorganisms have evolved unique repair mechanisms to remove the damaged DNA and continue replication. *Klebsiella pneumoniae* bacteria possess two explicit proteins, PriA and PriB, to assist in the restart of DNA replication. PriA and PriB work together to reactivate stalled replication forks at the site of damaged DNA. PriB stimulates PriA's unwinding

activity of double-stranded DNA, which is caused by its ability to bind to single-stranded DNA. The two proteins physically interact at specific contact surfaces. This interaction is thought to contribute to the PriB stimulation of PriA helicase's DNA unwinding activity. The research conducted was used to map the physical interaction between PriA and PriB, and discover exactly how these proteins cooperate with one another to reactivate replication forks.

Circular Dichroism of the Laser-Induced Blue State of Bacteriorhodopsin

College of Arts and Sciences: Chemistry | Poster - Graduate Research

STUDENTS Anusha Rudraraju | ADVISORS Angela Mammana, Mark B Masthay, Daniel Turner

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The purple membrane of the salt-loving bacterium *H. salinarum* consists of a densely packed hexagonal lattice of trimers of the 26 kDa transmembrane protein bacteriorhodopsin (BR). The PM converts to a laser-induced blue membrane (LIBM) upon irradiation with intense green (lifetime = 6 ns, wavelength = 532 nm) laser pulses. This color change originates from a 30 nm bathochromic shift (Masthay, M.B., et. al., J. Am. Chem. Soc. 2002, 124, 3418-3430) of the visible (570 nm absorption maximum) band of BR, which has a bisignate (positive CD wavelength maximum ~ 530nm; negative CD wavelength maximum ~ 580nm) circular dichroism (CD) spectrum. We find that—like

the absorption band—the positive CD band loses intensity and shifts bathochromically, whereas the negative CD band loses intensity but maintains a constant wavelength maximum of 580 nm during the PM-to-LIBM photoconversion. Interestingly, we find that the main absorption band of PM suspended in concentrated CaCl₂(aq) gradually loses intensity, but that (i) there is no bathochromic shift upon 532 nm irradiation, (i.e., the wavelength maximum remains constant at 570 nm, so that the PM changes from deep purple to lavender and eventually becomes colorless), and (ii) both the positive and negative CD bands lose intensity, but neither undergoes a bathochromic shift. Accordingly, we

conclude that only the positive CD band is associated with laser-induced color change. We analyze these new CD results in light of the protein heterogeneity and exciton coupling models of PM

electronic structure, and discuss their mechanistic implications in light of previously proposed models for the structure of LIBM and other blue BR species.

Investigation of protein-protein interactions involving *Deinococcus radiodurans* PriA, DnaB and SSB.

College of Arts and Sciences: Chemistry | Poster - Honors Thesis

STUDENTS Christopher S Morrow | ADVISORS Matthew E Lopper

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Deinococcus Radiodurans is a species of bacteria that has sparked a lot of interest since its discovery due to its incredible resistance to ionizing radiation. When exposed to ionizing radiation the genome of *D. radiodurans* will sustain several hundred double stranded breaks. *D. radiodurans* demonstrates the ability to repair its genome and restart replication after sustaining this, typically lethal, damage. This project examined the mechanism of replication restart in *D. radiodurans* by investigating primosome protein PriA interacting with DnaB and SSB. Many different types

of gel electrophoresis were employed to investigate potential protein complex formations between *D. radiodurans* PriA and DnaB. Through agarose gel electrophoresis an interaction between *D. radiodurans* PriA and DnaB was identified. Results in this work indicate that although *D. radiodurans* PriA does not characteristically and functionally appear normal, it could still behave as we would classically expect in replication restart.

Kinetic Characterization of Photodegradation of Solid and Solution Phase Beta-Carotene in n-Hexane Katelyn Arnold, Sarah Dubay, and Mark B. Masthay Department of Chemistry, University of Dayton

College of Arts and Sciences: Chemistry | Poster - Honors Thesis

STUDENTS Katelyn M. Arnold, Sarah E Dubay | ADVISORS Mark B Masthay

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

We have characterized the photodegradation of beta-carotene (BC; C₄₀H₅₆; see Fig. 1), in oxygenated and deoxygenated n-hexane solvent and in the solid phase using broadband (BB; $\lambda \geq 200$ nm) and 313 nm filtered output of a 100 watt mercury arc lamp. Oxygen (O₂) concentrations of 0, 10, 21, and 100% were used in the solution phase studies. In solution, the photodegradation was zeroth order in [BC] in the absence of O₂, and of order $n = 0.5-1.0$ in the presence of O₂. BC(s) did not degrade upon

exposure to BB light under air atmospheres, as (1) the mass and appearance of the samples, (2) TLC chromatograms, and (3) the absorption spectra were all identical both pre- and post-irradiation. Our results indicate that—though BC(s) is thermally labile—it is photochemically inert upon exposure to both BB and 313 nm light. These results indicate that the n-hexane solvent plays a crucial role in the photodegradation of BC.

Molecular Cloning, Purification, and Crystallization of the Nucleoid Associated Protein DR0199 from *Deinococcus radiodurans*

College of Arts and Sciences: Chemistry | Poster - Capstone Project

STUDENTS Mario W Alemagno | ADVISORS Matthew E Lopper

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Nucleoid-associated proteins play several roles in bacteria, including DNA compaction, protection in certain hazardous environments, and gene regulation. The *Deinococcus radiodurans* protein DR0199, an EbfC orthologue, is a non-essential histone-like protein that shields *D. radiodurans* from highly reactive hydroxyl radicals and is thought to play a role in gene regulation.

We have sought to better understand the function of this protein by determining its structure at high resolution using X-ray diffraction. We have crystallized DR0199 protein and have refined its crystallization conditions to produce large, single crystals that should be suitable for upcoming X-ray diffraction studies.

Solvent-free reactions leading to new organic chromophores: spectroscopic, DNA binding, and DNA photocleavage studies

College of Arts and Sciences: Chemistry | Poster - Honors Thesis

STUDENTS Nathaniel M Lundy, Jamie J Allen | ADVISORS Shawn M Swavey

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Photodynamic therapy (PDT) is a common treatment for such conditions as skin cancer, psoriasis, and acne. It works through

the excitation of organic light absorbing molecules, called photosensitizers, that are activated by light and transfer energy

causing the formation of reactive oxygen species (ROS). These ROS then react with surrounding malignant cellular tissue, causing cellular lysis. The optimal window of absorption for PDT photosensitizers is between 600-850nm. The issue with these chromophoric molecules is that they usually have very complex syntheses that require many steps and large amounts of potent chemical solvents. This study examines the synthesis of 4 chromophores, IsoQ4F, IsoQVan, 6Q4F, and 6QVan, that

were formed through a simple one step reaction of aldehyde and pyrrole using only negligible amounts of solvent and gentle heat. The spectrochemical properties of these products were analyzed through UV/Vis spectroscopy as well as fluorescence/luminescence studies and demonstrate absorption within the PDT window. Furthermore, DNA binding and photocleavage studies demonstrate solid activity against DNA, suggesting the ability of these compounds to function as photosensitizers.

Synthesis and structure-property relationship of novel azobenzene-containing diamines and polyimides

College of Arts and Sciences: Chemistry | Poster - Independent Research

STUDENTS Matthew L Baczkowski | ADVISORS Vladimir A Benin

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

As part of our continuing effort in developing high T_g, photoreponsive amorphous polymers, five new bis(azobenzene)-containing diamines (azoDM) were synthesized via multiple-step routes to vary degrees of flexibility and bulkiness of connecting groups (Ar). Fig.1), such as ether, thiol and cardo-9,9-fluorenyl, between the two azobenzenes. They were polymerized with five different commercial dianhydrides: pyromellitic dianhydride (PMDA), 3,3',4,4'-benzophenone tetracarboxylic dianhydride (BTDA), oxy-4,4'-di(phthalic anhydride) (ODPA), 1,1,1,3,3,3-hexafluoro-2,2-bis(4-phthalic anhydride)propane (6FDA) and

2,2-bis[4-(3,4-dicarboxyphenoxy) phenyl]propanedianhydride (BPADA) to afford five series of high T_g, linear polyimides containing two azobenzenes per repeat unit. All the polymers displayed high thermo-oxidative and thermal stabilities (>400 °C in both air and nitrogen) and high T_gs (>200 °C). Their morphology and mechanical properties were measured by WAXD and DMA, respectively. The photo-directed bending of cantilevers composed of these materials will be examined upon exposure to linearly polarized 445nm light, and the effect of the azoDM linkages on their photomechanical responses will be investigated.

Synthesis of Phosphorus-Based Hemiacetals for Potential Flame Retardants

College of Arts and Sciences: Chemistry | Poster - Honors Thesis

STUDENTS Sara R Alakkad | ADVISORS Vladimir A Benin

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Flame retardants which contain a phosphorus moiety attached to a carbohydrate backbone were developed. To synthesize the flame retardants, carbohydrates and polyols were used as the starting materials which occur in nature and are environmentally and toxicologically safe materials. The two target structures include one with a triose substructure and one with a pentose substructure. For both situations, however, multiple steps were

taken for the synthesis of the flame retardant, as the carbohydrate needed to be generated into its protected form. The protected carbohydrate then interacted with a dialkyl phosphite, resulting in a phosphorous hemiacetal. This hemiacetal was then deprotected to form the final product, which is the target flame retardant. Ultimately, the goal is to produce a flame retardant which is both safe and effective.

Synthesis of Potential Phosphorus-Nitrogen Containing Flame Retardants

College of Arts and Sciences: Chemistry | Poster - Honors Thesis

STUDENTS Colin M Kloock | ADVISORS Vladimir A Benin

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The field of synthetic flame retardants that can be incorporated into the production of materials is a growing field because the need for safe, but highly effective flame retardants is also growing. The primary goal of flame retardants that are incorporated into either pre-production or added post-production, are to inhibit or delay the combustion of the material. Delayed combustion is important because it essentially is an added safety measure to the product -- more time to combust means more time to escape if the chance of combustion were plausible. The goal of this proj-

ect is to create Phosphorus-Nitrogen containing compounds that can be incorporated into polymeric mixtures to maximize flame retardancy, but minimize the amount needed. Organic synthesis of these Phosphorus-Nitrogen containing compounds is done from reacting nitrogen containing compounds with phosphoryl chlorides to generate the desired P-N compounds which are then oxidized. The expectations are that these oxidized products can co-polymerize at high temperatures and greatly increase the temperature needed to combust.

The effects of phosphorous-based flame retardants on polyurethane flammability performance

College of Arts and Sciences: Chemistry | Poster - Honors Thesis

STUDENTS Matthew J Witzeman | ADVISORS Vladimir A Benin

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The purpose of the research was to conduct experiments for and to test the effectiveness of polyurethane containing non-halogenated, specifically phosphorous-based, flame retardants in developing safer products for the American home that are subject to house fires. Nine different flame retardants were implemented in the preparation of nine prep samples of chemically incorporated flame retardants in polyurethane and of nine blend samples of physically bound flame retardants in polyurethane. NMR spectra, hydrogen and phosphorous, were acquired to characterize the samples and to confirm the presence of flame retardant in the samples. Pyrolysis combustion flow calorimetry was used to test the heat release content of the samples and the char formation of the resultant burned samples while providing heat release rate

plots to characterize the flammability behaviors of the samples compared to the polyurethane standard. Results showed that while nearly all of the products exhibited lower heat release and higher char formation than the polyurethane standard, the improvements led to only slightly greater flammability performance of polyurethane and there was little deviation between the effectiveness of different flame retardants. Though improvements were slight, it appeared that flame retardant structure had an impact on flammability behavior and flame retardants containing hydroxyl groups, cyclic acetal groups, and bicyclic structures overall performed better than the other classes of flame retardants studied, warranting further consideration.

The Use of a Molecular Probe to Investigate the Details of PriA Helicase Function

College of Arts and Sciences: Chemistry | Poster - Honors Thesis

STUDENTS Luke F Bugada | ADVISORS Matthew E Lopper

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

During DNA replication in both eukaryotic and prokaryotic cells, the replication machinery (replisome) invariably encounters structural DNA damage, an event that can result in disbanding of the replisome and the creation of a collapsed replication fork. In order for DNA replication to continue, the replisome must be reloaded onto the DNA strand, a process that often begins with unwinding of double-stranded (duplex) DNA by the primosome protein PriA. Little is known about the mechanism through which PriA unwinds DNA and begins replisome recruitment. We seek to shed new light on this mechanism through the use of a PriA inhibitor, compound 0207. In our study, we attempt to determine the method of inhibition, the three-dimensional structure of the PriA•0207 complex, and the 0207 binding site through steady-state kinetics experiments, x-ray crystallography experiments, and mutagenesis assays. Data from the steady-state kinetics titrations show that compound 0207 acts through a mixed mode

of inhibition and binds to the PriA•ATP, PriA•DNA, and PriA•ATP•DNA complexes with equal affinities. PriA crystals are being grown in the presence of compound 0207 in an attempt to solve the three-dimensional structure of the PriA•0207 complex using x-ray crystallography. Finally, mutagenesis assays are being used to search for the 0207 binding site on the surface of PriA. A docking simulation based on steric and electrostatic interactions was used to identify possible 0207 binding sites. Single alanine substitutions of PriA were generated, each with an alteration designed to inhibit the binding of compound 0207. The combined results of these experiments will provide a more complete understanding of the interactions between PriA and compound 0207, which will contribute to the overall goal of understanding the detailed mechanisms through which PriA catalyzes duplex DNA unwinding to initiate replication restart.

“The American Dream” - The Discrepancy between the Cameroonian’s Perception of America and the Reality

College of Arts and Sciences: Communication | Poster - Independent Research

STUDENTS Gianna F Gizzi | ADVISORS Heather R Parsons

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Through my month long journey in Cameroon, Africa this past summer, I observed the behaviors and attitudes of the people I met and interacted with. I was lucky enough to be awarded this opportunity through University of Dayton’s Campus Ministry and the Center of Social Concern. While in Cameroon, I specifically analyzed the people’s perception of Americans and our culture, and how this varied from the experience of actually living in the US. I did this by recording my observations in a journal that I wrote in every day that I was in Cameroon. This project consists of all qualitative and descriptive data gathering. I first came

up with the idea to study the Cameroon perception of America versus the reality a few days before I left. I thought it would be interesting to see what people from a developing country half way across the world thought of the US. Our trip included staying two weeks with a host family, and two weeks of traveling the whole country as well. Therefore, many different opinions and stories were shared with me, and recorded in my journal, from people of varying walks of life. The results were surprising, as will be shared in more detail during my poster presentation.

An Analysis of Corporate Social Responsibility Websites: Seafood Production

and Environmental Degradation

College of Arts and Sciences: Communication | Poster - Honors Thesis

STUDENTS Kelly Miller | ADVISORS Jee-Hee Han

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Corporations are under increasing pressure from internal and external stakeholders to consider the social and environmental cost of their operations. To alleviate this concern, corporations have designed professional ethical codes by which to conduct business. This expanding practice is a facet of public relations known as “Corporate Social Responsibility,” or CSR. This project

examines the seafood production industry. Seafood production poses unique environmental concerns, which can be addressed by producers in a variety of ways. A content analysis of the top seafood production websites investigates which environmental themes are being addressed in CSR policies and information pages, and how corporations are measuring their impact.

Human Resources and Technological Innovation: Communication Implications of Disruptor Organizations

College of Arts and Sciences: Communication | Oral Presentation - Course Project, CMM 421H H1

STUDENTS Alexis Catherine Burchfield, Anna C Devine, Jeffrey T Purpura, Nicole H Schoenberger, Sandra Shephard, Mo Zhang

ADVISORS Usha Hariharan

LOCATION, TIME Marianist Hall Learning Space 218, 3:00 PM–4:00 PM

A seminal component of the organizational communication course is the chronological analysis of field scholarship in concurrence with the growth and development of real world organizations. Such analysis posits that organizational evolution has moved from machine metaphor origins to human resource prioritization with concurrent implications for communication networks and processes. The next dimension in this continuum is the age of the disruptor organization that has profound implications for labor force participation and communication theory and practice. Disruptor elements are necessarily innovative game changers and often originate in technology, industry and business, profoundly influencing ways we live, work, learn, communicate, empathize, manufacture, buy, sell, virtually every life aspect. Students examined their individual choices of disruptor organizations from a sample array of current disruptor elements. Bitcoin. 3-D Printing. IoT (Internet of Things). Emergent Social Media (everything from Snapchat to Kickstarter). Hyper Loop. Drone Delivery Systems. Streaming Media Systems. GoPro.

Cloud Computing. 23andMe (genomic research). Uber. Personal Robots. GMO. Shale/alternative energy sources. More. The following six presenters, from a class of thirty five, highlight their project findings. Jeff Purpura analyzes the role of JetSmarter, the Uber of the skies, as a marketplace disruptor and its impact on traditional airline industry models. Sandra Shephard explores Local Motors Inc. which co-creates consumer’s choice of personalized vehicle, from design to delivery, through sustainable 3-D printing innovations. Mo Zhang considers Alibaba’s spinoff Taobao, the Amazon of China, and its transformative influences on Chinese industry, economy and society. Alex Burchfield profiles Ziosk which is redesigning the casual dining experience with tabletop ordering tablets, thereby transforming the multibillion dollar restaurant sector. Anna Devine traces the meteoric rise of Groupon and its industry leadership in innovative online marketing and advertising. Nikki Schoenberger examines the revolutionary success of streaming media giant Netflix which continues to consolidate market leadership in media form and content.

Causes and Effects of New Orleans Levee Failures During Hurricane Katrina

College of Arts and Sciences: English | Poster - Course Project, GEO 208 01

STUDENTS Trevor R Taylor | ADVISORS Stephen W Wilhoit

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The levee system of New Orleans was constructed in 1965 by the Corps of Engineers. Its main purpose was to prevent flooding of the city, which is on average about one to two meters below sea level. In 2005 Hurricane Katrina caused the levees to break and the city was flooded. The designs of these levees are to blame for the flooding of the city. Some of the levees broke due to pressure that was far below the designed threshold. Other levees collapsed because of erosion due to water flow over the levees, which is an extreme flaw in the design. The corps of engineers can be blamed for this. In one day there were nearly thirty levees that were reported to have broken and over fifty more were reported to have broken in the following days. The collapse of the levees led to the ultimate destruction of the city of New Orleans. Some of the levees were built on unstable ground, which could not sustain pressure caused by a strong hurricane

like Katrina. The engineers who built the levees overestimated the strength of the peat on which the levees were built. This resulted in the levees and flood walls not being able to sustain the pressure from hurricane Katrina even if their designs were suitable for such conditions, which they were not. The weak soil also had high building up elevated water pressures, leaving the levees and flood walls vulnerable to breaking under the stress of a large flood. The destruction caused by Hurricane Katrina could have been avoided if the engineers who built the levees accurately designed the structures and did not cut corners. Thousands of people were killed and displaced in New Orleans and the city was plunged into Third World status due to careless mistakes.

Miracle Makers: A Social Justice Learning and Living Community Service Project

College of Arts and Sciences: English | Poster - Independent Research

STUDENTS Kathleen Rose Garcia, Jenna E Gerstle, Elizabeth Eiga Grandi, Laura C Komoroski, Emma C Pickerill, Samantha L Santoro | ADVISORS Lori G Phillips-Young, Margaret M Strain

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

As members of the Social Justice Service Club our mission is to support the Building Communities through Social Justice Learning and Living Cohort (BCSJLLC) in order to advance the mission of literacy throughout the Greater Miami Valley Region. We are also charged with fulfilling a voluntary service learning commitment for our organization. This year we worked with the “Miracle Makers.” This is an after-school program at the Ruskin Elementary School, one of the participants in the UD-Community School

Partnership Program. Our service consisted of mentoring students, assisting them with their homework, and engaging them in group and one-on-one recreational activities. As a service club, we were able to complete 75 hours of service learning. Our presentation will focus on our service work and how it demonstrates and reinforces our commitment to the Marianist ideals of lead, learn, and serve.

Social Justice

College of Arts and Sciences: English | Poster - Independent Research

STUDENTS James A Brewer, Jeremy M Bucher, Conor C Feldmann, Brian J Morman, Joseph Gennaro Palumbo, Dominic M Valentino | ADVISORS Lori G Phillips-Young

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The Social Justice Club focuses on addressing topics such as building community, promoting the dignity and rights of all people, and influencing others by exhibiting Marianist traits of

openness, hospitality, graciousness, and faith. Members strive to be good stewards of the gifts they are given, and to contribute well to the common good of the extended human family.

The Miami Valley Foodbank

College of Arts and Sciences: English | Poster - Independent Research

STUDENTS Travis J Bills, David M Bowen, Ryan T Bricker, Nicholas C Dirienzo, Christian J Melson

ADVISORS Lori G Phillips-Young

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

As a part of the leadership team of the Social Justice Service Club, we volunteered at the Miami Valley Food Bank that is designed to relieve hunger through the acquisition and distribution of food to the hungry throughout the Miami Valley. Food and

related supplies are distributed to a network of pantries, community kitchens, shelters and other charitable programs, all of which support the health and development of food insecure individuals and their families.

Mostly True: An Exploration of My Family History

College of Arts and Sciences: English | Poster - Honors Thesis

STUDENTS Jessica Lindsey Urban | ADVISORS Albino Carrillo

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Family histories are tricky things, especially when the people in the stories don't necessarily want to talk about their pasts. My family immigrated to the US in the early 1800's, many to escape the anti-Semitism that was rampant in their countries. Through a series of personal interviews, family stories passed down from generation to generation, and my own imagination to fill in the

gaps, I have compiled a series of short stories about my family and their lives in America from their arrival here in the 1800's to the present day. Although each family has a different story to tell, the stories of love, loss, and faith unite all of us, no matter our backgrounds.

Restorative Justice: The Alternative Outlet for Criminal Behavior

College of Arts and Sciences: English | Poster - Independent Research

STUDENTS Mary M Cook, Tara E Fritsch, Michele C Palmer, Julianne T Radish | ADVISORS Margaret M Strain

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

As members of the University of Dayton Social Justice Club, our group carried out a semester long project focused on Restorative Justice in conjunction with the Montgomery County Mentoring Collaborative. We were assigned to Belmont School and each

given a young girl to work with. Each young girl we were paired with had a history with incriminating behavior. Our responsibility included talking with our partner and helping them claim responsibility for their actions. Additionally, we talked through previous

decisions and their consequences to encourage the girls to start thinking about the impact of their actions.

The Dystopian Genre: Fitting into the Psychological Tracks Laid by Hope and Fear

College of Arts and Sciences: English | Poster - Honors Thesis

STUDENTS Taylor V Kingston | ADVISORS John P McCombe

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

In a fusion of behavioral psychology, evolutionary psychology, and literary analysis, this thesis considers the possibility that human nature dictates the types of rhetoric utilized in any given genre. Operant conditioning emerged as the governing device in a case study of the dystopian genre since readers must be made to associate fear or hope with particular government structures. Implicitly then, literature is molded into its genres by the human desires addressed by that genre's reigning themes. Interestingly,

this "mold" seems to have created a strain of novels within the dystopian genre that are so similar there have been accusations of plagiarism. Nineteen Eighty-Four, Brave New World and Anthem are the novels considered to be uncannily similar to the Russian predecessor, We. Looking at how plagiarism is a shallow explanation for the similarities between these novels leads to a compelling conversation about the relationship between human universality and genre structures.

Lessons in Worldbuilding

College of Arts and Sciences: English | Oral Presentation - Honors Thesis

STUDENTS Ryan M Krisby | ADVISORS Joseph R Pici

LOCATION, TIME Marianist Hall Learning Space 218, 1:20 PM–1:40 PM

In the hero's journey, also known as the monomyth, the hero travels full circle, leaving his known world for the unknown and eventually returning home a changed person. This circular journey is both a physical and internal process of transformation and is often used in the fantasy genre. Joining the hero's journey

as a cornerstone of fantasy is worldbuilding. Worldbuilding is the art of constructing a fictional world that is both believable and fantastical. An author's fictional world must involve aspects of history, geography, ecology, and culture.

Deadly Conversions: Missionization and Syncretism in the works of Louise Erdrich

College of Arts and Sciences: English | Oral Presentation - Capstone Project

STUDENTS Eileen M Comerford | ADVISORS Sheila H Hughes

LOCATION, TIME Kennedy Union 211, 3:00 PM–3:20 PM

This presentation will focus on the missionization and conversion of American Indians, from traditional spirituality to Roman Catholicism, as portrayed through the fiction of Louise Erdrich. Erdrich has written numerous novels and collections of poetry focusing on Native Americans, is a member of the Chippewa or Ojibwe tribal nation herself, and is the 2014 winner of the Dayton Literary Peace Prize. Her novels are in many ways connected

through shared themes, characters, and settings. In these novels, Erdrich fluently illustrates American Indian issues, including the dynamics between western Christianity and traditional Native American spiritual practices, and westerners' historical efforts aiming for Native Americans to reject and convert. This presentation will also explore the idea of syncretism, which occurs when two religions are combined.

Revising the Lyrical "I" Postcolonial Poetry and Subject Formation

College of Arts and Sciences: English | Oral Presentation - Honors Thesis

STUDENTS Joseph B Ferber | ADVISORS Thomas L Morgan

LOCATION, TIME Kennedy Union 211, 3:20 PM–3:40 PM

Traditional Western poetic conventions of the lyric "I" emphasize the importance of the individual by focusing only on the perspective of the narrative voice. Applying post-colonial theory to the poetry of several Pan-American-Indian authors demonstrates how Western prioritization of the individual is complicit with forcing the indigenous to follow Western ways. In this poetry, authors challenge traditional usages of the lyrical "I" by juxtaposing them alongside collective "we" perspectives in order to critique the Individual's inability to breach the limits of its own belief system. Identity created by the relational structure between pronouns helps create a revised poetic perspective able to identify ways

that indigenous peoples have challenged Western belief patterns. Specifically, interactions between individual and collective identities help reveal the Western tendency to associate sexual promiscuity with skin color. Close attention to the relationship between the lyrical perspectives of "I" and "we" brings to light a failure of the traditional Western "I" to empathize with difference, as seen explicitly in silent perpetuation of Western views uncritically valuing sexual exoticism. By looking at Sherman Alexie's manipulation of the Petrarchan sonnet form in his most recent collection, "What I've Stolen, What I've Earned," simplistic understanding of sovereignty as it relates to Indian identity

is deconstructed to reflect the more accurate complexity of the relationship between contemporary Indian culture and American capitalism. In this collection, Alexie infuses the colonial sonnet form with Indian narrative perspectives to explore the ways that economic sovereignty stands in for cultural sovereignty,

ultimately fostering complacency with institutional exploitation. Demonstrating cultural interrelationship, both formally and in subject matter, explores how institutionalized understandings of Indian Identity perpetuate the suppression of Native culture.

Sherlock Holmes and James Moriarty: Victorian Genius in a Millennial World

College of Arts and Sciences: English | Oral Presentation - Honors Thesis

STUDENTS Allison Kathleen Carey | ADVISORS John P McCombe

LOCATION, TIME Kennedy Union 211, 3:40 PM–4:00 PM

In 1887, Sir Arthur Conan Doyle published his first novel regarding the detective Sherlock Holmes. He would go on to publish another three novels and over 50 short stories detailing the great detective's endeavors. Today, 128 years later, Conan Doyle's Sherlock Holmes is as popular, as relevant, and as alive as ever. Adaptations continue to be made and achieve success, including the BBC's mini-series, *Sherlock*. This modern adaptation and its interpretation of Conan Doyle's characters, novels, stories,

plots, and themes allow for a unique combination of Victorian and Modern England. It highlights the similarities and differences of a Victorian Holmes and a 21st Century Sherlock while also commenting on both eras overall. In particular, an increased focus on the relationship between Holmes and his arch-nemesis, James Moriarty, generates new interest in these characters' significance to the series' legacy.

River Stewards Going Nuts: Cultivating seeds of leadership through a local, sustainable reforestation project with Adventure Central

College of Arts and Sciences: Fitz Center for Leadership in Community | Poster - Capstone Project

STUDENTS Rachel A Bachmann, Andrew D Bolubasz, Jeanmarie P Burdi, Megan Christine Guy, Kyle T Hill, Madison Nichole Irwin, Hailey Kwon, Saehan Lenzen, Michele M McDonald, Katelyn Rendulic, Abigail M Spohn, Nickolas John Vallo, Sara Caskey Vaughan, Kiera J. Wheeler | ADVISORS Leslie W King

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

As part of the University of Dayton River Steward program each cohort completes a senior capstone project. This year, the 2015 cohort has been collaborating with Adventure Central, a youth education center in Dayton, Ohio. Adventure Central is a result of a partnership between Five Rivers MetroParks, Ohio State University Extension, and 4-H Youth Development. Goals of Adventure Central include empowering youth, creating a space for positive youth development, and using experiential learning to create positive affiliations with nature. Their mission and values align well with those of the Rivers Institute, which aims to promote and protect the Great Miami Watershed through building community around Dayton's rivers. This provided an opportunity for a mutually beneficial partnership between the 2015 cohort and Adventure Central. The overall goal of the collaboration was to work with the teens, or the "purple group", at Adventure Central to carry out a sustainable reforestation project in which local nuts

and seeds were collected, germinated, and grown, with plans of planting them in Wesleyan MetroPark along the Wolf Creek. To support this overall goal, the 2015 cohort has spent the last two semesters building a sustained relationship with the teens at Adventure Central. This relationship has been fostered through weekly visits to Adventure Central, River Steward-hosted, themed leadership development events, and overall engagement with the teens through the reforestation project. During the course of this project, the 2015 cohort has documented the development of the project, as well as the partnership, between the two organizations. This project, only made possible through the partnership of the 2015 River Steward cohort and Adventure Central, shows the power of youth and young adult involvement to successfully complete conservation projects, build community, and promote leadership.

SOCHE National Issues Forum - The Changing World of Work: What Should We Ask of Higher Education?

College of Arts and Sciences: Fitz Center for Leadership in Community | Panel Discussion - Independent Research

ADVISORS Kelly E Bohrer

LOCATION, TIME Roesch Library Knowledge Hub, 1:00 PM–3:00 PM

In partnership with the National Issues Forum Institute (NIFI), SOCHE has launched a series of student-led National Issue Forums (NIF). NIFI is a nonpartisan, nationwide network of locally hosted public forums for the consideration of public policy issues. It is rooted in the simple notion that people need to come together to reason and talk — to deliberate about common prob-

lems. SOCHE's NIF Student Leaders are hosting a forum during the University of Dayton Stander Symposium to bring together students, staff, faculty, and community members to share ideas, exchange views, and engage in deliberate dialogue on the topic of, "The Changing World of Work: What Should We Ask of Higher Education?" During our time together, we will consider three

approaches, each with benefits as well as drawbacks: Approach One: Prepare Students to for the Job Market Approach Two: Educate for Leadership and Change Approach Three: Build Strong Communities We hope you will joins us for this thought provoking

forum, 1:00-3:00 p.m., April 15, 2015 in the University of Dayton Roesch Library. Attendance is free and open to the public. For more information and to RSVP, visit: <http://conta.cc/1NchFKE>

Dayton Civic Scholars 2015 Cohort Capstone Presentation: Fridays at Fairview

College of Arts and Sciences: Fitz Center for Leadership in Community | Oral Presentation - Capstone Project

STUDENTS Molly M Brasure, Chelsea M Buckman, Jessalyn S Crossman, Francis T Flannelly, Emilie A Fose, Michael John Franzese, Sara M Giuliani, Sarah Marie Liming, Ashley Ann F Marshall, Lauren Elizabeth Mooney, Danielle N Pohlman, Jack L Raisch | ADVISORS Donald A Vermillion

LOCATION, TIME Marianist Hall Learning Space 218, 2:00 PM–3:00 PM

For our capstone project for the Dayton Civic Scholars program, we created an after-school literacy program at Fairview PreK-8 for African refugee children. We named the program “Fridays at Fairview.” The children in our program ranged from ages 5-13 presenting numerous struggles to promote engagement in learning. Through a process of trial and error we were able to structure a program that was both fun and academically focused. However, our program became more mentorship based than an academic over time. To measure our impact, we kept materials

the children completed throughout the course of the year and a half to chart improvements in literacy skills. We also have personal accounts of how our relationships with the children evolved and how the children themselves grew over the last year and a half. We will also comment on how we approached the goal of making this program sustainable. Overall, we found the process of creating, shaping, and maintaining this program to have many implications for our future careers and helped us to develop greater intercultural sensitivity.

Case Study of the Glen Canyon Dam

College of Arts and Sciences: Geology | Poster - Course Project, GEO 208 01

STUDENTS David Z Lemkau | ADVISORS Allen J McGrew

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Upon its completion in 1966, the Glen Canyon Dam became the second tallest dam in the United States just behind the Hoover Dam. The sequential filling of its reservoir, Lake Powell, seventeen years later and the damming of the Colorado River had many effects on the surrounding geological area of this historical reserve. The preliminary plans for the dam were widely criticized by various environmental groups, such as the Sierra Club, which made this one of the first focal points of modern environmentalism in the U.S. The change in flow to the Colorado River downstream has greatly impacted sediment transport leading to erosion of sandbars that are a critical component of riparian zones. It has also greatly affected the wildlife of the stream environments, especially the rainbow trout population and other

key species. Although floods are scheduled at regular intervals to ensure movement of sediment downstream, further management is required in order to make observations and create solutions for the ongoing effects that the dam has had on the river. The dam has provided agricultural opportunities and great amounts of energy which has given new life to the area. Lake Powell has become a unique destination for tourism and residence. Consequently, the lake has lost many of the normal properties that a body of water should possess and becomes further polluted with wastes and unwanted disturbance. Further balance needs to be found between the economic benefit of the dam itself and the impact that occurs on the once naturally occurring river system that existed.

Chitinozoan Biodiversity In The Ordovician Of Gondwana: An Interval-Free Approach Using The Quantitative Stratigraphic Correlation Program CONOP9

College of Arts and Sciences: Geology | Poster - Honors Thesis

STUDENTS Rachel K Sales | ADVISORS Daniel Goldman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The purpose of this study is to examine the biodiversity patterns of a group of fossil organisms called chitinozoans. Chitinozoans are organic-walled, planktonic microfossils that first appear in the Early Ordovician Period (488 million years ago) and diversify rapidly through the Paleozoic Era. The Ordovician Period was a time of great global climate change, and by studying this group of fossil plankton, we hope to better understand how modern plankton, which are the base of the marine food chain, might respond to climate change. We used a method called constrained optimization (CONOP9) to construct a composite

range chart of 152 chitinozoan species from 65 Ordovician drill cores and outcrops from the paleo-continent Gondwana. Our results show that chitinozoan biodiversity increases throughout the Early and Middle Ordovician, peaks in the middle part of the Late Ordovician and declines thereafter. These results differ from biodiversity estimates derived from more traditional species counting methods.

Dinosaurs, “Sea Serpents”, “Ice Age” Mastodons and “Giant” Sloths – the role of scale models and 3-D reconstructions of vertebrate fossils in science and education. A study in Geoconservation focusing on the collections of the Dayton Society of Natural Hi

College of Arts and Sciences: Geology | Poster - Course Project, GEO 495 01

STUDENTS Gardiner D Dennis, Kara Ann Lamantia, Bradley M Puet, Michael A J Sekerak, Jordan Taylor Watson

ADVISORS Michael R Sandy

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Large fossil vertebrate animals have captured the attention of the public since their discovery and interpretation as “giant” extinct animals. These discoveries have importance not only in contributing to the scientific interpretation of the earth’s history and past environments, but also are significant educational resources. The aim of this project is to investigate the relationship between paleontological specimens, their scientific significance, interpretation (such as scale models or life-size reconstructions used for display in public spaces), and educational contribution. Here we have made a preliminary survey of vertebrate paleontological materials housed in the collections of the Boonshoft Museum of Discovery, Dayton, Ohio. This has been under the auspices of “GEO 495 – Geology Seminar” – part of a pilot study in Geoconservation of the Dayton region. One definition for Geoconservation is the “protection of significant geological and landscape features because of their scientific, educational, research,

aesthetic and inspirational value to humans” (Legge & King 1992). Dinosaurs are not found as fossils in Ohio’s bedrock but some dinosaur bones can be found in the Boonshoft Museum’s collection due to donations. A scale model of life-size reconstructions of Jurassic marine reptiles from the world’s first “dinosaur theme park” (London, 1850s) is present in the collections. There are significant holdings of Pleistocene (“Ice Age”) vertebrates in the collections, in particular from the Carter Bog site in Darke County (discovered in the 1960s) to the North-West of Dayton. This site yielded an array of fossil species including a skeleton of the largest known specimen of the ground sloth *Megalonyx jeffersoni*, and a rare baby mastodon. Fiberglass reproductions (castings) of the skeleton of this ground sloth in the Dayton Museum’s collections are used for reconstructions of this animal in major museums in the United States.

Drainage History of Paleolake Clover and the neotectonic evolution of the Clover Valley Fault, Elko County, Nevada

College of Arts and Sciences: Geology | Poster - Independent Research

STUDENTS William D Vanderslice | ADVISORS Allen J McGrew

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

On February 21, 2008 a Mw 6.0 earthquake sourced at 6.7 km depth 18 km northeast of the town of Wells, Nevada destroyed much of the historic downtown and raised questions about the previously unrecognized fault that caused it. Subsequent analysis suggests that this fault may link southward to a previously mapped normal fault known as the Clover Hill fault, which, accordingly, may be younger and more active than previously thought. The down-dropped fault block east of the Clover Hill Fault forms a basin filled with alluvial fan and lacustrine sediment known as Clover Valley. Episodically during the Pleistocene this basin hosted Paleolake Clover, a pluvial lake that may have over-topped a drainage divide during a pre-Late Pleistocene high stand and spilled northward into the Humboldt River drainage near Wells. Support for this hypothesis is provided by the discovery at the north end of Clover Hill of flat-lying alluvial boulder

conglomerate. This conglomerate contains large clasts of white orthoquartzite probably sourced from the next mountain range to the east and vesicular basalt that may originate from a small volcanic hill in the center of Clover Valley known as “the Mound.” Importantly, if the boulder conglomerate is sourced from the Mound, then it must subsequently have been uplifted over 200 meters by Pleistocene motion on the Clover Hill Fault. Geochemical and geochronological comparison of the basalt boulders with the proposed source rock at the Mound will test this hypothesis. Here we present a petrological comparison of the basalt from the Mound with that from the boulder conglomerate. In addition, we present an analysis of sand from the Mound consistent with the hypothesis that the Mound may once have formed an island during the pre-Late Pleistocene highstand of Paleolake Clover.

Exploring ancient worlds – invertebrate fossils from the collections of the Dayton Society of Natural History as scientific and educational resources; a pilot study in Geoconservation.

College of Arts and Sciences: Geology | Poster - Course Project, GEO 495 01

STUDENTS Jonathon Michael Deeter, Amy M Parish, Steven M Yoss | ADVISORS Michael R Sandy

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

We present a preliminary survey of a small part of the invertebrate paleontological collections housed at the Boonshoft

Museum of Discovery, operated by the Dayton Society of Natural History, as part of “GEO 495 – Geology Seminar”. Our focus is

mostly on marine invertebrate fossils from the Dayton area, from rocks of the Ordovician and Silurian periods (Paleozoic Era), but we also include some important Cambrian fossils from Canada. The fossils we have investigated from Ohio include trilobites, which can be quite abundant and are much sought after by local fossil collectors. Ohio has a “State Fossil” which is a trilobite species found in the Dayton area. Fossils may be found preserved in rocks in their living position (of 420 million years ago!) – this includes some brachiopods that can be commonly found in clusters in rocks in the Dayton region. The Boonshoft Museum also houses a collection of “world famous” Cambrian-age Burgess Shale fossils, from Yoho National Park, British Columbia, Canada. These fossils have been recognized as important

windows into the diversity of life 500+ million years ago. A significant aspect of their preservation is that the outline and detail of soft body-tissue can be seen. These fossils are considered so important in the history of life that the site from which these fossils were collected is now designated a United Nations World Heritage Site. This study of the geological resources housed in the Boonshoft Museum of Discovery is part of a pilot study in the Geoconservation of the Dayton region. One definition for Geoconservation is the “protection of significant geological and landscape features because of their scientific, educational, research, aesthetic and inspirational value to humans” (Legge & King 1992).

Krakatoa: A Volcanic History

College of Arts and Sciences: Geology | Poster - Course Project, GEO 208 01

STUDENTS John G Welch | ADVISORS Allen J McGrew

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Krakatoa Case Study Abstract The island of Krakatoa shook the world in 1883 when its volcanos erupted. The island of Krakatoa had been made up of three volcanos: Rakata, Danan, and Perboewatan, but after the 1883 eruption only half of Rakata remained. The eruption caused a tsunami that took the lives of over 36,000 people. The eruption was so powerful that it was heard over 4,000 kilometers away. The eruption sent enough ash into the air to lower global temperatures. In 1927, volcanic activity once again occurred at the remnants of Krakatoa. The

new volcano to emerge is called Anak-Krakatau, or “Child of Krakatoa.” Today Anak-Krakatau is an active volcano and the once present crater lake on Anak-Krakatau has been replaced by a pool lava. There is evidence that there is magma stored below Anak-Krakatau. Anak-Krakatua is an active volcano and is erupting frequently; but perhaps the most danger that Anak-Krakatua presents is the possibility of a tsunami. This is because the Southwest flank of the island is unstable and there is fear that it may collapse into the ocean producing a tsunami.

The 2004 Indian Ocean Earthquake and Tsunami

College of Arts and Sciences: Geology | Poster - Course Project, GEO 208 01

STUDENTS Rajeev Venkat | ADVISORS Allen J McGrew

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

On December 26th, 2004, one of the deadliest events in human history occurred. The Sumatran-Andaman earthquake, more commonly known as the 2004 Indian Ocean Earthquake and Tsunami, began on the western coast of Indonesia. The earthquake, which was caused by the subduction of the Indian plate beneath the Burma plate, had a magnitude of 9.1, making it the third-largest Earthquake ever recorded. It created a devastating tsunami that claimed 281,900 lives in over 15 countries as far away as Kenya. An estimated additional 189,500 people were injured both physically and psychologically. The tsunami also displaced about 1.2 million people, rendering them homeless. Due to how suddenly the earthquake struck and how quickly the tsunami reached the coast, the people of Indonesia did not have time to reach safety, and there was little that could have been done in terms of prevention. There were nearly 170,000 deaths

in Indonesia alone. However, for more distant countries such as India, Sri Lanka, and Thailand, a tsunami early warning system and better public education could have saved thousands of lives. The tsunami had a calamitous effect not just on human civilization but also on coastal ecosystems. This case study is a great example of humanitarian response to a natural disaster. Over 14 billion dollars in emergency aid and disaster relief were contributed from around the world. This allowed for rebuilding and increased prevention awareness. In January 2005, the Indian Ocean Tsunami Warning System was created to prevent and mitigate future disasters. The disaster also led the United Nations to implement the International Early Warning Program, which seeks to globally monitor the activity of natural disasters and implement preventative measures to save as many lives as possible.

The Bam, Iran Earthquake of December 26, 2003

College of Arts and Sciences: Geology | Poster - Course Project, GEO 208 01

STUDENTS Husain H Albuloushi | ADVISORS Allen J McGrew

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The Bam, Iran earthquake of December 26, 2003 is one of the most devastating natural disasters to affect Iran and the world in the past 30 years. With a magnitude of 6.6 the earthquake caused cataclysmic damage to the city of Bam and its surround-

ing villages in the province of Kerman in southeastern Iran. It caused the deaths of more than 26,000 people, estimated to be 20% of Bam’s population. According to the U.S Geological Survey, the ultimate driving force behind the Bam earthquake

was the convergence at a rate of 3 cm/yr between the Arabian plate to the south and the Eurasian plate to the north. Numerous studies and analyses of the observed damages from the earthquake have explored the causes of the catastrophic damage and the excessive death rates from this disaster. Many other major earthquakes have occurred in Iran and around the world without the catastrophic damage and destruction that affected Bam. For example the Saravan earthquake, also in Iran, had a magnitude of 7.8, but resulted in just 35 deaths. Images that came from Bam after the earthquake, showed that most of the buildings

there consisted of dried mud and other heavy, brittle materials that cannot resist the shear stresses imposed by even relatively minor seismic shaking. The poor nature of Bam's buildings was the most important factor leading to the extreme rate of building collapse and the catastrophic deaths of so many of Bam's people. This disaster sent a wake-up call to governments highlighting the importance of developing effective strategies to protect their citizens from natural disasters such as earthquakes. It is not easy to lose more than 26,000 people in a single day.

The Deep Water Horizon (BP) Oil Spill in the Gulf of Mexico

College of Arts and Sciences: Geology | Poster - Course Project, GEO 208 01

STUDENTS Kaitlyn L Cantu, Nicholas Charles Sarkis | ADVISORS Allen J McGrew

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

On April 20, 2010, a gas release and explosion on the Deep Water Horizon Oil Rig owned and operated by BP initiated the worst oil spill in United States history. The initial explosion killed 11 oil rig workers and underwater cameras showed that the BP pipeline was leaking oil and gas 42 miles off the coast of Louisiana. According to BP, "the accident involved a well integrity failure, followed by a loss of hydrostatic control of the well. This was followed by a failure to control the flow from the well with the blowout preventer equipment" (BP.com). In other words, the Blowout preventer failed to seal the well once the explosion occurred. The Deep Horizon Rig was on fire for 36 hours preventing BP from completely shutting it down before it sank. For a total of 87 days, the well leaked oil and gas into the Gulf of

Mexico injecting about 3.19 million barrels of oil into the water. Over a thousand miles of shoreline, from Texas to Florida, were impacted by the oil spill. BP and various governmental agencies worked together to try to minimize the effects of the oil spill on the environment and human health by removing, or containing the oil, and by implementing strategies to protect the shoreline and to clean up oil that came ashore. As of December 2014, BP has spent more than 14 billion dollars and more than 70 million personnel hours on cleanup efforts and response (BP.com). Despite these efforts, around 20 percent of the oil has sunk to the floor of the Gulf, and the shores and animal life of the Gulf Coast of Mexico are still recovering from the Deep Horizon Oil Spill of 2010.

The Tohoku Earthquake and Tsunami: Advances in Planning and Prevention

College of Arts and Sciences: Geology | Poster - Course Project, GEO 208 01

STUDENTS Andrew Michael Steele | ADVISORS Allen J McGrew

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

On March 11, 2011, Japan was struck by a devastating earthquake and tsunami resulting in over 15,000 deaths, 4,600 missing, 5,300 injured, 130,000 people displaced, and countless building, road, bridge and economic damages. The Tohoku earthquake, as it became known, was a magnitude 9.0 temblor on the subduction zone between the Pacific and North American plates. It was powerful enough to generate a massive tsunami that wreaked havoc on the eastern coast of Japan. The Japanese were already prepared for an earthquake and had several early warning systems in place to detect such a rupture, but they were not expecting an event of this magnitude. Countless structures failed that had been considered earthquake-resistant, and the tsunami caused a partial reactor meltdown at the Fukushima

Nuclear Power Plant, increasing international concern about the safety of nuclear power. From this disaster, we can learn much about building structure stability, nuclear reactor safety and precautions, and earthquake planning, prediction and prevention. With increased attention, earthquake preparedness is showing significant signs of improvement. The west coast of North America is underlain by some of the most active fault networks in the world. The Japanese thought they were prepared for an earthquake disaster, but is the United States ready for one of similar magnitude? The Tohoku earthquake, combined with recent studies of tectonic plate motion, can lead us to better prevention, planning, building strategies, and more advanced early warning systems.

The Tohoku Earthquake of 2011 and Subsequent Events

College of Arts and Sciences: Geology | Poster - Course Project, GEO 208 01

STUDENTS Colin J Ball | ADVISORS Allen J McGrew

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

On March 11, 2011, the largest earthquake ever recorded in the area occurred off the eastern coast of Japan. The earthquake had a magnitude of 9.0 and a depth of 24 km (nearly 15 mi). This was followed by three slightly smaller aftershocks along the plate boundary just minutes later. The resultant earth movement

caused an enormous tsunami, one of the largest in recorded history, with run-up heights up to 40 m (130 ft). The tsunami caused massive destruction along nearly 600 km of Japanese coastline. Due to Japan's long experience with earthquakes and tsunamis, many people were able to evacuate to safer areas;

nevertheless, the exceptional magnitude of this earthquake and tsunami, caught many people unprepared. Estimated human losses include over 13,000 people dead, with an additional 15,000 missing. In addition, an estimated 60,000 buildings were completely destroyed, with another 12,500 buildings at least partially destroyed. Among the damaged buildings, the Fukushima Nuclear Power Plant stands out. The power plant works through a cycle of heating water to run steam engines, and recycling that water to cool off the nuclear power rods in which radioactive

isotopes are reacted. Under normal conditions, this process is in a completely closed environment so that none of the radioactive water is released. However, as a result of the earthquake and tsunami, all four independent power supplies to the plant failed, disrupting this cycle and leading to the massive failure of the plant and the eventual discharge of radioactive water into the surrounding area on a level not seen since the 1986 Chernobyl meltdown.

Vesuvius: The First Documented Descriptions of a Volcanic Eruption

College of Arts and Sciences: Geology | Poster - Course Project, GEO 208 01

STUDENTS Alyssa C Bojarski | ADVISORS Allen J McGrew

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The infamous 79 A.D. eruption of Mt. Vesuvius, Italy's most dangerous volcano, completely destroyed the Roman cities of Pompeii and Herculaneum. Over one thousand people died suddenly and tragically in this eruption as deadly pyroclastic surges tore through the towns which were swiftly buried in thick deposits of volcanic ash. To this day it remains one of the best known eruptions in the history of Europe. Thanks to the efforts of Pliny the Younger and other observers the 79 A.D. eruption entered history as the first volcanic eruption with detailed recorded descriptions. From these descriptions, geologists learned more about volcanoes and how to determine whether they are building

up to a major eruption and if so, what their major impacts may be. This case study revisits the eruption of 79 A.D. from a modern scientific point of view in order to develop a deeper understanding of what causes such destructive volcanism. In addition, it will review what volcanologists learned from the eruption of Vesuvius, and compare and contrast this catastrophic eruption with similar modern eruptions in the United States and around the world. Based on what we learned so long ago, and what we continue to learn today, many of the most deadly volcanic hazards are now largely avoidable.

Volcanic History and Response at Mount Unzen Japan

College of Arts and Sciences: Geology | Poster - Course Project, GEO 208 01

STUDENTS Mahmood R Al-Jahwari | ADVISORS Allen J McGrew

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Mount Unzen on the Japanese island of Kyushu is an active volcanic group of several overlapping stratovolcanoes. This volcanic complex occupies the Shimabara Peninsula, which has experienced extensive volcanism over thousands of years. Mount Unzen is associated with a graben crossing the Peninsula. A graben occurs in the hanging wall of a normal fault where it has shifted down relative to the footwall of the fault. The Philippine and Pacific tectonic plates are subducting under the Eurasian plate beneath Japan; this subduction causes the down-going plates to melt, producing magma that rises to feed the surface volcanoes. Extensive eruptions occurred over the whole Peninsula between 2.5 and 0.5 million years ago. Japanese volcanoes potentially produce volcanic hazards such as lava, ash fall, and

volcanic bombs that possibly travel faster and longer distances. The Japan volcanic arc is part of the circum-Pacific "Ring of Fire". Mount Unzen's latest eruption was in 1991 when a lava dome was formed at the summit. The volcano was most recently active from 1990 to 1995; a large eruption in 1991 forced the evacuation of over 10,000 people and killed 43 people including three volcanologists who were killed by a pyroclastic flow when the eastern half of the lava dome suddenly collapsed. The flows were so powerful that cars of some of the journalists were swept away, one being moved as far as 80 m. Trees were flattened in the area as were most of the houses. All people in the area were killed by the impact of the surge and the intense heat.

Digitizing the Surficial Geology of the Brewerton Quadrangle, Onondaga County, New York Using ArcGIS

College of Arts and Sciences: Geology | Poster - Independent Research

STUDENTS Miranda K Nelson | ADVISORS Donald L Pair, Katherine Rose Schoenenberger

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

ESRI ArcGIS Desktop 10.1 was used to digitize the surficial geology of the Brewerton, New York USGS 7.5' topographic quadrangle. The map was digitized from a scanned field map by Dr. Donald Pair and georeferenced to the NYS Department of Transportation Raster Quadrangle at 1:24,000 scale, projected in UTM Zone 18, NAD 83. Geographic information systems (GIS) have

provided new tools to create layers and join maps together. The geographic data viewed as dynamic layers in GIS software can then be symbolized and analyzed with additional GIS datasets. The objectives of this study were (1) to learn ArcGIS software, (2) provide a digital map for NYSM to submit to USGS STATEMAP program and the National Geologic Map Database, (3) to develop

a sense of the Pleistocene to Holocene surficial geology. Data from the Brewerton Quadrangle helps complete the full surficial

geologic map of Onondaga County.

Identifying and Evaluating Possible Trigger Mechanisms for Glacial Lake Outburst Floods in the Hindu Kush Himalayas Using Remote Sensing Satellite Data

College of Arts and Sciences: Geology | Poster - Honors Thesis

STUDENTS Tanner G Hess | ADVISORS Umesh K Haritashya

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Glacierized basins in high-altitude and mountainous areas, such as the Himalayas, have seen an increase in the number of glacial lakes over the years as a result of a changing climate. As the meltwater becomes more prevalent, the runoff can accumulate in a depression left behind by the receding glacier and can be bound by the walls of frontal and lateral moraines. These moraines, however, often are comprised of loose, unconsolidated sediment and can prove to be unstable dam structures for proglacial lakes. The factor of instability associated with the moraines poses a serious threat for failure and severe flooding. If the moraines were to be breached by the lake water, a phenomenon known as a glacial lake outburst flood (GLOF) can occur, potentially putting lives and infrastructure in harm's way. Consequently, this study examines the likelihood of a GLOF occurrence by analyzing potential trigger mechanisms associated with three proglacial lakes in the Hindu Kush Himalayan region. Using

ASTER and Landsat satellite imagery, one lake from Nepal, Tibet, and India have each been assessed for possible trigger mechanisms. Our results suggest that steep-sided moraines, rugged topography, unstable masses on the upper reaches of steep slopes, and smaller lakes perched high above can all be classified as possible trigger mechanisms for the areas of study. It is imperative to be able to successfully identify potential trigger mechanisms using satellite data so that further ground observations can be made and mitigation efforts can be incorporated where needed. As lakes continue to grow, so does the cause for concern for possible GLOFs. Glacial lake outburst floods are being studied more extensively now due to the greater number of glacial lakes in high-mountainous areas. It is vitally important to understand the dynamics of a GLOF, especially the potential trigger mechanisms associated with it.

Spatial and Seasonal Water Isotope Variability in Ethiopian Precipitation and its Implication for Sustainable Water Resources

College of Arts and Sciences: Geology | Poster - Independent Research

STUDENTS Emily A Lestingi | ADVISORS Zelalem Bedaso

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Understanding temporal, seasonal, and spatial variability of isotopes in precipitation ($\delta^{18}\text{O}$, $\delta^2\text{H}$ and d-excess) can aid in tracking moisture sources and quantifying relative contributions from different sources. The spatial and temporal variation of the isotopic composition of precipitation worldwide is monitored by the International Atomic Energy Agency (IAEA) Global Network for Isotopes in Precipitation (GNIP). In Ethiopia, precipitation is controlled by seasonal migration of ITCZ, changes in topographic and climatic conditions in a short distance. As a result stable isotopes in precipitation can vary both seasonally and geographically. Here, we analyzed $\delta^{18}\text{O}$, $\delta^2\text{H}$ and d-excess data from twenty-three IAEA GNIP stations and our four year-long precipitation monitoring stations. Our results from these stations indicate that $\delta^{18}\text{O}$ at the various stations are indistinguishable from one another. However, d-excess values show a distinct spatial pattern. D-excess values in the northwestern part of the country

show high values ranging from 12.78‰ to 18.29‰, which might be indicative of the role of recycled continental moisture. On the other hand, d-excess values in the southeast part of the country are much lower, ranging from 7.63‰ to 11.52‰, which indicated a predominance of the direct precipitation from an ocean source. Similarly, d-excess values in the Ethiopian Rift Valley show a wide range of values from 9.86‰ to 22.48‰. These values indicate precipitation from both direct ocean source as well as some degree of recycled continental moisture. For Ethiopia, a country where 85% of the population is engaged in rain fed agriculture and recurrent droughts are prevalent, understanding natural fluctuations of water resources both in time and space will ensure the sustainable use of water resources, predictions of climate change, its impacts, cost of mitigation and will provide decision making tools for the policy makers.

The Angel Lake fold: Unraveling the polyphase deformational history of the East Humboldt Range metamorphic core complex, northeastern Nevada

College of Arts and Sciences: Geology | Poster - Capstone Project

STUDENTS Timothy Wayne Cornett, Allen J McGrew | ADVISORS Allen J McGrew

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The East Humboldt Range (EHR) in central Elko County, Nevada forms the northern half of the Ruby Mountains - East Humboldt

Range metamorphic core complex and hosts the oldest rocks in Nevada, the Neoproterozoic to Paleoproterozoic Angel Lake gneiss complex. These rocks are also the most deeply exhumed rocks in Nevada as documented by PT estimates up to >700 °C, 10 kb for Late Cretaceous (78–85 Ma) peak metamorphism. The dominant structure is a southward-closing recumbent fold with a 7 km lower limb, the Winchell Lake fold-nappe (WLN). The WLN is overprinted by a >500 m thick late Cenozoic high amphibolite facies, normal-sense mylonitic zone. Complex structural relationships in a previously poorly understood area at the base of Angel Lake cirque near the northern end of the EHR are clarified by new mapping. Petrographic comparison documents the interfolding and extreme plastic attenuation of the Precambrian gneiss complex with younger paragneiss units near the base of the cirque and requires the presence of a ~100 m scale recum-

bent fold, here named the Angel Lake fold. Re-folding relationships suggest that the Angel Lake fold is not merely parasitic to the larger WLN, but rather represents a distinct fold phase. Understanding the age and tectonic significance of this structure depends on deciphering cross-cutting relationships relative to datable granitoid gneisses. In particular, hornblende biotite quartz dioritic orthogneiss appears to have intruded syntectonically into a normal-sense shear zone that cuts and therefore postdates the Angel Lake fold. On the other hand, the involvement in folding of late Cenozoic monzogranitic orthogneiss sheets suggests that the Angel Lake folding could have occurred during an earlier stage in Cenozoic tectonism. Geochronology currently under way is expected to resolve this problem and clarify the role of possible large-scale folding during an early, deeper-seated phase of Cenozoic extensional orogenesis.

Shadow, Smoke, and Angles: Film and Perceptions of American Life in the Early to Mid-Twentieth Century

College of Arts and Sciences: History | Panel Discussion - Course Project, HST 485 P1

STUDENTS Thomas M Crowley, William M. McClure, Madeline Rose Mcdermott, James T Pugh, Elizabeth M Wilhelm

ADVISORS John A Heitmann, James T Uhlman

LOCATION, TIME Kennedy Union 312, 11:00 AM–12:00 PM

Film has long been a representation of how Americans view themselves and their neighbors. Throughout the first half of the twentieth century, the films produced in Hollywood have reflected and dictated American culture. This panel will explore some of the tactics and results of this phenomenon. Topics covered will

include the family drive-in and other the mysterious roadside diner, the exciting coverage of firetrucks in films, the sensationalism of propaganda films in World War II, and dangerous women in film noir.

Debating Empire: Britain and its Colonies in the 19th and 20th centuries.

College of Arts and Sciences: History | Panel Discussion - Course Project, HST 319 01

STUDENTS Cody Allen Buckholdt, Melissa A Cobb, Matthew P Dinasky, Mason Alexander Dipalma, John E Figliulo, Erika R Gaertner, Anna Mary Kinnen, Margaret K McAleer, Douglas R Otte, James T Pugh, Connor D Rice, Haimanti Roy, Patrick B Steele, Brenden Morgan Watson, Justin D Weaver | ADVISORS Haimanti Roy

LOCATION, TIME Kennedy Union 310, 1:00 PM–2:30 PM

What if 19th century British imperialists met with 20th century anti-colonialists? How would they try to convince each other about the pros and cons of the British empire? Did the British empire give rise to modernity? Did it stand for liberty, justice and freedom? These are some of the themes that the following

cast of characters will debate during this panel discussion. Cast of Characters Benjamin Disraeli, Thomas B Macaulay, Winston Churchill, Kwame Nkrumah, Mohandas K Gandhi, Jomo Kenyatta, A (ahistorical) game which combines the rigors of historical primary source research, analysis and argumentation.

Hungry for History (Worldwide Edition): A Podcast

College of Arts and Sciences: History | Podcast Listening Station - Course Project, HST 103H H1

STUDENTS Rebecca L Basner, Emily F Benintendi, Daniel J Bruns, Sarah C Byrd, Julia C Carroccio, Kelly E Cole, Alexander N Eysers, Austin R Finch, Margaret M Jaeger, Kelsey S Klawonn, Thomas R Lawler, Heather A Leuer, Connor James Loftus, Gregory R Moellering, John R Needles, Gunnar R Nelson, Austin D Paulick, Danielle M Reynolds, Allyson J Ritter, Emily R Robinson, Matthew J Sheridan, Carrie A Siekierski, Emily C Sizemore, Victoria S Szczechowski | ADVISORS Bobbi Sutherland

LOCATION, TIME LTC Rotunda, 1:00 PM–4:00 PM

Based on a jointly written book for HST 103-H1, this series of podcasts explores history through the lens of entertainment. The individual titles are: A Tale of Two Flavors: From Bitter to Sweet,

A Taste of China, The Essence of Ethiopia, It's a Bird, It's a Plane, It's Super Manakish!, Before Sliced Bread.

The Second Punic War: The Foundation of an Empire

College of Arts and Sciences: History | Oral Presentation - Honors Thesis

STUDENTS Timothy E Schaefer | ADVISORS Dorian Borbonus

LOCATION, TIME Marianist Hall Learning Space 217, 1:20 PM–1:40 PM

Though the foundation of the Roman Empire is considered by some to be in 27 BC with Octavian's acceptance of the name Augustus, its origins were in fact in the late 3rd Century BC with Rome's involvement in the Second Punic War. The nearly 20 year war pitched Rome against Carthage in what became a turning point in Roman history. Rome would undergo economic changes that led to the establishment of the practice of Roman aristocrats paying extra costs of the war in an exemption of military service. During the war, Rome's armies were active farther abroad for greater lengths of time than previous wars. As a result, recruitment underwent changes relaxing previous laws and customs of who could be recruited and greater power and independence was given to generals in forming their own armies. Additionally, the

most successful Roman general during the war, Scipio Africanus, achieved unprecedented individual power both in the field, including an indefinite term as general and nearly complete diplomatic freedom, and at home, such as breaking through the normal political requirements for multiple political positions. Lastly, Rome won large sums of land and money from the victory that formed the beginnings of a territorial empire and brought Rome into further contact with other kingdoms; creating nearly unavoidable conflict, and leading to even further expansion. These economic, military, and political precedents that occurred during the Second Punic War are all studied through the primary use of the ancient historian Livy, who is most qualified for the task.

The Culture of Rebellion in 1950s America

College of Arts and Sciences: History | Panel Discussion - Course Project, HST 485 P1

STUDENTS Benjamin R Brandel, Patrick J Forte, Kyle Mercado, Douglas R Otte | ADVISORS John A Heitmann, James T Uhlman
LOCATION, TIME Kennedy Union 312, 2:00 PM–3:00 PM

With World War II in the rearview mirror, the 1950's represented a new era for Americans. This decade brought middle class prosperity to millions of Americans, and with that the movement of families from cities to new single-family homes in the suburbs and a new consumer culture. While all appeared well on the surface, underneath tensions were boiling with this new found prosperity and changes in the workplace and the home. The 1950's brought a new culture of rebellion, specifically in young people who questioned the ideals of their parents, developing a new "youth culture," as well as in men who saw their role change in the workplace due to economic changes and in the home

due to increased emphasis on domesticity. The automobile was important to both of these groups in their rebellion. The film Thunder Road is the precursor to the conservative movement of the 1970s, and it displays the feelings of this group of society in the 1950s. The rebel culture of the 1950s is a concurrent feeling of the distrust of authority. This distrust of authority usurps the ideal of America in the 1950s and the white picket fence world. This presentation will look at the developments of 1950's America and how these contributed to this new rebellious culture, as well as look at films that deal directly with this.

Before You Write a History Paper: The History Research Process Applied

College of Arts and Sciences: History | Panel Discussion - Honors Thesis

STUDENTS Madeline Rose Mcdermott, Nicole E Price, Jordan Thomas Seitz, Elizabeth M Wilhelm
ADVISORS Karen A Bartley, Colleen Elizabeth Hoelscher, Theophile J Majka, Caroline W Merithew, Haimanti Roy
LOCATION, TIME Kennedy Union 310, 2:30 PM–4:00 PM

A group of history majors who are currently writing theses for the Honors College will present on their research topics and processes. The talking points will include locating sources, finding a structure, time management, funding sources, and different roadblocks encountered. Additionally, the panel will present on

their theses themselves: trade in the Indian Ocean, the history of vaudeville and racial humor, race and the justice system around the turn of the 20th century, and building an archive for a small local institution.

Elvis, Mad Men and the Mustang on Route 66

College of Arts and Sciences: History | Panel Discussion - Course Project, HST 485 P1

STUDENTS Shannon E Kieffer, Timothy John Kraft, Patrick F Nicoello, Katelyn Rendulic
ADVISORS John A Heitmann, James T Uhlman
LOCATION, TIME Kennedy Union 312, 3:00 PM–4:00 PM

As a group, we will be presenting on the cultural significance of different movies, people and advertisements ranging between the 1950s and the 1960s. Katelyn will be examining the role of the road as a liminal space and the filmic representations of racial minorities on the serial television show Route 66. Tim will be analyzing the culture of consumption in the 1960s and the major players in advertising. Pat will be discussing the driving forces behind consumption of the Ford Mustang in the 1960s. He will be specifically analyzing the portrayal of the Mustang in

both advertisements and films. Shannon will be analyzing Elvis Presley as a cultural significant icon through the analysis of his films Spin Out and Viva Las Vegas. Through this, she will discuss how he uses the automobile in his life, music and movie making business to see how this has affected who he was and effected how the world saw him.

Emerging themes in Modern African Studies

College of Arts and Sciences: History | Oral Presentation - Course Project, HST 337 01

STUDENTS Rosemary D Augustini, Caitlin Michele Buchheim, William A Chambers, Noah R Corrigan, Robert Neil Corrigan, Melissa Jan Deville, Jean Dossous, Daniel Patrick Durkin, Eric A Garcia, John A Goebel, Marshall J Hart, Connor J Higgins, Emily V Kegel, Gracelyn M Key, Tracy C Lin, Bingxin Liu, Grant A Lyons, James Edward Mclean, Abigail Anne Metz, Wyatt M Ohm, John B Patlovich, Anthony Ross Predey, Logan D Proffitt, Lauren A Przybylski, Ellen R Saracina, Jody N Schwieterman, Sean M Umhafer, Ryan Vonk, Mitchell A Walton, Lauren E Williams, Aaron O Winfrey | ADVISORS Julius A Amin

LOCATION, TIME Kennedy Union 207, 3:00 PM–5:00 PM

Emerging themes in Modern African studies take students into a variety of areas which are immediately relevant and informative. In an age of globalization, Africa continues to present both burdens and opportunities. In the realm of resources, Africa contains significant minerals such as coltan which are instrumental for the making of things such as cell phones, play stations, and other gadgets crucial for modern comforts. The continent offers avenues for study of human rights, environment, faith traditions, and more. On the flip side, Africa continues to be ravaged by diseases such as Ebola, and militant groups such as Boko Haram whose activities threaten development of whole regions.

But in the midst of these problems, the people of Africa continue to show resilience, hope, and commitment to develop their continent. Their story is crucial and offers glimpses into the human capacity to endure. In these presentations students tackle many of the continent's challenges and failures, and in the end remind us of Africa's relevance in any attempt to understand the functioning of the global community. Topics addressed include human rights, Ebola, Boko Haram, China in Africa, Christianity, Poaching, global inequities, and many more. The audience will learn much about Africa's role in the world and the interconnected nature of the global community.

Where are the International Students?: Collegiate Party Culture and U.S./ International Student Interaction at the University of Dayton

College of Arts and Sciences: History | Panel Discussion - Capstone Project

STUDENTS Meghan Marie Carroll, Lauren A Clark, Emily E Garman, Tori R Kistner, Daniel Storm Lillis, Robert Morie, Alyssa M Motyl, Heather M Stockmaster | ADVISORS Marybeth Carlson, Sharon T Jaden-Glass, Benjamin Martin-Bean

LOCATION, TIME Kennedy Union West Ballroom, 3:00 PM–4:00 PM

For this Panel Presentation, students from the capstone course in International Studies (INS 499) and from the Intensive English Program's course in Oral Expression will consider cultural differences in sociability. Do these patterns affect the inclusiveness of the UD campus? Both International Studies majors and Intensive

English Program students are able to contrast experiences of student culture in multiple environments. Are peer networks at UD structured in a way that blocks the creation of a genuinely welcoming campus?

Doing Comparative Immigration History in a Global Age

College of Arts and Sciences: History | Panel Discussion - Course Project, HST 378 01

STUDENTS Abigail L Aceto, Eric A Brown, Beverly Yvonne Johnson, Caroline E McCormack, Shannon E Myers, Leah Marie Presutti, Kathryn M Schilling, Melissa Rachel Siegel | ADVISORS Caroline W Merithew

LOCATION, TIME Kennedy Union 310, 4:00 PM–5:00 PM

At its core, the immigrant experience, includes issues of transition, belonging, and identity. This panel features the research projects (completed in HST378: Immigration History) which have used these issues to study immigration history from a comparative perspective (in terms of chronology and geography). The

panel discussion "Comparative Immigration History in a Global Age" highlights research and will also invite dialogue so that we might better address how and why citizenship, "denizenship," the role of the state as well as of families and communities have shaped what it means to belong over time and space.

Chaminade Scholars Vocation and Arts Exhibit

College of Arts and Sciences: Institute Pastoral Initiative | Poster - Course Project, ASI 357 P1

STUDENTS Krista Elizabeth Bondi, Samuel Eric Brickweg, Elizabeth A Brumleve, Rachel Maria Cain, Erica M Clohessy, Veronica Lynn Colborn, Morgan Elizabeth Draves, Emma C Froelich, Elisabeth M Miller, Dominic R Sanfilippo, Cristina Beatriz Santiago, Joseph T Staley, Meredith Elizabeth Taylor, James F Vogel, Riley Catherine Weber, Kathleen E Willard

ADVISORS David W Darrow, Angela Ann Zukowski

LOCATION, TIME Alumni Hall 016, 1:00 PM–2:00 PM

The Chaminade Scholars Vocation and Arts Exhibit presents an overview of the students preparation for their May 2015 Italian Pilgrimage titled "Art, Culture and Spirituality". The exhibit highlights both upcoming key experiences in Assisi and Rome

including a photo exhibit related to a class gift to be presented to special Vatican guides.

A Mathematical Model for Enzyme Kinetics: Runge-Kutta Method

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 05

STUDENTS Justin Anthony Saliba | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

In this work we study a basic mathematical model for enzyme-substrate reaction. We summarize the enzyme kinetics model from J. D. Murray's Mathematical Biology book. We simplify the

equations via nondimensionalization. Then we use the numerical solver called the Runge-Kutta methods to solve the system of differential equations describing the reaction.

A Mathematical Model to Calculate an Animals Equilibrium Temperature based on the Environmental Temperature

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 04

STUDENTS Victoria A Wawzyniak | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Every animal's temperature is directly correlated to the temperature of the environment that the animal lives in. The animal's equilibrium temperature can be modeled using mathematical tools based on the temperature of the environment, the amount of solar radiation, and the heating characteristics of the specific animal. Newton's Law of Cooling can be used to model this sort of phenomena of temperature changes. This mathematical model

provides a relation between the unknown temperature and the derivative of this unknown temperature. In this work we will solve this model numerically using different techniques such as the Euler method, the three-term Taylor method, and the Runge-Kutta method. Using these three different mathematical methods, the animal's body temperature due to the environment can be determined. We use Matlab for all numerical computations.

A Mathematical Study of Hormone-induced Oscillations in Liver Cells

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 556 01

STUDENTS Diqian Ren | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Hormone-induced oscillations of the free intracellular calcium concentration are affected by hormone signals. In this paper, the tests and simulations use liver cells as a sample. This article introduce a mathematical model of Ca^{2+} hepatocytes oscillations, and then compare its predictions to the biochemical evidence. After analyzing the tests results and the mathematical

model, the study shows the agonist-induced Ca^{2+} oscillations in hepatocytes characters. At the same time, it shows that the influence of the calmodulin inhibitors to the oscillations. In this work we study the qualitative behavior of a model from the work of Roland Somogyi and Jorg W. Stucki.

A Numerical Study of a Mathematical Model of Cell Growth in Scaffolds

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 556 01

STUDENTS James P Stewart | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

In this work we consider a mathematical model of cell growth in scaffolds for tissue regeneration. This model is taken from the work by Darae Jeong, Any Yum and Junseok Kim. We present numerical solutions of this system of coupled partial differential equations. We solve the system numerically using two different methods including finite difference methods, which is a class-

cal method for solving partial differential equations. After the algorithms are developed they will be run and tested through a series of computer simulations that will provide evidence to which method is better in terms of accuracy and efficiency. Which will allow us to choose the better method.

Finite difference approximation to the solution of telegraphic equation with Neumann boundary conditions.

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 556 01

STUDENTS Huachun Yu | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

In this work we consider a telegraphic equation with Neumann boundary conditions. We use a finite difference scheme to approximate the solution. We will discuss the truncation error,

convergence and stability of our scheme. We also present the numerical simulations.

Numerical Exploration of the Spread of Infectious Disease

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 04

STUDENTS Jonathan Raymond Ayers | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

This study will consider a model of SARS for a closed population. The mathematical model will be solved using numerical techniques and the solutions will be compared. It is assumed in this study that the incubation period is very short and individuals who recover from the disease become permanently immune.

Numerical Methods applied to an Enzyme Kinetics Model*College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 05*

STUDENTS Claudia J Labrador Rached | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

In this work, we study enzyme kinetics using numerical techniques, such as Euler's Method and Taylor's Series Method. Our system consists of four ordinary differential equations, each of them describing the reaction rate of specific compounds in reaction. We represent the numerical solution and plots of each reactant. We compared the performance of our numerical methods with methods used in Callie Martins' Enzyme Kinetics Spring 2012 Work.

Numerical Solution of Point Kinetic Equations for Nuclear Reactor*College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 05*

STUDENTS Patrick D Bruneel, Ryan Robert Green, Alexander David Scholtes | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

In this work, we will solve nuclear reactor point-kinematic equations. There are many numerical techniques to solve these models. We will solve this coupled system of differential equations using the simplest methods, such as the Taylor Series, Euler, and Runge Kutta methods using MatLab program. We will then compare the accuracy of each method.

Solving Crime Using Mathematics*College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 04*

STUDENTS Michael Joseph Jacob | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Mathematics is used in almost every area of life. With the development of modern computers, mathematical modelling and numerical simulation is new synergy in scientific discovery. In this work nonlinear equations are solved in order to determine the time of death to solve a crime. The equations are solved with few methods and we compare the accuracy of methods.

Steady State Solutions of a Damped Forced Kuramoto-Sivashinsky Type Equation*College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 04*

STUDENTS Nathaniel Antanas Stapulionis, Michael L Stewart | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

We will use Matlab to analyze and model a damped, externally excited Kuramoto-Sivashinsky type equation. Using an asymptotic perturbation method, we will obtain two slow flow equations on amplitude and phase to obtain steady state solutions.

Time Series Analysis of the Dayton RTA bus system*College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 544 01*

STUDENTS Brandon Thornton | ADVISORS Maher B Qumsiyeh

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Using Time Series to create models for predicting ridership on RTA busses

Using Differential Equations to model RLC Circuit*College of Arts and Sciences: Mathematics | Poster - Independent Research*

STUDENTS Michael S Crollard | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

AbstractThe center piece of our solar system is a burning ball of energy that has the power, in just one hour, to beam enough energy to the surface of earth to meet the entire energy needs of the planet for an entire year. Scientist are constantly trying to

improve the efficiency of harnessing this energy through photovoltaic panels. These panels can be better modelled using RLC Circuit analysis and the use of differential equations. The use

of differential equations allows for a better comprehension and quicker analysis of the given circuit.

A GREEN'S FUNCTION FOR A TWO-TERM SECOND ORDER DIFFERENTIAL OPERATOR

College of Arts and Sciences: Mathematics | Poster - Graduate Research

STUDENTS Sami A Aljhani, Adel K Alshammari | ADVISORS Paul W Eloe

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

A series representation of the Green's function associated with the boundary value problem, $-u''(t) + a(t)u = w(t)f(t, u(t))$, $0 < t < 1$, $u(0) = 0$, $u'(1) = 0$, is constructed. Sufficient conditions on a are given such that the series representation converges uniformly

on compact domains. An application of the contraction mapping principle is given to provide sufficient conditions for the existence and uniqueness of solutions of the boundary value problem.

A STUDY OF NONLINEAR INTERPOLATION FOR THIRD ORDER ORDINARY DIFFERENTIAL EQUATIONS

College of Arts and Sciences: Mathematics | Poster - Graduate Research

STUDENTS Nasiba S Albatni | ADVISORS Paul W Eloe

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

In this paper, we are concerned with sufficient conditions for the uniqueness and existence of solutions of a class of boundary value problems for the third order ordinary differential equation, $y'''(x) = f(x, y, y', y'')$ $a < x < b$. In the case of the linear ordinary differential equation, $y'''(x) = 0$, $a < x < b$, this problem reduces to a polynomial interpolation problem, and hence, the phrase nonlin-

ear interpolation is used. In particular, we assume the uniqueness of solutions of class of two and three point boundary value problems to first obtain uniqueness of solutions of a new class of three point boundary value problems. We then employ shooting methods and obtain existence of solutions of this new class of three point boundary value problems.

An analysis of Monotone Methods Applied to Boundary Value Problem for ordinary differential equation

College of Arts and Sciences: Mathematics | Poster - Graduate Research

STUDENTS Samerah Al Mosa | ADVISORS Paul W Eloe

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

We consider the boundary value problems, $y''(t) = f(t, y(t))$, $0 < t < 1$, $y(0) = 0$, $y(1) = 0$, and $y''(t) = g(t, y(t), y'(t))$, $0 < t < 1$, $y(0) = 0$, $y'(1) = 0$, where f and g are continuous. We shall use the method of upper and lower solutions to obtain sufficient conditions for

existence of solution; we shall use monotone method to construct approximate solutions. We shall develop examples to illustrate the results.

Boundary Value Problems For Ordinary Differential Equation

College of Arts and Sciences: Mathematics | Poster - Graduate Research

STUDENTS Alaa A Almansour | ADVISORS Paul W Eloe

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

We consider boundary value problems at resonance for ordinary differential equations. We invert the problem on appropriate subspaces of a Banach space and construct a fixed-point operator. We apply the contraction mapping principle, the Schauder fixed-point theorem, and the Leray-Schauder nonlinear alterna-

tive theorem. We obtain sufficient conditions for the existence and the uniqueness of solutions of boundary value problems at resonance for problems with homogeneous boundary conditions and for problems with nonhomogeneous boundary conditions.

Estimating Value at Risk and Expected Shortfall with Extreme Value Theory

College of Arts and Sciences: Mathematics | Poster - Graduate Research

STUDENTS Lawrence M Kondowe | ADVISORS Serigne Diop

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Firms face a wide range of risks including financial risk, event risk and political risk. Identifying the risk is one-step towards reducing it. To achieve this, it necessary that investors and risk managers

correctly measure risk. We assess the performance two quantitative measures of risk: value-at-Risk (VaR) and expected shortfall (ES). Asset returns tend to follow fat-tailed distribution; therefore,

the normal and lognormal distributions are not suited for returns that exhibit fat- or heavy-tailed behavior. Hence, we use Extreme Value Theory (EVT) to measure risk of assets in non-normal

market conditions. The EVT deals with the distributions of the series in the tail end of a return distribution.

Existence and Uniqueness of solutions in nonlinear differential equation

College of Arts and Sciences: Mathematics | Poster - Graduate Research

STUDENTS Patrick J Chadowski | ADVISORS Muhammad N Islam

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The existence and uniqueness solutions of the following initial value problem (I.V.P.) $x'(t) + a x(t) = f(t, x(t)) + r(t)$, $x(0) = x_0$, $t \geq 0$, is studied in this paper. First, this I.V.P. is inverted to an equivalent integral equation. The existence of solutions is then obtained from the equivalent integral equation. Banach Space, Schauder's fixed point theorem, Gronwall's Inequality and the contraction mapping principle are used in the analysis. Under certain conditions in f , Schauder's Fixed Point Theorem is used to obtain

the existence of at least one solution of this I.V.P. on $[0, \infty)$. Then, employing Gronwall's Inequality, it is shown that if f is globally Lipschitz, then the I.V.P. has indeed a unique solution on $[0, \infty)$. Finally, the existence of a unique solution of this I.V.P. is obtained by employing the Contraction Mapping Principle, however; a restrictive condition is shown to be required in this method. This restriction will not be required in the method that involves Schauder's Fixed Point Theorem and Gronwall's Inequality.

Existence and Uniqueness of Solutions of Boundary Value Problems for Third Order Differential Equations

College of Arts and Sciences: Mathematics | Poster - Graduate Research

STUDENTS Ieman A Algowal | ADVISORS Paul W Eloe

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

We are concerned with uniqueness and existence of solutions for a third order differential equation, $y''' = f(x, y, y', y'')$. We show that uniqueness of solutions of one class of boundary value problems implies existence and uniqueness of solutions of another class of boundary value problems. First we obtain the unique-

ness of solutions of the new class of boundary value problems by assuming uniqueness of solutions of the original class of boundary value problems. Then we use shooting methods to establish existence of solutions.

Root Cover Pebbling on Graphs

College of Arts and Sciences: Mathematics | Poster - Honors Thesis

STUDENTS Claire Antonia Sonneborn | ADVISORS Aparna W Higgins

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

A graph is a mathematical object that can be described as a set of vertices and a set of edges. An edge joins one vertex to another. The existence or absence of an edge between two vertices can represent a relationship or absence of a relationship between two objects. Two vertices are said to be adjacent if there is an edge that joins them. Imagine placing pebbles on the vertices of a graph. We can move a pebble from one vertex to an adjacent vertex using certain pebbling moves in which two pebbles are removed from a vertex and one is placed on an adjacent vertex while one is removed from the graph entirely. We have defined a concept called root cover pebbling, a variation on cover pebbling which is a well documented concept. In root cover

pebbling we begin with all pebbles on one vertex of a certain graph and attempt to place at least one pebble on every vertex of the graph by using pebbling moves. Thus the root cover pebbling number is the least number of pebbles needed to achieve a configuration with at least one pebble on each vertex of a graph when starting from a configuration with all pebbles on the root vertex. We construct an algorithm for calculating root cover pebbling numbers for certain graphs. We also examine graphs with a root vertex and paths attached to it. With these graphs, we explore the relationships between the number of paths in the graph and the root cover pebbling number of the graph.

Title : A Boundary Value Problem for a Fractional Differential Equation

College of Arts and Sciences: Mathematics | Poster - Graduate Research

STUDENTS Naher M Alsafri | ADVISORS Paul W Eloe

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Abstract: We consider a two-point boundary value problem (BVP) for a fractional differential equation. We construct the Green's function for the BVP with two techniques. We then apply

the contraction mapping principle and obtain sufficient conditions for the existence and uniqueness of solutions of an associated nonlinear BVP. An example is constructed to illustrate the result.

Valuation of a Passport Option

College of Arts and Sciences: Mathematics | Poster - Graduate Research

STUDENTS Peixian Han | ADVISORS Paul W Eloë

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

A passport option is a special case of zero strike European call option. It is an exotic option, in which the option buyer has some control through a trading strategy. And the value of it is a function of the option buyer's trading strategy. In this work, we value a passport option with two solution algorithms. First, we consider a Black-Scholes type model which is a continuous time valuation

model and use transform methods to produce a solution to the corresponding partial differential equations. Second, we focus on a discrete Binomial Tree model, and show the solution of the discrete model converges to the solution of continuous model as the step size approaches to zero.

13th Annual Integration Bee, Mathematics*College of Arts and Sciences: Mathematics | Interactive Competition - Independent Research*

STUDENTS Vicki L Withrow | ADVISORS Arthur H Busch, Maher B Qumsiyeh

LOCATION, TIME Science Center 255 - Chudd Auditorium, 1:00 PM–2:30 PM

The students compete in teams of 2-3 people. This is organized in a similar way to the traditional spelling bee. Teams will be evaluating integrals that are projected on a screen. If a team incorrectly evaluates an integral, the team is eliminated from the competition. After the elimination rounds, we will hold the lightning rounds. The first 'y' many teams to correctly evaluate

the given integrals will proceed to the next round. We do this until there is a 1st, 2nd, and 3rd place team. First, second, and third place teams will receive math t-shirts. The Department of Mathematics will host a pizza lunch in the Science Center Atrium from 12:00 p.m. to 1:00 p.m. prior to the Integration Bee.

Perceptions of Meaning in Liturgical Music in Christian Church Communities of Various Denominational Identities*College of Arts and Sciences: Music | Poster - Course Project, 201480 MUS 452 01*

STUDENTS Molly M Guinan | ADVISORS Donna M Cox

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Music is a primary part of worship in most Christian churches around the world. Music, however, holds different meaning and serves a variety of purposes and functions within each Christian denomination. As a part of an independent study course focused on topics related to contemporary liturgical music repertoire, I chose to investigate how Ministers of Music in several different denominations of the Christian faith assigned meaning and purpose to music in the context of worship, and what particular styles they found to resonate most with their own congregations. In order to do this, I interviewed Ministers of Music from the following church communities in and around Dayton, each representing a different denomination: St. Luke's Catholic Church,

Epiphany Lutheran Church, United Methodist Church, and The Vineyard. This poster will outline the factors I considered when developing relevant interview questions (e.g., cultural background of liturgical ministers and congregation members, tendencies of specific denominations, structure of liturgy in worship services) and the conclusions to which I came regarding the factors that play the most significant roles in determining the style of music utilized and the ways in which music is viewed and assigned meaning in a given church community. Additionally, examples of written and recorded music that were deemed meaningful by the Ministers of Music in each of the various church communities will be showcased with the written findings.

Utilization of the Gordon Music Learning Theory in Elementary Classroom Music*College of Arts and Sciences: Music | Poster - Course Project, 201480 MUS 231 01*

STUDENTS Hadley Gammie | ADVISORS Linda A Hartley

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The Gordon Music Learning Theory is an example of a sight-before-sound method. It focuses on audiation, which is not just hearing the music, but comprehending it as well. There are other methods of instruction such as Kodály, Orff-Schulwerk, and Dalcroze that also use the idea of hearing first, but which do not follow the same sequential order of learning. A survey was conducted to determine which method(s) were most familiar to

elementary educators in Southwest Ohio. Results demonstrated that Kodály was the most familiar method, and the Gordon Music Learning Theory was the least familiar. Additionally, the survey asserted that the Kodály method is the most widely known and used, and that the Gordon Music Learning Theory is the least known and used. Keywords: Edwin Gordon, music learning theory, audiation, sequence, elementary music

String Chamber Music*College of Arts and Sciences: Music | Performance - Course Project, MUS 390 10*

STUDENTS Ashley Ann Cooper, Molly Beth Dickson, Anna L Herrmann, Marsha A Japutra, Lauren T Kell, Saehan Lenzen, Samantha N Mayne, Connor R Mcmonagle, Sean M Miller, Alexander J Rice, Emily R Robinson, Rachel K Sales, Timothy D Schroeder, Carly Marie Thie, Imani M Thompson | ADVISORS Phillip C Magnuson, Kara Manteufel, James R McCutcheon, Shelbi J Wagner

LOCATION, TIME Sears Recital Hall, 11:00 AM–12:00 PM

Student musicians will present a program of string chamber music.

Department of Music Honors Recital Auditions

College of Arts and Sciences: Music | Performance - Course Project, MUS 399 01

STUDENTS Francis Alexander Brown, Kara Marie Hancock, Jonathan A Higgins, Connor R Mcmonagle, Kristen Elizabeth Ney, Victoria C Obermeier, Brennan A Paulin, Alissa Leigh Plenzler, Danielle M Reynolds, Gillian Claire Taylor, Garrett A Woods, Sydney Alvaro Zeek | ADVISORS Phillip C Magnuson

LOCATION, TIME Sears Recital Hall, 1:00 PM–3:00 PM

Twelve students have been selected by the music faculty from the weekly Friday-at-One recital performances during the current academic year. Three judges will select six finalists from this program to perform on the annual departmental Honors Recital, to be held Friday, 24 April 2015 in Sears Recital Hall at 1 PM.

History, Music, Culture and the Great War (1914-1918): A Lecture Recital

College of Arts and Sciences: Music | Performance - Course Project, MUS 302 01

STUDENTS James Taylor W Ballack, Andres E Berdud, Veronica M Champa, Dana Juliana Clark, Alexander J Connors, Brendan S Creamer, Molly Beth Dickson, Samuel N Dorf, Lindsey Rae Eramo, Natalie N Erdy, Kevin M Farley, Colin C Faulkner, Kacey Curry Gallup, Luke A Grieshop, Holly Patricia Gyenes, Michael D Habel, Devanne Nicole Hargis, Jason K Heyl, Joseph William Horan, Joshua T Houston, Marsha A Japutra, Katelynn Renee Jenkins, Sheila M Kagel, Samantha Lynne Kasmer, Lauren T Kell, Elizabeth Mary Kent, Morgan E Langford, Katherine A Lobosco, Mark A Malone, Matthew Sterling Morris, Kirsten A Moszczenski, Anthony R Narducci, Kristen Elizabeth Ney, Stephen E Osseiran, Douglas R Otte, Justin Charles Padmore, John B Patlovich, James T Pugh, Danielle M Reynolds, Rachel K Sales, Bryan A Shutts, Caroline Ellen Simpson, Emily K Strobach, Carly Marie Thie, Kiera J. Wheeler | ADVISORS Samuel N Dorf, Laura Sextro

LOCATION, TIME Sears Recital Hall, 3:00 PM–4:30 PM

“History, Music, Culture and the Great War (1914-1918): A Lecture Recital” is a collaborative cross-disciplinary student lecture-recital on WWI marking the centennial of the war. The lecture-recital brings together music students in MUS 302: Music History II and history students in HST 321: Modern France to present a multi-media lecture-recital on experiences and reactions to WWI. The lecture-recital will feature student performances of works composed during, inspired by, or reflective of issues surrounding the First World War (1914-1918) interspersed with discussions of these works and the broader cultural and historical issues of WWI experiences. Students in each class have been assigned one of nine broad topics on the theme and will work together to

perform a short work and present historical context from their research projects. The nine topics covered by the lecture-recital include: 1. Battlefield Experiences in the Trenches; 2. Popular Culture in the WWI era; 3. Colonial Encounters during WWI; 4. Loss and Trauma during WWI; 5. Gender and Sexuality in the WWI era; 6. Modernism(s); 7. Patriotism/Nationalism during WWI; 8. Post-War Psychologies, Therapies and Healing after WWI; 9. Memory and Commemoration after WWI. The presentations of these capstone projects at the Stander Symposium will serve as the culmination of the semester-long collaboration and co-curricular events that have been designed to provide our student cohort with a unique learning environment.

Student Songwriter Concert

College of Arts and Sciences: Music | Performance - Independent Research

STUDENTS Erin E Albright, Andrew J Eckrich, Kurtis J Freeman, Andrew J Koerner, Benjamin J Thompson, Christopher M White
ADVISORS James R McCutcheon

LOCATION, TIME Kennedy Union Boll Theatre, 3:00 PM–4:00 PM

For several years, Artist-in-Residence Jim McCutcheon has encouraged his guitar students to write their own songs, and this annual concert is a showcase of those efforts.

Food Justice in Dayton

College of Arts and Sciences: Philosophy | Oral Presentation - Course Project, PHL 310 null

STUDENTS Emma McClain Bengson, Jake H Berman, Vienna Marie Boni, Maxwell S Boyle, Casey Anne Chanatry, Samantha M Cook, Michaela K Davis, Ashley M Demange, Siobhan M Fitzgerald, Lucas W Gaynor, Erin M Grupp, Elizabeth C Kyle, Huiheng Liu, Paige E Madden, Alec P Mueller, Zachary Neyer, Francis P Nooney, Maya Victoria Pedersen, Benjamin T Pendery, Lianna R

Petrucchio, Kevin Michael Pleli, Danielle M Poe, Charlotte Anne Shade, Keegan Andrew Sunderhaus, Joseph B Thomas, Kendall Jeanette Walker, Paige Nicole Yaeger, Mo Zhang, Adam B Zuboski | ADVISORS Diana Cuy Castellanos, Jeanne A Holcomb, Danielle M Poe

LOCATION, TIME Marianist Hall Learning Space Commons, 2:00 PM–3:00 PM

Join the students from the interdisciplinary Food Justice course, as they present the results of their community-engaged learning in Dayton. Three groups worked with three partners---East End Community Services, Food Bank, and Miracle Clubhouse---to

understand the different needs for food and assets available to address those needs in Dayton. This learning is especially relevant to students interested in social justice and sustainability.

A study of the effect of Be-doping on the electrical properties of InAs/InAsSb superlattices

College of Arts and Sciences: Physics | Poster - Independent Research

STUDENTS Henry Ross Bourassa, Arthur H Siwecki | ADVISORS Mohamed Ahoujja, Said Elhamri

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The InAs/InAsSb type-II superlattice materials studied to date for infrared detector applications have been residually n-type, but p-type absorber regions with minority carrier electrons can result in increased photodiode quantum efficiency, RoA, and detectivity. Therefore, Be-doped InAs/InAsSb superlattices were investigated to determine the p-type InAs/InAsSb superlattice-

material transport properties essential to developing high quality photodiode absorber materials. Hall measurements performed at 10K revealed that the superlattice converted top-type with Be-doping of $3 \times 10^{16} \text{ cm}^{-3}$ and the hole mobility reached $24,400 \text{ cm}^2/\text{Vs}$. Photoresponse measurements at 10K confirmed the 175 meV bandgap and material optical quality.

How does the substrate influence the transport parameters of InAs/In_{1-x}Ga_xSb Superlattices?

College of Arts and Sciences: Physics | Poster - Independent Research

STUDENTS Henry Ross Bourassa, Arthur H Siwecki | ADVISORS Mohamed Ahoujja, Said Elhamri

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

It is shown that n-type InAs/InGaSb superlattices can be electrically isolated from lightly doped n-type GaSb substrates at much higher temperatures than from the more common p-type GaSb substrates without the use of a large bandgap insulating

layer. Transport measurements show superlattice conduction up to near room temperature. It is argued that the isolation is due to the n/p/n junction created by the substrate/buffer layer superlattice structure.

Optical Properties of CdMgTe

College of Arts and Sciences: Physics | Poster - Independent Research

STUDENTS Emily C Erdman | ADVISORS Said Elhamri

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Cadmium Magnesium Telluride (CdMgTe) has been found to have rare properties useful to the study of optics and semi-conductors. These properties include a high degree of crystallinity due to a similar lattice structure between the atoms of CdTe and MgTe[1]. CdMgTe also possesses exceptional homogeneity because the Mg segregation coefficient in CdTe is approximately equal to 1[2]. Consequently, CdMgTe may be a usable material for room

temperature gamma-ray detectors, as well as high-powered laser applications. In order to further understand the intrinsic properties of CdMgTe, the refractive indices as a function of wavelength were measured, encompassing wavelengths between 0.7 and 5.2 microns. The measurements were conducted at constant room temperature and the data was fit to a four parameter Sellmeier equation.

Explaining Variations in Juvenile Justice Policy across the Fifty States

College of Arts and Sciences: Political Science | Oral Presentation - Capstone Project

STUDENTS Stephen Ian Romick | ADVISORS Nancy A Miller, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 9:00 AM–10:00 AM

The purpose of this research is to explain variations in the strictness of juvenile justice policies in the fifty states. Prior literature has detailed what political and socioeconomic contexts account for policy outputs among the states, but there has been no research conducted to explain why states vary in juvenile justice policy. The primary research question at hand is what socioeconomic and political variables account for disparities among states

in terms of strictness or leniency in their policies? The design of this study relied on specific political and socioeconomic factors as independent variables, with a "score" of a state's policy strictness serving as the dependent variable. Through multivariate regression, a fifty state statistical analysis of the juvenile justice policy issue will be conducted through these independent and dependent variables. The results and findings will be discussed

in the conclusion section of this paper.

Public Service Motivation: Exploring Motives of the Public Sector and Identifying the Pursuit of Vocation

College of Arts and Sciences: Political Science | Poster - Honors Thesis

STUDENTS Morgan Elizabeth Draves | ADVISORS Michelle C Pautz

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

As a University Political Science student and Honors Program Chaminade Scholar, the themes of public service and vocation have largely influenced my academic curriculum while at the University. Public service motivation has been a thoroughly studied topic within the discipline of public administration and acts as a form of measurement in determining the motives of public servants, including but not limited to organizational structures and a variety of socialization factors. The aim of this project is

to find the correlation between public service and the different levels of vocation that are perceived among individuals working in the public sector. Through a series of interviews with and surveys of public servants, a realistic perspective of public service motivation will be obtained. The key objective of this project is to study public service motivation and its components in order to characterize the various levels of vocation that exist within the public sector.

The State of El Salvador: Human Rights and Violence in the Post-War Era

College of Arts and Sciences: Political Science | Poster - Honors Thesis

STUDENTS Christine E Caldera | ADVISORS Mark Ensalaco, Natalie F Hudson

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

During the Salvadoran Civil War (1979-1992), the government of El Salvador knowingly used forms of political violence such as disappearances and torture against the political opposition and other innocent civilians, including women and children. With the signing of the Peace Accords in 1992, El Salvador has since transitioned from an authoritarian regime to a democracy. This project focuses on how the change in regime type influenced the level of repression and respect for human rights in El Salvador.

The research analyzes two conflict resolution mechanisms, the Peace Accords and Truth Commission, and the implementation of democratic practices such as elections to understand how these mechanisms influenced the respect and protection of Salvadoran's physical security rights. The research shows that despite the introduction of democracy, violence remains prevalent in the form of criminal activity and people continue to fear for their personal security as they did during the war.

The Intersection of Human Rights and Business

College of Arts and Sciences: Political Science | Panel Discussion - Course Project, POL 300 06

STUDENTS Ryan Philip Anloague, Haley G Breden, Alexandra Budabin, Nicola Cerilli, Cynthia L Hamilton, Jason Michael Hayes, Kaylie Ann Jasensky, Andrew J Lightner, Kevin M Loftus, S Tzeitel Watson, Mika'El M Wilkinson

ADVISORS Alexandra Budabin, Jerry P Timbrook

LOCATION, TIME LTC Team Space, 1:00 PM–2:00 PM

What is the relationship between human rights and business? Do businesses have the obligation to promote human rights? This panel explores cases of business involvement in the violation of rights (armed conflict, forced labor, exploitation, media censorship and environmental destruction) as well as how businesses

protect human rights through corporate social responsibility (CSR) and cause-marketing campaigns. We will assess efforts by human rights advocacy groups, states, and international institutions to regulate business practices and promote accountability.

Profiling Politics: How Political Activism on Social Media May Correlate with Narcissism

College of Arts and Sciences: Political Science | Oral Presentation - Independent Research

STUDENTS Gordon G Gearhart | ADVISORS Daniel R Birdsong

LOCATION, TIME Kennedy Union 311, 1:20 PM–1:40 PM

This study seeks to determine if there is a correlation between active political participation through social networking sites and narcissism. In conducting a literature review, it has been found that, narcissistic individuals would find social networking sites ideal for creating and maintaining contact with other individuals who espouse similar political views through selective exposure. Once this environment is established, it is expected that narcissists disseminate political views which resonate with his or her

contacts through user created content. This allows the narcissistic individual to seek attention from the group in order to maintain a sense of self-importance through self-promotion (Raskin & Terry 1988, Carpenter 2012) and affirmation their own beliefs (Morf & Rhodewalt 2001) while creating active 'citizen-users' (Ampofo, Anstead, & O'Loughlin 2011) through facilitating collaborative efforts and discussion. In order to collect data for this study, a non-representative survey will be conducted in order to

determine whether active political participation would correlate with narcissism.

Human Rights Campaign Video Projects

College of Arts and Sciences: Political Science | Oral Presentation - Course Project, POL 300 03

STUDENTS Brian E Brentley, John M Chamberlain, Katherine E Christoff, Brendan S Creamer, Matthew D Gardner, Gordon G Gearhart, Kieran P Grace, Maria del Castellar Granados Aguilar, Thomas H Jolly, Colleen P Kelly, Lindsey W Kinsellagh, Matthew R Liebenauer, Patrick J Mckeone, Joseph Doyle Morris, Brendan M O'Toole, Jordan Elise Spiegle, Robert P Thomas, Sarah Mercer Van Leeuwen, Maria C de Haro Martin | ADVISORS Joel Pruce

LOCATION, TIME Marianist Hall Learning Space 217, 1:40 PM–3:00 PM

Student groups will present video projects produced for the course Human Rights and Mass Media. Groups will screen campaign ad videos designed to raise awareness and mobilize the audience in support of their cause.

Global Issues and the United Nations System: Focus on the Czech Republic

College of Arts and Sciences: Political Science | Panel Discussion - Course Project, POL 300 09

STUDENTS Jordan L Blake, Russell C Dillmore, Hannah K Fowler, Michael F Hennessy, Louis Joseph Kosse, Alicia A Linzmeier, Daniel M Martin, Christian A Matico, Andrew Joseph Nitz, Stephen Ian Romick, Anthony N Talbott, Andrew J Vollmer, Samantha Noelle Yeager | ADVISORS Anthony N Talbott

LOCATION, TIME LTC Team Space, 2:00 PM–3:00 PM

Panelists will present and discuss a wide range of issues currently before various committees and agencies of the United Nations. Panelists will provide background, explain details, and offer creative and practical solutions to these problems from the point of view of an official delegate of the Czech Republic.

International Law & Organization: Research Papers

College of Arts and Sciences: Political Science | Oral Presentation - Course Project, POL 406 01

STUDENTS Colleen M Castle, Emilie A Fose, Carly A Goins, Jason Michael Hayes, Matthew R Houlihan, Molly Anne Ledwith, Kevin M Loftus, Margaret Ann Maloney, Meredith A Pacenta, Clare Potyrala, Leena Tarek Sabagh, Dominic R Sanfilippo, Emma M. Stiver, James Thomas Sylvester, Chelsea M Vanhook, Madeline Faith Wazowicz | ADVISORS Joel Pruce

LOCATION, TIME Kennedy Union 222, 3:00 PM–4:30 PM

Students of International Law and Organization (POL406) will present the results of their research term papers. Topics include: Criminal Court, peace agreements, Israeli-Palestinian conflict, terrorism, torture, development, refugees, the International and genocide.

University of Dayton Mock Trial Demonstration

College of Arts and Sciences: Pre-Law Program | Mock Trial - Independent Research

STUDENTS Natalie M Hunton, Gurjot Kaur, Kyle James Krause, Eric J Reardon, Margaret M Roehrig, Kailey Ann Ruggiero, Sydney C Skidmore | ADVISORS Laura H Hume

LOCATION, TIME Kennedy Union Torch Lounge, 2:00 PM–2:40 PM

UD Mock Trial is both a class for credit and a student organization within the Prelaw Program. Mock Trial is open to students in any major, in any year. Through engaging in competitive trial simulations with teams from other institutions, students who represent the University of Dayton by participating in Mock Trial competitions develop critical analytical thinking, public speaking, rhetoric, and persuasion skills. Students also develop, research and hone a knowledge of legal practices and procedures. American Mock Trial Association (AMTA) competitions foster and reward ideals of leadership, civility, justice, and fair play. Today's mock trial demonstration will be material excerpted from the

2014-2015 AMTA season case, Park v. Duran, a civil case. Case Summary: In 2010, Sydney Park invited classmate Jesse Duran to hang out at the Parks' home. Both children were 11 years old. The Parks kept a gun in their home. That morning, the gun was discharged, killing one of the children. The victim's parents have filed a wrongful death lawsuit against the shooter's parent. The students participating in this demonstration will be Gurjot Kaur as witness Jessie Duran, plaintiff attorneys Natalie Hunton, Eric Reardon and Kailey Ruggiero, and defense attorneys Kyle Krause, Maggie Roehrig and Sidney Skidmore. Time will be allowed at the end of questions.

Animal-Assisted Intervention in Children with Autism Spectrum Disorder: A Critical Review

College of Arts and Sciences: Psychology | Poster - Course Project, PSY 494 P4

STUDENTS Karen A Alexander | ADVISORS Melissa J Layman-Guadalupe

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Animal-assisted intervention (AAI) is a general term which includes the subcategories of animal-assisted therapy (AAT) and animal-assisted activity (AAA). AAI has been implemented for several centuries within both the medical and psychology

fields, but there is not yet an evidence-based consensus for its use. This literature review critically examines current research on the efficacy of AAI as an intervention method for children with Autism Spectrum Disorder.

Clothing Type Versus Color: Understanding the Role of Dress and Ovulation on Mate-Attraction Effectiveness and Mate-Guarding.

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Sally M Askar, Thomas N Ballas, Christine N Farmer, Charles A Hunt, Christine Kershaw, Bernadette D O’Koon, Angela L Receveur, Cody Stitzel, Clarice Vavro, Sarah A Wilhoit | ADVISORS Erin O’Mara

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The dual-mating hypothesis suggests that mating strategies adopted by women vary across the menstrual cycle. While women are usually attracted to men who exhibit strong potential as a provider, at peak fertility women are attracted to men who exhibit stronger genes. To attract genetically strong men at peak fertility, research shows that women will alter their behavior in ways that make them more attractive to members of the opposite sex. For example, women tend to wear red clothing and clothing that shows more skin at peak fertility in an effort to attract a mate. These mate-attraction strategies not only increase attractiveness and sexual receptivity to members of the opposite sex, but they also provoke competition from other women. Given that women have a narrow fertile window, using the most effective mate-attraction strategy and derogating potential sexual competition is critical for mate-attraction and reproduction. The present research examined whether there is a most effective mate-at-

traction strategy, and the role of ovulation in derogation. By manipulating shirt color and type, we tested the effectiveness of mate-attraction strategies by examining the independent effects of each mating strategy and their interactive effects on attractiveness and derogation. Next, we examined whether mate-guarding is stronger for women who are ovulating. Ovulating women should show an increase in mate-guarding in an effort to protect her reproductive partner from other women. To test these questions, male and female participants viewed a photo of a woman and evaluated her attractiveness, sexual receptivity, and intentions to mate-guard (women, only). The photo viewed, determined by random assignment, was of a woman wearing a red or white shirt, and the shirt was either sleeveless or long-sleeved. Findings from the present study will increase the understanding of mating strategies and further illuminate the role of ovulation in effectively attaining strong genes.

Examining the effects of self-regulation on self-enhancement.

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Greg Alfred Eisenhauer | ADVISORS Erin O’Mara

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Self-regulation plays a critical role in self-presentation. The present research further examines the association between self-regulation and self-presentation by examining the role of self-regulation in self-enhancement. Research examining self-enhancement consistently finds it to be costly for self-presentation if done so in a blatant (as opposed to subtle) manner. Therefore, a common challenge faced regarding self-presentation is how to balance the desire to have and maintain a positive sense of self (i.e., self-enhance) while concurrently making a positive impression on others. Avoiding blatant self-enhancement, though, requires self-regulatory resources and depleting such resources should therefore influence the ability to fend off blatant self-enhancement. Specifically, depleting regulatory resources should be associated with higher levels of blatant self-enhancing strategies but should not influence subtle self-enhancement strategies. To test this, participants were randomly assigned to a self-regulatory depletion condition or a control condition. All participants completed a thought-listing task for

6-minutes. Participants in the depletion condition were given prior instructions asking them to control their thoughts during the task. Participants in the control condition underwent the same task with no additional instructions. Next, participants completed multiple self-presentation measures: modesty, blurtatiousness (i.e., unrestrained speaking or quick responding), and subtle and blatant forms of self-enhancement. We found no association between depletion and modesty or blurtatiousness, but we did find an effect between depletion and self-enhancement. Specifically, and as predicted, participants in the depleted condition reported significantly higher levels of blatant self-enhancement compared to the control group, but the groups did not differ in subtle self-enhancement. Our results show that participants with intact self-regulatory resources are able to control their approach to self-enhancement, perhaps in an effort to control self-presentation. Depleting self-regulatory resources, however, is associated with an increase in using self-enhancement strategies that can compromise self-presentation.

Executive Functioning Games at Home

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Alexia D Gaewsky | ADVISORS Mary Fuhs

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The research problem we are studying is if classroom-based games used to boost children's cognitive skills can be adapted to an at-home format. These games have been shown to boost the executive functioning skills (working memory, cognitive flexibility, and inhibitory control) of young children when played in the classroom (Schmitt et al., 2014). This is important because executive functioning skills help children to adapt to an early learning environment and become ready to learn academic skills (Fuhs, Nesbitt, Farran, & Dong, 2014). Children growing up in poverty are more likely to struggle with executive functioning skills (Noble, Norman, & Farrah, 2006). Therefore, they may benefit most from having access to executive functioning skills

activities at home regardless of their participation in a preschool program. As part of a larger intensive school readiness program for families living in poverty in Dayton (Taking Off To Success), we provided families with executive functioning games that we adapted to an at-home format. We will report pilot data from parent surveys to determine if parents played the games, if they enjoyed them, and how they can be improved. This pilot study will determine if the games given to the families each week are helpful and useful. The broader goal of this work is to test if providing executive functioning games to parents and children as part of an intensive school readiness program can boost the executive functioning skills of children growing up in poverty.

Perfectionism, Religious Orientation, and Self-Forgiveness: Mediating and Moderating Factors

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Nicole Marie Miller, Sarah A Wilhoit | ADVISORS Lee J Dixon

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The relationships between interpersonal forgiveness, perfectionism, and religious orientation have been previously studied (e.g., Ashby & Huffman, 1999; Dixon, Earl, Lutz-Zois, Goodnight, & Peatee, 2014; Meek, Albright, & McMinn, 1995; Steffen, 2013). However, the present study examines how different types of forgiveness, self-forgiveness and perceived forgiveness from God, are related to perfectionism and religious orientation. Previous research indicates that self-evaluative perfectionism, the more maladaptive type of perfectionism (Hill et al., 2004), is negatively associated with intrinsic religious orientation (Ashby & Huffman, 1999). Those with an intrinsic orientation, who profess faith as central to their identity (Allport & Ross, 1967), are more likely to self-forgive (Gordon et al., 2008). Conversely, self-evaluative perfectionism is positively associated with extrinsic orientation (Ashby & Huffman, 1999; Steffen, 2013), in which religion is practiced for social benefits. The present study used a subset of pre-collected data from a larger pool. We first hypothesized that

the relationship between self-evaluative perfectionism and self-forgiveness would be mediated by religious orientation. Second, we hypothesized that the relationship between religious orientation and self-forgiveness would be moderated by perceived forgiveness from God, such that people higher in intrinsic religiosity would self-forgive to the extent that they felt forgiven by God. This was not predicted for people higher in extrinsic religiosity. Results indicated that religious orientation did not mediate the relationship between self-evaluative perfectionism and self-forgiveness. Further, perceived forgiveness from God did not moderate the relationship between religious orientation and self-forgiveness in those who were higher in intrinsic religiosity, but it did moderate a positive relationship in those who were higher in extrinsic religiosity. The findings of this study were unexpected, warranting additional research looking into factors that may make extrinsically religious people more likely to self-forgive if they are forgiven by God.

The Effect of Maternal Executive Functioning on Child Executive Functioning of Preschoolers Growing Up in Poverty

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Jerica J Brunswick, Kelsey A Clayback, Julia M Finan, Catherine Maria Hackl, Madeline H Schimeck

ADVISORS Mary Fuhs

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The goal of this research is to identify protective factors that may buffer children's cognitive skills from the effects of living in poverty. Executive functioning skills allow tasks to be understood, performed, and completed by utilizing skills such as organization and communication. Higher executive functioning skills have been linked to higher academic achievement and less behavioral issues in children (Fuhs et al. 2014). Understanding what affects executive functioning, both negatively and positively, can further improve our ability to positively increase executive functioning skills in children. Children living in poverty are at an increased risk for difficulties with executive functioning skills. Noble et al. (2006) found that children living in homes with a lower socioeconomic status, or SES, showed significantly lower neurocognitive functioning compared to children from middle to high-income

homes. The results showed a significant, positive correlation between a child's SES and his/her executive functioning skills. We hypothesized that maternal executive functioning skills may serve as a protective factor for children's executive functioning skills. Previous research has shown an association between caregiving practices and both maternal executive functioning and child executive functioning (Ceivas, Deater-Deckard, Kim-Spoon, Watson, Morasch & Bell, 2014). Our current research seeks to further understand this association between maternal and child executive functioning skills. We will report data on associations between maternal and child executive functioning skills among families living in poverty. We specifically want to examine which aspects of maternal executive functioning skills most influence the executive functioning skills seen in children.

The Influence of Music on Psychological Power

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Benjamin J Balke, Sean M Raymond | ADVISORS Greg C Elvers

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Music is commonly believed to give people a sense of power. The current research explored the notion of how music changes two aspects of psychological power: a person's abstract thinking and sense of control. Past research has indicated that the frequency and the psychological power of the songs can evoke power in the participants. It is believed that music with lower frequencies should make participants feel more powerful than participants who listened to high frequency music. While listening to music participants completed a variety of tasks that look to single out aspects of power. Participants listened to either high or low psychological power which may have been shifted up two

semitones, down two semitones, or up one semitone and down one semitone in frequency. Preliminary findings failed to indicate a significant relationship between the psychological power of the music and abstract thinking. The results revealed an effect of the psychological power of the music on control which occurred in the opposite direction of what was expected. Preliminary findings have failed to indicate a significant relationship between shifting the frequency of the music and abstract thinking or control. Preliminary results have shown that there is some influence of the music on psychological power. Research is still on going.

The Relationship Between Executive Functioning Skills (EF) and Spontaneous Focusing on Numerosity (SFON) in Preschoolers

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Kelsey A Clayback | ADVISORS Mary Fuhs

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Longitudinal data is currently being collected in order to examine the relationship between children's Spontaneous Focusing on Numerosity (SFON) and children's cognitive control skills, or executive functioning (EF). SFON refers to a child's tendency to focus on the characteristic of number in his/her environment without being explicitly instructed to do so. Previous research has shown that both SFON and EF are important predictors of children's mathematical ability. However, literature has not yet examined what influences SFON or how it develops. This data, collected in fall of 2014 and currently in spring of 2015, includes

a battery of assessments of children's EF and SFON skills. I hypothesize that EF skills influence SFON and children with more developed EF skills will also have a higher level of SFON. Since evidence has shown that both EF and SFON influence mathematical ability, a relationship between the two predictors seems likely. Research is ongoing; however, a significant relationship between SFON and two EF skills, inhibitory control and cognitive flexibility, was observed in the data from fall 2014. This research will offer insight into the role EF plays in SFON of preschoolers.

A Longitudinal, Sibling- Comparison Analysis of Associations Between Depression and Delinquency in Adolescence

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Kathleen Elizabeth Mcguire | ADVISORS Jackson A Goodnight

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

This study examines the prospective relationship between delinquency and depression in adolescence, as previous research suggests that they may be related. Our study was interested in testing the direction of the relationship between these factors, and whether they would be related when controlling for potential confounds using statistical covariates in one analysis and the comparison of siblings in a second analysis. Data from 11,495 offspring of a large nationally representative sample of mothers were used. Participants reported on delinquency and depression from the ages of 14 to 17. Covariates included race, gender, mother's education, family income, birth order, maternal age at childbirth, and maternal history of delinquency, all of which were reported by participants' mothers. As predicted, depression in ages 14-15 predicted future depression in ages 16-17, and

delinquency in ages 14-15 predicted future delinquency in ages 16-17, suggesting continuity in both outcomes during adolescence. In addition, a significant positive association was found between depression at ages 14-15 and delinquency at ages 16-17 and between delinquency at ages 14-15 and depression at ages 16-17. Although boys had higher levels of delinquency than girls and girls had higher levels of depression than boys, no gender differences were found in the strength of the associations between delinquency and depression. Results were consistent between analyses controlling for measured covariates and sibling-comparisons. The findings suggest that depression and delinquency are mutually influential. This would suggest that addressing one outcome could serve to reduce or prevent the other.

A Smartphone Application for the Treatment of Generalized Anxiety Disorder

College of Arts and Sciences: Psychology | Poster - Graduate Research

STUDENTS Jeremy T Schwob | ADVISORS Jackson A Goodnight

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

This ongoing study develops and evaluates the acceptability and effectiveness of a smartphone application for the treatment of Generalized Anxiety Disorder (GAD). Cognitive-behavioral therapy (CBT) is commonly used to manage and minimize the aversive symptoms of GAD; however, studies have found only modest treatment gains when CBT is used alone (Brown et al., 2001). Previous studies have measured client acceptability of smartphone applications (Ainsworth et al., 2013; Pramana et al., 2013), but they have failed to measure the impact of the application on treatment outcomes (e.g., reductions in symptom severity). To fill this gap in the literature, the proposed study will compare therapists using their treatment as usual (TAU; typically cognitive behavioral therapy) plus inclusion of the smartphone application (TAU+app) to two alternative treatment conditions: TAU plus the addition of a paper log for daily assessment of client data (TAU+paper), and treatment as usual alone (TAU).

The current study will test the hypothesis that the integration of a cognitive-behavioral based smartphone application will produce greater reductions in anxiety by facilitating a better quality of communication between therapist and client, strengthening the quality of the therapeutic alliance, promoting skill acquisition, and providing more data regarding client progress. All participants will complete dependent measures of anxiety and depression, global functioning and therapeutic alliance on a weekly basis during the 6 weeks of the study. In addition, the study will test mediation of the treatment effect through enhanced therapist-client communication, therapeutic alliance, and treatment compliance, which also will be measured during the six-week treatment period. Dependent and mediating variables will be measured again at week 10 to determine any lasting effects of the intervention. Keywords: smartphone application, treatment outcomes, anxiety, depression, therapeutic alliance.

A Subtle Test of Change Blindness: Do Readers Notice Physical Changes in the Text

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Susan T Davis, Anne M Horn, Christine Kershaw, Nicholas J Latorre, James Edward Mclean, Erin Marie Straslicka

ADVISORS Susan T Davis

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Change blindness is an inability to detect changes in a visual stimulus. For example, Simons & Chabris (1999) used videotaped scenes depicting a gorilla walking across the background, typically unnoticed by observers who were counting the number of times a ball was being passed back and forth in the foreground. However, change blindness can also have more subtle variations. The present research investigated blindness to changes in the spacing between end punctuation and the next sentence in text, referred to as space values. Participants read a three-paragraph-long passage in which the space value of one paragraph was different from the other two. For example, the first paragraph would have three spaces after end punctuation and the second and third paragraphs would only have one. They were told to read the passages carefully, but without telling participants to look explicitly for changes in space value. Previous studies have shown that subtle changes of visual stimuli that are unexpected

and unrelated to the task at hand produce substantive levels of change blindness when assessed by verbal report (Simons & Rensink, 2005). The present research replicates those results and examines the relationship between English competency, visual awareness, and change blindness. This experiment, using subjective reports of change detection assessed the hypotheses of interest in this research: first, a subtle change of the space value in the second paragraph of the text would be detected more frequently than a change in the first or third paragraph. Second, the changes would more often be detected by participants whose majors either made them more proficient in English or in recognizing spatial patterns (English or Fine Arts majors); and, third, more confidence in their ability to detect change would be expressed afterwards by participants who were least accurate in detecting changes in space values.

An Examination of the Relationship Between Perceived Social Support and Medication Adherence in Uninsured Patients with Hypertension

College of Arts and Sciences: Psychology | Poster - Honors Thesis

STUDENTS Megan K Flaherty | ADVISORS Keri J B Kirschman

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Hypertension is a relatively common chronic condition that affects approximately one in three Americans. Successful management and treatment often requires individuals to take antihypertensive medications regularly. However, non-adherence to varying levels and for different reasons is rather common. Untreated hypertension can lead to serious health consequences including heart attacks, heart disease, and kidney damage. Additionally, individuals without health insurance are more likely to have uncontrolled levels of high blood pressure than those

with health insurance. It was predicted that increased perceptions of social support would be correlated with higher levels of antihypertensive medication adherence. 79 uninsured individuals with at least a 3-month history of hypertension were recruited for this study from an urban free medical clinic located in a midsize Midwestern city. Participants completed survey measures to assess demographics, medication adherence, perceptions of social support from family and friends, and perceptions of social support from the clinic. Single interval compliance was also cal-

culated from prescription claims data as an additional measure of medication adherence. Correlational analyses did not support the major hypothesis that higher perceptions of social support would be associated with better medication adherence. Future

research might continue to evaluate additional aspects of social support and other factors that might be associated with medication adherence.

Are Young Children's Music Preferences Associated with the Singer's Race?

College of Arts and Sciences: Psychology | Poster - Honors Thesis

STUDENTS Yi Liu | ADVISORS Ronald M Katsuyama

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Few studies have examined Racial/Ethnic (R/E) Identity in early childhood. The current study utilizes a novel approach to measuring this construct and, further, investigates whether R/E Identity is related to cross-race acceptance. African American and White kindergarten children were asked to rate the quality of 4 female and 4 male singers, each of whom is depicted on a video clip. Among the 8 video clips are 2 pairs of female singers and 2 pairs of male singers. Within each pair of same-sex sing-

ers, one is Black and the other is White. The same sound track is used for each pair. Differences in the ratings of African American and White singers could represent young children's R/E Identity, which is compared across African American and White children. It was hypothesized that R/E Identity would either be positively related, or not at all related, to cross-race inclusion. The latter is measured by a modified version of the Cross-Race Inclusion Task developed by Blackwell and Katsuyama (2012).

Assessing Aesthetic Preferences for Faces in Paintings and Photographs with Measures of Ocular Gaze

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Susan T Davis, Alex Jacob Fitzharris, Christine Kershaw, Ashley Ann F Marshall, Giuseppe G Miranda, Megan

Elizabeth Nelson, Emily R Ruffolo, Madeleine L Schneider | ADVISORS Susan T Davis

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

A logical assumption is that reactions to two nearly identical works of art, -one a painting, one a photograph-, would be similar. However previous research has shown that the medium in which art is presented can influence perception of the work. The present study evaluated aesthetic preferences to determine if faces in paintings are rated as more aesthetically pleasing and valuable, as predicted by the art-infusion effect (Locher et al., 2006). To test this, participants were simultaneously shown paintings and photographs of faces, matched for numerous characteristics and selected from a norming study. In Phase 1 of this study, participants in Condition A were shown these matched images and were asked which they found more aesthetically pleasing; participants in Condition B were asked which they would be more likely to purchase. We found that participants in both conditions were statistically more likely to choose faces in paintings as more aesthetically pleasing and more valuable than faces in photographs.

Furthermore, in the few instances when photographs were chosen as more aesthetically pleasing, their overall mean ratings for pleasingness were lower than those for faces in the paired painting. In Phase 2 of this study, eye-tracking equipment monitored ocular mechanisms while participants viewed the paintings and photos. Ocular monitoring assisted in evaluating how the medium in which the facial image was presented affects viewing behavior and appreciation for the image by recording visual scan paths, fixation times, and pupil dilations. Our hypotheses were that data from ocular monitoring would be consistent with the ratings and would show that eye movements would concentrate on features of the portraits that determine the aesthetic pleasingness and value of the paintings. Results from this study have implications for understanding which factors make products more attractive and valuable, which has implications for marketing and product development.

Auditory Information in the Form of a Scratching Sound Enhances the Effects of the Rubber Hand Illusion

College of Arts and Sciences: Psychology | Poster - Honors Thesis

STUDENTS Brittany C Fischer, Natalya N Lynn, Bridget K O'Mera | ADVISORS Benjamin R Kunz

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The body schema is generated from a number of different sense modalities such as vision and proprioception. Botvinick and Cohen's rubber hand illusion (1998) demonstrates the relative contributions of vision, tactile perception and proprioception to body awareness. In this illusion, a participant's real hand is concealed from view and a prosthetic rubber hand is seen in its place. An experimenter simultaneously administers tactile stimulation to both the seen rubber hand and participant's actual hidden hand. The combination of this visual and tactile informa-

tion overrides proprioceptive cues to body perception, creating a sense of ownership of the rubber hand. The present experiment extends research on the sensory inputs to the body schema by employing the rubber hand illusion to investigate the role of auditory information in construction of the body schema. Tactile stimulation was administered with sandpaper while a pre-recorded scratching noise played from a concealed speaker. We found that the inclusion of a sound cue heightened the effects of the illusion and caused participants to more readily accept

the rubber hand into the body schema. The findings of this study will contribute to the existing understanding of body perception

by demonstrating the influence of the auditory system in limb localization.

Behavioral Activation in a Homeless Shelter: Development and Validation of the Behavioral Activation Treatment Efficacy Measure

College of Arts and Sciences: Psychology | Poster - Graduate Research

STUDENTS Zachary S Glendening | ADVISORS Roger N Reeb

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Beginning in the summer of 2013, Reeb and colleagues implemented a Behavioral Activation (BA) Program in a homeless shelter for men. Based on operant conditioning, BA is a “therapeutic process that emphasizes structured attempts at engendering increases in overt behaviors that are likely to bring [the person] into contact with reinforcing environmental contingencies and produce corresponding improvements in thoughts, mood, and overall quality of life” (Hopko et al., 2003, p. 700). Quantitative and qualitative results show that BA has efficacy in increasing homeless men’s participation in various shelter activities (Reeb et al., 2014). With funding from the Graduate Student Summer Fellowship, the author co-developed and is in the process of validating the Behavioral Activation Treatment Efficacy Measure (BATEM) to assess psychosocial outcomes of BA. This brief psychometric instrument assesses the following constructs

central to mental health maintenance and recovery from mental illness: agency, hope, purpose/meaning in life, quality of life, perceived social support, emotional well-being, and positive social climate. Validation of the measure relies on anticipated support for the following hypotheses: (A) The BATEM will have strong internal consistency. (B) At baseline, participants without a history of mental illness and/or substance abuse will have higher (i.e., less clinically significant) BATEM scores, relative to those with such histories. (C) Men who engage in high numbers of BA sessions will show greater improvements in BATEM scores over a one month period, relative to those who engage less or not at all. That is, changes in BATEM scores will positively correlate with the number of BA activities in which individuals participate during the previous month. Though final statistical analysis is underway, preliminary results will be provided.

Do you see what I see? Confirming change blindness through eye-tracking and self-report

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Angel C Agu, Susan T Davis, Christine Kershaw, Jillian R Marron, Anneke V Price, Marissa E Sander, Kendall Lorraine Wolowicz, Michael T Wright | ADVISORS Mark R Brown, Susan T Davis

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

A gorilla walking through a group of people passing a basketball around is a popular example of change blindness, the inability to detect changes in visual stimuli (Simons & Chabris, 1999). An even more subtle experiment showed that gradual changes of facial emotion produced change blindness when assessed by verbal report (David et al., 2006). The present studies measure the relationship between empathy (sensitive to others’ emotions), social awareness (cognizance of what is needed by others in a social situation), and the ability to detect changes in facial expressions of emotion. It also uses eye-tracking equipment to relate fixations and gaze patterns to participant responses about change. Experiment 1 verified the two hypotheses of interest in this research such that gradual changes in the facial emotional

expression in a video were detected more frequently than gradual changes in a neutral stimulus (e.g., background color), and more often by participants who were more socially aware and empathic. Participants more confident in their ability to detect change after viewing the video were least accurate in detecting changes in emotion. Experiment 2 correlates participants’ verbal reports of change with visual scan paths and fixations and uses a test of memory to evaluate whether changes may be detected but under-reported. Results of the memory test are expected to indicate that participants identify emotional expressions in subsequent stimuli faster when that emotion corresponds to the emotion displayed in a preceding video.

Do You See What I See? Perceiving Distances from Another’s Perspective

College of Arts and Sciences: Psychology | Poster - Independent Research

STUDENTS Emma K Tokar | ADVISORS Benjamin R Kunz

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The ability to accurately perceive distances between the self and objects/targets underlies action-guidance and spatial navigation. While one can easily and accurately judge distances from his or her own perspective, it is largely unknown whether distance judgments from an imagined perspective are as accurate as from one’s own viewpoint. This study will investigate the accuracy of distance judgments made from another person’s viewpoint. To

do so, participants will be asked to either adopt a confederate’s viewpoint or to imagine standing in a different location (without a confederate acting as a stand-in) and to estimate distance from these novel perspectives. As a control, participants will simply judge the distances between two targets (object to object or exocentric distance judgment). We predict that participants will judge distances most accurately when adopting the perspective

of a confederate; distance judgments will be less accurate when made from an imagined viewpoint (with only a marker to denote the adopted viewpoint) and when making judgments of the distances between two external objects. This study will contribute to

an understanding of the ways in which we navigate the external world but will also have social psychological implications in their investigation of perspective-taking.

Does Study Abroad Impact Students' Personality?

College of Arts and Sciences: Psychology | Poster - Honors Thesis

STUDENTS Ashley Ann F Marshall | ADVISORS John J Bauer

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

International education is universally valued both in academics and the job market because of the perception that those who study abroad have increased intercultural awareness, experience with diversity, and opportunity for personal growth. Given that students who are studying abroad are experiencing increased independence and experience with a new culture, this is a potential time for the development of perspective-taking, empathic concern, non-prejudice, and other forms of personal growth. The present, longitudinal study collected narrative and non-narrative data on these qualities of personality development before,

during, and after the participants' studies. For comparison, we gathered the same measures with a group of students who were taking a summer course on campus. Contrary to popular views of studying abroad, we did not find evidence that summer study abroad facilitated personality development more so than summer study on campus. We did find that students were more likely to report personal growth after studying abroad than studying on campus, but this was explained by the fact that the study-abroad group had higher expectations for personal growth before summer studies.

Does that "Ring a Bell?" The Effects of Music-Induced Emotions on Recall of a Story

College of Arts and Sciences: Psychology | Poster - Honors Thesis

STUDENTS Giuseppe G Miranda | ADVISORS Susan T Davis

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

This research examined the effects of music-induced emotions on memory for information from a story. Previous research has revealed that music is a reliable tool for mood manipulation (Vuoskoski & Eerola, 2012), and emotion has been shown to be a memory enhancer (Janke, 2008). Tesoriero and Rickard (2012) provide two major theories for how music and memory interact, emotional arousal theory and mood congruence theory. The emotional arousal theory predicts that when emotions are aroused there will be an overall enhanced memory for attended information. Further, the mood congruence theory predicts enhanced memory for information that is congruent with reported emotions (Bower & Forgas, 2000). Based on these theories, there should be an improvement in memory for text information for individuals listening to emotionally-arousing music while reading text with corresponding emotional content. Participants in the present study, equipped with a heart rate monitor, listened

to classical fear-inducing music while reading a fear-inducing story presented in either moving or static text. Other participants read the story without accompanying music. Both groups were evaluated for their emotional state before, during, and after the story. Following a task to minimize rehearsal of story details, all participants were given a surprise, cued-recall test of information from the story. Data analyses revealed a modest, statistically significant effect of music on recall of story detail. Furthermore, there was a strong, statistically significant effect of the fear story on emotion. Not only was the fear story able to elicit a strong fear response in the participants, but it also increased the participants' overall basic negative affect and decreased their overall basic positive affect. Analysis is currently underway to determine if fluctuations in heart rate correlate with emotional states of the participants, as determined by the emotional state questionnaires.

Examining the Role of Self-Esteem in the Association between Emotional Vulnerability and Psychological Well-Being.

College of Arts and Sciences: Psychology | Poster - Honors Thesis

STUDENTS Kathryn M Schilling | ADVISORS Erin O'Mara

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The purpose of the proposed study was to examine the association between emotional vulnerability and psychological well-being, and test whether the association varies based on level of self-esteem. Researchers define psychological well-being as an appraisal of one's life where a person gives conscious evaluative judgments about one's satisfaction with life as a whole (Grossi et al., 2013). Emotional vulnerability is defined as the degree to which a person renders himself or herself exposed to the

emotional pain of rejection. Experiencing social rejection has a negative effect on self-esteem, however, having high self-esteem may buffer the self against the pain of rejection. Previous research suggests that vulnerability is an important trait essential to satisfying the human need to create and maintain close relationships. Taken together, the present research examined whether self-esteem influences whether emotional vulnerability is associated with positive or negative psychological well-being.

Participants first completed a measure of self-esteem and were then randomly assigned to an experimental group where they wrote about a time they felt emotionally vulnerable, or a control group. Participants then completed a measure of psychological well-being. Current predictions are that emotional vulnerability will contribute to better well-being for individuals with high

self-esteem, but poorer psychological well-being for those with lower self-esteem. The findings from the present study have important implications for understanding the role that self-esteem plays in how emotional vulnerability influences psychological well-being.

Externalizing Symptoms as a Risk for Unintentional Injuries in Children

College of Arts and Sciences: Psychology | Poster - Graduate Research

STUDENTS Sally M Askar | ADVISORS Keri J B Kirschman

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The objective of this study is to understand the influence of externalizing symptoms (e.g., hyperactivity, oppositionality) on unintentional home injuries in children. Childhood unintentional injury is the leading cause of death in children under 18 years of age (Krug, Sharma, & Lozano, 2010). Past research has shown that the presence of certain behavioral disorders may impact the risk of childhood injury (Pastor & Reuben, 2006). These disorders include Attention-Deficit/Hyperactivity Disorder (ADHD) and Oppositional Defiant Disorder (ODD). The psychiatric symptoms of these disorders comprise of externalizing symptoms such as aggression, hyperactivity, and oppositionality (inadequate cooperation or compliance by the child; American Psychiatric Association, 2013). The literature about the effects of externalizing problems on unintentional injury risk has been equivocal (Schwebel, Hodgens, & Sterling, 2006; Davidson et al., 1992). Further, research identifying the specific externalizing symptoms

that could increase the risk for unintentional home injuries in children is lacking. This proposed study will test the hypothesis that children with externalizing symptoms are more likely to be at risk for pediatric home injuries than children who do not exhibit such symptoms. This study will use data collected from 90 families who participated in a larger faculty-led study on sibling supervision (Safety Involving Brothers and Sisters; Brown Kirschman & Dodds, in progress), which will be coded and analyzed to examine the current research questions. The identification of child attributions that may increase risk of home injury is an important first step in targeting prevention efforts. Furthermore, because unintentional injury has been seen as a public health problem, these findings will be beneficial for programs that promote injury prevention by identifying the certain mechanisms that can cause children to be at a greater risk for unintentional injury (Schwebel et al., 2007).

Hate Crime Laws: What Are They and Who Do They Protect?

College of Arts and Sciences: Psychology | Poster - Honors Thesis

STUDENTS Maya Victoria Pedersen | ADVISORS Melissa A Berry

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Tremendous disagreement and confusion regarding hate crime laws and the groups protected by them persist. We investigated perceptions of what constitutes a hate crime and whether these standards are applied consistently. Participants read and responded to brief scenarios describing offenses committed by

majority or minority group members against others (majority or minority group members). Although support for the exploratory hypotheses was not found, interesting patterns emerged with respect to gender differences.

Risk and Resilience: A Prospective Analysis of the Complex Effects of Internalizing Problems on Alcohol Use in Adolescence

College of Arts and Sciences: Psychology | Poster - Graduate Research

STUDENTS Lauren E Hurd | ADVISORS Jackson A Goodnight

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Previous research suggests that there exist both risk and protective mechanisms for the relationship between internalizing problems and alcohol use outcomes. The present study aims to determine whether deviant peer affiliations and risk aversion are two protective mediating mechanisms of this relationship. A risk mechanism of high negative emotionality, consistent with the tension reduction hypothesis, will also be investigated. For exploratory purposes, the mediators will be tested on three separate alcohol use outcomes: frequency of use, frequency of heavy use, and problematic use. Data from age cohorts 9, 12, and 15 (N=2,339) of the Project on Human Development in Chicago Neighborhoods' (PHDCN) Longitudinal Cohort Study will be

utilized. This study collected data in three waves, each occurring approximately two years apart. Internalizing disorders will be measured by the Child Behavior Checklist (CBCL) from the first wave of data collection. The Emotionality, Activity, Sociability, and Impulsivity (EASI) Temperament Survey from wave one, and the Deviance of Peers questionnaire from wave two will be used to assess the mediators. Lastly, the participants' alcohol use outcomes will be determined from substance use interviews conducted during wave three of data collection. To assess the hypothesized mechanisms, the bootstrapping procedure with multiple mediators will be utilized.

The Effects of Music on Employee Affect

College of Arts and Sciences: Psychology | Poster - Honors Thesis

STUDENTS Nolan J McNulty | ADVISORS Susan T Davis

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

My thesis is concerned with the effect of music on mood in the workplace. Mood, or affect, is an important attribute in the working environment. For example, positive affect is directly proportional to employee satisfaction, which leads to more productivity and more efficiency. On the other hand, negative affect is inversely proportional to employee satisfaction. Poor employee satisfaction leads to less productivity and less efficiency. The mood of employees at a student café at the University of Dayton was assessed with and without background music while they worked. Data was collected over a two-week period from 20

student employees. Data included background questionnaires asking for demographic information such as music preference, music experience, and hours spent listening to music. The Positive Affectivity, Negative Affectivity Scale (PANAS-X) was distributed before and after each work shift in order to assess changes in affectivity scores. Each participant was exposed to both music and no-music conditions. The hypotheses were that music would enhance satisfaction in this work environment and that the music background of the participants would also affect work satisfaction.

The Layered Look: Do Additional Layers of Clothing Influence Perceived Reach Ability?

College of Arts and Sciences: Psychology | Poster - Honors Thesis

STUDENTS Michael J Tymoski | ADVISORS Benjamin R Kunz

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The Layered Look- How Many Sweatshirts Does It Take? Clothing plays a necessary role in exhibition of personal style, concealment of body parts that are deemed unacceptable to exhibit by cultural norms, and protection from adverse weather (Flügel, 1930). But anyone who has worn a heavy parka knows that there is a seeming loss of motion that comes with bulky or layered apparel. Does wearing bulky clothing actually change the way we perceive our bodies and our movement capabilities? Previous studies suggest that tools such as a reaching wand are incorporated into the body schema, the cognitive representation of one's own body. These changes to the body schema likely influence affordance judgments, or perceived potential to act in an environment (Creem, et al. 2014). In a series of experiments, we

intend to determine whether clothing changes the body schema by assessing the effect of clothing on perceived affordances in reaching tasks. Participants will wear a varying (and random) number of sweatshirts, look at an arbitrary scale on the wall, and verbally make an affordance judgment about the height to which they can reach, given their perceived body capabilities. These affordance judgments will be followed by actual reaching tasks. We predict that there will be a systematic underestimation of reachability with the application of the additional layers of clothing. As burdening or encumbering objects are added to the body schema, affordance judgments will become more conservative, despite actual action capabilities remaining largely unchanged with additional layers of clothing.

The Relationship of Primary and Secondary Psychopathy to Different Types of Empathetic Deficits

College of Arts and Sciences: Psychology | Poster - Graduate Research

STUDENTS Alyssa P Gretak | ADVISORS Catherine Lutz Zois

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The present study examines the relationship between the constructs of psychopathy and empathy in 180 undergraduate students. This study attempts to address discrepancies in previous research concerning these constructs by assessing a number of different types of empathy concurrently. Participants were asked to complete measures of psychopathy, implicit and explicit cognitive and affective empathy, social desirability, and anxiety. To measure affective implicit empathy, participants listened to a mock news broadcast that is empathy evoking. While listening to the broadcast, the participants wore a heart rate monitor to determine if the individual experienced an increase in

heart rate in response to the stimuli. The current study will test the hypotheses that those high in secondary psychopathy will be lower on all empathy measures than those low in psychopathy. In contrast, those high in primary psychopathy will only be lower on the implicit, affective empathy measure. If we find statistically significant results supporting our hypotheses, the current study will expand upon and address the discrepancies of the existing research by assessing implicit affective empathy along with more commonly assessed types of empathy in this research area (Blair, Jones, Clark, & Smith, 1997; Lishner, 2012).

Too Close for Comfort: The Effect of Threatening Stereotypes on Perceptions of Proximity

College of Arts and Sciences: Psychology | Poster - Honors Thesis

STUDENTS Anissa Jeanette Maffett | ADVISORS Erin O'Mara

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Stereotypes are relied upon to help guide people through their social world. Although typically characterized as unfavorable, stereotypes can serve a number of beneficial functions. Stereotypes allow people to quickly process new information about novel individuals, environments, or events by applying preexisting stereotype-consistent information. Processing new information quickly is essential in novel or unfamiliar situation because it helps determine how to best react. While there are a number of beneficial qualities of stereotypes, a disadvantage of stereotypes is that they can potentially lead to distortions in reality. Stereotypes play an active role in the evaluation of stimuli (e.g., persons), but we know much less about whether stereotypes influence the visual perception of physical stimuli. The current project examines whether people differentially perceive the distance of physical targets based on whether the target is accompanied by stereotype-based threat. Previous research finds that people evaluate physically threatening stimuli (e.g., spi-

ders, aggressive people) as physically closer than non-threatening stimuli (Cole, Balceitis, & Dunning, 2012). The current study seeks to replicate and extend these findings by examining the role of stereotypes in activating a threat response. The current study will examine this question by looking at the visual perception of distance when presented with threatening stimuli based on stereotype information. Specifically, will participants perceive a confederate participant to be physically closer when that person fits the stereotype of someone who likely has an ostensibly dangerous (and fictitious) disease? It is predicted that participants who are made aware of the threatening status of an individual through stereotypes will perceive that person as physically closer than when the person is not consistent with the stereotypes of a potential disease-carrier. The findings from this experiment have the potential to understand just how influential stereotypes can be in distorting physical reality in our social world.

Under Pressure? The Relationship Between Reciprocity, Intimacy, and Obligation in Self-Disclosure

College of Arts and Sciences: Psychology | Poster - Graduate Research

STUDENTS Julie L Prosser | ADVISORS Erin O'Mara

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Studies of self-disclosure conducted in the lab report that individuals report greater liking for those who disclose highly intimate information; whereas field studies report that individuals report greater liking for those who disclose information of lower intimacy. One possible explanation for such inconsistent findings is that laboratory studies typically create a scenario where the recipient of self-disclosed information is expected and obligated to reciprocate. Field studies, however, remove the obligation for the participant to reciprocate, thus creating an unbiased evaluation. Thus far, research has not directly compared the level of intimacy with whether the participant is obligated to respond or

not (the participant's role), nor has it examined how these factors influence a participant's willingness to respond when given the choice to do so. The current study examines the effects of self-disclosure on liking when level of intimacy and participants' roles are manipulated in a lab setting. Participants are given the opportunity to evaluate an individual based on a vignette of high or low intimate content. The interactive effects of participant role and intimacy level on reports of interpersonal liking as well as the role of perceived similarity with the disclosing target will be examined.

Behavioral Activation in a Homeless Shelter: A Discussion of Outcomes and Generalization to Guests at a Women's Shelter

College of Arts and Sciences: Psychology | Panel Discussion - Graduate Research

STUDENTS Thomas N Ballas, Nicholas C Borkey, Jessalyn S Crossman, Anthony A Dalpiaz, Christine N Farmer, Eric A Garcia, Kristine R Garcia, Zachary S Glendening, Charles A Hunt, Natalya N Lynn, Caroline M Mccahey, Bernadette D O'Koon, Stephanie D Rodriguez, Anna M Straus, Nathan D Sudnick | ADVISORS Roger N Reeb

LOCATION, TIME Kennedy Union West Ballroom, 1:00 PM–2:00 PM

This interdisciplinary, service-learning, participatory community action research is guided by the Psycho-Ecological Systems Model (PESM; Reeb & Folger, 2010, 2012; Reeb et al., 2011a, 2011b) and implements behavioral activation both a men's homeless shelter and women's homeless. Behavioral activation (BA), rooted in B.F. Skinner's operant conditioning, may be defined as: "Structured attempts to increase overt behaviors that bring an individual into direct contact with opportunities for response-contingent reinforcement and thereby produce improvements in his or her quality of life, mood, thoughts, and empowerment to recognize and pursue personal potential." (Hopko et al., 2003). Through a service-learning, community-based research project,

we implemented behavioral activation strategies to enhance (1) empowerment, (2) coping, and (3) the social skills of the guests and environment within the homeless shelters. We predict that, in the short-term, guests will (1) find the behavioral activities meaningful and enjoyable and (2) show improvements in perceptions of hope, mood, empowerment, social support, social climate of the shelters, purpose/meaning in life, and quality of life. Furthermore, we predict in the long-term, relative to comparison groups, guests at the shelters who fully participate in the program will, upon leaving the shelters, show superior housing retention and employment rates (Reeb, R. N., Glendening, Z. S., Farmer, C. N., Snow, N. L., & Elvers, G. C. 2014). Finally, we anticipate that

short-term outcomes are expected to predict long-term outcomes. This panel highlights community outcomes relative to

BA at the men's shelter and provides preliminary outcomes for expansion of the project to the women's shelter.

Ethics on an Urban Farm

College of Arts and Sciences: Religious Studies | Oral Presentation - Course Project, REL 399 P3

STUDENTS Jacob R Glaser, Kyle Christopher Massie, Eryn N Olson, Margaret E Wagner, Sarah C Welsh

ADVISORS Jana M Bennett

LOCATION, TIME LTC Studio, 1:00 PM–1:20 PM

This project at Mission of Mary Cooperative was part of a year-long directed learning experience called Ethics in Action. As a group, we identified an ethics problem, which was that the farm and the community around it had not sustained a lasting relationship because of the farming off-season. We also recognized that

University of Dayton students should be more involved with the city of Dayton. We developed events to better the relationships between the community and the farm as well as for the students of UD. Our presentation discusses the goals and outcomes of our project in addition to our work in the DLE.

TOIL AND ALIENATION: THE HISTORICAL AND PHILOSOPHICAL BASIS OF JOHN PAUL II'S LABOREM EXERCENS.

College of Arts and Sciences: Religious Studies | Oral Presentation - Graduate Research

STUDENTS Adam D Sheridan | ADVISORS Vincent J Miller

LOCATION, TIME Kennedy Union 207, 1:00 PM–1:20 PM

This paper articulates and critically evaluates the historical and philosophical background of Pope John Paul II's vision of human work. It primarily focuses on Karol Wojtyla's (John Paul II's name prior to papal elevation) critical but also constructive engagements with the implications of Marx's thought. Historically, John Paul/Wojtyla's opposition to Soviet-style Marxism is well documented and inarguable. At the same time, he fruitfully worked with Marxist laborers and intellectuals in opposition to Soviet domination of his Polish homeland. Philosophically, John Paul/Wojtyla's vehement critique of dialectic materialism is equally inarguable and well documented. However, it is crucial to note that this opposition and critique has roots deeper than Soviet-style Marxism, dating back to the Nazi occupation of Poland. In turn, his critical engagement with Marx both reflects this experience and rests on the totalitarian potential in Marx's latter philosophy. All the same, the anthropological dimensions of John Paul/Wojtyla's work evince substantially constructive

engagement with Marx. For example, Wojtyla's understandings of work as fundamentally constitutive of the human person and the potential for "alienation" within economic liberalism either resonate with or directly draw from fundamental components of Marx's thought. Furthermore, in his later encyclicals, John Paul employs key insights of Marxist analysis, such as the "commodification of labor", in his critique of economic liberalism. In turn, this critique involves a constructive engagement with Marx's earlier philosophical works. Scrutiny of the texts discloses that Marxist critique is clearly operative in his social encyclicals, particularly *Centesimus Annus*. Ultimately, this paper offers a thick historical and philosophical description of Wojtyla's engagements with Marx. Insofar as this engagement contains both critical and constructive dimensions, Wojtyla's relationship with Marxist thought is significantly more complex than scholars commonly acknowledge.

Morning Meetings: I Can't Fix it, but I Can Hold it

College of Arts and Sciences: Religious Studies | Oral Presentation - Course Project, REL 399 P3

STUDENTS Paige Christin Flannelly, Claire Marie Houser, Sean M McAllister, Stephanie M Pieper | ADVISORS Jana M Bennett

LOCATION, TIME LTC Studio, 1:20 PM–1:40 PM

Having an open, safe space to communicate ideas and beliefs is an integral part of not only the University's mission, but also the Neighborhood School Center DECA Prep. Providing a means for students to be heard, whether anonymous or face-to-face, is embodied by DECA's morning meetings. The spirit of morning meetings inspired us to bring students together to share

their burdens, successes, failures, and goals in order to create an open line of communication so each individual's voice can be heard. This presentation discusses the concept of morning meetings in relation to DECA Prep's elementary school students, but also asks how the substance of these meetings might cross over for us at UD.

Saul Alinsky and American Catholicism: Organizing for Democracy

College of Arts and Sciences: Religious Studies | Oral Presentation - Graduate Research

STUDENTS Justin M Yankech | ADVISORS Vincent J Miller

LOCATION, TIME Kennedy Union 207, 1:20 PM–1:40 PM

For many it is hard to imagine that Saul Alinsky, the radical founder of community organizing, has any connection with Amer-

ican Catholic social action owing to his religious agnosticism and the strategies and tactics he employed in organizing underpriv-

ileged, urban communities. Alinsky, however, was deeply influenced by his collaboration with social Catholics and he remains a pivotal figure in how the Catholic Church in the United States engages in social action. This presentation will examine Alinsky's social vision in light of the Catholic social principles of human dignity, the common good, solidarity and especially subsidiarity. The focus will be on Alinsky's early sociological and criminological writings as well as his seminal work, *Reveille for Radicals*

(1946). I will argue that Alinsky's social vision is wholly within the bounds of Catholic social doctrine and remains an important means of Catholic social action within American democratic culture through the work of the Catholic Campaign for Human Development. This consonance confirms that Catholics should not vilify Alinsky but instead should recognize him as a major figure in American Catholic social action.

Ethics and Education in Dayton

College of Arts and Sciences: Religious Studies | Oral Presentation - Course Project, REL 399 P3

STUDENTS Johanna Lynn Hartley, Mackenzie A Richardson | ADVISORS Jana M Bennett

LOCATION, TIME LTC Studio, 1:40 PM–2:00 PM

This presentation discusses our work with DECA (Dayton Early College Academy) high school students in the context of the Sophomore Ethics in Action Designed Learning Experience. DECA is a school devoted to helping first generation urban students make it into college. Our specific project has been to work with the student council and to help develop the students'

sense of civic responsibility, especially by developing field trips to area organization council meetings. We have also been developing a practice of hospitality with the students. Our presentation focuses on the results of our work with the students this semester. We hope that we have left DECA council better than when we began.

Of Mountain Flesh: Towards a Theology of Appalachian Creatures

College of Arts and Sciences: Religious Studies | Oral Presentation - Graduate Research

STUDENTS Scott C McDaniel | ADVISORS Vincent J Miller

LOCATION, TIME Kennedy Union 207, 1:40 PM–2:00 PM

In *Apples on the Flood*, Rodger Cunningham addresses the concept of 'nature' and its role in the marginalization of mountain communities. Noting that the word is frequently used as an identity marker in logics and practices of domination and exploitation, Cunningham argues that "what 'mainstream' Americans call 'nature' is, to mountaineers, 'the Creation'." While this statement reflects a sociological and historical experience – in numerous ways pre-industrial Appalachia embodied a uniquely, if imperfect, ecological way of life – it also gestures to a different picture of human ontology, such that the being or personhood of the mountaineer is distinct to the extent that her "identity is located in the world with which [she] shares [her] being." Taking Cunningham's insight regarding the reciprocal existence of the human and more-than-human as a catalyst for constructing an

explicitly Appalachian theology and drawing on the work of Maurice Merleau-Ponty, specifically his phenomenological account of the 'flesh,' I argue that a key tool for challenging the pervasive ecological and cultural destruction of the mountains is a reconsideration of how Appalachians speak theologically about divine activity and presence. Here, Merleau-Ponty's idea of the 'flesh' – the elemental corporeality shared between ourselves and the earth – offers a concept that challenges the destructive anthropocentric tendencies of modern religion and cultivates a retrieval and renewal of Appalachia's wild and sensual theological imagination. Embracing this vision, Appalachians might recognize their shared 'creatureliness' with the earth and remember once more that the flesh of the mountain is the flesh of the self.

“Have the Same Mind in You which is in Christ Jesus” (Phil 2:5): The Archetype of Filial Obedience in Hans Urs von Balthasar

College of Arts and Sciences: Religious Studies | Oral Presentation - Graduate Research

STUDENTS Joshua R Brown | ADVISORS William Portier

LOCATION, TIME Kennedy Union 207, 2:00 PM–2:20 PM

Hans Urs von Balthasar (1905-88) develops an account of Christ as performing a unique and archetypal form of obedience to God founded on the fact that he is the Son, or second person of the Trinity. My paper explains how Balthasar sees Christ's filial obedience as unique (inimitable) and simultaneously that which

is communicated to the Church as the new norm of loving God. Following this, I demonstrate how Balthasar shows us that Christian discipleship consists of being given a share in Christ's filial obedience and being conformed to the life of the Incarnate Son, rather than merely exercising our native capacities for obedience.

Nutrition Awareness for both University of Dayton Students and Charter School Students

College of Arts and Sciences: Religious Studies | Oral Presentation - Course Project, REL 399 P3

STUDENTS Sreepnanavi Brahmamdam, Tara E Degnan, Nicholas W Racchi, Sarah M Schockling

ADVISORS Jana M Bennett, Kathleen C Scheltens

LOCATION, TIME LTC Studio, 2:00 PM–2:40 PM

This presentation will be centered around the a main project presented to our group within our Designed Learning Experience Community (DLE), Ethics in Action, which was in relation with Reach Out Clinic of Montgomery County. The details of this project include the group of students not only participating in clinical service directly at the clinic, but also providing health awareness in both the University of Dayton community as well

as a community at a local charter school. We developed nutrition seminars and surveys as a means of addressing this problem for the charter school and we worked with a program on campus known as Net Nutrition in order to promote healthy living on campus . Our presentation discusses the project goals and outcomes as well as our work in the DLE as a whole.

Alexis Toth and John Ireland: Gateway to a Forgotten History

College of Arts and Sciences: Religious Studies | Oral Presentation - Graduate Research

STUDENTS Julia Parks | ADVISORS William Portier

LOCATION, TIME Kennedy Union 207, 2:20 PM–2:40 PM

This presentation explores the results of research conducted last summer as part of a Graduate Student Summer Fellowship from the University of Dayton. The objective for this project was to begin to rediscover a history of a people that have been largely ignored, a history of the Ruthenian Catholic Church in the United States. A negative encounter between Father Alexis Toth (an immigrant Byzantine Ruthenian Catholic priest) and Roman Catholic Archbishop John Ireland of Minneapolis in 1890 led to a split within the Catholic Church in America; over 200,000 Ruthenian Catholics ended up leaving the Catholic Church to switch over to the Russian Orthodox Church, as a result of Ireland's refusal to recognize Toth as a legitimate Catholic priest. Because

Toth came from a different tradition that did not match up with Archbishop Ireland's idea of "American" Catholicism, Toth made the decision to leave and campaigned around the nation for other Ruthenian Catholics to do the same. While many did, there were some who did not, and their story has yet to be told. The goal of this project was to begin to recover this forgotten history of the Ruthenian Catholic people, who exist in the United States to this day, through archival work and scholarly publications. This paper will present the results of this research, and provide an outline for future work needed to further develop a more complete history of this group and therefore a more complete history of Catholics in the United States as a whole.

How to get to heaven: Mormonism vs Catholicism.

College of Arts and Sciences: Religious Studies | Oral Presentation - Course Project, REL 103 06

STUDENTS Ashlea M Harton, Brandon S Nye, Nicholas J Stenger, Mika'El M Wilkinson | ADVISORS Colin M McGuigan

LOCATION, TIME LTC Team Space, 3:20 PM–3:40 PM

what we plan to do is look at Mormonism and Catholicism and see what must be done to achieve the ultimate goal of going to heaven. to do this we will look at the history of each religion, descriptions of heaven, passages from each holy book, and more

to hopefully compare and contrast how a person might get to heaven in each religion's opinion. We use a PowerPoint to show pictures and main points to help with our message.

Pope Francis and the Terrible, Horrible, No Good, Very Bad Environmental Crisis

College of Arts and Sciences: Religious Studies | Panel Discussion - Course Project, REL 472 01

STUDENTS Olivia M Anhofer, Morgan E Koelliker, Matthew M Landry, Thaddeus J Masthay, Miranda K Nelson, Jessica L Palmer, Amy M Parish | ADVISORS Leanne M Jablonski

LOCATION, TIME Kenned Union West Ballroom, 4:00 PM–5:00 PM

Pope Francis' encyclical on the environment (anticipated in summer 2015) is expected to have major impact on religious practice and influence global decision-making on climate change and sustainable development. Its strategic timing provides global awareness on the church's stance on environmental justice issues (impact on ecological integrity and the poor) that can be an inspiration for everyone from the UN to UD. Panelists will give an overview of the evolution of Catholic teaching on the environment including the World Day of Peace Messages of Pope John Paul II in 1990 and Benedict XVI in 2010 and the US Conference of Catholic Bishops documents on climate change. The environmental issues, moral context and responses called for in these documents will be summarized. Then we will explore some

examples of how these have been implemented in Marianist, Catholic, and some major world religious traditions to address climate change and resource scarcity. Pope Francis has been surprising the world with messages of hope and challenge. We will review some of his environmental statements and stances on cultivating care for creation and addressing poverty that give a sneak-peak on what his encyclical will emphasize. What does all this mean for UD? We'll review some of the recent steps including the Hanley Sustainability Institute, and fossil fuels divestment in view of Catholic social teaching on the environment. We'll then open the floor for the audience to share ideas about how the encyclical can be a catalyst for shifting perspectives on lifestyle choices, and for raising awareness about environmental con-

nections with local and global poverty. We'll gather suggestions for changes that students, faculty and staff want to see at the University and in religious practice. Such idea sharing and action

can transform our current crisis into a hope-filled, wonderful, tremendously good, very healthy sustainable future for all.

Affects of Firearms Education: University of Dayton Students and Concealed Carry on Campus

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Stephen J Sartschev | ADVISORS Paul J Becker, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 9:00 AM–10:00 AM

Many law-abiding citizens choose to legally carry concealed handguns for personal protection purposes. Most colleges and universities, however, do not allow licensed citizens to carry concealed handguns on school property. Opinions relating to concealed carry on campuses vary greatly. In addition, political

affiliation, gender, and gun ownership stand out as the most influential criteria when forming an opinion on this matter. This study aims to discover if firearms education plays a role in forming opinions regarding concealed handguns on campuses through University of Dayton student surveys.

Perceptions in the Second Amendment in Male and Female ROTC Cadets

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Ralph Charles Locke | ADVISORS Timothy F Apolito, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 9:00 AM–10:00 AM

The second amendment is a topic of discussion that has been criticized and scrutinized by the people of the United States. Some people believe things shouldn't change but others think that the amendment is obsolete and needs a revision due to the advancement in technology. This project is going to look into the perception and limitations of the second amendment through

the eyes of ROTC cadets at the University of Dayton. Through a qualitative, focus group based methodology, the research will get a better understanding of how ROTC cadets perceive, understand, and look toward the future of second amendment rights in the United States of America.

The Effect of Race in Juvenile Sentencing

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Poster - Independent Research

STUDENTS Sarah Anne Plassenthal | ADVISORS Arthur J Jipson

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

This study seeks to explore the effects a juvenile's race will have on adjudication and dispositional sentencing. This study will be comprised of content analyses looking at case level data from southwestern Ohio. I will be comparing juvenile court cases across race by both gender and offense committed. This study will analyze how white juveniles and African American juveniles

are sentenced when they come into contact with the juvenile justice system. I will account for previous offenses and compare juveniles with priors only to other juveniles with prior records. I plan to reach out to the justice systems in the counties of Butler, Clark, Clinton, Darke, Greene, Miami, Montgomery, Preble, and Warren.

The Effectiveness of Juvenile Waivers to Adult Court

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Matthew B Schaaf | ADVISORS Paul J Becker, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 9:00 AM–10:00 AM

As violent crime rates soared in the early 1990s, the United States adopted a "Tough on Crime" approach, drastically reducing crime across the country. With this new approach came the concept of "juvenile waivers to adult court," allowing juveniles to be transferred to adult court for particular offenses. Waivers are

highly controversial, and have both advantages and disadvantages in regards to the legal treatment of juveniles. This study looks into the effects and consequences of juvenile waivers and what role they have played in the decline of violent crime.

Applicability of Routine Activities Theory to Cybercrime Victimization

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS John J Walsh | ADVISORS Jeremy S Forbis, Laura M Leming, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 10:00 AM–11:00 AM

Cybercrimes have been increasing as technology becomes more prevalent. The U.S. Department of Justice defines cybercrimes

as "any violations of criminal law that involve a knowledge of computer technology for their perpetration, investigation, or pros-

ecution.” Researchers have applied various theories in attempt to understand why people become victims of cybercrimes. This study reviews previous research that focuses on the application of routine activities theory to predict cybercrime victimization. Specifically, both supporting and contradicting research is reviewed to determine if this theory applies and to what specific

cybercrimes is it applicable. For example, results indicate that routine activities theory is effective when applied to cyberbullying victimization. The literature review revealed that routine activities theory may be successfully applied to some specific types of cybercrimes but not to cybercrimes as a whole.

Cyberstalking: Definitions, Dynamics, and Consequences

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Andrea Garcia | ADVISORS Jennifer Davis-Berman, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 10:00 AM–11:00 AM

Technology, and the possibilities and capabilities that come with it, have expanded and grown rapidly in the past couple decades. Computers, phones, tablets, the internet, all of these have helped people to connect around the world in seconds and to view information at lightning speed. With all this great technology and accessibility, however, comes the potential for new crime to arise. Cyberstalking has been happening as early as the internet, email and online chat rooms have appeared. With more and more social media sites and apps emerging every day, and hacking techniques becoming more complex and powerful, stalk-

ing someone online has become very easy, and unfortunately, more common. Many people have experienced cyberstalking at least once in their life time, whether as the victim or the perpetrator. The rand and severity of the crime is different with each case, but the consequences of it on victims can be harmful and even long-lasting. The current paper explores different mediums online, such as social media sites, and definitions and perceptions of cyberstalking. The paper will specifically focus on consequences of cyberstalking on victims.

Digital Piracy: Knowledge And Attitudes Among University of Dayton Students

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Casey O Tompkins | ADVISORS Dorie M Farrell, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 10:00 AM–11:00 AM

Digital Piracy: Knowledge And Attitudes Among University of Dayton Students Casey O. Tompkins The Internet and the ever-growing range of options to access it have spawned a new kind of illegal behavior known as digital piracy, the term used for the illegal usage, copying, distribution, or selling of copyrighted digital works. College campuses are viewed as havens for digital piracy because they provide tech savvy students with the technology infrastructure to engage in digital piracy. Some research has shown that college age students perceive digital piracy as

normative-meaning they think it is acceptable because “everyone does it.” This research project examines the knowledge of copyright law and attitudes toward digital piracy among students at the University of Dayton. Findings from a survey about digital piracy, administered to students in different majors at the University of Dayton, will be presented. This research project will assist in the further understanding of college students’ knowledge and attitudes about digital piracy and may help the University of Dayton develop strategies to address digital piracy.

Does Playing Violent Video Games Cause Men to Commit Physical Acts of Violence?

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Maycee T Dobbs | ADVISORS Jeremy S Forbis

LOCATION, TIME Kennedy Union 331, 10:00 AM–11:00 AM

The aim of this study is to evaluate the potential correlation between violent video games and whether they cause males to commit physical acts of violence later in life. Video games, especially violent ones, are extremely popular in today’s society. With technology advancing and video games evolving, becoming more realistic, this is an extremely important and relevant issue. By analyzing and searching through previous research, it

is apparent that there are many factors that come into play when looking at someone’s reasoning behind committing violent acts; the results found were that media violence is a factor. However it is difficult to say how big of a factor considering every person is different, it has been proven that media violence may no the the biggest factor behind someone’s reasoning for committing heinous acts but it is definately not the smallest factor either.

Cocoa and Chocolate: Deconstructing the Development Paradigm in Cameroon

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Poster - Honors Thesis

STUDENTS Chelsea M Vanhook | ADVISORS Simanti Dasgupta

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

This project focuses specifically on the neo-liberal economic iteration of international development. Neo-liberalism is the idea that the deregulation of the private sector, reductions in government expenditures, and expansion of free trade will lead to growth in undeveloped countries, which will effectively end poverty and increase the standard of living. Development is, thus, justified on the basis of its purported virtues: that economic liberalization has resulted in the prosperity of Western countries and that the same models can be replicated elsewhere to produce the same results. My ethnography in Southwest Cameroon, however, shows that the experience and embodiment of development takes on a new understanding at the local, daily level. Progress and growth is connected to what can be reaped from the ground, obstacles understood as material difficulties that disable work from being done efficiently. Exploring the paradox of cocoa and chocolate

in Cameroon, I find that while the average Cameroonian is able to grow cocoa, he/she is unable to afford chocolate. Moreover, assistance from government agricultural technicians provides the necessary aid to farmers and Common Initiative Groups (CIGs) to mitigate the difficulties and technicalities associated with agricultural work. Therefore, not only does neo-liberal economic development not provide the proper prescription for overcoming the difficulties individuals face, but it can hinder the work already being done by local professionals working within their communities. This context calls for a critiquing of the assumptions which undergird the development paradigm in order to understand how and why it so often fails, as well to reconcile development with the local understandings and needs in the Global South, generally, and Southwest Cameroon, specifically.

Get the Picture? : Examining the portrayal of athletes by gender and race in the media

College of Arts and Sciences: Sociology, Anthropology, and Social Work | *Oral Presentation - Capstone Project*

STUDENTS Mercedes M Carey | ADVISORS Leslie H Picca

LOCATION, TIME Kennedy Union 331, 11:00 AM–12:00 PM

Since the passing of Title IX in 1975, female participation in sports has increased drastically. However, the same cannot be said about the media exposure that female athletes have received. With sports being an essential part of American culture along with its connection to the media, it is important to think about what messages are being put forth to the public about

sports and its athletes. Using content analysis, this research examines how gender and race impact how athletes are represented inside top circulating sports magazine Sports Illustrated. The findings are compared with existing literature on race gender and sports.

Odd Man Out: The Impact of Discriminatory Experiences on the Mental Health of African American Males at Predominately White Institutions

College of Arts and Sciences: Sociology, Anthropology, and Social Work | *Oral Presentation - Capstone Project*

STUDENTS Mackenzie J Courtney | ADVISORS Jeremy S Forbis, Ruth Thompson-Miller

LOCATION, TIME Kennedy Union 331, 11:00 AM–12:00 PM

This paper examines existing literature regarding the experiences of African American males at predominately White institutions and how their experiences with discrimination impact their mental health. The foundation of this paper is established by a review of the literature including the history of discrimination, how experiences of discrimination impact the African American community, and the possible negative impact on the African American students' mental health and well-being. The paper discusses the research on the time immediately before the African American

students go to college and the time during their transition to college, and continues with an examination of different aspects that influence the students' experiences while attending the institution. This paper examines instances of microaggressions and other forms of discrimination that the students face from faculty, staff, and fellow students by utilizing empirical research and personal accounts. Finally, the implications for counseling and teaching practices are discussed.

Perceptions on Racial Campus Climate: Analyzing the Inclusion of International Students in UD's Student Community

College of Arts and Sciences: Sociology, Anthropology, and Social Work | *Oral Presentation - Capstone Project*

STUDENTS Tobias Adam Hills | ADVISORS Leslie H Picca, Ruth Thompson-Miller

LOCATION, TIME Kennedy Union 331, 11:00 AM–12:00 PM

This study is designed to examine the authenticity behind appearances of a diverse campus climate at the University of Dayton. After examining previous studies, the results have suggested that various demographics of students in addition to inter-group contact theory help to establish an authentic diverse climate. By examining previous literature on the subject, this

study will determine the benefits of an ethnically diverse campus. The original data will go forward to help determine if the diversity at the University of Dayton is based mostly on the demographics of the students or if inter-group contact theory has installed itself among the student population; determining if there is a genuine diverse community among the student body. Understanding that

the university has many students from different places around the world, the study also seeks out programs that might aid in the integration and cooperation between foreign and domestic students. In the end, the aim is to see whether the domestic, dominant white population at the University of Dayton is embrac-

ing international students as genuine components of the campus community. Interviews of international students will be conducted to discover the climate at the university. Results and findings will be presented and discussed upon completion of the interviews.

Struggling for Self-Sufficiency: African Refugees vs. African Americans

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Sidney L Jasper | ADVISORS Jeanne A Holcomb, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 11:00 AM–12:00 PM

While the United States is a country built on immigration and has incorporated various cultures and ethnic groups in waves throughout its history, recent decades have seen the influx of an entirely new type of population: refugees. Refugees often arrive in the U.S. with little economic assets, receive government benefits, live in low-income neighborhoods, attend schools in these areas, and take low-paying jobs. These same factors are often used to explain the reproduction of poverty among American

domestic minorities. Despite these similarities, refugees and domestic minorities tend to have very different experiences with poverty in the U.S. This study specifically focuses on an examination of the educational and employment experiences of impoverished African Americans and African refugees. A comparative analysis of situational poverty of refugees versus generational poverty of domestic minorities provides insight to the separate and shared struggles toward self-sufficiency.

Adolescent Intimate Partner Violence: A Focus on Sexual Orientation and Consequences

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Kelly N Warak | ADVISORS Jennifer Davis-Berman, Leslie H Picca

LOCATION, TIME Kennedy Union 222, 1:00 PM–2:00 PM

Intimate partner violence has recently become a concern among dating adolescents. Teenagers use physical, sexual, and psychological violence to gain control in the relationship. In the present paper, prevalence of each type of violence based on gender is discussed. Females are more likely to experience psychological violence; whereas, males are victims of moderate physical abuse more often than females. Predictors of intimate partner violence

such as drinking, smoking, fighting, and others are recognized as risk factors. Also, sexual orientation is reviewed in regards to violence. The types of violence are compared to heterosexual, homosexual, and bisexual relationships in adolescents. Consequences and concerns are reviewed depending on gender and sexual orientation.

Creating Inclusive Community: Social Justice and Action at UD

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Panel Discussion - Course Project, UDI 380 M1

STUDENTS Katherine B Brossart, Gina B Calabrese, Veronica Lynn Colborn, Eileen M Comerford, Angela M Eck, Joseph B Ferber, Amy E Fox, Carly A Goins, Caroline Ann Goodill, Rabiah Gul, Kieran R Holland, Jesse T Hughes, Tiara La'Shae Jackson, Kaleigh Ann Jurcisek, Paige E Madden, Margaret Ann Maloney, Patrick J Mckeone, Anais M Nin, Katherine M Norman, Marie M Pinnell, Danielle N Pohlman, Miracle N Reason, Brandon A Rush, Khristian Alejandro Santiago, Ellen R Saracina, Sara Shaghaghi, Adanna Maista Smith, Kwynn E Townsend Riley, Nicole L Tuel, Riley Catherine Weber, Jasmine Whitlow, Megan J Woolf |

ADVISORS Kelly E Bohrer, Thomas L Morgan, Leslie H Picca

LOCATION, TIME Kennedy Union East Ballroom, 1:00 PM–2:00 PM

Creating Inclusive Community involves 32 students who enrolled in UDI 380 "Understanding, Respecting, and Connecting: Examining Privilege and Taking Action" and (along with 20 faculty/staff) attended a diversity conference in Louisville, KY in March 2015. The focus of the conference was to examine the challenging concepts of privilege and oppression and to develop

strategies to create a more equitable world. Come hear the students experiences at the conference and discuss the skills and knowledge they gained to enhance the campus climate for inclusivity and diversity at the University of Dayton. Please join us for a lively discussion!

Only Violence Against Women... Or a Hate Crime?: Exploring Gender Based Violence as a Hate Crime

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Avery Hutson Ozimek | ADVISORS Leslie H Picca

LOCATION, TIME Kennedy Union 222, 1:00 PM–2:00 PM

Despite the variation of hate crime legislation throughout the United States, it is generally understood as “unlawful, violent, destructive, or threatening conduct in which the perpetrator is motivated by prejudice toward the victim’s putative social group.” This presentation examines attacks on women as hate crimes. Such attacks can include a range of behaviors such as, rape, battery, and harassment. In the United States hate crime legislation is typically enacted in cases of race, class, and sexual

orientation; however, there is significant evidence that points to gender based hate crimes as potentially the most prevalent despite its very small recognition. Some scholars argue against gender based hate crimes explaining that the numbers would skew the hate crime data if included, thus, portraying hate crimes as far bigger problem. This presentation examines the varying viewpoints on hate crime legislation more generally and for including gender in hate crime legislation.

Rescue Task Force: A Paradigm Shift for EMS Response to Active Shooter Incidents

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS David White | ADVISORS Jeremy S Forbis

LOCATION, TIME Kennedy Union 331, 1:00 PM–2:00 PM

Active shooter response has changed largely for police in the post-Columbine era. Until recent years, Emergency Medical Service (EMS) response to these incidents has seen little change. Traditional response methods take away precious minutes crucial to victim survival. These methods can be largely summed up by EMS personnel responding to a staging area at an incident, and waiting long periods of time for police and specialized units such as SWAT to clear the building. These periods of precious time cost victims their lives. In response to recent active shooter incidents such as the Aurora, Colorado and Virginia Tech shootings, numerous agencies such as the International Association

of Firefighters are supporting new response concepts such as the Rescue Task Force (RTF). The purpose of this in-depth literature review was to examine the anatomy of active shooter incidents, traditional response tactics, and new response tactics, specifically highlighting the benefits and importance of the RTF concept. During my literature review, significant need for such a concept was discovered. Due to the innovative nature of the concept, newly developed response tactics will need to be used during real world incidents to determine effectiveness, as well as academic studies to develop further evolution of EMS response to such incidents.

Responding to a Perceived Threat In Suburban Ohio

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Noel D Ragland | ADVISORS Jeremy S Forbis, Arthur J Jipson

LOCATION, TIME Kennedy Union 331, 1:00 PM–2:00 PM

“Unfortunately in America today...it’s so violent against the police that they really do need that level of protection” (Stars and Stripes). This statement by Bill Johnson, the executive director of The National Association of Police Organizations, sums up this “threat” that police departments have begun to respond to in a more militaristic manner. With the draw down in the war in Iraq and Afghanistan the Department of Defense has been selling more surplus military equipment to local departments who requests them. This project will specifically look at the purchase

of MRAPs (Mine Resistant Ambush Protected vehicle) or M-113 Armored Personnel Carriers (APCs) used by suburban neighborhoods numbering 25,000-50,000 residents. The author hopes to find common ground in reasoning why these departments feel the need for a vehicle designed to protect troops from improvised explosive device (IED) threats and the need to use them on their streets. This project looks at the phenomenon of military equipment present in suburban Ohio police departments serving populations of 25,000 to 50,000 residents.

Sexual Harassment: Defining, Interpreting, & Safeguarding within Institutions of Higher Education

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Gretchen N. Ricketts | ADVISORS Jeremy S Forbis, Jeanne A Holcomb

LOCATION, TIME Kennedy Union 222, 1:00 PM–2:00 PM

Sexual harassment in the workplace has received increased attention since the mid-1900s. Sexual harassment can be defined as any unwelcomed advance or request sexual in nature, including verbal or physical conduct of sexual nature that tends to create a hostile or offensive work environment. The definition of sexual harassment itself is continuously evolving. Due to this continuous evolution, workplaces around the country seem to have a slightly different version in defining sexual harassment within their own workplace. Sexual harassment as a legal issue has evolved since 1977 when the federal court ruled in favor of

a woman fired for refusing her supervisor’s sexual advances. Since this case, multiple sexual harassment laws and policies have been created and continually transformed in an effort to standardize the definition of sexual harassment. In recent years, sexual harassment in academia has become a prominent issue among students, faculty, and staff at universities all across the country. An increase in claims of sexual harassment has demanded that institutions of higher education update new policies and procedures. Colleges and universities have also been encouraged to assign specific employees to handle sexual

harassment claims. This review offers a summary of key historical factors as well as current policies regarding sexual harass-

ment in institutions of higher education. Current challenges and innovative programming will also be discussed.

Students and Routine Activities: How Media Coverage of School Shootings May Influence Student Perceptions of Their Campus Safety

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Frederick J Heinzen | ADVISORS Jeremy S Forbis, Arthur J Jipson, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 1:00 PM–2:00 PM

This study seeks to determine if students, whether they know the theory or not, actively participate in behavior associated with Routine Activities Theory. This project expects that the majority of students who are exposed to school shootings through media coverage will be more likely to follow Routine Activities Theory; for example, they will show that they take care of themselves by following simple capable guardianship, such as locking doors and windows and staying in well-lit areas. This project also seeks to determine whether or not University of Dayton students feel safe due to campus safety policies and tools, such as the blue

light call boxes and text message alerts. In order to collect data for this report, an online survey will be completed by students in major departments at the university. This will allow for a wide variety of student respondents, of all grades and majors, to respond and give their input on their perceptions of their campus safety. This data will then be collated and analyzed, to determine whether or not the hypothesis that students participate in Routine Activities Theory is correct. This will allow for a determination on future actions that may be helpful in securing student safety.

Threat of and response to Active Shooter Situations on College Campuses in the United States

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Scott J Brownlee | ADVISORS Jeremy S Forbis

LOCATION, TIME Kennedy Union 331, 1:00 PM–2:00 PM

This study will involve an extended literature review, making an in-depth analysis of the current threat post-secondary education institutions face regarding active shooters on campus. Many lessons have been learned in the last two decades from previous

incidents such as the one at Virginia Tech. This study will examine the current threat and possible changes to mitigate the risk of future attacks.

Victims' Perceptions of Police Responses during Domestic Violence Calls

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Mallary A Belair | ADVISORS Laura M Leming, Leslie H Picca

LOCATION, TIME Kennedy Union 222, 1:00 PM–2:00 PM

Domestic violence has always been a problem in the United States, however, laws against domestic violence are fairly new. Certain factors or demographics that a victim has can persuade an officer to react to that person a certain manner. Although police training has improved over the last decade, it is important to note what works from their training and what could use improvement. My study compares the way police officers are

trained to act during domestic violence calls compared to how helpful or hurtful victims' perceptions of officers' actions were. Anonymous surveys were handed out to eighty women at the Artemis Center who have been exposed to domestic violence at some point. Data found from previous studies was compared to my own data. Results, limitations, and implications of the study will be discussed.

Factors Affecting the Perceptions of Uniformed Police Officers by College Students

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Robert J Moore | ADVISORS Paul J Becker, Jeremy S Forbis, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 2:00 PM–3:00 PM

There has been a lot of media attention on police officers in recent years leading to the development of various positions, viewpoints, and perceptions, both good and bad, regarding uniformed police officers. College students are often quick to voice their support or dissatisfaction with law enforcement officers; with this in mind, knowing the factors that affect college students' perceptions of police officers can greatly benefit law enforcement and government officials. This study uses existing research

by analyzing the content and conclusions of various studies to evaluate the effects of various factors upon college students' perceptions of uniformed police officers. These factors include; police uniforms, contact with police, nationality, race, socioeconomic status, age, level of education, and undergraduate major of students. Findings, conclusions, and study limitations will be discussed during the presentation.

In Blue and On Juice: Steroid Abuse Among Police Officers

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Adam D Gahm | ADVISORS Jeremy S Forbis

LOCATION, TIME Kennedy Union 222, 2:00 PM–3:00 PM

The issue of police officers using anabolic steroids may seem like an arbitrary matter, however in March of 2004 the DEA published a pamphlet to be distributed to various law enforcement agencies to help combat steroid abuse among their officers and the DEA now has an entire page of their website dedicated to the diversion of steroid abuse by law enforcement personnel. Additionally, with the recent police brutality incidents taking place the sometimes-aggressive tendencies of anabolic steroid users is something that should be looked into. Steroid use among police officers is a problem that, due to the highly secretive nature of the law enforcement community, usually goes unreported and

very little reliable data has been collected as a result. Because of this, this study examines why police officers are driven to engage in steroid use even though their line of work makes it a huge risk as well as how it may affect their performance. Several answers to these questions were found including pressures to conform to the traditional definition of masculinity as well as those images so heavily reinforced by American media. Also, the masculine culture of police agencies where police are often taught to be the aggressor coupled with their high stress work environment further influences them to use or abuse anabolic steroids.

Is Justice Really Blind?

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Christopher M Albertson | ADVISORS Jeremy S Forbis, Ruth Thompson-Miller

LOCATION, TIME Kennedy Union 222, 2:00 PM–3:00 PM

Lady Justice, is usually portrayed blind-folded and wielding a sword of justice. The image is a symbolic representation of her commitment to executing justice--without bias, with swiftness, and balance. The irony is that in this country Lady Justice represents the values that most individuals would argue are the values that the country was founded on--everyone deserves equal justice from the moment they are arrested, through their trial, and at sentencing under the law. In this literature review, I will examine the execution of justice in this country. I will use the literature to examine some of the problems and inconsistencies--specifically

in our system of sentencing. For example do all individuals in this country receive the same sentence for the same crime regardless of gender? I will examine the literature to analyze if there are inconsistencies and in which areas the inconsistencies are most apparent and egregious. In addition, I will examine the ambiguities, inherent flaws, and biases that appear to inform many of the disparities in sentencing in the judicial system in this country. Indeed, Lady Justice is blind-folded, wielding her sword of justice and represents for us swift, fair, balanced, and unbiased justice.

Overlooked Trauma: Similarities Among Soldiers and Prisoners Dealing with Post Traumatic Stress Disorder

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Benjamin Aaron Cox | ADVISORS Jeremy S Forbis, Jamie Longazel, Leslie H Picca

LOCATION, TIME Kennedy Union 222, 2:00 PM–3:00 PM

Mental disorders such as Post Traumatic Stress Disorder are quickly emerging from a background problem to a neglected trauma at the vanguard of mental diseases. Society often associates PTSD with the military and wartime efforts, but the harsh reality is that prisoners succumb to this degrading disease as well. Juxtaposed with the battlefield, prisons are notoriously

deprived of rehabilitative support and do little to abate the glaring problem of mental illness. This literature review aims to broach the similarities between combat induced PTSD and the institutionalized PTSD procured by prisoners. The impact that PTSD has on both of these traumatized groups provides justification for the continued study of this overlooked dilemma.

Serial Killing in the Popular Imagination

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Kilee Ann Weiskittel | ADVISORS Jeremy S Forbis, Arthur J Jipson

LOCATION, TIME Kennedy Union 331, 2:00 PM–3:00 PM

This research project examines the perception among students of serial killings/killers at the University of Dayton and compares those understandings across several majors. Serial killings and serial killers have been an enticing topic for many years in the popular media (Holmes, 2010). One major reason why this crime has become so popular is the glorification and dramatization of the topic through various media outlets, for example, television,

film, and books. This study illustrates the influence of the media by looking at the students' perceptions of serial killings and their knowledge pertaining to this topic. The type of data that was used for this research project was open and close ended online survey questions. This approach is the best type of data collection for examining students' understanding. It is the most appropriate method for this research project due to the large number of

people that need to be questioned in order to derive a meaningful conclusion regarding student perceptions. The findings of this survey and research will be discussed in the presentation.

Students Making a Difference: Diversity and Campus Climate at UD (Session One)

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Independent Research

ADVISORS Leslie H Picca

LOCATION, TIME Kennedy Union East Ballroom, 2:00 PM–3:00 PM

What can we all do to enhance the UD campus climate for diversity and inclusion for all? Thirty-two UD students (and 20 faculty/staff) have been working together Spring semester to answer this question as they participated in a mini-course focusing on privilege and oppression, and attended the White Privilege Conference in Louisville, Kentucky. The session will be spent

in conversation with the audience about strategies to improve the campus climate at the University of Dayton. As we all play a role in the university community, we welcome conversation with everyone (from those new to conversations about social justice to the seasoned veterans!). Come join us!

The Effects of Christian Faith-Based Programs on Inmates' Recidivism Rates Compared with Education and Work Programs

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Ryan D Saul | ADVISORS Dorie M Farrell, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 2:00 PM–3:00 PM

This review surveys the previous work completed on recidivism within prisons to see if Christian faith-based, education, and work programs have a positive effect on the reduction of recidivism rates. The review discusses the several different types of programs that are used in prisons to combat the growing problem of recidivism in the United States. These programs include Christian faith-based, education, and work programs. For each program I discuss the structure of the program, how common

the program is within prisons, and the effectiveness of each type of program. Articles and statistical information were gathered to determine the effectiveness of various programs. Additionally, other factors were considered in the evaluation of inmate recidivism to see if they played a role in inmates reentering prison. This review concludes by noting future suggestions for programs which are utilized by prisons, to further help reduce the high recidivism rates within the U.S.

Access to healthcare in Jefferson City County

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Panel Discussion - Course Project, ANT 392 01

STUDENTS Kevin R Fitzsimons | ADVISORS Simanti Dasgupta

LOCATION, TIME Kennedy Union 311, 3:00 PM–4:30 PM

Reach Out Montgomery County is an organization that supplies health care to the county and surrounding areas. The organization saw a possible gap in health care services provided in Jefferson City county and believed that the county might qualify for state provided care. More detailed data and the thoughts of the community were needed in order to present their case for the state. The data was collected through a few methods including surveying and small group discussions. Surveys that gathered information about accessibility and quality of healthcare within the community were handed out to citizens at community forums, church, and other locations. Small group discussions, that allowed citizens to share their opinions on what is most needed

in the community, were also held at these events. The results of the research show that Jefferson City County is in need of increased healthcare services. Many citizens have commutes 20 minutes or longer to their healthcare provider. Citizens also expressed concerns due to the limited alternatives of their primary physician, who are often unavailable in the evenings and on weekends. It can be concluded that a small clinic or other added healthcare service should be provided in Jefferson City County. Increased ambulance service is also needed due to the long distance from the closest provider. Increased healthcare service would increase access and quality of care received in Jefferson City.

An exploration of non-medical prescription stimulant use on a college campus.

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Lianna R Petruccio | ADVISORS Jeremy S Forbis, Laura M Leming, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 3:00 PM–4:00 PM

Recent years have seen an increase in the non-medical use of

prescription stimulants according to existing research. The pur-

pose of this study is to determine the extent of and contributing factors of students' non-medical use of prescription stimulants at the University of Dayton. Data was collected through a fifteen

question anonymous survey distributed to participants online. The survey was distributed to a variety of classes and gatherings with students of all grade levels. Results will be discussed.

Discontent Through Disconnect

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Panel Discussion - Course Project, ANT 392 01

STUDENTS Anna Mary Kinnen | ADVISORS Simanti Dasgupta

LOCATION, TIME Kennedy Union 311, 3:00 PM–4:30 PM

Jefferson Township, located near Dayton Ohio, is very lacking when it comes to medical resources within its limits. Not only does this effect the residents health within the township, but the overall experience of living there. To conduct research, I visited Bear Creek Church that is located in Jefferson, and spoke with a group there. In collaboration with Reach Out, a healthcare organization that helps those lacking medical resources, I have

found that people have many concerns for their own well being as well as the community. In conclusion, due to the lack of medical facilities, there is the negative effect of discontent and lower confidence in Jefferson and its future. The goal is to help Jefferson gain much needed medical facilities through a rural health care clinic.

Ferguson Case Analysis: Racial Profiling and Use of Force

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Randall T Millay | ADVISORS Simanti Dasgupta, Jeremy S Forbis

LOCATION, TIME Kennedy Union 331, 3:00 PM–4:00 PM

Throughout history, racial profiling and discrimination has led to a large amount of court cases dealing with police violence against black men. Case studies and prolonged research have been conducted in order to understand and implement improvements regarding the sensitive subject. The shooting of Michael Brown in Ferguson, Missouri has sparked a nationwide debate and has resulted in strong emotions among the black community. This case has received attention from political figures such as Missouri Governor Jay Nixon, US Attorney General Eric Holder, and President Barack Obama. Police violence against black men has been a recurring issue and needs to be closely examined in

order to make improvements. Michael Brown was a suspect of a convenience store robbery. Darren Wilson, the investigating officer, located Michael Brown. Wilson used a total of 12 bullets during the altercation, resulting in Brown's death. The debate focuses on the justification of Wilson's use of force and the possible influence of racial profiling. A complete analysis of this case will include information and evidence gathering, an evaluation of the Ferguson Police Department, the effects on the black community, the role of those involved in the investigation, and the final outcome and lasting effects.

Hope For Health Care Facilities in Jefferson Township

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Panel Discussion - Course Project, ANT 392 01

STUDENTS Sydney Ann Jackson, Lisa M Whalen | ADVISORS Simanti Dasgupta

LOCATION, TIME Kennedy Union 311, 3:00 PM–4:30 PM

Jefferson Township is a small, rural community outside of Dayton that has a very limited access to health resources in their area. We, as a class, are interested in creating a better, more inviting health care facility environment for the citizens of Jefferson Township. We worked with "Reach Out of Montgomery County", and with the members of the Jefferson Township community in small groups to gain insight on their opinion of the lack of health facilities. Reach Out is a non-profit organization that provides health care for low-income families, or for those without health insurance. With the citizens' dissatisfaction of the lack of health care facilities, we as students helped to influence a change. The

idea of health care in the Jefferson Township community is not present in the way that it should be. Throughout the process of working in small groups, we had the opportunity to create relationships with the citizens, and also listen to their opinions from a direct point of view. Throughout listening, and also sharing our own ideas, we have hope for health care facilities in Jefferson Township. By combining the work from us students, the members of Reach Out, as well as the knowledge of the citizens, it encourages the Township to potentially open a health care facility for those who lack the resources that they need.

Jefferson Township: A Healthcare Desert

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Panel Discussion - Course Project, ANT 392 01

STUDENTS Eric A Brown | ADVISORS Simanti Dasgupta

LOCATION, TIME Kennedy Union 311, 3:00 PM–4:30 PM

Jefferson Township is a rural county situated near the city of Dayton in Ohio and lacks any form of medical facility, even though there are over 6,000 residents in the township. This lack of resources puts a financial and time consuming burden on the patients in need of care. By working in collaboration with Reach Out of Montgomery County, a nonprofit that provides medical care to underserved people, and leading small group discussions

in Jefferson Township, it was clear to see the residents needed an more accessible healthcare facility, preferably in the township. The data and opinions we collected can be used to advocate a rural health facility to lower the burden of patients and lower the cost of care. Also, this information can be used to enlighten local organizations or legislators about this problem and provide support for plans going forward.

LGBTQ (Lesbian, Gay, Bisexual, Transgendered, Queer/Questioning) Communities on College Campuses

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Megan Ann Hardin | ADVISORS Simanti Dasgupta, Jeremy S Forbis

LOCATION, TIME Kennedy Union 331, 3:00 PM–4:00 PM

As society moves closer to the ability to completely accept individuals for who they are and provide equality for all, it is pertinent to evaluate and continue the behaviors that have increased this acceptance as well as stop and eliminate the discrimination that has plagued the LGBTQ, Lesbian, Gay, Bisexual, Transgendered, and Queer/Questioning, community. The LGBTQ Community has seen recent, hikes in acceptance as well as an increase in the number of LGBTQ identifying individuals participating in on campus organizations/activities; to look at this “process of acceptance” specifically among college students, will help us understand the progress. The purpose of this study is to deter-

mine if the LGBTQ Community members feel more accepted and welcomed on college campuses than in years past. In order to get a more immediate insight into the situation, I will briefly look at the University of Dayton. Studies conducted by Rebecca Stotzer and Brian Ivory assist in the discovery that LGBTQ through qualitative studies looking at student organization groups on college campuses. I will closely research, examine and evaluate data previously collected by researchers in this particular field to find that there has been an increase in acceptance of the LGBTQ community and that we are continuing on the trend.

Living in Jefferson Township with Little Access to Health Care Facilities

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Panel Discussion - Course Project, 201480 ANT 392 01

STUDENTS Sarah Ann Pinns | ADVISORS Simanti Dasgupta

LOCATION, TIME Kennedy Union 311, 3:00 PM–4:30 PM

Jefferson Township is a small town in Montgomery County, Ohio with very little access to health care facilities. As part of the experiential component of the Diversity and Social Justice course titled, “Right to Heal”, as a class we collected qualitative data with to understand the extent of difficulty residents face in the town. This research was organized wit Reach Out, an organization in Dayton that offers medical facilities to the uninsured and the underserved in the area Small group discussions were conducted to get information from some of the residents of Jefferson Township. Discussions were about what their life is

like with no health care facilities in reach and how it has affected their health. The feedback of the small group discussions was what was expected. Residents are unhappy with their living situation. They deal with illness for long periods of time and haven’t been to a health facility in a very long time. Jefferson Township is full of residents that struggle with illness and feel like they have nowhere to go to have a chance to get better. Reach Out will utilize the data we collected to request legislators to consider and approve a Rural Health Clinic in Jefferson Township.

Resources Within Proximity

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Panel Discussion - Course Project, 201480 ANT 392 01

STUDENTS Anne R Harte | ADVISORS Simanti Dasgupta

LOCATION, TIME Kennedy Union 311, 3:00 PM–4:30 PM

Jefferson Township, Ohio, is a community with very limited health resources with no medical facilities, such as a primary care doctor, a clinic or a hospital in the vicinity. As a part of the course requirement for “Right to Heal”, as a class we collaborated with Reach Out, a health clinic in Dayton that provides services for the uninsured population of the area, to collect knowledge about the Jefferson Town’s citizens’ views on the current lack of health services. We primarily used small group discussion sessions to gather the data. An analysis of the data

revealed that the citizens are not satisfied and wished they had the necessary resources to remain healthy or to be treated with quality care within the proximity of their home. Based upon the research findings, the main goal of this research, alongside Reach Out, is to argue for a Rural Health Clinic in Jefferson Township.

Students Making a Difference: Diversity and Campus Climate at UD (Session Two)

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Independent Research

ADVISORS Leslie H Picca

LOCATION, TIME Kennedy Union East Ballroom, 3:00 PM–4:00 PM

What can we all do to enhance the UD campus climate for diversity and inclusion for all? Thirty-two UD students (and 20 faculty/staff) have been working together Spring semester to answer this question as they participated in a mini-course focusing on privilege and oppression, and attended the White Privilege Conference in Louisville, Kentucky. The session will be spent

in conversation with the audience about strategies to improve the campus climate at the University of Dayton. As we all play a role in the university community, we welcome conversation with everyone (from those new to conversations about social justice to the seasoned veterans!). Come join us!

The Docile Journey

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Madison Leigh East | ADVISORS Simanti Dasgupta, Jeremy S Forbis

LOCATION, TIME Kennedy Union 331, 3:00 PM–4:00 PM

Drawing upon Michel Foucault, this paper explores the specific experience of modern power. Foucault argued that power underwent a significant change with the advent of modernity. Through Foucault's exposition of modern power as a departure from pre-modern power using sites like prisons and clinics, he showed that power has transitioned from the personal, the visible, and the violent embodied by the dominant patriarch in the pre-modern era to the more comprehensive, ubiquitous yet unverifiable, disciplinary power of institutions and practices. Overall, power in the modern

era is experienced as advancing and cultivating human potential. In this work, the research will show the nature, characteristics, and significance of modern power from college student's experiences in the classroom by relying on the use of focus group data. While researching how students experience, interpret and understand modern power, this paper will conclude that rather than feeling overbearing, modern power actually serves a purpose in fostering and nurturing life.

A Review of Parenting Styles and What it Means for Future Well-Being

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Grace J Zubko | ADVISORS Jeanne A Holcomb, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 4:00 PM–5:00 PM

There has been a world-wide emphasis on the needs of children and their welfare. Literature has made connections between parenting styles and how those methods impact children into adulthood, even influencing their own parenting styles. Authoritative parenting is unanimous as the most successful method,

practicing directionality and rationality with a balance of discipline and involvement. This article reviews the literature on variations on parenting practices, including how gender and race impact parenting strategies.

Black White and In Between: Race and Ethnicity in the Criminal Justice System 1885-1915

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation – Honors Thesis

STUDENTS Elizabeth M Wilhelm | ADVISORS Karen A Bartley, Theophile J Majka, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 4:00 PM–5:00 PM

Events in the past year have brought racial and ethnic and discrimination in the criminal justice system to the forefront of American consciousness. In reality, race has been used to create stereotypes for centuries, often supported by "scientific" and "statistical" evidence to support the idea that certain races are more likely to commit crimes than others. In my research, I trace the development of these ideas as well as the evidence used to support these racial notions primarily by drawing upon

conference transcripts from two professional organizations: The National Prison Association and the National Conference of Charities and Corrections covering the years 1885-1915. While the analysis of these stereotypes includes African Americans, I focus on the stereotyping of foreign-born and second-generation Americans as well as those who were not considered white a century ago, such as "Chinese, Japanese and civilized Indians."

Transition to Self-Sufficiency: Leaving a Two-Generation Residential Program

College of Arts and Sciences: Sociology, Anthropology, and Social Work |

Oral Presentation - Course Project, SOC 409 01

STUDENTS Michelle L Mathile | ADVISORS Jennifer Davis-Berman, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 4:00 PM–5:00 PM

The purpose of this study was to determine the needs of women as they transition from a two-generation residential program to economic and personal self-sufficiency. Research was conducted at a two-generation residential program for women and their children. Two focus groups were conducted consisting of graduates living off campus, graduates living on campus, and one soon-to-be graduate. Both groups were asked a series of

questions relating to transition. Results indicate participants in both focus groups expressed concerns regarding transition and offered suggestions for future residents preparing to graduate. It is recommended that the program administrators review the findings of the focus groups and consider incorporating many of the suggestions offered by the participants in order to make the transition process better suited to the needs of the graduates.

Transit-Oriented: Development or Disparity?*College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project*

STUDENTS Nathan C Silverstein | ADVISORS Theophile J Majka, Leslie H Picca

LOCATION, TIME Kennedy Union 331, 4:00 PM–5:00 PM

Transit-Oriented Development (TOD) is a community development tool that aims to situate a high density of people within easy walking distance of a transit system. The use of TOD is increasing significantly in the US today as more and more communities adopt this development model. Important social and economic benefits of a TOD include: mixed-use development, reduced transportation costs, improved access to jobs and education,

and increased property values. These benefits suggest that living in a TOD will not only be healthier for residents but also provide a better quality of life through education, employment, and income related benefits. My study seeks to understand the effects of TOD on an area specifically in regards to low income individuals who, from the benefits described, would appear to be most positively affected by this community development tool.

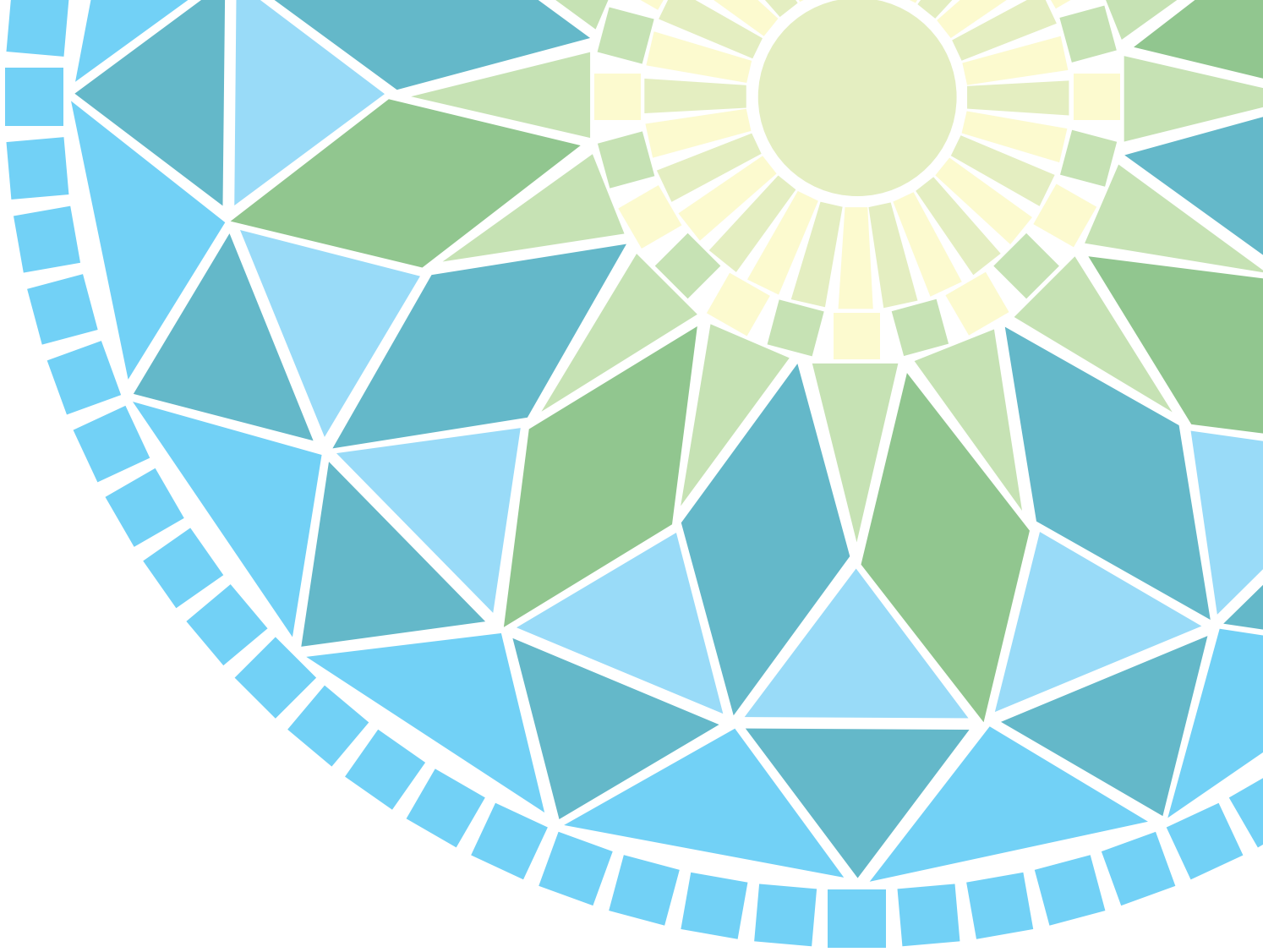
Female Bodybuilders: Caught in the Crossfire of Patriarchy and Capitalism*College of Arts and Sciences: Women and Gender Studies Program | Oral Presentation - Honors Thesis*

STUDENTS Kimberly M Land | ADVISORS Rebecca S Whisnant

LOCATION, TIME Marianist Hall Learning Space 217, 1:00 PM–1:20 PM

This project examines the evolution of women's presence in the bodybuilding industry in relation to the newest and exponentially popular category, bikini. Bikini was created to increase the revenues of the major bodybuilding companies by attracting more competitors and spectators. While on the surface a profit driven motive does not seem immoral, when one examines the psychological and physical damage the prepping and post-competition process does to bikini competitors (more so than any other

bodybuilding category) it can be seen that women's bodies are particularly expendable when profit is at stake. The experiences unique to women competitors within the bodybuilding industry, and particularly within bikini, demonstrate the degrading, immobilizing, and sexist reality for women when caught in the intersection of patriarchy, capitalism, and an industry that thrives off the exploitation of women's bodies.



SCHOOL OF BUSINESS ADMISISTRATION

Relative Performance Evaluation Incentives in CEO Compensation Contracts

School of Business Administration: Accounting | Poster - Graduate Research

STUDENTS Angela M Lechermann | ADVISORS Timothy Keune

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Executive compensation is frequently discussed and criticized by the media, lawmakers, regulators, experts, and the public. The primary issue that companies face when compensating executives is how to align the goals of executives with the goals of various stakeholders in order to motivate executive decisions that increase the value of the company to shareholders, employees, the public, regulators, and others. Academics find that executives' interests are often best aligned by making compensation contingent on company performance. One method of compensating executives that is frequently discussed is comparing a company's performance to that of a peer group of companies. This type of incentive is referred to as relative performance evaluation (RPE). The use of RPE in executive compensation is appealing for both executives and shareholders. The appeal for executives is that an incentive can be earned even when performance is weak, as long as it exceeds peers' performance.

Also, when companies offer RPE incentives, shareholders are less likely to pay executives for luck. Finally, many consider RPE incentives to be fairer and more justifiable than other types of incentives. This research examines the use of RPE incentives in CEOs' compensation contracts among large publicly-traded companies. Our sample includes more than 100 companies across several years. We use hand-collected data from proxy statements filed with the Securities and Exchange Commission to determine the extent of use of RPE incentives in CEO contracts and whether the use of RPE is increasing over time, particularly in years when company performance is depressed. We also compare the characteristics of companies using RPE incentives to those of companies not using RPE, and we collect data on the performance measures, peer groups, time horizons, and payment methods for RPE incentives provided.

Flyer Enterprises: Developing Business by Developing People

School of Business Administration: Center for Academic Success | Oral Presentation - Independent Research

STUDENTS Brian R Markgraf, Khristian Alejandro Santiago, Claire Elizabeth Van Tiem | ADVISORS Janet R Leonard

LOCATION, TIME Miriam Hall 213, 11:00 AM–12:00 PM

This presentation will explain the value that Flyer Enterprises, the nation's 4th largest student-run business, offers University of Dayton students by providing experiential learning centered

around the individual's strengths and interests. The firm's mission, goals, and current state will be presented.

Sophomore Entrepreneurial Experience - Results of operations from micro-companies

School of Business Administration: Crotty Center for Entrepreneurial Leadership | Oral Presentation - Course Project, MGT 221 01

STUDENTS Gabrielle Marie Castaldo, Robert F Chelle, Shuo Du, Gavin P Hooper, Norman A Kotoch, Jonathan S Morgan, Gregory James Mulvey, Kaitlyn R Nielsen, Zachary Charles Poelking, Elizabeth M Weinewuth | ADVISORS Robert F Chelle

LOCATION, TIME Miriam Hall 109, 1:00 PM–2:00 PM

The highly acclaimed Sophomore Entrepreneurial Experience course is the first course for entrepreneurship majors in the School of Business. In its 15th year, this experiential course has operated 132 micro-companies. Specifically, besides attending normal classroom lectures, teams of students form and propose ideas for a product or service to pursue, select the best of class ideas and test the validity of the proposal through market

research. After confirming a legitimate opportunity before them, each team uses a \$5,000 loan from the University to purchase product or acquire assets for a proposed service. Issues such as securing a reliable vendor, competitive pricing, developing distribution channels, learning about personal selling, leadership, logistics, accounting, human resource issues and finally closing the company are mastered in this linked two semester course.

Economics and the Environment: The Tragedy of the Commons?--Case Studies of Organizational Success and Failure

School of Business Administration: Economics and Finance | Oral Presentation - Course Project, ECO 435 01

STUDENTS Daniel C Bertke, Forrest C Broussard, Jack W. Buffington, Craig A Carden, Matthew A Castleton, Jonathon Michael Deeter, Hannah Marie Frimel, Patrick C Gallagher, Mary Kathleen Gehrig, Frank Giorgio, Caroline Grace Glynn, Jonell Taylor Graham, Stephen Paul Hall, Jacquelyn A Hearn, India Rene Huger, Stephanie Judith Janus, Shaoshuai Jin, Lucas A Johnson, Gayle E Johnston, Emily Elizabeth Kerul, Colin McManamon, Erin Elizabeth Mohny, Kelly C O'Byrne, Sean F Pine, Michael M Raleigh, Nathan H Resing, Jacob T Rumpke, Jessica A Sandoval, Carson Scheidler, Madeline M Schoen, Nathan Philip Sevier, Cameron Chase Silva, Elaine Marie Sims, Andrew B Smith, Mitchel F Wozniak, Thomas Laffee Zervas, Jacqueline Christine Zondlo

ADVISORS Barbara Heroy John

LOCATION, TIME Miriam Hall 214, 9:00 AM–4:00 PM

Organizations—markets, corporations, regulatory authorities-- are often celebrated for their potential to achieve harmony (efficiency and socially optimal—if not moral--outcomes). Traditionally, private sector flaws or inadequacies--such as the presence of market power or asymmetric information--have been invoked to justify government regulation or public good provision. But it is negative externalities—substantive and pervasive—that lend urgency to the call for government action in the face of environmental degradation. Thinking of the planet Earth as the ‘commons’ described by Garrett Hardin—as a good that is nonexclusive but rival and subject to diminution—enables economists to contemplate various policies to preclude ‘tragedy’:

to prevent or mitigate damage to the earth’s sources (the earth’s endowment of natural resources, including biodiversity as well as aquifers and other water sources, forests and fertile land) and sinks (the earth’s power to assimilate waste). The unprecedented posed by climate change and other environmental ramifications of exponential rates of growth in population and material production endow the issue of market and organizational failure with particular urgency, and government intervention may be insufficient to the task. This series of vignettes highlights the behavior of organizations—markets, corporations, non-profit entities, even government agencies—to explore their roles in perpetrating, abetting or staving off environmental collapse.

A Covariance Analysis of Consumer Healthcare Expenditures and Healthcare Sector Price Movements

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Courtney E Cady, David A Christian | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

In recent years, an increasing portion of consumer expenditures on services is allocated to healthcare. The aging of the U.S. population, the Affordable Healthcare Act, and the rising per unit costs of hospital trips all have influenced this trend. In this study, we test the hypothesis that healthcare sector prices covary directly with consumer expenditures on healthcare services. Using regression analysis, we regress 5 Healthcare sector ETF’s

on Healthcare consumption expenditures. The ETF’s are: (1) Healthcare Sector ETF (XLV), (2) Healthcare Equipment ETF (XHE), (3) Biotech ETF (XBI), (4) Pharmaceuticals ETF (XHP), and (5) Healthcare Services ETF (XHS). Quarterly data are used in the analysis and the time period is from 2004 - 2014. We expect $b > 0$, $t\text{-statistics} > 2$, and R^2 is significantly different from zero.

A Fundamental Approach To Portfolio Weighting For Consumer Staples Stocks

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS David Jack Beebe | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

A number of studies conducted by students in the Davis Center for Portfolio Management suggest that the fundamental characteristics of stocks can be successfully used to generate portfolio alpha. In this study, several key valuation measures are used to develop portfolio weights for a concentrated portfolio of Consumer Staples stocks. They are, Price to Book, Price to Earnings, Price to Sales, and Price to Cash Flow. In addition,

expected earnings growth one year ahead is also included in the weighting process. Two weighting strategies are used: (1) higher price to’s get higher weights and (2) higher inverted weighted price to’s get higher weights. The 10 stock portfolio performance is then compared to the performance of the DOW, The S&P 500, and the Consumer Staples SPDR ETF on a quarterly and yearly bases for 2014.

A Longitudinal Analysis of the Industrial and Information Technology Sector Price Movements based on Trends in Durable Goods Consumption Expenditures: 2004-2014

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Ellen H Lee, Elizabeth Grace Todia | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Durable goods consumption expenditures directly and indirectly effect the stock price movements in several S+P 500 sectors. In this study we focus on their impact on Industrial and Information Technology sector price movements over the time period 2004 through 2014. During this period we have two major upswings in the stock market and the recession period in 2008 through the first quarter of 2009. Using linear and log linear regression

models, we expect the $B > 0$, the $t\text{-stat} > 2$ and the F tests on the R^2 s to be significant. We also will determine if the B coefficients are time variant by running regressions for the 2004 to 2008 and 2008 to 2014 sub-periods as well as the overall period, 2004-2014. Since the log linear models B coefficients are essentially elasticity coefficients, we will also determine if there is a relatively elastic or inelastic response to changes in the level of

consumption of expenditures.

A Smart Beta Approach to Portfolio Weighting for a Concentrated Portfolio of Consumer Discretionary Stocks

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Daniel Robert Caponi, Rory T Houser | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The two major approaches to weighting market indexes are price weighting (DOW) and market cap weighting (S&P 500). In this study, we use a Smart Beta approach by weighting stocks based on their fundamental and earnings growth characteristics. Using price to earnings, price to book, price to sales, and price to cash flow measures plus expected one year earnings growth, we weight the top 10 holdings of the SPDR Consumer Discretion-

ary ETF (XLY) and compare their performance as a portfolio of stocks to XLY, the DOW, and the S&P 500 for the year 2014. Two weighting strategies are used. A momentum strategy which gives higher weights for higher price-to metrics, and a relative value strategy which gives higher weights to stocks whose inverted price-to's are higher. The concentrated portfolio begins in 2014 with a beginning value of \$5,000,000.

A study in Dividend Investment Strategies High Yield vs. High Dividend Growth For the Period 2008 - 2014

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Joseph P Riazzi | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

From a total return perspective, there is an on-going debate among financial analysts as to which is the better strategy: (1) investing in high yield stocks or (2) investing in stocks with high dividend growth rates. Since stocks with high dividend growth rates also tend to be lower yielding stocks, the strategy debate is often more about low vs. high levels of yield. In this study I test several hypotheses: (1) low yield stocks outperform high yield stocks, (2) high dividend growth rate stocks outperform low dividend growth rate stocks, (3) high dividend growth rate stocks outperform high dividend yielding stocks. Using the S&P 500 as my sample universe, I sort the 500 stocks each year by

dividend yield and the expected dividend growth rate one year ahead. Portfolios are constructed based on yield and dividend growth rate ranges. Yields, as an example, are divided into class intervals of 100 basis points i.e. 0-1%, 1-2%, 2-3%, up to 6-7%. Dividend growth rates are classified in a similar manner. Returns are developed for each portfolio tied to a class interval and then compared to each other as well as the benchmark S&P 500 on a year to year basis. Regression analysis will be used to test the above hypotheses with the b coefficients expected to be greater than zero and statistically significant at the 95% confidence level.

A time series analysis of Service Consumption expenditures as determinants of the consumer discretionary and consumer staples sector price movements, 2004-2014.

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS John C Scheuble, Dimitra A Spandonidis | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

A growing portion of U.S. Consumer income is spent on services. Both directly and indirectly these expenditures effect the stock market prices of firms in the consumer discretionary and consumer staples sectors. The objective of this study, therefore is to determine if the market prices of these two sectors co-vary with the growth in consumer services expenditures. The period

of analysis is 2004-2014. Quarterly pricing and expenditure level data are used in the analysis. Using regression analysis, the hypothesis to be tested is service expenditures and discretionary and staples sector prices co-vary directly with each other. We expect the b coefficients in the regression analysis to be greater than zero and statistically significant at the 95% confidence level.

Are intermediate stage product prices early warning indicators of U.S. final goods prices? A covariance analysis for the period 2004-2014.

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Anthony J Bello | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

In this study I examine the correlation patterns between the price movements for the four intermediate stages of production and final demand prices. Since changes in final demand prices

reflect both the levels of demand for goods and services and the rate of inflation, they are particularly important to investors in the financial markets. Using step-wise regression analysis, I

develop predictor equations that show final demand prices as a function of the prices for the four intermediate stages of production. Monthly times series for the above price variables over the

period 2004-2014 are used in the analysis. I expect all of the coefficients to be positive and statistically significant at the 95% confidence level.

Firm Characteristics, Concentrated Portfolio Strategies and Industrial Sector Price Movements in 2014

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Matthew Peter Fazio, Kenneth Christopher Scudder | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

This study is part of a series of studies in the Davis Center for Portfolio Management focused on portfolio weighting. It also considers the alpha generating capabilities of a concentrated portfolio of stocks using relative valuation and momentum stock weighting strategies. The top 10 holdings of the SPDR sector ETF XLI are used as the concentrated portfolio of stocks. Various price-to-measures such as price to earnings and price to book

are used to develop the weights for each stock in the concentrated portfolio. One year ahead expected earnings growth for each of the 10 stocks provides the basis for the earnings momentum weight component. Assuming the portfolio starts with a funding level of \$5,000,000, a performance comparison is made with XLI, the DOW, and the S&P 500 for the year 2014 to determine if the concentrated portfolio generates alpha.

Influence of Behavioral Finance on Decision Making in the Business World

School of Business Administration: Economics and Finance | Poster - Honors Thesis

STUDENTS Zixi Li | ADVISORS Ting J Zhang

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Behavioral Finance, as the potential implications of psychological factors, has subtly affected investor behaviors in financial markets. In this project, I would like to discuss different types of behavioral finance, analyze the reasons and connotations behind each type of behavioral finance, and illustrate the influences and

consequences with regard to the investor behaviors in the real business world. In addition, I would like to talk about the methods on how to avoid and overcome the behavioral finance in both theoretical and psychological aspects.

Is Free Cash Flow a Priced in Factor in Explaining the Performance of the Dow 30 Stocks? A Study in Portfolio Weighting, 2007-2013.

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Sean Michael Fitzmartin | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Most financial analysts agree that free cash flow is an important indicator of a firm's financial health and its ability to sustain upward growth in earnings. In this study, I evaluate its effectiveness as a priced in factor in the cross section of returns. Focusing on the DOW Jones 30 stocks over the period 2007-2013, I develop portfolio weights for each DOW Jones stock based on free cash flow per share or price to free cash flow per share. Two weighting models are used: (1) higher weights are given to higher

levels of cash flow per share, and (2) higher weights are given to the inverse of price to cash flow per share. The performance of the free cash flow per share weighting models are then compared to the price weighted DOW Jones on an annual basis for the highly volatile market period of 2007-2013. If free cash flow is a priced in factor, I would expect the free cash flow weighting models to consistently generate excess returns over the benchmark DOW.

Macro Economic Activity and Sector Price Movements: A Closer Look at PMI Data

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS David A Christian, Matt G Putbrese | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The purchasing managers' index (PMI) is considered a leading indicator of U.S. manufacturing activity as well as overall economic activity. Financial markets respond quickly to above or below trend movements in PMI. In this study I develop regression models that specify the relationship between PMI and each of the 10 SPDR ETFs. I test the hypothesis that $b > 0$ i.e. that SPDR ETF prices covary directly with changes in the PMI index. Using log linear models, I also test the hypothesis that the response

coefficients are relatively elastic i.e. $b > 1$. I use monthly data to construct the models. The overall time period analyzed is 2004-2014. Two subperiods are also evaluated (1) 2004-2008 and (2) 2009-2014.

Modeling the relationship between non durable consumer expenditures and stock market prices: An empirical analysis for the period 2004-2014

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Alexander Ian Middleton, Dylan Louis Schack | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

BEA consumer expenditure data is divided into three components: (1) durable, (2) non durable, and (3) service expenditures. In this study we examine the relationship between non durable consumer expenditures and consumer discretionary and consumer staples sector price movements. Rational expectations theory suggests that increasing demand for non durable goods

increases the sales and earnings of the firms operating in both of the above sectors. In turn, this results in rising sector prices. Using linear and log linear regression we test the hypothesis that the regression coefficients are positive and statistically significant. Quarterly data is used in the study with the time period under analysis, 2004-2014.

Producer Price Indexes as Determinants of Stock Market Prices: A Time Series Analysis for the Period 2004-2014

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Bryan E Thomas | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM-12:00 PM

The purpose of this study is to determine the impact of macro-economic pricing activity in the form of producer price indexes on stock market prices. Linear and log linear regressions are run on 18 different firms from six different 3-digit sic industries. The time period of analysis is 2004-2014 and monthly pricing data is used in the regressions. In order to see how the regression coeffi-

icients vary with time, separate regressions are run from 2004 through the 2nd quarter in 2008 and the third quarter in 2008 through 2014. A regression is run for the complete period 2004-2014 with a dummy variable used to identify the 2008 recession. The hypothesis to be tested is $b > 0$, $T \text{ stat} > 2$ and $R^2 > 0$.

Relative Value and Momentum Weighting for a Concentrated Portfolio of Health Care Stocks

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS John P Klingler | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

A key factor in portfolio returns is the weights given to stocks in a portfolio of stocks. Capital Asset Pricing Models indicate that the weight assigned to a stock should be based on its risk premium to the market. In recent years, attention has focused on firm size, relative valuation, and earnings momentum as the appropriate weighting strategies. In this study I focus my attention on large size firms in the health care sector using a concentrated portfolio of the 10 largest holdings in the SPDR Health Care ETF. I use a

combination of relative value and momentum weighting strategies to develop portfolio weights for the 10 health care stocks. The performance of the concentrated portfolio is compared to the performance of the SPDR Health Care ETF, the DOW, and the S&P 500 for 2014. Quarterly and annual performance comparisons are made assuming that the concentrated portfolio starts 2014 with a funding level of \$5,000,000.

Retained Earnings as a Determinant of the Cross Section of Returns

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Michael M Raleigh | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The objective of this study is to find out if retained earnings is a determinant of portfolio returns in the cross section. Two hypotheses are tested. First, that value stocks with higher levels of retained earnings will out perform value stocks with lower levels of retained earnings. Second, that growth stocks operate differently in that stocks with low levels of retained earnings will outperform stocks with high levels of retained earnings. For the cross section analysis, the S&P 500 is divided into 10 groupings

of 50 stocks each by firm size. using price to book, the top 50 and bottom 50 are further divided into portfolios of 25 stocks each and labeled as relative growth and value portfolios. Weighting the stocks by retained earnings per share, a performance comparison is made for the four portfolios relative to the S&P500 and the Russell 1000 value and growth indexes. The period of analysis is 2006-2004 which includes all phases of a market cycle.

Sector Allocation and Stock Selection for the Flyer Fund: A Study in Propagation and Attribution Analysis for the Year 2014

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Eric T Flanigan | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The objective of this study is to determine if the Flyer Fund's sector weighting and stock selection results in out-performance relative to its benchmark, the S&P 500 Index. To aid in the return comparison, Bloomberg's Propagation Analysis Model is used to generate alternate stock selections by S&P sector for the Flyer Fund. The alternate stock selections are based on certain assumptions about macroeconomic conditions in 2014. It was assumed that oil prices would fall, market volatility would

decrease and interest rates would also decline. For the "new" stocks, several different portfolio weighting strategies are used. Performance for the Flyer Fund and the different portfolio weighting models are compared to the performance of the S&P 500 on a quarterly and year-to-date basis for 2014. The performance attribution analysis also considers excess return contributions based on sector allocation weights and stock selection.

Sector Allocation and Stock Selection for the Flyer Fund: A Study In Propagation and Attribution Analysis for the Year 2014: Part 2

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Eric T Flanigan, Allison I Michel | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

This Research Project extends the work of Eric Flanigan on Stock Selection and Attribution Analysis for the UD Flyer Fund. Flanigan used Bloomberg's Propagation Analysis model to generate alternate stock selections for the Flyer Fund based on certain assumptions about the US macroeconomy. He assumed that oil prices would fall, interest rates would fall, and market volatility

would fall with the continued steady growth for the US Economy. I build on his research by rebalancing his alternate portfolios of stocks at the end of each quarter. I also extended the analysis to include the first two months of 2015, which reflect rising volatility in the stock market due to geopolitical risks. Finally, I breakdown the attribution and stock selection analysis by S&P 500 Sector.

The Performance of Concentrated Portfolios of High Quality Stocks in Highly Volatile Markets: The 2008 - 2013 Experience

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Christine A Ferry | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The objective of this study is to determine how well concentrated portfolios of high quality stocks perform under highly volatile market conditions. Three different portfolios of 30 stocks each were established based on market cap: (1) mega cap (2) large cap and (3) mid cap. All of the stocks in each portfolio had Standard and Poors quality ranking of A-, A, and A+. One hypothesis tested

was that concentrated portfolios of high quality stocks generate excess returns (alpha) when compared to a fully diversified portfolio of stocks such as the S&P ETF SPY. A second hypothesis tested was that portfolios of quality stocks generate better risk adjusted returns relative to the broad market. Quarterly and annual data are used for the performance comparisons.

E-commerce effect on Big-Box Retailers

School of Business Administration: Economics and Finance | Oral Presentation - Honors Thesis

STUDENTS Brian D Bates | ADVISORS Trevor C Collier

LOCATION, TIME Miriam Hall 103, 1:00 PM–2:00 PM

The history of retail has been an evolutionary process of new innovations and transformations. Previous changes include: the development of catalogue based retail, and the recent innovation of super stores, known as big-box retailers. It is possible that we are dawning upon a new revolution of the retail environment as electronic commerce (e-commerce) continues to grow. This paper will analyze the impact of e-commerce on retail markets, specifically big-box stores (defined as stores between 50,000 and 200,000 square feet). This will be accomplished by using financial data from Bloomberg™, real estate data from CoStar™ group, and e-commerce data from eMarketer. Two separate models will be utilized to answer the following questions. Has

the growth of e-commerce affected the retail real estate market? Which retail submarkets have been affected most by the growth of e-commerce? Are big-box retailers with burgeoning e-commerce programs less at risk to the growth of e-commerce than those with none? The first model will test whether growth in the different e-commerce retail submarkets (i.e. sporting goods and bookstores) will cause a decrease in the square footage growth rate of the big-box stores in those same retail submarkets. The second model will test whether growth in e-commerce spending in retail submarkets will cause a decrease in the stock performance of big-box retailers within those market sectors.

The Davis Center for Portfolio Management: Economic Outlook, Spring 2015

School of Business Administration: Economics and Finance | Oral Presentation - Independent Research

STUDENTS Erik Jameson Kurcz | ADVISORS Trevor C Collier

LOCATION, TIME Miriam Hall 118 - Davis Center, 2:20 PM-3:20 PM

The Flyer Investments Fund is a long-only equity portfolio valued at over \$20 million. The Fund is part of the University's endowment and is managed by students enrolled in the Seminar in Investments course (FIN 493). Students in the Davis Center for

Portfolio Management prepare an economic outlook for both the domestic and international markets. This information is used by the FIN 493 class to determine sector weightings for the portfolio.

The Davis Center for Portfolio Management: Securities Team*School of Business Administration: Economics and Finance | Oral Presentation - Independent Research*

STUDENTS Andrew M Imhoff | ADVISORS Leslie S Mundew

LOCATION, TIME Miriam Hall 118 - Davis Center, 3:40 PM-4:40 PM

Students in the Davis Center for Portfolio Management develop quantitative and qualitative analysis in support of investment decisions for the Flyer Investments Fund. The Fund, part of the University's endowment, is a long-only equity portfolio valued at

over \$20 million. This presentation will discuss tools and methods used by the Security Analysis team in equity research, stock screening and selection and industry research.

CareSource Troubleshooting Ticket Dashboard*School of Business Administration: Information Technology, MIS, OM and Decision Sciences | Oral Presentation - Capstone Project*

STUDENTS Elizabeth A Calvey, Kaitlin J Knife, Thomas Bass Leslie, Christine M Lutz

ADVISORS William D Salisbury, Arthur R Santoianni

LOCATION, TIME Miriam Hall 213, 2:20 PM-2:50 PM

The UD Student team will investigate CareSource's IT troubleshooting ticket process, which is currently being tracked and managed manually. We will assess the concerns that the IT department has through systems analysis and design, with the goal of improving the effectiveness of the service desk express. In order to expand upon efficiency, the UD team will build upon an existing dashboard, creating a tab that not only tracks the IT tickets that are submitted, but also tracks the mean time to resolution for the tickets compared to the service level agree-

ments that are established for the company. In addition to this, the dashboard will generate automated reports that contain year-to-date metrics, as well as monthly metrics. With an automated procedure, we hope to provide CareSource with the resources needed to improve the efficiency of the process. University of Dayton Senior Project Team - Elizabeth Calvey, Kaitlin Knife, Christine Lutz, Thomas Leslie CareSource Representative(s) - Warren Culpepper, Rebecca Caudill

Ford Motor Company In China: How Will It Respond to Increasing Demand for Electric Vehicles?*School of Business Administration: Management and Marketing | Oral Presentation - Independent Research*

STUDENTS Paula M Arcaro, Katherine M Baglieri, Yvette A Cabrera, Allison N Christy, John P. Clayton, Lauren Colasanti, Marie K Costanian, Joseph P Demartis, Michael C Dickey, Libby M Durnwald, Benjamin D Durst, Dominic M Falsetti, Elizabeth C Fitzgerald, Hannah R Ford, Patrick M Gilkey, Benjamin Goulart, Pengfei Guo, Jonathan R Hanes, Wei Hu, India Rene Huger, Melissa L Karasack, Laura A Leonardi, Ryan T Lopus, Le Luo, Jia Qi Ma, Sean McCloskey, Salvatore V Messina, Xiaodan Niu, Kimberlee Pottinger, Jun Ai Ren, Stephen J Scott, Megan R Stuffelbeam, Hailey A Thorn, Maximilian Jay Tiesman, Kayla Grace Waitrovich, Emily A Wegh, Cameron Timothy Zuck | ADVISORS Terence J Lau

LOCATION, TIME Miriam Hall 106, 9:00 AM-3:00 PM

There is an increasing demand for electrification in the auto industry and Ford Motor Company in China wants to tackle it. Student teams of 3-5 will craft and present a 15-minute presentation on how Ford China should respond to consumer and government demands to lower China's dependence on imported oil, along with an executive summary of recommendations. Teams will be evaluated on their level of innovation, creativity

and originality in the solution(s) as well as their critical thinking and analysis. Solutions may come from within Ford's portfolio or involve outside parties, but must specifically identify financial drivers to success including projected volumes and break-even targets. Presentations must further advise Ford China on concrete and measurable steps the company should take to meet the challenge.

UD Business Plan Competition: Insights from the Finalists*School of Business Administration: Management and Marketing | Panel Discussion - Independent Research*

STUDENTS Jacob R. Houk, Colin Seeley Johnson, Ann C Kyne, Vincent Lewis, Adam R Marasco, Khristian Alejandro Santiago

ADVISORS Vincent Lewis

LOCATION, TIME Miriam Hall 109, 10:00 AM-12:00 PM

In this panel discussion, student members of the five finalist and alternate teams from the 2014-2015 UD Business Plan Competition (UDBPC) will discuss their experiences in the competition. Presenters will include members from finalist teams Hammock That Help, Full Circle Trailer Aerodynamics and Fever Smart. Through the panel discussion, the participants will comment

on what they learned through participating in the competition as well as their impressions of the competition. Finalists will also comment on and describe the support provided to them throughout the competition. Additional time will be provided for audience members to ask questions to the finalists about their experiences.

Flyer Consulting

School of Business Administration: Management and Marketing | Oral Presentation - Independent Research

STUDENTS Joseph M Armstrong, William D Bishop, Sarah Lynn Dickson, Owen T Flanagan, Meghan Ann Freise, Yidan Gao, Rory T Houser, Nicholas Charles Keeley, Ann C Kyne, Mark J Mcevely, Cody Allen Rice, Nicholas William Rothaar, Carson Scheidler, Brandon G Snyder, Andrew Joseph Watt | ADVISORS Jay J Janney, Vincent Lewis

LOCATION, TIME Miriam Hall 103, 2:20 PM-3:20 PM

Flyer Consulting is a unique extra-curricular organization at the University of Dayton composed of an elite group of students in the School of Business Administration. FC offers solutions to non-profits through conducting research and analysis in areas such as financial planning, marketing, and community presence. FC provides final analysis and recommendations to clients through a written and oral deliverable. In this presentation, consultants

will present an overview of various aspects of the organization such as processes, operations, organizational structure, and client engagement. Attendees will gain insight into the ways in which the consultants use practical knowledge and skills learned to benefit the community. Consultants will also discuss campus engagement and future plans for the organization.

OPS 495 Senior Capstone Consulting Projects Session 1 of 2

School of Business Administration: MIS, OM and Decision Sciences | Oral Presentation - Capstone Project

STUDENTS Geoff Michael Bentley, Joseph R Blankemeyer, David M Bowen, Ryan N Burdine, Dean H Butts, Maxwell Humble Caprez, Kyle Patrick Foley, Thomas J Fullenkamp, Stephen Paul Hall, Lucas A Johnson, Andrew P Lavoie, Dominic P Magnon, Patrick G Manning, Jacob T Rumpke, Patrick D Ryan, Nicholas J Wood, Thomas Laffee Zervas | ADVISORS Michael F Gorman, John J Kanet

LOCATION, TIME Miriam Hall 104, 11:00 AM-12:15 PM

Senior OPS majors provide presentations of their capstone consulting projects.

Become a World Citizen with the School of Business Administration: Summer Study Abroad, Semester Exchange, University of Dayton China Institute (UDCI), ETHOS (Engineers in Technical Humanitarian Opportunities of Service Learning), International Internship

School of Business Administration: MIS, OM and Decision Sciences | Oral Presentation - Independent Research

STUDENTS Paula M Arcaro, Andrew J Eifert, Matthew P Krause, David William May, William M. McClure, Dina Marie Podnar, Peter G Wagner | ADVISORS Peter G Wagner

LOCATION, TIME Miriam Hall 119 - O'Leary Auditorium, 1:00 PM-2:00 PM

University students increasingly realize that international experience is almost a prerequisite for securing a first-rate job after graduation; and, learning about and understanding diverse cultures make us all better world citizens. How can you as a student expand your horizons while still maintaining a high level of academic professionalism? With the SBA (School of Business Administration) Faculty-led Summer Study Abroad Programs, Semester Exchange Programs, Internships abroad, ETHOS Program (sponsored by the School of Engineering), and other programs students become world citizens by embracing unfamiliar and diverse cultures in rigorous educational environments that

can include service activities. This session will inform students on becoming more educated world citizens through study abroad and/or other experiences in Europe, Asia, Central or South America, and more. Students may take business and general education classes taught by University of Dayton faculty or take a foreign language. Students may gain valuable hands-on business experience on an internship abroad. Opportunities for service activities through ETHOS engage students in life-changing experiences while giving back to the global community. Fellow students who are past program participants will present their stories and discuss unique opportunities awaiting students.

Imagery Solutions Geospatial Information System (GIS System)

School of Business Administration: MIS, OM and Decision Sciences | Oral Presentation - Capstone Project

STUDENTS Dexter D Bensman, Nicholas F Jurgens | ADVISORS William D Salisbury, Arthur R Santoianni

LOCATION, TIME Miriam Hall 213, 1:00 PM-1:30 PM

Imagery Solutions is a start-up that provides image processing and storage services for clients. As one example, LLC takes aerial photographs of agriculture, and applies state-of-the-art image processing so that clients may draw inferences of how well the crops are doing. This provides a much more cost efficient and reliable means by which large amounts of acreage may be managed. The proposed system will need to have a UI for users and separate login accounts for each user as well.

Upon logging into the system, the user should see an interactive map that can be searchable by area. They also should be able to click on and off different layers of images, depending on what information is available in their image data. This should enable customers to look at trends within their farmland, and see what the course over the long term has been like. University of Dayton Senior Project Team - Nick Jurgens, Dexter Bensman Imagery Solutions, LLC Representative - David Russell

University of Dayton Information Technologies (UDit) Asset Tracking Workflow System

School of Business Administration: MIS, OM and Decision Sciences | Oral Presentation - Capstone Project

STUDENTS Sarah Lynn Dickson, Stephanie A Greve, Tao He, Patrick McGuire

ADVISORS William D Salisbury, Arthur R Santoianni

LOCATION, TIME Miriam Hall 213, 1:30 PM-2:00 PM

UDit is responsible for the appropriate arrival and disposal of campus IT equipment at the University of Dayton. It needs IT Asset Tracking to minimize the risk of exposing confidential data and to ensure the equipment is disposed of in an environmentally appropriate manner. Process workflows need to be designed to trace the movement of equipment between organizations as well as audit controls and metrics devised and implemented for each

step in the process. To accomplish this, the UDit team will gather information from stakeholders, develop process workflows for equipment tracking, establish recommendations for IT asset equipment tracking best practices, and present its findings to stakeholders. University of Dayton Senior Project Team - Sarah Dickson, Stephanie Greve, Tao He, and Patrick McGuire UDit Representatives - Karen Bull, Lynn Frericks

Ross Group/Commit DBA Dashboarding and Reporting System

School of Business Administration: MIS, OM and Decision Sciences | Oral Presentation - Capstone Project

STUDENTS Edward F Grahovec, Kristina Anne Hoying, Andrew P Lavoie | ADVISORS William D Salisbury, Arthur R Santoianni

LOCATION, TIME Miriam Hall 213, 2:50 PM-3:20 PM

The Ross Group Inc. is a software product and IT services company that requires various services to clients across the United States. One of their services is CommitDBA, a remote database management company that has 24 hour maintenance for a client's database. The DBA's at CommitDBA use Dell Foglight system to monitor the databases of their clients, which is a top of the line software that has numerous metrics that track the database's activity. CommitDBA submits reports to its clients every month about database activity. These reports take about 2 days

to complete and have numerous metrics that not all clients need. UD MIS Senior Project is assigned to create an automated dashboard that a client can look at and see relevant metrics. This can eliminate the amount of labor that is assigned to generate these reports every month, and it will present relevant information that their client needs to help run day to day operations. University of Dayton Senior Project Team - Eddy Grahovec, Kristina Hoying, Andrew Lavoie Ross Group Representative(s) - Bailey Glenn, Gary Codeluppi, Steve Woody

OPS 495 Senior Capstone Consulting Projects Session 2 of 2

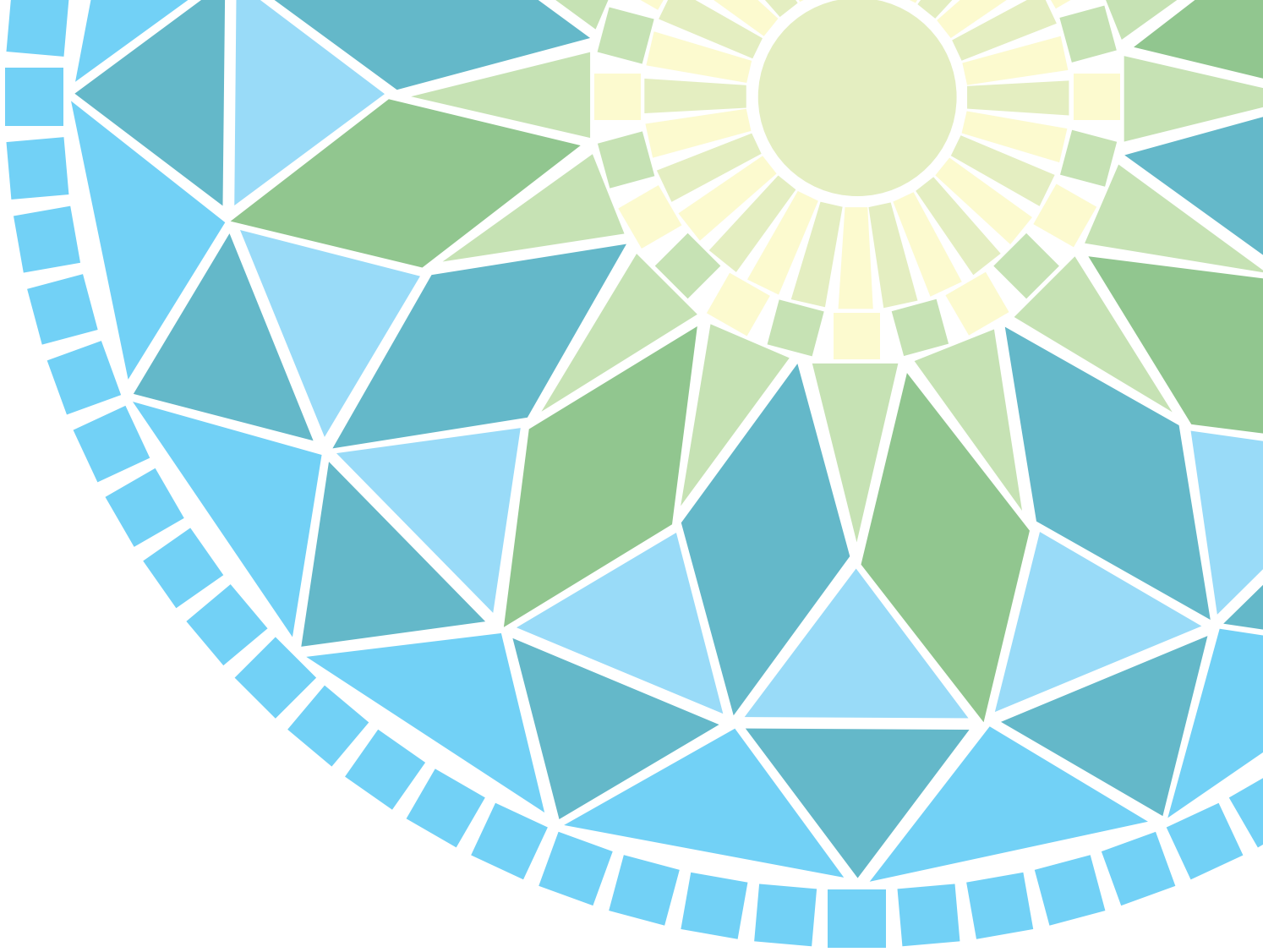
School of Business Administration: MIS, OM and Decision Sciences | Oral Presentation - Capstone Project

STUDENTS Roberto Federico Acevedo, Ryan C Brown, Amy Callahan, Elizabeth C Fitzgerald, Francis T Flannelly, Elizabeth K Gallaway, Nicholas A Hanson, Jacquelyn A Hearn, Amanda L. Kremer, Patrick McGuire, Matt J. Nowicki, Katherine E Penny, Molly E Remenowsky, Nathan H Resing, Shelby L Schaffner, Jillian M Schneider, Olivia C Thobe, Anna T Vitale, Ming Wei |

ADVISORS Michael F Gorman, John J Kanet

LOCATION, TIME Miriam Hall 104, 3:40 PM-4:55 PM

Senior OPS majors provide presentations of their capstone consulting projects.



SCHOOL OF EDUCATION AND HEALTH SCIENCES

Diminishing the Discipline Gap: Restorative Justice as a Promising Alternative in One Urban School

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Polly K Long | ADVISORS Elana Bernstein, Susan C Davies, Jamie Longazel

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Across the nation, the education system is responding to student misbehavior with zero tolerance policies that parallel the punitive practices found in the juvenile and criminal justice systems. Zero tolerance policies have contributed to the “discipline gap,” wherein schools punish racial and ethnic minorities more often and more severely than they punish whites. One alternative to punitive punishment is restorative justice, which aims to foster respect, responsibility, and empathy in members of school communities. This project evaluates the relationship between

restorative justice and out-of-school suspension rates in an urban school district. It also serves as one of the few studies that evaluate the effect of restorative practices on the discipline gap. The results validate previous research findings, as restorative justice is related to reductions in out-of-school suspension rates. Further, the results reveal a promising alternative to the punitive practices that plague the education system, as restorative justice is related to reductions in the size of the discipline gap.

Evaluation of a Psychosocial Intervention for Students with Traumatic Brain Injury and Executive Functioning Difficulties

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Natalie L Anderson, Heather A Fehring | ADVISORS Susan C Davies

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Students with traumatic brain injuries (TBI) often experience a range of behavioral, academic, social, and emotional difficulties. The present study examined the effectiveness of a psychosocial intervention, Skillstreaming, on a student who sustained a TBI and presented with executive functioning (EF) difficulties. Three students with non-TBI related executive functioning deficits and one student with a TBI participated in a five week intervention designed to improve executive functioning skills. Each student's

teacher completed the Behavior Rating Inventory of Executive Function (BRIEF) before and after the intervention period to measure the efficacy of the intervention. Results indicated that the intervention is potentially effective in improving executive functioning skills in the student who sustained a TBI. Suggestions are made for improvements to the intervention to increase the EF skills of students.

Postsecondary Transition for Young Adults with Traumatic Brain Injuries

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Michaela M Kramer | ADVISORS Susan C Davies

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Many students with traumatic brain injuries (TBIs) face difficulty transitioning from high school to postsecondary settings. This presentation will share results of a study that examined the transition experience of young adults with TBIs, from the perspective of the students and their parents. Participants will learn about

the transition experiences of students who sustained TBIs and discuss services that can be provided to high school students with TBIs to promote a successful transition to a postsecondary setting.

Training College Staff to Recognize and Respond to Concussions

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Lisa B Lopez | ADVISORS Susan C Davies

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

College students comprise one of the highest risk groups for concussions (Krach, Gormley Jr., & Ward, 2009); however, there is limited research on outcomes of college students – particularly non-athletes – who sustain concussions. Therefore, university personnel would benefit from training programs designed to increase their ability to recognize and respond to concussions (Sady, Vaughan, & Gioia, 2011). This study utilized a quasi-experimental survey design to examine the current level of knowledge and training of concussion among college staff members; to evaluate the efficacy of a one-hour training program to increase their concussion recognition and management skills;

and to explore the effect of ongoing follow-up on their ability to meet the needs of their students who sustain a concussion. Participants included approximately 420 college students from the University of Dayton who also work in either 1) residence life departments or 2) the RecPlex. Participants (n = 269) voluntarily completed pre- and post-training questionnaires regarding concussion signs and symptoms, assessment, and accommodations for students who have sustained a concussion. The third questionnaire solicited qualitative information regarding if/ how participants accommodated students with concussions. An independent samples t-test was conducted to compare the

pre- and post-training knowledge of participants in both groups. Results were not significant, but the average percentage correct scores demonstrated a 7% increase in knowledge between pre- and post-training scores across groups. Training alone is likely insufficient for creating a lasting change in concussion response. A cultural shift is likely needed to change the social norms, atti-

tudes, and behaviors related to under-reporting of concussions and increasing communication between students and staff members. Additional efforts are needed to create and implement a sustainable education model that accounts for individual college campuses' existing strengths in order to facilitate substantive, lasting cultural change in the college campus community.

#TrendingNow: Social Media Use and its Effect on First Year Millennial Students Interpersonal Relationships during College Transition

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Meghan Mettling | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

Constantly connected to one another via various forms of technology, Millennial generation of students interact with one another in new ways, which represents a challenge and an opportunity for higher education professionals to reach out to students and help them to connect to campus and to one another. The purpose of this quantitative study is to find out how first year Millennial students at a mid-size private institution used social media during their first semester on campus to connect and form relationships with peers, faculty, and staff in the campus commu-

nity. Data was collected via a survey sent to a random sample of first year residential students. Data analysis showed a positive correlation between students who used social media to connect to others in the campus community during their first semester and a positive social adjustment to college.. Higher education practitioners may use the results of this research to design new and innovative practices for connecting electronically with first year students during the college transition process and increasing second year retention rates.

A Match or a Mismatch: Comparing College Stated Learning Goals to Student Learning Goals and Perception of Educational Quality

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Michelle D Foster | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

An institution's ability to meet students' learning expectations influences student perceptions of educational quality and usefulness. Currently, colleges and universities are trying to provide evidence of these attributes through various summative assessment instruments. However, the content and structure of most assessment instruments measures what students have retained, not actual cognitive change or instances of goal achievement. This study surveyed a random sample of students at a four-year

liberal arts college asking them to describe their personal learning goals and quantify the quality and usefulness of the education they received. The students' goals were then compared to the stated goals of the institution. Findings revealed valuable information about how achievement of personal goals is tied to student perception of quality, and the implications of matching or mismatching students with institutions that can meet their predetermined expectations.

A Personal Touch to Advising: A Comparison of Two Academic Advising Models at a Mid-Western Catholic Institution

School of Education and Health Sciences: Counselor Education and Human Services |

Poster - Course Project, EDC 569 D2

STUDENTS Erin T Brown | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

This research explored the differences between advisers in the school of business and the engineering department. It provides an interactive opportunity for participants to share their opinions. The significance of this qualitative study is to help higher education institutions continue to develop an environment, which will best fit students with their different needs. According to the

research that has been found, both faculty and professional advisers have positive and negative attributes (Filson 2011). This research shows that it is vital for student affairs professionals to take a closer look at the effect academic advisers have on the student experience.

All we do is Drink: Impact of Alcohol Culture on First-Year Experiences at a Private University

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS John Reynolds | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

First-year students are at risk due to a university's alcohol culture. This is creating a distorted reality of what college is about for many incoming students. First-year students assimilate into college with various external factors impacting their decisions; among these is whether or not to participate in high-risk alcohol consumption. Previous research focused on college environment, peers and the developmental stages of first-year students separately to identify how these factors impact a student's decision to consume in high-risk ways. However, little research focused on the holistic impact of all three factors on the first-

year student's experience and alcohol consumption. This study demonstrated the effect of alcohol on first-year students and their overall experience by delving into their stories to understand their lived experiences. Eight interviews were completed, transcribed, and evaluated to develop a thematic understanding of their lived experience. By understanding each student's story and their common experiences, interventions can be intentionally developed to assist students who are struggling or who might be at risk for issues throughout their college careers.

American and International Students on Body Image and Pop Culture: Self-Perceptions of Domestic and International Students Side by Side in the Mid-West

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Rhia Batson | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

This quantitative study took an interesting look into determining factors of self-image through the eyes of both international and domestic students in Southwest Ohio. In an effort to find comparative data, Self-Perceptions of Domestic and International Students Side by Side in the Mid-West USA provided a unique glimpse into perception and appearance. Survey participants included 84 International students and 26 American students,

with 52 Undergraduate and 58 either Graduate or enrolled in an intensive English program. Expanding internationalization is a cultural trend among both populations and is relational to altered perceptions as a result of foreign, peer counterparts. While this study is applicable, more research is needed among this growing student dynamic.

Bridging the Gap: The Impact of an Intensive English Program on Female Middle Eastern Muslim Students Social Experiences

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Nicole M Martin | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

This study investigates the impact of intensive English program (IEP) on female Middle Eastern Muslim student abilities to interact with native English speakers at a Catholic institution. The sample consisted of eight female Middle Eastern Muslim students who already completed IEP, currently enrolled in IEP, or was able to waive IEP requirements through testing. Through a qualitative approach, factors associated with female Middle East-

ern Muslim students' social experiences were explored. Findings detailed challenges based on religion, English proficiency, cultural differences, and campus support. Recommendations are presented for staff members, IEP instructors, and students to assist in improving the social success of female Middle Eastern Muslim students.

Career Planning for PhDs: Conflicting Messages for Future Faculty

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Course Project, EDU 947 01

STUDENTS Elizabeth Seager | ADVISORS Michele M Welkener

LOCATION, TIME LTC Team Space, 4:30 PM–6:30 PM

Since the 1970s, predicting labor market trends for new PhDs has been challenging, making it difficult to determine if full-time, tenure track faculty positions will be available within the academy upon completion of a terminal degree. Researchers (Bowen & Schuster, 1986; Shapiro, 2001) have created a number of models to predict the availability of full-time, tenure track faculty positions that have not produced accurate data for career planning. When full-time, tenure track hiring began to decline in the 1970s; predictions were made that the faculty labor market would be flooded with unemployed PhDs. However, employment outlook reports from Barkume (1997) and Jones (2003) have consistently shown that PhDs experience lower unemployment rates and

higher salaries compared to all other occupations. As undergraduates begin to consider their career options upon graduation, those with a keen interest in teaching and research in an academic setting will need proper resources to make career planning decisions. This presentation will provide data and resources related to faculty labor market trends and career planning tools and strategies to undergraduates interested in pursuing full-time, tenure track positions within the academy.

Closing the Gap: Examining Humanities Majors' Perceptions of Career Services

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Ellis Wasserman | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

Connecting one's degree in the humanities to a career path can be an ambiguous challenge in a society focused on job preparation. Career services offices in higher education institutions are at the forefront of helping students advance in their career development, yet little research has explored student insights and perspectives about these resources. This study explores humanities majors' perceptions, insights, and knowledge of career services at a private institution in the Midwest. A mixed methods approach provided evidence of over 125 students' knowledge and utilization of career services while supported by

in-depth insights of students' experiences. Humanities majors revealed their satisfaction with their degree of study, while simultaneously exposing their lack of awareness and understanding of career services resources, guidance and overall career readiness knowledge. Findings implied that the mission and brand of career services must be marketed in meaningful and intentional ways to connect to and guide humanities majors as they navigate their college experience.

College Credit Plus: Implications from a Higher Education Faculty Perspective

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Course Project, EDU 947 01

STUDENTS Heidi Maria McGrew, Daniel J Trunk | ADVISORS Michele M Welkener

LOCATION, TIME LTC Team Space, 4:30 PM–6:30 PM

College Credit Plus (CCP), formerly known as dual enrollment, has been a small part of the secondary education landscape in the United States since the 1970s. Today, as research and evidence is uncovered illustrating the success of these early to college programs, more high schools, colleges and universities are creating partnerships in an effort to encourage high school students (and their teachers) to participate. In fact, many states are now mandating that higher education and K-12 partnerships be created for high school students to ensure that access to college is equitable for all individuals interested in pursuing higher education. As a result, the number of high school students in dual enrolled courses has increased dramatically over the last five years. In addition, changes to CCP policy has contributed to an increase in the number of high school teachers providing college level instruction. In the past, high school teachers who

taught dual credit courses were required by many states to have at least 18 hours of graduate level coursework completed in the discipline. In an effort to increase the number of high school teachers qualified to teach college level courses, many states have reevaluated these requirements. For example, the state of Ohio has lowered their requirement from 18 to 6 hours of graduate level coursework in the discipline. Despite changes to dual enrollment policy, little research has been done examining the impact of CCP on higher education faculty. The purpose of this presentation is to examine the potential impact CCP may have on higher education faculty from economic, curricular, and student learning perspectives. Presenters will explore ways in which to support faculty in these three areas as they face challenges related to CCP.

Confessions of a Sorority Woman: Impacts of Hazing on New Members of Panhellenic Greek Lettered Organizations

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Kaci E Durham | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

The purpose of this study was to examine how Panhellenic Greek lettered organizations might choose to haze their new members and how being hazed impacted a new member, physically and mentally. Participants responded to a web-based survey that asked individuals to identify what they believed constitutes hazing, hazing acts they have been asked to engage in, and out-

comes of joining a Panhellenic organization. Both new members and initiated members received the survey. For data analysis, participant responses were compared using an Analysis of Variance (ANOVA). New members of Panhellenic Greek-lettered organizations defined organizational unity and mental/emotional instability as an outcome of joining a Panhellenic organization.

Cultural, Linguistic, and Emotional Adjustment: Adaptation of International Students into a U.S. College

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Tong Li | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

International students' enrollment at academic institutions in the U.S. has expanded in the last decade. Plenty of research studies show that these international students experience acculturation difficulties in adapting to both academic performance and residence life (Gebhard, 2012). This study aimed at exploring the cultural, linguistic, and emotional stresses that international students experienced as well as the adjustment they go through

to adapt at an American institution. The qualitative approach was used to study international students at an urban, mid-sized, Midwestern university. The findings of this study indicated that international students' adaptation and adjustment into college learning community could be accelerated by various sources of motivation, cultural interaction services, and language improvement activities provided by education administrators.

Did That Just Happen? Acts of Bias and Perception of Campus Racial Climate of Racially Minority Students at a Predominantly White Institution

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Jasmine Whitlow | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

Whether covert or overt, racism, racial prejudice, stereotyping, discrimination, and microaggressions are acts in which many marginalized students' experience, particularly on predominantly white colleges. The study was designed to examine the perception of the campus racial climate among racial minority students after a bias incident has occurred and identify coping strategies and support structures that promote the students ability to matriculate and persist. This examination is critical in properly

addressing issues on campus and ultimately supporting students who experience daily challenges as it relates to their perceived racial identification. Findings provided an overview of student experiences on campus as it relates to bias incidents. Recommendations are presented to assist higher education administrators to improve the campus climate for racial minority populations on college campuses.

Expanding TAGS: Facilitating Interaction between Teachers and International Students

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Course Project, EDU 947 01

STUDENTS Sky Lantz-Wagner, Brenna R Seifried | ADVISORS Michele M Welkener

LOCATION, TIME LTC Team Space, 4:30 PM–6:30 PM

The purpose of this presentation is to explore means for supporting faculty who teach international students. One of the challenges facing institutions of higher education in general, and the University of Dayton in particular, is the increasing diversity of student enrollment. This diversity includes international students from different countries, cultures, and educational backgrounds. The greater numbers of international students create both challenges and opportunities for faculty members. One such challenge for faculty members is lack of awareness and support from their administration, who may be similarly unprepared to handle increased diversity or to empower international students in their academic goals. In an attempt to bridge the gap between professors and international students, the Academic Affairs and Learning Initiative (AALI) at UD has created a program called Teaching a Global Student Community (TAGS), a workshop series providing faculty with a generalized look at the interaction of culture, students, and learning. We believe that faculty

in a variety institutes of higher education would benefit from an initiative such as TAGS' ideals and values. Our proposal is to offer pedagogical and intercultural support for faculty members at colleges and universities in Ohio. To provide this support, we will identify schools with a large percentage (10 or more) of international students or that recruit international students, search for existing support systems for faculty, and make recommendations based on the TAGS philosophy. Means of support will come in the form of in-service workshops, but other methods may prove more practical based on each school's needs. Anticipated areas we will address in training include responding to international students' writing, understanding and supporting dynamic interaction patterns in the classroom, supporting student understanding of intellectual property and the principles of academic integrity, and implementing appropriate learning/classroom support for non-native speakers (NNS).

Experiences of Indian Graduate Students at a Mid-Western Catholic Private Institution

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Rajalakshmi Ananthraja | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

The aim of this research was to analyze the experiences of Indian graduate at a Mid-Western Catholic private institution. An online survey was conducted among 210 Indian graduate students. Twelve individual interviews were conducted for deeper

study. From the analysis of individual interviews, four common elements were extracted that reflected students experience. Valuable findings are presented for the faculty, staff and higher administrative officials of academic units, Enrollment Manage-

ment, Center for International programs, Counseling Center and Career Service staff.

Integrating institutional mission into faculty work

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Edel M Jesse, Cody L McMillen | ADVISORS Michele M Welkener

LOCATION, TIME LTC Team Space, 4:30 PM–6:30 PM

The integration of a faith-based university's mission into the curriculum and the requirements that this identity imposes upon faculty members' scholarship are often at odds with the concept of academic freedom (VanZanten, 2011). This common dilemma is an authentic and significant part of Catholic higher education. To balance a conceptual understanding of faith integration with practical tools for academic professionals looking for resources, the University of Dayton's Commitment to Community (C2C) document provides a community approach to education (University of Dayton, n.d.). This document could be a valued resource to assist faculty in applying mission-based values into their teaching, research, and service. The principles and habits articulated in the C2C document—community is essential for learning and that community members should practice servant leadership—can assist in highlighting the university's mission if applied to faculty work. To support faculty in integrating the

institutional mission into their work, the presenters will share the philosophical assumptions behind the C2C document, highlighting the Catholic and Marianist mission that informs the principles contained in the document. Then, using literature on faculty work and integration of institutional mission, the presenters will highlight ways in which faculty can use the values of a Catholic and Marianist education to inform their work. Finally, some practical suggestions will be provided for faculty members to integrate and apply the C2C principles into their teaching, research, and service. References: University of Dayton (n.d.). Commitment to community: Catholic and Marianist learning and living. Retrieved from https://www.udayton.edu/studev/_resources/files/commitment_to_community.pdf; VanZanten, S. (2011). *Joining the mission: A guide for (mainly) new college faculty*. Grand Rapids, MI: Wm.B. Eerdmans.

Is It Worth It?: Experiences and Demands of Non-Scholarship Student-Athletes at a Division I Institution

School of Education and Health Sciences: Counselor Education and Human Services |

Poster - Course Project, EDC 569 D1

STUDENTS Joseph R Vallee | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

Student-athletes are some of the most stigmatized individuals at Division I institutions. A great deal of research focuses on the challenges and opportunities of scholarship student-athletes, but a look into the lives of non-scholarship student-athletes is not present in current literature. Through qualitative, semi-structured interviews with student-athletes who do not receive an athletic scholarship, a greater picture of the non-scholarship Division I student-athlete experience was gained. These student-athletes face greater pressure as financial aid is largely tied to maintain-

ing higher grades and the demands of athletic participation are very high. Findings showed that though students feel supported, the rigorous demands of being a full-time student and athlete can be an inhibitor to full engagement on campus. Implications and recommendations of this study provide the need for more research on this sub-population and ideas of collaboration to allow for full involvement of these student-athletes at their institution.

Mentoring Essentials: Assisting Junior Faculty with Career Development

School of Education and Health Sciences: Counselor Education and Human Services |

Poster - Course Project, EDU 947 01

STUDENTS Michael B Kondritz | ADVISORS Michele M Welkener

LOCATION, TIME LTC Team Space, 4:30 PM–6:30 PM

As junior faculty progress within their careers an opportunity presents itself to provide this group with assistance in order to master the necessary components of teaching, research, and service expected within the profession. A key stakeholder within this support system may be senior faculty and the role they can play in fostering the career development of junior faculty. Junior faculty who are successfully mentored experience a wide variety of benefits that may provide a springboard to reaching both personal and professional goals and objectives. "Among these outcomes are an individual's job satisfaction, research productivity, teaching effectiveness, socialization to the profession,

salary level, and career advancement" (Bland, Taylor, Shollen, Weber-Main, and Mulcahy, 2009, p. 13). This project will examine mentoring and faculty literature in order to define the concept of mentoring, benefits, challenges, and various models to assist senior and junior faculty in working together in a collaborative effort to benefit both parties. From this literature, the presenter will provide a recommended plan to assist departments and/or institutions in implementing a formalized mentoring program to help junior faculty. This formalized mentoring program will also help in lowering the level of frustration for junior faculty and create a stronger learning community.

Muslim Saudi Female Student Development, Successes, and Learning Experience at a Catholic Institution

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Bayan K Alrowis | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

The number of Muslim Saudi female students is increasing at American institutions. This qualitative research explored the Muslim Saudi female student's development, successes, and learning experiences at a Catholic institution. The main purpose of the research is to assist Privet Catholic institution in the United States to support the essential needs of Muslim Saudi female students. This research is going to provide valuable information which will help administrators, professors and students to understand the Muslim Saudi female student. Themes included:

respect of other religions, meaning in catholic universities engaging Muslim Saudi female students, and the influence of the Intensive English program in helping Muslim Saudi female students. Challenges included: The language barrier; adjusting to the life style and the environment surrounding, developing and engaging at the university campus. Findings can be utilized to better support this growing group of students to ensure their assimilation into campus life while achieving their articulated academic goals.

Not So “Animal House”: Experiences of Men Living in University-Owned Fraternity Housing

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Taylor J Dwyer | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

Examining the experiences of the resident members of university-owned fraternity houses, this qualitative study provided evidence of common patterns of decision-making surrounding alcohol consumption, perceptions of the university-owned fraternity house, and daily residential experiences among participants. Individual, semi-structured interviews were conducted with current and previous residents of university-owned fraternity houses. Data was analyzed by developing themes through the

coding of transcriptions. Although findings revealed that participants' decisions to engage in alcohol consumption reflect alcohol abuse, evidence supported the theme that participants perceive their house as a reason to make intentional decisions surrounding alcohol consumption. Valuable implications are presented for professionals working in fraternity sorority life and housing and residence life divisions.

Onboarding Career College Faculty: Helping Student Success

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Course Project, EDU 947 01

STUDENTS Elizabeth M Fogle-Young | ADVISORS Michele M Welkener

LOCATION, TIME LTC Team Space, 4:30 PM–6:30 PM

Students attending career colleges are typically at higher risk of dropping out or stopping out of school given many external factors such as working full-time or raising families. For these at-risk students, relationships with faculty and staff members on campus help create an environment that is more likely to help them succeed. In addition, Tinto (1993) described how important the instructor and classroom experience specifically are to student success and retention. As such, it is important that faculty members are prepared from the first day they enter the classroom to provide the necessary balance of support and challenge to these students. Lounder, et al. (2011) discussed recent studies

suggesting that adjunct faculty in general may be less effective in the classroom. At a time when many colleges are using more adjunct faculty, finding ways to help these instructors be more prepared and effective should be of importance to all colleges and career colleges in particular. One way that career colleges can help instructors be prepared from day one is to institute more rigorous and impactful orientation or onboarding programs. The purpose of this presentation is to combine current research in faculty life with research in human resources and onboarding to suggest best practices for onboarding career college faculty.

Race or Culture? African American Student Experiences at a Predominantly White Institution

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Kelley McClain | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

This qualitative study explores the experiences of African American students who attend predominantly White institutions. Several factors could benefit, hinder and/or frustrate African

American students who have decided to pursue and complete higher education at a predominantly White institution. However, the responsibility of administrators to assist African Americans

with this transition continues to be of major importance as they must take into consideration student experiences and cultures. The social, cultural, and academic adjustment process for African Americans varies based on the students' culture, personal backgrounds and individual experiences not just race. For this research study African American students attending a predom-

inantly White Midwestern institution participated in individual interviews and focus groups to share their experiences. Findings are presented to provide an overview of how best practices and policies regarding engagement, cultural integrity, academic support, awareness, and inclusion can assist in improving the climate and culture of the institution for African American students.

Should Syllabi and Course Materials be Faculty Intellectual Property?

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Course Project, EDU 947 01

STUDENTS Reece E Newman | ADVISORS Michele M Welkener

LOCATION, TIME LTC Team Space, 4:30 PM–6:30 PM

In order to teach students subjects, faculty create syllabi and course materials such as course notes, outlines, PowerPoint or other presentations, learning software, texts such as books and articles, images and video, test review and assessment materials, e-mail, and discussion group or forum written comments and suggestions. If property is a general term for the rules and policies that govern people's access to, control over, and use of valuable resources, and syllabi and course materials are regarded as valuable intellectual resources in contrast to land on the one hand and ownership shares in artificial legal entities on the other, then what rules and policies, if any, should govern syllabi and course materials created by faculty in higher education? If intellectual property rules and policies should govern syllabi and course materials, should the intellectual property rules and poli-

cies be common in the sense that streets and parks are common property, collective in the sense that military bases and artillery pieces are collective property, or private in the sense that toothbrushes and bicycles are private property? Furthermore, if the intellectual property rules and policies should be private, should syllabi and course materials intellectual property initially be private to individual faculty members, private to individual higher education institutions, or private to some hybrid of individual faculty members and higher education institutions? This poster presentation is a conceptual exploration of proposed answers to these questions. Its aim is to promote a deeper understanding of the issues involved in answering the overall question that pertains directly to the professoriate, "Should syllabi and course materials be faculty intellectual property?"

Someone Call the Interpreter: Experiences of At-Risk International Students at a Mid-Western Catholic Institution

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Deanna L Althammer | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

This study offers insight into the benefits of academic and career coaching courses for academically at-risk international students at a Mid-Western religious affiliated four-year private institution. It also explored how they relate to the perceived future academic success of international students. This study informs how academic coaching services can be designed to meet their unique needs so that future international students can thrive and succeed in U.S. higher education systems. Data was

collected through qualitative in person interviews with current or former international students who were asked to participate in an academic and career-coaching course. This study revealed that despite the overall positive outcomes from participating in the academic and career-coaching course there were persisting challenges unique to international student experiences that were not directly addressed in the course.

Study Hard NOT Party Hard: Influence of High-risk Drinking on Academic Attendance and Participation

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Robert P Hays | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

This study examines the influence high-risk alcohol consumption has on academic, co/extracurricular student engagement. The effects of alcohol in relation to college students has been examined by researchers and leading academics. However, studies have not extensively examined the effects of high-risk alcohol consumption beyond its influence on student behavior or students' interpretive "success" in college. This study focuses on attendance and participation as an essential attribute to academic success and completion. Ten student participants

were selected based on initial survey responses from areas of Housing & Residence Life, Office of Multicultural Affairs, Office of Learning Resources, and Greek Life. The interviews focused on their observations and interpretations of high-risk alcohol consumption, college high-risk alcohol consumption culture, and corresponding attendance and participation in university directed sessions. The findings of this study showed a relationship between high-risk alcohol consumption and deterred attendance and participation rates; thus disproving the ability to "study hard,

party hard” as made popular in the college culture. The implications of this study will assist administrators, faculty, and students alike to implement new policies, procedures, and strategies, to

offset the influence of high-risk alcohol consumption's influence on academic and co/extracurricular student attendance and participation.

The Complexity of Untold Stories: Experiences, Perceptions, Behaviors, and Outcomes of Collegiate Black Student-Fathers

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Karlos L Marshall | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

With the increased enrollment of untraditional student populations, the plight of collegiate Black student-fathers has yet to be examined. They are – Black men, Black men in college, Black fathers, college student-parents, and even collegiate student-athletes in some cases. Through in-depth one-on-one phenomenological interviews, chilling details, accounts, and revelations surfaced with regard to Black masculinity; fatherhood; support

systems; student and parental development; and institutional resources. Findings revealed valuable information about the experiences, perceptions, behaviors, and outcomes of collegiate Black student-fathers. Recommendations are provided for faculty and administrative personnel to better assist, understand, and serve this unique student population.

The Impact of Campus Climate on Latino Students at a Predominately White Institution

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Christian I Lozano | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

As the Latino population continues to increase nationally, more intentional work is needed to ensure that they perceive a welcoming campus climate that is supportive for their learning and development. Bridging a gap in literature, this research emphasizes the importance to better understand how Latino students perceive campus climate at a Predominantly White Institution in the Midwest and how it impacts their academics, social life, emotional well-being, and their overall sense of belonging on campus. A total of 20 Latino undergraduate students participated in one of three focus groups. Findings revealed that participants' Latino identity is very important to their own personal self-es-

teem and many have felt that being Latino has impacted their overall sense of belonging on campus. Overall, participants revealed that they are satisfied with their academics, social life, and emotional well-being on campus. However, they expressed dissatisfaction with the overall visual representation of Latino students on campus. In conclusion, many of the participants felt that the university could do more to support Latino students, particularly, in building community within different Latino cultures. Recommendations are shared to help design intentional programs, conduct research, and develop policies that can assist Latino college success.

The Importance of Faculty Mentoring for Graduate Students' Success

School of Education and Health Sciences: Counselor Education and Human Services |

Poster - Course Project, EDU 947 01

STUDENTS Lindsay Elrod Maxam | ADVISORS Michele M Welkener

LOCATION, TIME LTC Team Space, 4:30 PM–6:30 PM

Faculty members can play an important role in the development of graduate students. Faculty typically serve as academic advisers for graduate students navigating what experiences students have brought into the program as well as trying to map the best curriculum to match students' academic and personal goals. In this relationship, it can be transformative or transactional depending on the input of both student and faculty with having different experiences. While advising is part of the faculty and student relationship, it is paramount for the relationship to also include mentoring and professional socialization. Through the socialization process, students need to be prepared to not only

be a student, but also to be a professional. In addition, deeper immersion into graduate programs and other functions create new support systems, responsibilities, and opportunities like assistantships, clinical experiences, and other experiences that aid in professional socialization with faculty and practitioners. Students who are granted these opportunities have the learning experience while still preparing to be a full-time professional in their field concurrently (Weidman, Twale, & Stein, 2001). This presentation will explore the importance of faculty mentoring, advising, and socializing their students. It will also include best practices to expand the mastery of these skills.

The Lived Experiences of Gay Male Students at a Catholic Institution

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Stephen P Zubritzky | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

This qualitative research looks into the lived experiences of gay male students at a Catholic higher education institution. The experience of these students has traditionally not been analyzed, and this study takes a close look at what it means to be gay and attend a Catholic university. These students have experienced varying degrees of acceptance and support from their peers, faculty, staff and the institution as a whole. While acknowledging that the institution does provide some support, students found

them to be uncoordinated, insufficient, and not of value, when compared to supports offered to students who identify with other minority groups. These students provided their own insights on what they are looking for in terms of support from the institution as a whole. Students' recommendations formed the basis of implications for improved practices to increase notions of acceptance and support for this student population.

Where Do I Belong? LGBT Experiences in On-Campus Housing

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Chelsie W Fuller | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

Studies have shown that for many who identify as gay, lesbian, bisexual, transgender and/or Queer (LGBTQ) students, navigating through higher education is a difficult task full of opposition and challenges preventing them from achieving their full academic potential. While these challenges present themselves through several outlets on campus, Housing and facilities is one of the main areas that have the potential to challenge and educate students as they connect their learning experiences to their living realities. For students who are feeling that they do not belong, or that there is no "space" for them, navigating higher education and the campus culture can be all the more difficult. Taking a closer look at the ways in which residence halls and

on-campus living facilities impact the experiences for students identifying as LGBTQ could help to show exactly how student affairs professionals and campus administrators can go about making useful changes to support these students. Interviewing students who identify as LGBTQ and gauging their experiences within on-campus housing may shed some light on whether there is a correlation between the experience of LGBTQ students, and their choice to continue to live within on-campus housing. Findings of this qualitative study may help student affairs practitioners identify common student experiences and how they relate to retaining students to live in on-campus housing.

You Are Not Going Out Like That! The Effect of Clothing Choices on the Academic Success of First-Year Females

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Alexandra M Osell | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30 PM–6:30 PM

A growing disconnect between the way a female should dress for academic success and the way females are dressing. This exploratory qualitative research examined the significance between the clothing choices of first-year female students and their academic success during their first semester attending a higher education institution. The impact of clothing choices on academic success has not been previously considered; however, the review of current literature illustrates the challenges young women experience in the collegiate environment and the ways in

which academic success and clothing choices play a part in the first-year experience. Data gathered through individual interviews with eight undergraduate female students generated five themes: acceptance, individuality, peer influence, academics, and comfort. The themes uncovered the degree to which clothing choices impact the overall collegiate experience of these first-year females. This knowledge will allow professionals to respond appropriately and to begin designing initiatives accordingly.

The History of Physical Education-Activity, Sport, and Sport Related Disciplines: Stories for the Ages and Lessons from the Legends of Memorable Moments, Events, Trends, Tales, Phenomena, and Famous Women and Men: Their Teams and Times- From The University of Dayton – To the Kentucky Derby: Year 9

School of Education and Health Sciences: Health and Sport Science | Poster - Course Project, HSS 275 01

STUDENTS Anne Jacqueline Best, Victoria E Bordfeld, Bailey Marie Cruse, Cody L Diehl, Ryan Michael Elser, Brenna L Frattaroli, Alexander Albrecht Kellison, Mary Margaret R Mckenna, Kyle Pignatiello, Celsey L Royer, Jessica F Shremshock, Casey L Townson, Katherine I Virgin, Mackenzie Lea Wilson | ADVISORS George M DeMarco

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The purpose of these studies was to describe and interpret major events, trends, phenomena, and the lives and times of significant

individuals in the history of sport and physical education-activity throughout the millennia. At once interesting, inspirational, edify-

ing, and enlightening, the stories told by the Teaching Assistants (N=14) and students (N= 98) of three (3) separate sections of the course HSS 275 - History of Physical Education/Activity and Sport – during the spring semester of 2015 speak powerfully to the transcendent nature of sport and physical activity across all generations, cultures, and topical interests. This year's project titles include: 1.The Legacy of Lloyd L. Laubach in Research, Teaching, and Service at the University of Dayton from 1980 to 20152.The History of Physical Education/Health-Sport Science at the University of Dayton - 1874 to 20153.The Life and Legend of Harry Baujan: The Blond Beast Played for Rockne, Chased the KKK, and Led the Flyers (1923-64)4.The History of Baseball at the University of Dayton: Part III5.The Greatest Two Minutes in Sports: The History of the Kentucky Derby: Part II6. Excellence and Excitement on the Road to the Elite Eight: The Life and Times of Archie Miller: Part II 7.The Beautiful Game at the University of Dayton: The History of Men's Flyer Soccer-1956-20158.The History of Kicking and Punting Specialists in Collegiate and Professional Football9.Got Juice? The History of Performance Enhancing Drugs in Baseball: Part II10.Jack

Lalanne Lives! The Life Story of the Godfather of the Modern Fitness Movement: The Man Who Started It All11.The True Story of the Ohio State and University of Michigan Rivalry12.Annika Sörenstam: Grace and Goodness in the Life and Times of the Greatest Female Golfer of All Time13.The Most Dominant Sports Squad Ever Assembled: The 1992 Men's Olympic Basketball "Dream Team" Revisited14.The Master of the Miracle on Ice from - Minnesota to Lake Placid: The Life and Times of Herb Brooks15.The Iron Man of Baseball: How Cal Ripken Jr. Showed Heart and Hard Work on and off the Field16.From the Greatness on the Diamond to Dignity with Disease: The Life and Legacy of Lou Gehrig 17.Sometimes a Nightmare, Always The General: The Life and Times of Coach Bobby KnightThese original research projects utilized an array of primary and secondary sources, including interviews, personal narrative, documents, print media, photographs, artifacts, and vintage video to bring alive the past to teach anew life's lessons from the worlds of sport and physical activity to inform, inspire, enlighten, and edify participants in the 2015 Stander Symposium.

Allometric Modelling for the Bench Press and Squat for Division I Collegiate Athletes

School of Education and Health Sciences: Health and Sport Science | Poster - Independent Research

STUDENTS Ryan Christopher Lyn | ADVISORS Anne Crecelius

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Strength and conditioning (S&C) coaches utilize different methods of athletic performance testing to measure strength and power in college athletes. To rank the athletes, most S&C coaches have a point system which looks at the total amount of weight lifted, but does not take into consideration body weight. Given numerous studies that have established a positive correlation between body mass and strength, coaches need to utilize rank systems that incorporate body-mass adjusted performance. An allometric model, which takes into consideration weight moved vs actual body weight, would be able to generate such a scaling system. The allometric model itself utilizes the equation

$a=yx^b$, where y is the amount of weight lifted, x is body mass, and b is an allometrically derived exponent. We hypothesized that generating individual allometric equations for sport-specific populations will better scale and predict an athlete's performance than previous methods. Using data previously collected from the University of Dayton's S&C Program, an allometrically derived exponent was generated based on sport, sex, and for all athletes. These equations were compared to previous allometric exponents that were not specific to collegiate athletes. The predictive ability of the derived equations will need to be tested with future prospective data.

Effects of single-dose dietary nitrate on oxygen consumption during and after prolonged submaximal exercise in healthy humans

School of Education and Health Sciences: Health and Sport Science | Poster - Honors Thesis

STUDENTS Genevieve M Kocoloski | ADVISORS Anne Crecelius

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Dietary nitrate (NO₃⁻) has been shown to impact oxygen consumption (VO₂) as well as exercise performance in a number of prior studies. To date, previous investigations have observed NO₃⁻ effects at moderate to high-intensity (e.g. time to fatigue, time trials) exercise and often in trained athletes. However, less is known in regards to prolonged exercise and the potential impact of NO₃⁻ on post-exercise excess oxygen consumption (EPOC), particularly in untrained individuals. Here, we tested the hypothesis that acute dietary nitrate supplementation would attenuate VO₂ during and following prolonged cycle ergometry. Six young, moderately active, healthy males (age: 26±2 years, body mass index: 23.5±0.5 kg/m²; VO₂max: 37.7±5.1 ml/kg/min) performed step-wise maximal cycle exercise and prolonged

submaximal cycle exercise (45 min; 38±2% of max work rate) in control (anti- bacterial mouthwash) and acute NO₃⁻ supplemented conditions [70ml concentrated beet root juice (0.4g NO₃⁻), 2 hrs prior to exercise] on separate occasions. Measurements of VO₂ (indirect calorimetry), arterial blood pressure (MAP; sphygmomanometry), and heart rate (HR; ECG) were made for 45 min prior, during, and 60 min following exercise bouts. NO₃⁻ reduced MAP at rest ~1-3mmHg and this was accompanied by reflex-mediated HR increases (2-4 bpm). However, NO₃⁻ had no impact on VO₂ during exercise (average of min 25-45, Ctrl: 24.6±2.4 ml/kg/min vs NO₃⁻: 26.8±3.3 ml/kg/min) or EPOC (area under the curve, Ctrl: 0.86±0.3 L vs NO₃⁻: 0.95±.2 L). Thus, while NO₃⁻ supplementation may have performance benefits, especially in

elite athletes exercising at high intensities, in recreationally active males, there appears to be little impact on changes in VO2 due to submaximal prolonged exercise.

Food and Beverage Trends in Sports and Entertainment

School of Education and Health Sciences: Health and Sport Science | Oral Presentation - Honors Thesis

STUDENTS Danielle Denise Kloke | ADVISORS Peter J Titlebaum

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Food and beverage service is a significant revenue driver for sport and entertainment venues and recently, it has become a critical opportunity to add value and elevate consumer experiences, particularly in premium seating areas. Professional teams are signing contracts with food and beverage vendors for large guaranteed sums, like the 2012 contacts between the San Francisco 49ers and Centerplate where the 49ers receive 55% of concessions sales, a minimum of \$6.8 million (San Francisco Business Times, 2012). Interviews were conducted with industry professionals to gain a better understanding of the current state of food and beverage service and trends for the industry,

including pricing, ordering procedures, and serving sizes, as well as what changes the industry is looking to add or embrace in the next five years. Trends revealed through the research feature the rise of food and beverage packages to streamline ordering procedures, order customization to enhance the atmosphere, and the use of technology to enrich food ordering and product marketing experiences. Professionals will gain a stronger understanding of how other venues balance cost, consumer preferences, and corporate needs to meet expectations and what is expected for the future.

The Legalization of Sports Gambling in the United States: Impact on the Economy, Society, and Sports Leagues

School of Education and Health Sciences: Health and Sport Science | Poster - Honors Thesis

STUDENTS Matthew J. Garbin | ADVISORS Corinne M Daprano

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Sports gambling has been a recent topic of discussion in the United States. The most recent developments involve the attempts of the state of New Jersey to legalize sports gambling, an effort which is still ongoing. New Jersey has an interest in legalizing sports gambling in order to generate an economic impact in the struggling Atlantic City area. New Jersey has felt much resistance from the four major professional sports leagues as well as the NCAA by way of a lawsuit against the state. This lawsuit is predicated on the premise that legalizing sports gambling will negatively impact the integrity of the leagues. There

are both negative and positive impacts the legalization of sports gambling in the United States can have. This research analyzes the impacts that can occur in regards to the economy, society, and the sports leagues. The positive impacts lie mostly in the economic realm and financially for the sports leagues. Negative impacts, however, are associated with the danger of gambling in regards to society and the integrity of the leagues. In addition, the laws currently in place prohibiting sports gambling are analyzed, and the steps that can be taken to safely legalize sports gambling are presented.

Facility Operations and Security Management in Hockey Venues

School of Education and Health Sciences: Health and Sport Science | Oral Presentation - Course Project, HSS 253 01

STUDENTS Anthony R Narducci, Brendan Thomas Sweetman | ADVISORS Peter J Titlebaum

LOCATION, TIME LTC Forum, 1:00 PM–1:40 PM

Title: Facility Operations and Security Management in Hockey Venues
 Poster or Presentation: Presentation
 Primary Advisor: Peter J Titlebaum
 Individual or Group: Group
 Presenters: Anthony Narducci, Brendan Sweetman
 Format: Oral Presentations
 Designation: Course Project
 Preferred Location: Art Street Studio B, Lecture Halls, Fitz Hall Room 659
 Duration: 40 minutes
 Estimated Attendance: 50+
 Requested Technology: Computer and screen for our presentation
 Additional Requests: Stander Abstract
 The purpose of this research study is to determine the best practice in hockey as it relates to operations and security, and the communications between departments. Students in Sport Facility Operations class interviewed professionals in both types of positions,

specifically for the NHL, AHL, and ECHL. The data was derived by conducting 84 interviews with industry professionals. From these interviews, it was determined that preferences and ability to manage resources are critical to providing a safe fan experience. A literary review has been conducted, and we will explore changes in operations and security including those that resulted from past sports and security-related catastrophes. When comparing and contrasting the trends in the NHL, AHL, and ECHL, results will indicate how each league differs in the Facility and Security Operations categories. By distinguishing these trends, the audience will be able to view the opportunities in each league and understand best practice.

Digital Marketing and Changing Marketing Industry

School of Education and Health Sciences: Health and Sport Science |

Oral Presentation - Course Project, HSS 357 01

STUDENTS Brenna L Frattaroli, Robert Joseph Jagielski | ADVISORS Peter J Titlebaum

LOCATION, TIME LTC Forum, 2:00 PM–2:40 PM

The purpose of this pilot study on digital marketing/social media is to understand best practices as it applies to professional sport teams, corporations and marketing organizations. Current students and professionals could apply this information in their daily work. A literature review on digital media revealed shared practices and up-and-coming trends for those in the digital media industry. Using the information gathered from the literature review, a survey was then created and validated by a panel of experts who are currently working in the profession. The survey was conducted during the spring semester of 2015,

utilizing a sample of individuals drawn from professional sport teams, corporations and marketing organizations. The survey consisted of 8 questions that focused on digital marketing, activation and potential advancements currently utilized within the marketing profession. The results will present an understanding of advancements in one of the newest and still evolving areas within the marketing industry. This study provides extensive look at digital marketing techniques on a macro level and providing the participants potential development opportunities.

The Effects of Backwards Running Training on Forward Running Economy in Trained Males*School of Education and Health Sciences: Health and Sport Science | Oral Presentation - Graduate Research*

STUDENTS Jason D Ordway | ADVISORS Lloyd L Laubach

LOCATION, TIME LTC Studio, 3:00 PM–3:20 PM

Purpose: Backwards running (BR) results in greater cardio-pulmonary response and muscle activity compared to forward running (FR). BR has traditionally been used in rehabilitation for disorders such as stroke and lower leg extremity injuries, as well as in short bursts during various athletic events. The aim of this study was to measure the effects of sustained backwards running training on forward running economy in trained male athletes. Methods: Eight highly trained, male runners (26.13 ± 6.11 yrs, 174.7 ± 6.4 cm, 68.4 ± 9.24 kg, 8.61 ± 3.21 % body fat, 71.40 ± 7.31 mL \cdot kg $^{-1}\cdot$ min $^{-1}$) trained with BR while harnessed on a treadmill at 161 m \cdot min $^{-1}$ for 5 weeks following a 5 week BR run-in period at a lower speed (134 m \cdot min $^{-1}$). Subjects were

tested at pre, baseline, and post BR training for body composition and with a ramped VO₂max test and an economy test designed for trained male runners. Results: Subjects improved forward running economy by 2.54% (1.19 ± 1.26 mL \cdot kg $^{-1}\cdot$ min $^{-1}$, $p=0.032$) at 215 m \cdot min $^{-1}$. VO₂max, body mass, lean mass, fat mass, and % body fat did not change ($p>0.05$). Conclusions: Five weeks of BR training improved FR economy in healthy, trained male runners without altering VO₂max or body composition. The improvements observed in this study could be a beneficial form of training to an already economical population to improve running economy.

Muscle Activity With the Use of a Compact Elliptical Trainer*School of Education and Health Sciences: Physical Therapy | Poster - Honors Thesis*

STUDENTS Mary Alexandra Willard | ADVISORS Kurt J Jackson

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Neurological disorders such as stroke, Parkinson's disease, and multiple sclerosis are a leading cause of long-term disability. As a result, individuals with neurological disorders often have low activity levels and have difficulty participating in regular exercise to maintain health and fitness. Some of these barriers include safety, transportation and cost. As a result, finding a safe and effective means of exercise is difficult. The purpose of this study was to evaluate the effectiveness of an affordable home exercise device for promoting muscle activity in the lower extremities.

Ten individuals without neurological disorders were tested in this pilot investigation. Subjects used the elliptical trainer under eight different conditions in a randomized order. During each condition, muscle activity of the lower extremity was measured using surface electromyography (EMG) to determine which condition elicited the greatest muscle activity. Data from this investigation will be useful in future trials involving individuals with neurological disorders.

Comparative Education System Analysis Between Finland and the United States: A Case Study*School of Education and Health Sciences: Teacher Education | Poster - Course Project, 201480 EDT 498H H1*

STUDENTS Caroline Ann Goodill | ADVISORS Kathryn A Kinnucan-Welsch

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

International student achievement tests have articulated the problem of inequitable education systems around the world. Due to the relatively recent introduction of these tests, scholarly research on the subject has developed as the tests have pro-

duced more results. A shared goal of a majority of the research regarding international student achievement is to establish quality education systems. As the United States continuously ranks at or slightly above or below average on the PISA test over

the past twelve years, Finland’s consistent success has drawn worldwide attention. For this reason, Finland is the educational system benchmark for this undergraduate thesis. Many authors and scholars have claimed there have been specific Finnish innovations developed in the past decade that directly contribute to Finland’s rise in international student achievement scores. Finland looked to foreign education systems, like Japan, the United States, England, and Sweden, when building and later reforming their own system. In order to help improve American education, it can be beneficial to identify and analyze the programs of the Finnish system that have proven to be successful. The research questions thus guiding this thesis are: What changes have been made in the educational system in Finland

that have contributed to improving performance on international assessments? What changes have been made in the United States educational system that are similar to the changes that have been made in Finland? What are the factors contributing to the success of the changes in Finland that could be replicated in the United States? To date, the researcher has identified and begun research on Finland’s part-time special education system, the 9-year comprehensive education system, peruskoulu, and the universal structure of the university teacher education program as three innovations supporting Finland’s educational success. Further research and analysis will continue to evolve over the next two years.

Developing A Safe Learning Environment Conducive to Comfort and Success

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110H H1

STUDENTS Sara M Borchers, Karin E Forsthoefel, Victoria R Schoen, Olivia G Thomakos

ADVISORS Susan M Ferguson, Kathryn A Kinnucan-Welsch

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The goal of the EDT 110H poster is to illustrate a safe learning environment in which schools are able to serve a variety of

students in order to be comfortable in the classroom and achieve academic success.

Equality in the Classroom

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110H H1

STUDENTS Natalie M Lutz, Elizabeth A Miller, Corrie T Sheshull | ADVISORS Susan M Ferguson, Kathryn A Kinnucan-Welsch

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Standards for the teaching profession emphasize the importance of awareness, understanding, and integration into practice of current research in education. The goal of the EDT 110H1 class

project was to explore different learning environments that affect student learning based on gender, culture, and uniform appearance.

Public School Policies

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110H H1

STUDENTS Julie A Baffoe, Emily M Carson, Sarah Frances Wood | ADVISORS Susan M Ferguson, Kathryn A Kinnucan-Welsch

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

In the world of education today there exists various inequalities amongst students, many of which have roots in school policies. The goal of this research project is to bring awareness to, and

explain in greater depth, these policies and how they are affecting the nation’s students.

Research on Foundational Elements of the Education System

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110H H1

STUDENTS Emma C Francois, Kaitlyn E Stanfield | ADVISORS Susan M Ferguson, Kathryn A Kinnucan-Welsch

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Many schools emphasize the importance of standardized tests and homework. The goal of the EDT110H1 class project was to investigate the effects of homework and the advantages and

disadvantages of standardized tests, and how they affect the American schooling system.

Research on Technology in P-12 Classrooms

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110H H1

STUDENTS Nicolette M Griesinger, Kara A Hoersten, Sara K Hofner, Madeline C Sheridan

ADVISORS Susan M Ferguson, Kathryn A Kinnucan-Welsch

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Standards for the teaching profession emphasize the importance of awareness, understanding, and integration into practice of current research in education. The goal of the EDT 110-H1

poster is to discuss the impacts of changing technologies in the classroom.

Statistics Content of Elementary Mathematics Textbooks

School of Education and Health Sciences: Teacher Education | Poster - Independent Research

STUDENTS Megan L Brown | ADVISORS Dr. Dusty Jones, Sam Houston State University and Constance R Mathes

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

This summer at Sam Houston State University, I, along with four coresearchers, investigated the nature and extent of the statistical content in U.S. textbooks for students in grades 1-5 by examining five textbook series. Using the Guidelines for Assessment and Instruction in Statistics Education (GAISE) Report, we systematically coded statistics tasks into four phases: Formulate a Question, Collect Data, Analyze Data, and Interpret Results. The Analyze Data phase was divided into four categories: Read a Display, Perform a Mathematical Calculation, Construct a Display, and Use Other Statistical Reasoning. We analyzed our results by looking at the location of the statistics tasks, the distribution of the phases, and the types of displays that appeared

in each book. The textbooks were then checked to see which Common Core State Standards (CCSS) and Texas Essential Knowledge and Skills (TEKS) standards were met. Our results suggest that the distribution of statistics tasks depended on the series, and we found that our sample of textbooks did not place equal emphasis on the different phases of the statistical process. Textbooks predominantly focus on analyzing data, which may inadvertently restrict opportunities for students to generate and interpret data. Our research was supervised by Dr. Dusty Jones (Sam Houston State University) and funded by NSF grant DMS-1262897

Stimulating Interest In STEM Education

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110H H1

STUDENTS Madeline M Nicholas, Ana D Ritz | ADVISORS Susan M Ferguson, Kathryn A Kinnucan-Welsch

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

In order to provide more opportunities for success for all students in STEM education, students need to take more of an interest in STEM education. Two important ways to do so is to properly implement STEM-related field trips into classrooms and

to encourage female students to pursue more STEM-related courses. With the combination of these two goals, STEM education can be improved in the United States.

The Implementation of Two-way Immersion Programs in Schools

School of Education and Health Sciences: Teacher Education | Poster - Course Project, 201480 EDT 498H H1

STUDENTS Kara Marie Jankowski | ADVISORS Colleen Gallagher

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

As society becomes more global, educators are searching for models of education that provide students with the ability to be competitive in the global marketplace. Bilingual education offers students the opportunity to learn two languages while maintaining student achievement in other content areas. Two-way immersion programs, also known as dual-language programs, are a model of instruction where students receive content instruction in two languages. In addition, students and teacher speak both languages and the native languages of the members of the classroom vary. As the programs have been proven to be effective, the next step is figuring out how these programs can be implemented on a practical level (Garland 2012). It is because bilingual programs benefit both language-minority and

language-majority students, it provides a positive education option for many students. In order to see if two-way immersion programs can be implemented on a wider scale, research needs to indicate the positive and negative consequences of these programs. Without this research, it will be difficult to see if two-way immersion programs are even a viable option for schools, especially ones with high populations of speakers of other languages. The purpose of this research is to examine the human and material resources necessary for the successful implementation of two-way immersion programs in the United States to determine the practicality of using this dual-language model on a wider scale.

The implications for instruction under The Common Core State Standards in Mathematics and the effect on students with Dyscalculia

School of Education and Health Sciences: Teacher Education | Poster - Course Project, 201480 EDT 498H H1

STUDENTS Melissa Rachel Siegel | ADVISORS Mary Catherine Sableski

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Dyscalculia and the new CCSS for mathematics are interconnected in regards to the second question asked about the standards. The CCSS-M have implications for instruction that correspond with instructional strategies that are suggested as modifications for students with dyscalculia. Real world appli-

cations can move the lesson from a lecture to visual, auditory and kinesthetic aspects to the lessons, depending on the topic. These aspects have shown to help these students. The conceptual focus with the CCSS-M implies a teaching strategy that moves from teaching the procedure to teaching the mathemat-

ical concepts, and the reasoning for the procedure, rather than just simply the steps. The possible connections between the implications of instructional strategies by the CCSS-M and the strategies used to support students with dyscalculia is the basis of this undergraduate research honors thesis. The results of this study will contribute to the current research by proposing a positive correlation between the implementation of the CCSS-M, and academic achievement by students with dyscalculia. Since

both topics are relatively new in terms of educational practice, it is a very relevant topic in educational research because it has the potential to contribute to the literature in education and educational policy in the United States. The purpose of the study is to identify what instructional strategies using the Common Core State Standards will best support students with dyscalculia. This study could influence classroom application and practice, as well as increase awareness of dyscalculia.

Reading Interventions in Relation to the Ohio Third Grade Reading Guarantee

School of Education and Health Sciences: Teacher Education | Poster - Honors Thesis

STUDENTS Kathryn C Auletto | ADVISORS Mary Catherine Sableski

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Reading is one of the most critical skills that students learn in their first few years of education. A strong foundation in reading at the early childhood level can promote success in the rest of schooling and beyond. This is especially true for children of poverty; reading abilities and the strong education that follows provide students with opportunities to break the poverty cycle. The importance of reading achievement has a political dimension, as demonstrated by Ohio's Third Grade Reading Guarantee. This legislation, which has many implications in education, requires that all third grade students who do not pass the Reading section of the Ohio Achievement Assessment must be retained until they are on reading level. In order to prevent this retention, teachers may choose to implement a reading intervention program with students who are at-risk of retention in third grade. The Ohio Department of Education provides districts with research-based

reading instructional programs that may be implemented with these students. The list includes Reading Recovery and Orton Gillingham, two reading programs that use different approaches to literacy instruction. The research conducted in this study looks into the factors affecting a low-income school's decision to select one of these two programs. The research follows a dual case study format, in which interviews were conducted with principals and teachers in the selected high poverty schools. The interviews, along with collected data about these schools and the two programs, provide an illustration of how the Third Grade Reading Guarantee is affecting curriculum, as well as how schools are choosing these reading programs in accordance with the new legislation. The research provides valuable information for low-income schools in this selection process for choosing the appropriate intervention for their struggling readers.

Understanding the Role of the Common Core State Standards in Catholic Education

School of Education and Health Sciences: Teacher Education | Poster - Honors Thesis

STUDENTS Annemarie Fisher | ADVISORS Jacqueline M Arnold

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

In 2009, the Common Core State Standards (CCSS) revolutionized academic standards, providing a format adopted by states across America that focused on raising Math and English Language Arts standards as preparation for colleges and careers. In conjunction with the adoption and implementation of the CCSS across the United States, Catholic schools have worked towards the strengthening and advancement of their own educational systems. This thesis first examines the background of the CCSS,

including implementation and professional development, as well as the opposition regarding the standards. The paper presents an overview of the history of academic standards in Catholic education and then explores the current role of the CCSS in Catholic schools. Through interviews with teachers, principals, and superintendents in Catholic education, this study examines how two archdioceses understood and implemented the standards.

Developing Historical Literacy in the High School Classroom

School of Education and Health Sciences: Teacher Education | Panel Discussion - Course Project, EDT 323 01

STUDENTS Shannon E Kieffer, Joseph Carl Kremer, Maureen Elizabeth Levy, Audrey J Martin, Stephen Moore, Justin Schiewetz, Jillian C Tomczak, Craig A Trzaska | ADVISORS John J White

LOCATION, TIME Kennedy Union West Ballroom, 2:00 PM–3:00 PM

The purpose of our panel presentation is to explain several strategies designed to teach high school students historical literacy. We will also demonstrate the difference between historical knowledge and historical literacy by presenting our research on different methods of teaching designed to increase historical thinking skills. We will demonstrate several methods that teachers should employ to help students develop historical literacy. As a group,

we will be discussing and demonstrating how history textbooks reinforce the teaching of history as a discrete set of established facts and how textbooks discourage the development of historical literacy. Our goal is to demonstrate specific strategies to assist students in moving from a subjective through an objective to a mature epistemic stance. By doing so, they will begin to learn how historians construct knowledge from available sources.

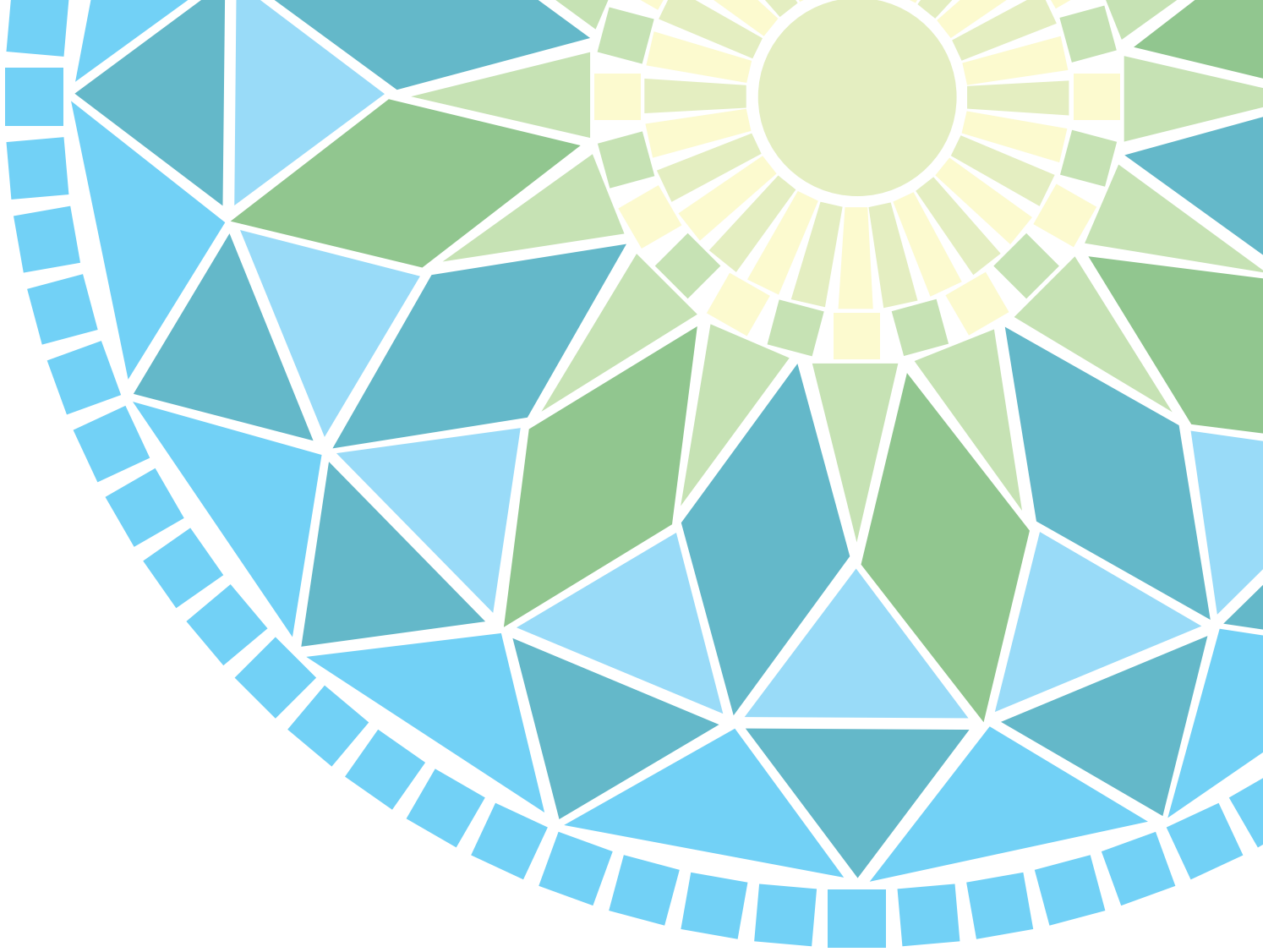
Completing the Mission: Intercollegiate Athletics and Academic Success

School of Education and Health Sciences: Teacher Education | Oral Presentation - Independent Research

STUDENTS William D Coleman | ADVISORS Kathryn A Kinnucan-Welsch

LOCATION, TIME Kennedy Union 311, 2:40 PM–3:00 PM

Academic achievement is the cornerstone to the mission in higher education. Nevertheless, an age-old debate continues: does collegiate athletics complement or distract the academic mission of a higher education institution? Research has been presented to suggest that student-athletes' academic performance is enhanced by intercollegiate athletics. Are those same effects observed in non-student-athletes? The answer to that will provide support for whether intercollegiate athletics does in fact support the academic mission in higher education. Over the course of this study, we examined whether there is a relationship between intercollegiate athletic success and overall academic success in a higher education institution. A comparison of academic success, as measured by graduation and first-to-second year retention rate, in teams which achieved athletic success, as measured by an appearance in NCAA "Elite 8" tournament round, with comparable institutions without success. Ultimately, I will claim whether intercollegiate athletic success contributes or does not contribute to the academic success of a higher education institution.



SCHOOL OF ENGINEERING

“Optimization of the hydro thermal liquefaction process for increased yields, and for both energy and cost efficient production of a cleaner bio-crude suitable for refineries”

School of Engineering: Bioenergy And Carbon Mitigation | Poster - Graduate Research

STUDENTS Anirban Mandal | ADVISORS K A Moshan S P Kahandawala, Sukhjinder S Sidhu

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Increased use and limited reserves of fossil fuels have increased interest in renewable fuels. Algae biomass has been identified as a viable renewable fuel feedstock for biofuel (green diesel / jet fuel) generation. Hydrothermal liquefaction (HTL) is a promising energy efficient technology for converting wet-algae biomass into energy dense “bio-crude” suitable for use in refineries and recycling nutrients for growing algae. The composition of the

bio-crude affects the quality and the process economics involved in converting the bio-crude to commercial fuel. Both the process operating conditions and the algal HTL feedstock composition affect the bio-crude composition. Thus, the proposed effort will focus on determining the ideal HTL conditions with various algal biomass compositions.

How to Lead Your Team to a Successful Capstone Project: A Student’s Guide

School of Engineering: Center for Competitive Change | Poster - Course Project, IET 323H H1

STUDENTS Kelsey E Diachun | ADVISORS Paul A Piechota

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The purpose of this project is to analyze and develop a “student” guidebook to manage a senior design or capstone project. The outcome of the project will be a booklet which can be handed to the students chosen as project managers for their capstone project. This booklet will contain a step-by-step guide on leading projects. The guide will include best practices, software tools and how to use them, as well as describing exactly what steps should be taken in order to achieve a successful conclusion to the project. The booklet will also describe some personality traits which are seen in successful project managers both on real world projects and in past student capstone projects. To complete this project, recent graduates will be interviewed, as a means of learning what they felt were the strengths and weaknesses of

their capstone projects. These interviews will also investigate what tools the graduates have used for project management and which ones they feel are the easiest to use while having the highest success rate. These analyses will then be used to determine which tool is best for student projects. Throughout the process, research will be done to develop a list of key personality traits shared by project managers in varying disciplines. Research will also be done to collect a listing of techniques that are used in helping to teach students the field of project management and explain which are the most successful and why they work. The final booklets will be available as handouts on the day of the presentation.

Tower of London Poppy Removal & Distribution Preparation Process

School of Engineering: Center for Competitive Change | Poster - Independent Research

STUDENTS Emily E Cooperrider | ADVISORS Paul A Piechota

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

More than 880,000 ceramic poppies were created and planted in the moat and surrounding areas of the Tower of London to signify each death in England and Colonies during World War I. This document is a step-by-step guide for carrying out Process Improvement initiative, and tracking the information a Process Improvement Team (PIT) develops. The poppy removal and distribution preparation project needed a plan to remove the 888,246 ceramic poppies planted around the Tower of London, materials for the removal and packaging, calculations for weights and numbers, and job descriptions for over 8,000 volunteers.

The poppy installation is to be removed from the Tower Moat by 27 November 2014 in order to allow their worldwide distribution to buyers. The following plan will outline a method of removing the ceramic poppies and the resources necessary to effectively remove the poppies before the mentioned date. It is necessary to reduce the amount of time it takes to remove, clean, and prepare the ceramic poppies for distribution. The planting of the poppies took longer than expected, and because the customers expect the poppies by a certain date, the total process must be more efficient, raise quality, and reduce risk of breakage.

Transformational Learning-Improving Estimating

School of Engineering: Center for Competitive Change | Poster - Independent Research

STUDENTS Lacey E Engle, Laura E Stroyne | ADVISORS Paul A Piechota

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Two students from the University of Dayton, one Chemical Engineering and one Industrial Engineering Technology major, were selected as charter students to partake in an 8 week internship

abroad in London, England. The students would be working at Tryzens Group, an ecommerce solutions company. In this internship, the students were to use the classroom knowledge gained

from their Lean Six Sigma course, and apply it to an unfamiliar process. This internship/project was the last step in receiving a Lean Six Sigma Green Belt Certification. Tryzens Group is an international company delivering ecommerce solutions. Their systems drive business performance and multichannel retail experience for leading companies world-wide. A sharp

increase in popularity of the company drove Tryzens to expand rapidly. They now have offices in the United Kingdom, India, and Bulgaria. Since growing, Tryzens has struggled with providing accurate requirement estimations. This project was focused on improving Tryzens' estimation process.

Transformational Learning-Improving Estimating

School of Engineering: Center for Competitive Change | Oral Presentation - Independent Research

STUDENTS Lacey E Engle, Laura E Stroyne | ADVISORS Paul A Piechota

LOCATION, TIME Kennedy Union 312, 4:00 PM–4:20 PM

Two students from the University of Dayton, one Chemical Engineering and one Industrial Engineering Technology major, were selected as charter students to partake in an 8 week internship abroad in London, England. The students would be working at Tryzens Group, an ecommerce solutions company. In this internship, the students were to use the classroom knowledge gained from their Lean Six Sigma course, and apply it to an unfamiliar process. This internship/project was the last step in receiving a Lean Six Sigma Green Belt Certification. Tryzens Group is

an international company delivering ecommerce solutions. Their systems drive business performance and multichannel retail experience for leading companies world-wide. A sharp increase in popularity of the company drove Tryzens to expand rapidly. They now have offices in the United Kingdom, India, and Bulgaria. Since growing, Tryzens has struggled with providing accurate requirement estimations. This project was focused on improving Tryzens' estimation process.

Atomically Thin Electronics for Molecular Sensing

School of Engineering: Chemical and Materials Engineering | Poster - Graduate Research

STUDENTS Phillip T Hagerty | ADVISORS Christopher Muratore

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Atomically Thin Electronics for Molecular Sensing P.T. Hagerty (UD/AFRL), R.T. Stevenson(UD/AFRL), J.M. Dagher (UD/AFRL), M.E. McConney (AFRL), N.R. Glavin (AFRL), M. H. Check (AFRL), R.J. Berry (AFRL), V. N. Varshney (UTC/AFRL), S. V. Shenogin (UDRI/AFRL), M.A. Haque (Penn State), J.E. Bultman (UDRI/AFRL), R.R. Naik (AFRL), S. S. Kim (UES/AFRL), A.A. Voevodin (AFRL), C. Muratore (UD/AFRL) A new class of ultra-thin (<2 nm) layered atomic structures, referred to as two-dimensional (2D) materials, are revolutionizing performance and tailorability of electro-optical devices fabricated entirely from molecularly thin components with a combination of remarkable mechanical and electronic properties. In a departure from traditional exfoliation or high temperature chemical vapor deposition approaches for 2D materials synthesis, plasma-based physical vapor deposition techniques are being used to fabricate uniform films over large areas at temperatures low enough for application to polymer substrates enabling a wider range of device material selection. Tailorable electronic, mechanical, and chemical properties have been investigated by adjusting grain boundary size (5-500 nm) and vacancy concentrations (S:Mo ratios from 1.1-2.0 in MoS₂). Unique simulation approaches captured realistic experimental time and length scales which guided the

refinement of growth processes and the multi-stimulus (strain, electrical potential, and heat) post-growth tailoring of defect densities for devices. Correlation of simulation to experiment is conducted via integration of 2D materials into nanofabricated testbeds facilitating in situ techniques for real-time atomic-scale visualization during application of stimulus and electrical characterization. This effort leads to controlled bottom-up assembly of 2D devices on flexible substrates to experimentally couple the remarkable intrinsic mechanical and electronic properties of ultrathin materials, which are particularly appealing for molecular sensing. For 2D materials, with their extreme surface-to-volume ratio demonstrate detection mechanisms based on charge transport where adsorbed molecules act as dopants for inducing a measureable electrical response in the active device material. Two dimensional semiconducting materials show strong promise for increased sensitivity and selectivity over graphene counterparts in sensing applications due to their large intrinsic bandgap. Thermodynamics of vapor and liquid phase molecular adsorption on flexible devices will be investigated computationally and experimentally, with an emphasis on sweat analysis in relation to human health and performance.

Characterization of Iron Phthalocyanine as the Cathode Active Material for Lithium-Ion Batteries

School of Engineering: Chemical and Materials Engineering | Poster - Graduate Research

STUDENTS Mohammed M Albader | ADVISORS Sarwan S Sandhu

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

This project presents the characterization of iron phthalocyanine (FePc) as the cathode active material to be used in higher spe-

cific lithium storage and energy density lithium-ion cells/batteries. Theoretical work suggested the control of the active material

particle size for its optimum utilization during the discharge of lithium-ion cells. Also, the experimental work reported the lithium storage in FePc is equivalent to 2050 mAh/g FePc that was encouraging to characterize FePc as a potential cathode material. In experimental work, two types of cells were tested: 1) high temperature polyethylene oxide electrolyte-based lithium/

FePc cells and 2) room temperature organic liquid electrolyte-based lithium/FePc cells. Estimating the theoretical lithium storage capacity of the cathode active material, and the experimental results from the ongoing research/development work on the lithium/iron phthalocyanine cells are included in this project.

Enhanced Physiological Microenvironment for Improved Evaluation of Nanoparticle Behavior

School of Engineering: Chemical and Materials Engineering | Poster - Graduate Research

STUDENTS Emily K Breitner | ADVISORS Kristen K Comfort, Saber Hussain

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Due to their distinctive physicochemical properties, nanoparticles (NPs) have proven to be extremely advantageous for product and application development, but are capable of inducing detrimental outcomes in biological systems. Standard in vitro methodologies are currently the primary means for evaluating NP safety, as vast quantities of particles exist that require appraisal. Here, we developed an enhanced in vitro model that retains the advantages of cell culture, but introduces the key physiological variables of accurate biological fluid and dynamic flow. As NP behavior and subsequent bioresponses are highly dependent upon their surroundings, this developed microenvironment provides a more relevant system to evaluate responses following NP exposure. In this study, the microenvi-

ronment comprised of the A549 lung cell model, artificial alveolar fluid, and dynamic flow at realistic rates; to mimic a NP inhalation exposure. We identified significant modulations to silver and gold NP characteristics and the nano-cellular interface as a function of particle surface chemistry, fluid composition, and flow condition. More importantly, several of these modifications were dependent on multiple variables, indicating that these responses were previously unidentifiable in a standard cellular environment. Taken together, this study demonstrates that to fully elucidate the behavior and evaluate the safety of NPs, these evaluations need to be carried out in a more complex and physiologically relevant cellular exposure model.

Influence of Environment and Physiological Fluid on Nanoparticle Behavior and Bioresponses

School of Engineering: Chemical and Materials Engineering | Poster - Independent Research

STUDENTS Deidre Simone Cathey, Jasmine N Whitaker | ADVISORS Charles E Browning, Maceo E Cofield, Kristen K Comfort

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Nanotoxicology determines to what extent nanoparticles pose a threat to the environment and human beings, and this is the overall purpose of this research. The goal is to characterize nanofluid behavior and examine the influence of different nanofluids on the cellular behavior, specifically the viability, of the HaCaT cell line. The nanoparticles that will be used are copper oxide and titanium dioxide. Traditional media and artificial interstitial fluid

are the physiological fluids being studied. The first phase of the project involves analyzing cell growth in different nanofluids, and the second phase analyzes cell death by finding the LDH enzyme production. MTS assays are performed in each phase to determine the cell proliferation and LDH enzyme production of the HaCaT cells. This research will help determine the toxicity of these nanoparticles dispersed in different environments.

Modification of the Nano-Bio Interface through Targeted Protein Corona Formation

School of Engineering: Chemical and Materials Engineering | Poster - Graduate Research

STUDENTS Emily K Breitner, Alexandra O Luby | ADVISORS Kristen K Comfort

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Gold nanoparticles (AuNPs) are being increasingly utilized in biological and medical applications, such as drug delivery, bio-imaging, and cancer therapeutics. However, the efficacy of these procedures are highly dependent upon the interaction of AuNPs with the surrounding biological environment; referred to as the nano-bio interface. In recent years, it has been established that the makeup of the nano-bio interface is driven through the formation and structure of the protein corona-NP complex. While many view the protein corona as an obstacle to overcome, we sought to utilize these protein-NP interactions to improve AuNP-cellular interactions. Prior to cellular exposure, 10 nm AuNPs were incu-

bated in epidermal growth factor (EGF), to generate a protein corona solely comprised of EGF. EGF was specifically selected owing to the fact that it is a predominant surface receptor of multiple cell lines, including the human keratinocyte HaCaT. Modification to the AuNP-protein complex was verified through NP characterization techniques and SDS-PAGE analysis. Following a 24 hour exposure, EGF-AuNPs demonstrated a significant increase in deposition efficiency over untreated AuNPs. This analysis was taken one step further and repeated under physiologically accurate rates of dynamic flow. As expected, the overall deposition of NPs was reduced due to fluid movement,

however, the EGF-AuNPs still associated with HaCaT cells to a higher degree. Furthermore, to verify these findings, the nano-bio-interface was visualized through fluorescence microscopy for all experimental conditions. This study demonstrated that

pretreatment of AuNPs with target proteins can improve cellular deposition and alter the nano-bio interface, providing a potential means for improving select nano-based applications.

Development of biosensing systems using molybdenum disulfide-peptide sensing interface

School of Engineering: Chemical and Materials Engineering | Oral Presentation - Graduate Research

STUDENTS Jessica M Dagher | ADVISORS Christopher Muratore

LOCATION, TIME LTC Meeting Space, 1:20 PM–1:40 PM

It is anticipated that semiconducting films of ultra-thin layered materials, such as molybdenum disulfide (MoS₂) and other transition metal dichalcogenides (TMDs), will achieve higher sensitivity than other ultra-thin film molecular sensor materials such as graphene, while conserving benefits of mechanical flexibility and chemical stability in diverse environments. Therefore, this study aims at development of biosensing systems with thin films (1-10 nm) of MoS₂ and a biorecognition element as the active sensing interface. The high surface-to-volume ratio of these films increases the rate of charge transport properties even in the presence of low concentrations of adsorbed molecules, enhancing the detection limits. A critical step toward novel TMD molecular sensors is identification of the structure and chemistry of peptide-TMD interfaces. In this study, phage display techniques were employed to identify peptides, obtained from a commercial combinatorial, M13KE phage display library, which selectively bind to a target of inorganic MoS₂ in the forms

of micro scale fine powder, a natural bulk crystal, and ultra-thin films (<1.5–5 nm) with different crystalline domain sizes. An in-laboratory immunofluorescence assay was then employed as a screening tool to confirm the interaction of identified peptide sequences with MoS₂. The structural, elemental, and chemical surface properties of the MoS₂ materials as well as the interaction with the phage-expressed peptide and the peptide alone were characterized via Raman and Infrared spectroscopy, X-ray diffraction analysis, and X-ray photoelectron spectroscopy. To further understand peptide-MoS₂ surface binding mechanisms, molecular dynamics simulations will be conducted using a newly established atomic force field, which accurately predicts the surface energy of MoS₂ films with variable defect concentrations. Integration of binding peptides into the model in conjunction with experimental results will aid in developing a fundamental understanding of biomolecule interactions with MoS₂ and other TMD materials.

Simulation of Mechanical Properties: Strain Rate Dependence of Epoxies

School of Engineering: Chemical and Materials Engineering | Oral Presentation - Graduate Research

STUDENTS Allison M Ecker | ADVISORS Rajiv Berry

LOCATION, TIME LTC Meeting Space, 2:00 PM–2:20 PM

In recent years, many have sought to understand the modes of fracture in epoxy systems to further improve their applications in aerospace technology as adhesives and composites. The fracture patterns of epoxies and other thermosets differ from those of their thermoplastic counterparts due to the inherent differences in how the materials are formed. Thermoplastic materials exposed to tension exhibit hydrogen bond cleavage as polymer chains slide past one another, whereas thermoset materials fracture under tension due to broken covalent bonds. Thermosets are valued particularly for their toughness and their properties as part of polymer matrix composites (PMCs). Epoxies in particular have been studied extensively both experimentally and computationally, and this project looks to combine the two strategies to understand how epoxies fracture when exposed to differing strain conditions. Simulations completed thus far have studied diglycidyl ether of bisphenol A (DGEBA) with 4,4'-diaminodiphe-

nylmethane (MDA) and 3,3' – diaminodiphenylsulfone (DDS). The DGEBA monomers have varying molecular weights, accomplished by varying the chain length of the prepolymers. Stress-strain relationships for each individual system were examined for strain rates varying from 106 s⁻¹ to 1011 s⁻¹. The young's modulus and strength at yield were calculated which enabled analysis of the effects of molecular weight (chain length) and strain rate on epoxy fracture. Experimental results will be used to validate the computational method. The first goal will be to develop a process to construct highly cross-linked epoxy systems using DGEBA resins of varying molecular weight with both 4,4' DDS and 3,3' DDS. Differential scanning calorimetry and near-infrared will be used to provide the degree of cure for each epoxy system created. Different degrees of cure are obtained through varying stoichiometry, cure process, and molecular weight.

Civil Engineering Senior Capstone Design Presentation

School of Engineering: Civil and Environmental Engineering and Engineering Mechanics | Oral Presentation - Capstone Project

STUDENTS Abdullah B Al-Rodan, John A Bayer, Tyler Scott Bergfeld, Benjamin A Borton, Kevin M Colburn, Sarah M Fyda, Alexander S Gaskins, Ametra P Harris, Aaron T. Haynesworth, Laura L Helbling, Nathan D Holthaus, Alyssa N Jenkins, Brad M Johnston, Timothy D Kovach, Colleen E Kresse, Yesenia E Linares, Stephen M Mcmillan, Kent M Moneysmith, Evan J Nicholas, Petr M Prchlik, Joseph E Riley, David S Robinson, Ivan Armando Rodriguez Del Rio, Carl J Ruf, Amy K Schultz, Joseph L

Sicurezza, Michael Smith, Vincent E Spahr, Kyle A. Spoelker, Brooke A Sroczyński, Joseph B Thomas, Tyler D Waldron,
Bradley J West | ADVISORS Donald V Chase

LOCATION, TIME Kennedy Union Boll Theatre, 8:30 AM–12:00 PM

The Civil Engineering Senior Capstone Design is the culmination of the major design experience that is required for all ABET accredited programs. In this course, students were exposed to elements of practical design and integrated many of the skills learned in previous courses into a single capstone design. This

year, the capstone design involved the designing of a Health and Sciences building for Sinclair Community College. Design aspects included Project Management, Structural, Geotechnical, Site/Civil, Transportation, and Environmental.

Prediction of Thermal Stress During Resistive Heating of Carbon Fiber and Glass Fiber Composites Reinforced with Carbon Nanotubes

School of Engineering: Civil and Environmental Engineering and Engineering Mechanics | Poster - Graduate Research

STUDENTS Manjhanath M Ayyampudur, Vignesh Kumar Gnanasekar | ADVISORS Thomas J Whitney

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Nanocomposites are polymeric materials which can conduct electrical current or heat. Like all materials, however, stress exceeding its threshold limits results in catastrophic failure of the material. Resistive heating is widely used in heating materials for various applications. In these applications, the formation of thermal stress potentially plays a very important role in failure mechanism of materials. Thermal stress are basically caused due the mismatch of coefficient of thermal expansion within the material. Hence, studying in detail about thermal stress formation in nanocomposite will help in preventing failures to a great extent. The objective of this work is to develop a Finite Element Model (FEM) which will be able to predict thermal stress in carbon fiber and glass fiber composites with carbon nanotube interlayers. This model will be validated by the ASTM method

of hole drilling which is generally used to measure the residual stress in materials. Hole drilling method is an ASTM standard method used to measure the residual stress in a material. In this case, it will be used to measure thermally-induced stresses. The hole-drilling method works on the principle of redistribution of the stress when a hole is drilled in the material and is measured by strain gauge rosettes installed on the surface of material. With further calculation using the result of hole drilling method, thermal stress is obtained which is reasonably accurate. These results are then compared with FEM model and is verified. This verified FEM model can then be used to predict the thermal stress arising in nanocomposites preventing failures from happening when heated under resistive heating.

Determination of Ineffective Flow Areas in Bridge Modelling using HEC-RAS by locating Ineffective Flow Stations

School of Engineering: Civil and Environmental Engineering and Engineering Mechanics | Oral Presentation - Graduate Research

STUDENTS Venkatasubbarao Bayareddy | ADVISORS Donald V Chase

LOCATION, TIME Marianist Hall Learning Space 218, 1:40 PM–2:00 PM

The Hydrologic Engineering Center's River Analysis System (HEC-RAS) is a computer program widely used by hydrologists and water resources engineers across the globe. The primary use of the simulation model is to delineate floodplains, but it may also be used to size bridges and culverts. HEC-RAS has an option for defining Ineffective flow stations at bridges and culverts. An Ineffective flow area is a portion of a river or stream's cross section where there is no water flowing downstream due to the presence of a bridge or a similar structure, i.e. no conveyance. Current practice is for modelers and engineers to provide an estimate of the location of ineffective flow stations. The objective of this research is to develop a methodology that can precisely identify the Ineffective flow stations at bridges and culverts based on the geometry of the bridge or culvert opening. A small-scale model has been constructed in the Hydraulics laboratory at University of Dayton to better understand the behavior of the flow of water through bridge abutments. To achieve our objective of accurately locating Ineffective flow stations, a computer program will be developed to work alongside the HEC-RAS. This program will contain an algorithm for calculat-

ing the location of ineffective flow stations at bridge abutments that will result in compensating or equal areas above and below the water line. The algorithm uses an iterative approach to converge into the solution. The Hydrologic Engineering Center's River Analysis System (HEC-RAS) is a computer program widely used by hydrologists and water resources engineers across the globe. The primary use of the simulation model is to delineate floodplains, but it may also be used to size bridges and culverts. HEC-RAS has an option for defining Ineffective flow stations at bridges and culverts. An Ineffective flow area is a portion of a river or stream's cross section where there is no water flowing downstream due to the presence of a bridge or a similar structure. Current practice is for modelers and engineers to provide an estimate of the location of ineffective flow stations. The objective of this research is to develop a methodology that can precisely identify the Ineffective flow stations at bridges and culverts based on the geometry of the bridge or culvert opening. To achieve our objective of accurately locating Ineffective flow stations, a computer program will be developed to work alongside the HEC-RAS. This program will contain an algorithm for

calculating the location of ineffective flow stations at bridge abutments that will result in compensating or equal areas above and below the water line. The algorithm uses an iterative approach to converge into the solution. Firstly, miscalculating the ineffective flow areas can lead to serious problems such as error in actual water surface elevation. Error in water surface level can cause

misjudgment of floodplain area during a flood event and this could be catastrophic. By the proposed methodology, hydrologists and engineers will be able to locate these Ineffective flow stations in very less time with minimal error if not zero error. Our goal is to provide this tool freely available to all the hydrologists across the world.

ETHOS - Appropriate Solar Technology for Bihar, India

School of Engineering: Electrical and Computer Engineering | Poster - Course Project, EGR 330 P3

STUDENTS Mariana Lopes, Brooke C Place | ADVISORS Candida Crasto, Malcolm W Daniels

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

An investigation of the potential for appropriate solar technology in Bihar, India, including solar thermal refrigeration systems. The feasibility of solar PV cells within a micro grid system was studied

for applications to existing refrigerators. This is pre-work for an upcoming ETHOS immersion in Bihar, India.

ETHOS – Appropriate Solar Technology for Bihar, India

School of Engineering: Electrical and Computer Engineering | Poster - Course Project, EGR 330 P1

STUDENTS Mariana Lopes, Brooke C Place | ADVISORS Malcolm W Daniels

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

An investigation of the potential for appropriate solar technology in Bihar, India, including solar thermal refrigeration systems. The

feasibility of solar PV cells within a micro grid system was studied for applications to existing refrigerators.

ETHOS - Development and Optimization of a Micro Scale Wind Turbine

School of Engineering: Electrical and Computer Engineering | Poster - Course Project, EGR 330 P3

STUDENTS Michael Ralph Ising, Ryan S Schuessler | ADVISORS Candida Crasto, Malcolm W Daniels

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

A review of the fluid dynamics used to model and optimize the wind turbine blade design to maximize power output utilizing

typical weather data. This is pre-work for an upcoming ETHOS immersion in Auroville, India.

ETHOS - Small Scale Wind Turbines for Rural India

School of Engineering: Electrical and Computer Engineering | Poster - Course Project, EGR 330 P3

STUDENTS George C Kemper | ADVISORS Candida Crasto, Malcolm W Daniels

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

An investigation into the application of small scale wind turbines to electrify rural India. This is pre-work for an upcoming ETHOS immersion in Auroville, India.

ETHOS - Virgin Coconut Oil Extraction

School of Engineering: Electrical and Computer Engineering | Poster - Course Project, EGR 330 P3

STUDENTS Philip M Morris | ADVISORS Candida Crasto, Malcolm W Daniels

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

An investigation of the optimization of virgin coconut oil production in a cottage industry. This will also examine the potential by-products of the process and how they could be utilized in the

specific region. This is pre-work for an upcoming ETHOS immersion in Dominica, West Indies.

A novel Computer Aided Detection of identifying Lung Nodules on Chest Radiographs

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Barath Narayanan | ADVISORS Russell C Hardie, Temesgen M Kebede

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Lung cancer is the leading cause of cancerous death in the United States. It usually exhibits its presence with the formation

of pulmonary nodules. Nodules are round or oval-shaped growth present in the lung. Chest radiographs are used by radiologists to

detect and treat such nodules but they are quite difficult to detect with human eye and are sometimes misinterpreted with lesions present. Thus, automated analysis of such data is very essential and would be of valuable help in lung cancer screening. A new computer aided detection (CAD) system in chest radiography is proposed in this paper. The algorithmic steps include (i) local contrast enhancement; (ii) automated anatomical segmentation; (iii) detection of nodule candidates; (iv) feature extraction; (v) candidate classification. In this research, we present facets of the proposed algorithm using a publically available dataset and we explore into new set of features and classifiers. The publically available database was created by the Standard Digital Image Database Project Team of the Scientific Committee of the Japanese Society of Radiological Technology (JRST). The JRST

dataset comprises of 154 chest radiographs containing one radiologist confirmed nodule each. In this term paper, we compute a rich set of 117 features for each potential candidate. Local contrast enhancement is achieved using a Gaussian low pass filter. Anatomical segmentation is performed using an active shape model. Potential candidate nodules can then be determined by using an adaptive distance-based threshold algorithm limited to delineated lung fields. Later, a set of features are computed for each potential candidate. Based on those tailored features, a classifier/neural network system can be used to identify the candidates as either true positives or false positives. This CAD system would aid in providing a second opinion to radiologists. Algorithm will be trained using River rain Database and would be tested later in JRST database.

A Self Organizing Maps Approach to Segmenting Tumors in Computed Tomography (CAT) and Magnetic Resonance Imaging (MRI) Scans

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Fatema A Albaloooshi, Yakov Diskin, Sidike Paheding (Co-Author: Sara Smith, University of Cincinnati College of Medicine) | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Studies and explorations of human visual perception have been the main source of inspiration for computer vision algorithms. Understanding how the human brain represents basic attributes of objects helps in developing computer vision algorithms for automatic object interpretation and understanding. Human visual perception is based on the neural coding of fundamental features, such as object boundaries, color, orientation, shape, etc. Thus, finding the contours and boundaries of objects provides the first step for object recognition and interpretation. Form here, the idea of this research inspired to introduce an automatic boundary detection technique based on active contours that is designed to detect the contours of abnormalities in X-ray and MRI imagery. Our research is aimed to aid healthcare professionals to sort and analyze large amount of imagery more effectively. Our segmentation algorithm incorporates prior information within segmentation framework to enhance the performance of

object region and boundary extraction of defected tissue regions in medical imagery. We exploit Self Organizing Map (SOM) unsupervised neural network to train our prior information. One reason to prefer SOMs to other neural network models is the specific ability of SOMs to learn the intensity information via their topology preservation property. In addition, SOMs have several characteristics that make them pretty much similar to the way the human brain works. A dual self-organizing map approach is being used to learn the object of interest and the background independently in order to guide the active contour to extract the target region. The segmentation process is achieved by the construction of a level set cost function, in which, the dynamic variables are the Best Matching Units (BMU)s coming from the SOM maps. We evaluate our algorithm by comparing our detection results to the results of the manually segmented by health professionals.

Adaptation of Fast Converging Optimal Techniques to Path Planning of Hyper-Redundant Manipulators

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Hariharan Ananthanarayanan | ADVISORS Raul E Ordonez

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

A multi-pass distributed localized search technique to solve the problem of path planning of hyper-redundant manipulators for the shortest path in real-time in the presence of obstacles is proposed. The problem is approached from a control perspective as a shortest path Optimal control problem, where the configuration space is searched for path points that optimize a cost function. This method addresses the "Curse of Dimensionality" of

exhaustive search techniques via the multi-pass distributed local search and local minima of Greedy approach via a backtracking technique. Further, theoretical proof shows that the proposed technique converges to an optimal (if only one exists) or a suboptimal (if many exist) solution. The algorithm is implemented on a 9-DOF manipulator arm for various paths.

Adaptive Particle Swarm Optimization Applied to Aircraft Control

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Ouboti Djaneye-Boundjou | ADVISORS Raul E Ordonez

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

For the longitudinal dynamics of a fixed wing aircraft with rigid frame, a Proportional-Integral (PI) controller for controlling the forward velocity of the aircraft and a gain-scheduled Proportional-Integral-Differential (PID) like controller, with the forward velocity used as the scheduling variable, for controlling the flight path angle of the aircraft are designed. For a set of working PI

gains, previously found through an experienced-based design, derivation and tuning of PID gains for a select number of forward velocities is computationally achieved through the use of a stable Adaptive Particle Swarm Optimization algorithm. Several performance measures, normalized so as to suppress differences in scale, are aggregated into the designed cost function.

Automatic Building Change Detection by 2D and 3D Representation for Wide Area Surveillance

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Fatema A Albaloooshi, Yakov Diskin, ALmabrok Essa Essa, Sidike Paheding | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

We present an automated image processing tool for building change detection by analyzing aerial imagery. The proposed scheme can be categorized into three phases: 2D change detection, 3D change detection, and 2D and 3D fusion. In the first phase of the algorithm, an adaptive perception based object detection model is developed for robust classification of buildings from aerial images. The method will be able to address the issues of varying illumination, varying shapes, sizes, orientation and occlusion of the building in interest. To detect regions that contain buildings in a scene, we defined a histogram of illumination invariant features (i.e., monogenic phase) to represent region segments that belonged to buildings as one class and other regions as another class. A support vector machine with radial basis kernel is trained using segments from both classes.

Then we implement a modified level set prior-based segmentation approach, which integrates neural networks with level set active contour models for boundary extraction of buildings in cluttered environment. By extracting boundary, we can estimate actual size of the building in current or previous time period, so that the changes can be found in terms of area of the building. In the second phase, a 3D reconstruction algorithm, named Dense Point-cloud Representation (DPR), is utilized to flag volumetric changes in a building. By obtaining accurate dense representations of the scene using DPR, we are able to detect building changes irrespective of lighting, seasonal and view point changes. In the last phase of the proposed scheme, we suggest to combine 2D and 3D change detection algorithms as a full-fledged system for building change characterization

Automatic Intrusion Detection on Pipeline Right-of-Way via Aerial Imagery

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS ALmabrok Essa Essa, Sidike Paheding | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Object detection in aerial imagery has received a great deal of attention in recent years and become one of the most popular research areas in the field of surveillance systems. Issues in aerial imagery, such as low resolution, the presence of noise, complex appearances of objects and more importantly view-points variations of objects have made the process of intrusion detection on oil pipeline Right-of-Way (RoW) more challenge. Thus, a detection system must be able to extract prominent features from an object which has to be distinct and stable under different conditions during the image acquisition process. In this work, we present a novel scheme that automatically detects intrusions such as construction vehicles and equipment on pipeline RoW from aerial imagery. In the first part of the framework, a region-of-interest detector is employed to extract potential

regions that may contain objects and to reduce the search region from imagery that are not considered to be a region-of-interest. Next, we develop a rotation-invariant gradient histogram based descriptor for a robust object representation. Since it is built in grayscale space, it is independent of the color changes. In terms of tackling motion blur and noise introduced by sensors or atmospheric effects, a noise reducing kernel is used to compute the gradient of the region, and then histogram of orientated gradient is computed for each key region obtained from the first step of the algorithm. The final descriptor is built by concatenating the magnitude of fast Fourier transform of orientation histograms over all key regions. In the last phase of the framework, a support vector machine with radial basis kernel is used as the classifier to detect objects in an image.

Automatic Perception and Target Detection in LiDAR Data

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Nina M Varney | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

LiDAR is a remote sensing technology which uses a set of 3D geo-referenced points in order to describe a scene. Aerial LiDAR is often collected using UAVs or airplanes which can passively collect data over a short period of time, often over several miles. This can result in millions of points used to describe a scene.

LiDAR data is often used for surveillance and military applications and because of the large amount of data and varying resolutions it can be difficult for analysts to recognize and identify mission critical targets within the scene. The goal of this project is to develop a technique for the automatic segmen-

tation and classification of distinct objects within the scene to aid analysts in scene understanding. We focus our method on five distinct classes that we wish to identify; ground, vegetation, buildings, vehicles and fences or barriers. The first step is to use a RANSAC-based ground estimation in order to estimate the digital terrain model (DTM) of the scene. Next, 3D octree segmentation is performed in order to distinguish between individual objects within the data. A novel volume component analysis

(VCA) method is used to extract distinct geometric signatures from each individual object and these features are used as the input to several support vector machines (SVM) in cascade of classifiers configuration. The cascade of classifiers separates the objects into the four remaining classes. Our method was tested on an aerial urban LiDAR scene from Vancouver, Canada with a resolution of 15.6 pts/m² and was found to have an overall accuracy of 93.6%.

Blind full reference image quality assessment of Poisson image denoising

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Chen Zhang | ADVISORS Keigo Hirakawa

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

—FR-QA (Full Reference Image Quality Assessment) is an appropriate measure for comparing denoised image to the ideal noise-free image.—CR-QA (Corrupted Reference Image Quality Assessment) enables Blind FR-QA with the help of a noisy-version of the reference image (Cheng & Hirakawa 2012).—

We propose a computational technique predicting SSIM (structural similarity index) and VSNR □ a wavelet-based visual signal-to-noise Ratio □ score for Poisson denoised image.—CR-QA optimal denoising outperforms Training-optimal and CR-MSE optimal denoising methods.

Brain Machine Interface for a Robotic Arm

School of Engineering: Electrical and Computer Engineering | Poster - Capstone Project

STUDENTS Matthew Thomas Cusumano, Mark J Edmonds, Wenjie Lu, Daniel P Prince, Andrew J Sutter

ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The purpose of this project is to expand the capabilities of an existing interface of controlling a static robotic arm with brainwaves. Brainwaves are collected with an Emotiv EPOC headset. The Emotiv headset utilizes electroencephalography (EEG) to collect the brain signals. This project makes use of the Emotiv software suites to classify the thoughts of a subject as a specific action. The software then sends a keystroke to the robotic inter-

face to control the robotic arm. The team is to identify actions for mapping, implement these chosen actions, and evaluate the system's performance. The actions chosen and their implementation would also test the limits of the interface, and provide groundwork for future research. This semester, we are actively working on creating our own, independent signal processing system for analysis on subjects' thought patterns.

Classification of Vehicles using Monocular 3D Reconstruction

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Yakov Diskin, Nina M Varney | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

State of the art 3D reconstruction techniques utilize frames from a video sequence to render a 3D model of the scene. Our 3D reconstruction technique utilizes Speeded-Up Robust Features along with optical flow points to create a dense point cloud. Each point within the model has been tracked from frame to frame and triangulated into its (X,Y,Z) model position. We present an application for these structure from motion models that exploits our previous work in 3D object classification. In our experiments,

we reconstruct a parking lot scene that contains several vehicles. The first step of our object classification algorithm is to segment each of the vehicles. Then, for each separate point cluster, our algorithm utilizes the volumetric and shape properties of the 3D object to label it with a vehicle type. The novelty of this classification approach allows us to tackle the noise challenges commonly associated with monocular 3D reconstructed models.

Cybersecurity Software Research for Specialized Hardware Adaptation

School of Engineering: Electrical and Computer Engineering | Poster - Independent Research

STUDENTS Brandon M Hampshire, Francisco Luis Palenzuela | ADVISORS Tarek M Taha

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Security of electronic devices and information is important in the defense industry, where protecting information is synonymous with protecting human lives. Cybersecurity software is used to protect the devices used and the information gathered in this field, but at the cost of additional device power and resources, harming the usability of the device in many cases. The purpose

of this research is to adapt a popular Network Intrusion Prevention System to partially run on specialized hardware processor. This processor will run concurrently with the device that is protected. With the parts of the program that are the most time and power intensive running on a different, more specialized, processor, the device itself will be more energy efficient and be

protected more efficiently and faster. This research will determine the most suitable and effective parts of the system to adapt for the new hardware and begin the preparatory work to port the

Design and MIMO control of A Hyper-Redundant Robotic Arm

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Xingsheng Xu | ADVISORS Raul E Ordonez

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

An application robotic platform has been constructed based on the kinematic model of a 9-DOF hyper-redundant manipulator. The efficacy of our kinematic algorithm affects the accuracy and stability of both motion control and path tracking. An objective of this work is to achieve multi-input multi output (MIMO) control, where the inputs are the torques at each joint, and they are used to control joint dynamic variables such as position, orientation,

velocity and acceleration in a hyper-redundant robotic system. This control approach can highly improve the robotic performance considering both its kinematics and dynamics while executing motion control or tracking a path. The result of tracking different paths and the error analysis both in joint space and work space show that the MIMO control algorithm works functionally and satisfies all the requirements of experimental design.

Determining Volume Changes from Overhead Video Surveillance

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Yakov Diskin | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Cost effective persistent wide area surveillance is a challenging real-world problem that research has not sufficiently tackled yet. At present, surveillance corporations spend millions on human analysts to monitor live or recorded video feeds. Depending on the application, the analysts may be looking for unauthorized activities, suspicious behavior, or a more specific sequence of events. Human performance is costly and is often affected by ambiguous definitions of anomalies as well as natural factors such as fatigue. We present a fully automatic 3D change detection technique designed to support persistent overhead surveillance in changing environmental conditions. The novelty

of the work lies in our approach of creating an intensity invariant system tasked with detecting changes in a changing environment. Although previous techniques have proven to work in some cases, these techniques fail when the intensity of the scene significantly changes between the capture of the datasets. Our techniques leverages our 3D reconstruction capabilities to overcome the intensity variation challenges. We present several proof of concept experiments conducted in a laboratory setting, in which we study the effects of model noise and scene illumination on the proposed volumetric changed detection algorithm.

Directional Ringlet Intensity Feature Transform for Pedestrian Tracking

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Theus H Aspiras, Evan W Krieger, Sidike Paheding | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The tracking of pedestrians in wide area motion imagery (WAMI) is a challenge due to the extremely small pixel size of the pedestrian in the scene. The size of a pedestrian depends on the database but is typically 4 to 8 pixels squared. In addition, a pedestrian occupies a rectangular area while the tracker searches using square areas for efficient processing. This means that the background around the pedestrian is included as the search object. For current intensity-based histogram feature tracking methods, background intensity variations can cause misidentification of the target. These background variations occur as the ground the target walks over or next to changes in material or lighting. These challenges necessitate a stronger feature descriptor to be constructed. We propose a new feature tracking

method, Directional Ringlet Intensity Feature Transform (DRIFT), which uses a combination the edge information of the object with the intensity to create a feature histogram. This is accomplished using a Gaussian ringlet masking strategy that utilizes rotational invariance of the Gaussian ringlet and directional edge information of the Kirsch kernel. The proposed method allows for more accurate and robust tracking of extremely small targets, such as pedestrians. A quantitative evaluation is performed by comparing tracking results of the proposed method with other intensity-based histogram feature tracking methods. The WAMI sequences that are used for evaluation are of pedestrians captured in the Columbus Large Image Format (CLIF) database.

Extremum Seeking Control Observer Design for Multiple-Input Multiple-Output Linear Time-Invariant Systems

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Abdulhakim A Daluom | ADVISORS Raul E Ordonez

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

In this proposal a control strategy, we try to address the problem of output (performance) function for an observer of Multiple-Input Multiple-Output (MIMO) linear time-invariant system by applying the Extremum Seeking Control (ESC) approach. By this control approach, we drive the performance function to its maximum or minimum value. The construction of a seeking algorithm is

used to drive the system states to the desired set-points that maximize or minimize the value of an objective (performance) function. Also, Lyapunov's stability theorem and the perturbation theory including the averaging method is used in the design of the extremum seeking controller structure to check the stability of the system.

Image Restoration Under Low Illumination

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Wu Cheng | ADVISORS Keigo Hirakawa

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Image taken under low illumination suffers severe distortion as the photon counts received by the camera sensor is too low. By investigating the statistic properties of photon count, we can

inverse such distortion and restore the scene even in the dark night.

Intention Based Upper-limb Exoskeleton

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Manoj-Kumar Sharma | ADVISORS Raul E Ordonez

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Exoskeletons, a wearable robot that intelligently augments the physical power of a human being. These robots are used in military and similar applications, but the challenge remains that how to make the human-machine interaction safe and sound. The idea behind the 'intention based approach' is that an array of compliant force sensors will continuously monitor the movement

of the limb and then map the filtered data to drive the respective actuator which in turn helps in doing the same 'movement' with augmented power and better stability. Additionally a 9 DoF IMU, continuously map the end effector's spatial position as an additional feedback utilizing the Inertial Reference Unit's (IRU) algorithm.

Nonlinear MIMO Adaptive Control for Longitudinal Aerodynamics Forces and Moments of Hypersonic Aircraft Vehicle Model

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Turki Mohammed Alsuwian | ADVISORS Raul E Ordonez

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Aircraft vehicle has complex nonlinear functions which affected in design the control issues. In this paper, introduce and design accurate control of longitudinal dynamic and pitch moment. Longitudinal dynamics equations have complex parameters and this paper maintains control methods as using feedback linearization method. This method is separating longitudinal dynamics equations which causes directly to the flight path angle and aircraft speed with certain approximations of drag, lift and moment functions. Therefore, MIMO adaptive control approach is used instead of feedback linearization with first approximations of drag, lift

and moments functions to achieve reasonable results of aircraft dynamics control. MIMO adaptive control technique is presented combined direct and indirect adaptive control methods because the uncertainties variables of longitudinal equations. This paper displays control design for thrust and elevator deflection as inputs of aircraft dynamic with flight path angle and aircraft speed as outputs of the system. The simulations results of feedback linearization and MIMO adaptive control is illustrated in this paper and achieved the tracking of aircraft speed and flight path angles to desired aircraft speed and desired flight path angle.

Power Efficient Circuits for Intrusion Detection using Memristor Crossbars

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Venkataramesh Bontupalli | ADVISORS Tarek M Taha

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Intrusion Detection System (IDS) is an intelligent specialized system designed to interpret the intrusion attempts in incoming network traffic. IDS aims at minimizing the risk of accessing the unauthorized data and potential vulnerabilities of critical systems by the examining the every packet entering into the system. Deep Packet inspection and Pattern matching are computationally intensive processes and most power hungry functionalities in network intrusion detection systems. In particular, every

incoming packet is well screened by string matching with previously known malicious signatures/contents essentially known as attacks or intrusions. In particular, nearly 70 % of the execution time and power is utilized against matching the malicious contents against all the incoming packets. Indeed, the heart of every IDS is the detection process itself hence our key focus and efforts are towards developing a memristor crossbar based low power intrusion detection system that would reduce the execu-

tion time and power consumption due to its high density grid and massive parallelism. We propose a brute force string matching algorithm implementation on a low power memristor based cross bar array giving rise to detection accuracy of 100% and 0% false positive consuming 0.013mW/signature. As it turns out, mem-

ristor cross bar designed, trigger only if there is an exact match between the stored and incoming pattern extending its applications towards text processing, speech processing, computational biology, etc. besides intrusion detection.

Robust Textural Features for Real Time Face Recognition

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Andrew D Braun, Chen Cui | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Automatic face recognition in real life environment is challenged by various issues such as object motion, lighting conditions, poses and expressions. The Enhanced Local Binary Pattern (ELBP) is able to represent textural features of a face image in different lighting conditions. Instead of comparing the intensity of every neighborhood pixel with the center pixel's intensity value directly as in LBP, ELBP description compares the total positive distance and the total absolute distance between the neighborhood pixels and the center pixel. In this paper, we propose a system based on a refined Enhanced Local Binary Pattern (ELBP) feature set and a Support Vector Machine (SVM) classifier to perform face recognition in a real life environment. The counting strategy from ELBP is replaced by converting the samplings to

a binary image after obtaining the 8-bit code from a thresholded neighborhood information. The proposed system is currently trained with several people's face images obtained from video sequences captured by a surveillance. One test set contains the disjoint images of the trained people's faces to test the accuracy and the second test set contains the images of non-trained people's faces to test the percentage of the false positives. The recognition rate among 300 images of 10 trained faces is around 85%, and the false positive rate with 5000 images of 30 non-trained faces is around 8%. Research work is progressing for the recognition of partial occluded faces as well. An appropriate weighting strategy will be applied to the different parts of the face area to achieve a promising result.

Rotation, Scaling and Illumination Invariant Pattern Recognition Using Joint Transform Correlation for Object Detection and Tracking

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Sidike Paheding | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Challenges in pattern recognition mainly includes object rotation, scaling, and illumination variations. Joint Transform Correlation (JTC) based filtering techniques yield promising outputs in optical pattern recognition and they have been widely used for real-time pattern recognition applications such as object detection and tracking. However, objects in complex background brings difficulty to JTC based algorithms since the performance of the JTC is sensitive to object distortions such as changes due to rotation, scaling, and illumination. One of the solutions is to add or modify filters during JTC process. Synthetic discriminant function (SDF) can be integrated with fringe-adjusted filter to alleviate the problems of scale and rotation variations of the target. Fringe-adjusted JTC with monogenic signal representation can achieve illumination invariant pattern recognition. In the case of multiple target detection, the input-scene subtraction algorithm can be

employed in JTC to efficiently detect multiple targets simultaneously with high correlation peak intensity with low false detection rate. While these techniques resolve specific problems of JTC, a full-fledged approach to equip the JTC with features that are robust to object rotation, scaling, and illumination variations is yet to be done. Therefore, our goal in this research is to reduce the sensitivity of the JTC to object distortions in the input image so that it can improve the detection efficiency in terms of sharper correlation peak intensity, narrow correlation width and higher pattern discriminability. In the proposed scheme, a local phase feature set is extracted prior to the JTC process, while the SDF is integrated with JTC during the correlation process. We evaluate our algorithm for face recognition and car tracking. Experimental results show that the proposed method yields better performance compared to alternate JTC based methods.

Thermally Switchable Antennas using Vanadium Oxide Thin Film Material Integrated with Microstrip Patch Antennas

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Kuan-Chang Pan | ADVISORS Guru Subramanyam

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The main objective for this research is to develop a thermally switchable reconfigurable antenna. The thermally switchable antenna is dependent on vanadium dioxide thin film's properties. Vanadium dioxide is an insulator at room temperature and

becomes a conductor when heated to above 68C. The reconfigurable antenna is also achieved by using vanadium dioxide thin films. In this research, two different dimensions of microstrip patch antennas are used. The resonant frequency of the bigger

antenna is 6.2 GHz (made with vanadium oxide in the periphery), and the resonant frequency of the smaller antenna is 6.8 GHz (made with normal metal). The overall size of the microstrip patch of the bigger antenna is 6.4mm×7.75 mm, and the smaller

antenna is 6.2mm×7.05 mm. When heated, the antenna becomes larger as the vanadium oxide becomes full conductive, and thereby shifts the resonance frequency from 6.2 GHz to 6.8 GHz.

Three-Dimensional Point Cloud Representation of Surveillance Scenes in Real-Time

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Kevin C Krucki | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

There are many surveillance applications which use video to review a scene. These applications include crime review, object recognition, and traffic control amongst others. Using several different computer vision algorithms 3D point clouds of moving objects can be gathered and placed into pre-gathered point clouds to make up a whole scene in real-time. This will lead to better understanding of a scene for those watching and provide for real-time 3D surveillance. First, camera calibration will be completed. In turn, depth maps can be created, allowing us to

map out each point in the scene to a real world coordinate. At this point in time, motion detection will be performed and only moving pixels will be translated to real world coordinates. Then interpolation will be completed on the moving points to create a full 3D model of the moving parts of a scene. The moving parts are then placed into point clouds that were gathered using Lidar to create an entire 3D model. This will give those using the 3D points a larger sense of awareness in the scene and aid in surveillance applications.

Blind Motion Deblurring and Denoising

School of Engineering: Electrical and Computer Engineering | Oral Presentation - Graduate Research

STUDENTS Yi Zhang | ADVISORS Keigo Hirakawa

LOCATION, TIME Kennedy Union 311, 2:20 PM–2:40 PM

Low light photography suffers from blur and noise. We propose a novel method to recover a dense estimate of spatially varying blur kernel as well as a denoised and deblurred image from a single noisy and motion blurred image. Proposed method takes advantage of the sparse representation of double discrete wave-

let transform (DDWT) and the Bayesian statistics that makes the noise handling explicit. We reduce the computational complexity by exploiting Expectation-Maximization (EM) algorithm and separating the estimation of blur direction and length.

Aiding Bio-optics with Tapered Fibers Coated with Gold

School of Engineering: Electro-Optics Graduate Program | Poster - Independent Research

STUDENTS Noelle G Jacobs, Cheyney M Myers | ADVISORS Karolyn M Hansen, Joseph W Haus

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Organosilane molecules will be absorbed onto the silica surface of the tapered fibers. The gold nano-particle solution will be placed with the silica fibers to bond the nanoparticles to the surface. The amino groups will capture the gold nanoparticles on the surface. The silica will then be placed in a container for

reduction of a chloroauric acid and potassium carbonate mixture using sodium borohydride in order to grow the nanoparticles. The gold coating of silica optical fibers will be used for sensing applications.

Characterization and Application of Bubbles during Thermal Blooming in a Thermal Medium

School of Engineering: Electro-Optics Graduate Program | Poster - Graduate Research

STUDENTS Ujjitha A Abeywickrema | ADVISORS Partha P Banerjee

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

When a highly absorbing thermal medium is heated with a focused laser pump beam, diffraction ring patterns can be observed due to self-phase modulation. When the laser power increases, the usual self-phase modulation diffraction patterns change due to bubble formation inside the thermal lens created by the focused beam. This phenomenon is called thermal blooming and can be considered as the next step to self-phase mod-

ulation. A stable bubble is formed using a focused laser beam, and the bubble is characterized using holograms made with a probe beam. A 532 nm Argon-Ion laser is used as the pump and a 633 nm low power He-Ne laser is used as the probe. The thermal medium comprises a mixture of a red dye and isopropyl alcohol. To minimize the optical effects arising from convection, the focused pump is introduced vertically into the liquid sample.

The recorded in-line holograms are numerically reconstructed to determine the size and 3d shape of the bubbles. Bubble sizes are monitored as a function of the pump intensity. Once formed, the bubbles can be steered by mechanically deflecting the pump beam or any other laser beam. Finally, Ag nanoparticles are fabricated, examined, and introduced into the thermal medium. The

presence of nanoparticle agglomeration around the thermally generated bubbles is tested using a focused probe beam at 405 nm corresponding to the absorption peak of the Ag nanoparticles due to plasmonic resonance. This technique should prove useful in drug delivery systems using nanoparticles agglomerated around microbubbles.

Design of Flow cells for Tapered Fiber Biosensors

School of Engineering: Electro-Optics Graduate Program | Poster - Independent Research

STUDENTS Aaron A Coleman, Andrew Joseph Rigaud | ADVISORS Joseph W Haus

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Optical fibers can be tapered in order to change their light coupling or light propagation properties. A tapered fiber can be produced by gently stretching an optical fiber while it is being heated by a produced heat source (i.e. an open flame). After being tapered, the fibers can be coated with biological receptors that can detect certain molecules. When in an activating environment, the coating leads to a different light propagation pattern.

This project focuses on one part of the large project, the design of the flow cells. In order to test the tapered fibers functionality, the fibers must be suspended in the flow cell, where different fluids can flow past the fiber to test its reaction to different environments. Through three dimensional modeling software, flow cell designs can be generated. Then, 3D printers can be used in order to create the flow cells.

Nano-scale patterns of molybdenum on glass substrate for use in super-resolution imaging with metamaterials.

School of Engineering: Electro-Optics Graduate Program | Poster - Graduate Research

STUDENTS Han Li | ADVISORS Partha P Banerjee, Andrew M Sarangan

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Photolithography is widely used to transfer a geometric pattern from a mask to a photoresist film, but the minimum feature sizes are limited by diffraction through the mask. Focused ion beam and electron beam lithography can be used when higher resolution is desired, but the write times are long and costly. Deep ultraviolet interference lithography, which is a maskless technique, can be used as an alternative to produce high resolution patterns with feature sizes as small as 100 nm. Since double negative metamaterial superlenses can be used for super-resolving and imaging sub-wavelength objects, there is a need for fabricating such objects to characterize the performance of these metamaterials. In this paper, simulations using standard finite element methods are first used to verify super-resolution and near-field imaging at 405 nm for such objects using a metama-

terial superlens previously fabricated from silver and silicon carbide nanoparticles. Thereafter, results of fabrication and characterization of sub-wavelength objects using molybdenum of typical thickness 50 nm initially sputtered on a glass substrate is presented. A deep ultraviolet laser source at 266 nm is used. An anti-reflection layer followed by a high resolution negative tone photoresist is coated on the top of the molybdenum film. The cross-linked photoresist created after the development and bake processes is used as a mask for etching. Fabrication of the sub-wavelength object is completed using reactive ion etching in fluorinated plasma. Both 1D and 2D patterns are fabricated. The quality of the sub-wavelength objects during fabrication is checked using scanning electron microscopy, and the 1D object is characterized using TE and TM polarized illumination.

Nonlinear Effects of Quantum Tunneling in Nanometer Sized Metal-Insulator-Metal Structures

School of Engineering: Electro-Optics Graduate Program | Oral Presentation - Graduate Research

STUDENTS Mallik Mohd Raihan Hussain | ADVISORS Joseph W Haus

LOCATION, TIME Kennedy Union 211, 2:00 PM–2:20 PM

In this project we will theoretically study the quantum origin of nonlinear, electromagnetic scattered waves in preparation for designing future experiments. The scattered wave appears after an incident wave impinges on a nanostructured surface, which is made from metal and dielectric constituents. The sample geometry will be designed so that there is a nanometer-sized gap between two metals that is filled with an insulator (dielectric) material. Our simulations will incorporate electron tunneling characteristics derived from the recently proposed quantum conductivity theory (QCT). QCT efficiently describes quantum tunneling effects in the electromagnetic scattering calculations by

producing a set of nonlinear conductivities that are incorporated into the tiny insulator gaps between two metals. The initial results will be compared to those available in the literature to validate our simulations. For this research, we will extend the application of QCT by studying a nanometer-size wire cylinder as one of the metal structures that will lie over a metal surface that is coated with a thin dielectric film. The electromagnetic scattering properties of the metal-insulator-metal (MIM) nanostructures that we are interested in this research are: (i) second- and third- harmonic generation (ii) the quantum origin of quenching the local field enhancement, and (iii) the directionality of the electromag-

netic scattering. Following the procedures of QCT, the nonlinear quantum conductivity coefficients of the dielectric medium will be calculated for the nanocylinder-surface geometry previously

described. The validated simulation results will be extended to design experiments that will be used to test further predictions of QCT.

Smartphone Based Optical Wavefront Sensors using Distorted Micro-gratings

School of Engineering: Electro-Optics Graduate Program | Oral Presentation - Graduate Research

STUDENTS Zhenyu Yang | ADVISORS Qiwen Zhan

LOCATION, TIME LTC Meeting Space, 2:40 PM–3:00 PM

There is a recent rapidly increasing interest in portable devices that integrate optical sensing techniques with smartphones. The communication abilities of smartphones can be utilized for sharing data to processing servers or cloud experts, making the device more useful in many field-sensing applications. The goal of this work is to demonstrate a compact smartphone based wavefront-sensing with many potential biomedical applications. In many bio-related sensing applications, tissues and other targets are transparent and can be hard to analyze with just intensity images. Wavefront sensing has the ability of capturing

phase information, and significantly improves the contrast without marking the sample, which is extremely useful in applications such as living cell studies and medical diagnosis. To adapt the technique onto the smartphone based sensing platform, distorted micro-gratings are designed and placed in front of the smartphone camera. These micro-gratings were designed to separate ± 1 diffraction order images onto the camera CMOS sensor. Thereafter, raw images taken in one shot can be used as a group of input data for the algorithm of solving the wavefront.

Following robot

School of Engineering: Engineering Technology | Oral Presentation - Independent Research

STUDENTS Donghua Lu | ADVISORS Mohammadjafar Esmaeili

LOCATION, TIME Kennedy Union 211, 1:00 PM–1:20 PM

Following RobotThe Following Robot is a kind of autonomous mobile robot that can spot the location of users and move towards them. It can be used in many scenarios in manufacturing to provide convenience, such as carrying heavy equipment, rescue robot. I decided to use Arduino to develop such a robot.

Based on my research, the robot will be equipped with RFID sensors assisted with the GPS model for localization. I can also use and modify the GPS model on a cellphone to control the robot. So, my project will include implementation of sensors on Arduino board.

Comparison of Small-scale Parallelization Calculations between GPU and CPU

School of Engineering: Engineering TechnologyvOral Presentation - Course Project, 201480 ECT 466 01

STUDENTS Zhiheng Ding | ADVISORS Mohammadjafar Esmaeili

LOCATION, TIME Kennedy Union 211, 1:20 PM–1:40 PM

There is a tendency to utilize the hybrid processor (CPU & GPU) for high performance computing (HPC) in the professional field for the mass computing requirement. However in the general public or small-scale computing field, there are few studies illustrate the potential of hybrid processor. CPU has been used in the main stream and smaller scale computation for a long period of time. In order to support the necessity of the hybrid processor for the computing demands of the future, this research seeks to investigate the application of GPU and CPU in small-scale computation scenarios. Programming languages of C++ and CUDA are used to invoke CPU and GPU in the project. Small-scale of arrays are applied in parallelization calculations separately by only GPU or CPU. Execution time of all the calculation time has been analyzed in order to obtain the performance and poten-

tial of using GPU and CPU. According to the outcomes of this research: 1. In the small-scale parallelization calculation, CPU has a faster execution time than GPU. But with the increment of array size or parallelization, GPU tend to have a speed up, and CPU tend to have a speed down. 2. If the processors are assigned to execute repeating process, CPU tend to have a stable performance, and GPU perform randomly. 3. If the processors are assigned to execute repeating process, CPU tend to have a constant performance, and GPU have a significant speed up after initiation. To sum up, CPU and GPU have their own advantages and disadvantages. Requirements of user experience and technology are increasing, conjunction of CPU and GPU has a promising potential in the application of general public.

An End of Life Study of the Post Consumer Carpet Industry

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Kyle Jeffery Agne, Hesham N Alfahad, Matthew M Orth, Heather M Smith | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The goal of this research is to conduct a market analysis on the disposal of carpet and determine which carpet disposal method is best for the environment. The research will be studying the

various recycling techniques that are currently being used. Along with these goals, research will also study various reverse logistic methods for carpet and which is the best for the environment.

After conducting the market analysis it was determined that the amount of carpet being sent somewhere other than a landfill has been increasing since 2002 and will increase linearly up to the 2024. Meanwhile, there has been a gradual decrease of the amount of millions of pounds being discarded each year. This trend will also continue through the year 2024. Along with a market analysis, a study of the economics of the recycling process of carpet, logistics of recycling, and environmental effects of carpet recycling were conducted. There is an intricate connection economically and logistically between recyclers, wholesalers, col-

lectors, and consumers who all depend on one another to make recycling successful. To better understand the logistics of carpet recycling, all the key players from manufacturing to collection and recycling were accounted for in a flow chart to easily represent all the critical steps along the carpet recycling process. When a piece of carpet reaches the end of its life the consumer has three different options of disposing the carpet. Carpet can be recycled, sent to a landfill, or incinerated. This study will determine which of these three is the best option

Closed Loop Container Glass Recycling in the State of Ohio

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Jonathon P Caito, David D Carlos, Josh Obertino Norwood | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Glass recycling is one of the fastest growing recycled materials in the country; however, there is a lot that comes into play in order to determine the efficiency of glass recycling. The state of Ohio is in a unique situation due to the fact that it is in close proximity to a large amount of glass production facilities, both in state and nearby out of state. This allows glass recycling facilities to achieve a high rate of production, as well as keep a relatively high efficiency rate due to low transportation cost. That being said, there is still much that Ohio can improve upon in order to both increase its efficiency and become closer to having a “closed loop” on glass usage. Currently the glass received for recycling outweighs the current demand for glass in Ohio; due to

quality issues and differences in product demands, a large portion of the the processed recycled glass is shipped out of state, while raw materials are shipped in to glass manufactures. While this is not the only thing responsible for a huge loss in efficiency, it is also responsible for the unnecessary environmental impact of the excessive use of raw materials. This research will examine possible solutions in order to increase the efficiency and quality of the glass recycling process. Such acts as separate glass curbside recycling and color separation have shown to hold a significant impact on the percentage of the glass material retained form the recycling process, as well as the overall quality.

Comparison of the Life Cycle Energy Consumption in the Use Phase of Wireless Devices

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, RCL 572 01

STUDENTS Nicole S. Erlich, Mariana Lopes, Ahmad Maarafi, Daniel C Smith | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Smartphone and wireless device market has more than doubled in the United States since 2010. However, only few research have done regarding how much energy is consumed by the smartphone and the wireless device. This research aims at comparing the energy consumption and environmental emissions generated from the most energy-intensive processes in the life cycle of various smartphones and wireless devices with different consumption scenarios. The major processes looked at were the energy consumption for charging smartphones, data usage over 4G, 3G, and WiFi networks, as well as wireless storage in “the cloud”. Data transmission was found to be the greatest source of energy consumption in smartphones, however, new developed networks have dramatically improved the efficiency of data transmission. In order to compare the energy consumption

of the wireless devices with the traditional methodology, energy consumption of desktop computers are compared. Moreover, energy required for networking and storage of data for traditional desktops and wireless devices are compared. Desktop computers typically utilize traditional networks and storage application whereas wireless devices typically utilize cloud networking and storage applications. It was observed that traditional desktops require more energy than modern wireless devices. The lower operation costs of smartphones more than make up for their higher data transmission energy compared to a WiFi connected desktop. When comparing traditional networking to cloud networking it was observed that the energy, server utilization, and many other benefits of cloud networking outweighed the benefits of traditional networking.

Copper Recycling: The Need of Increasing Copper Recycling in the United States

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Farouq M Al Omari, Thamer A Alasseri, Ibraheem M Alawadhi, Kevin P Hegman, Robert P Noll

ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

Global consumer electronic markets have been growing expo-

entially in recent years. Copper is one of the most important

non-ferrous materials contained in all electronic products and the portion of copper contents keep increasing for the new products on the market. Therefore, ensuring the resource availability along with the environmental impacts and economic aspects of copper becomes more important. The goal of this study is to analyze the environmental impacts and economic feasibility of the current copper recycling practice in the United States. Life cycle environmental impact analysis is performed for the copper production and recycling processes stages to evaluate the overall environmental impacts of both operations. The analysis was narrowed down to study sulfur dioxide emissions as a major influence over environment. Results shows that increasing copper recycling rates will lead to significant benefit in terms of reducing sulfur dioxide emissions which directly related to the

acidification impacts. A cost-benefit analysis was performed to evaluate the difference in systematic costs between producing copper from scratch versus options for processing and recycling. Results showed that copper recycling could be more efficient and increasing copper recycling could bring more cost saving benefits to stakeholders involved in copper recycling business. The final conclusion of this study is that increasing copper recycling and reusing in the US is strongly encouraged due to the great benefits for environment along with it substantial cost savings. Stakeholders associated with the copper recycling are encouraged to make significant advancements in their recycling processes and recycling infrastructure design to gain all of the environmental and cost saving benefits.

Fleecing the Textile Industry: Economic and Environmental Perspectives of Polyester (PET) Recycling

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Moath K Aljohar, Stephen E Osseiran, Timothy J. Skillen, Prashanth Subburam | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 9:00 AM-10:15 AM

Approximately 64 billion pounds of textiles are produced annually in the world with 54.4 billion pounds of that going to landfill. Roughly 24.5 billion pounds of textile waste, or 45% of this amount, is composed of polyester clothing and textile waste. Of all of this polyester waste around 15% or 3.67 billion pounds of polyester is recycled every year. These materials are recycled in one of two ways; mechanical recycling (which shreds fibers and goes to create lower quality goods such as rags) and chemical recycling, where the material is broken down and restructured to create a material with characteristics almost exactly like a virgin material. In this study an economic cost-benefit analysis as well as environmental impact analysis will be performed. The economic cost-benefit analysis will provide details on what is more economically practical to produce; recycled polyester or a virgin product. The environmental analysis will focus on the

impact creating virgin polyester has on the environment from a primarily energy based standpoint. This data will be compared to the same analysis on recycling polyester. The comparison will decide what product is more environmentally ethical and imperative to produce. These two assessments will then be combined to decide the practicality of using only recycled polyester to make products. The results of this study indicate that the economic cost impact of using recycled materials over virgin materials to be only slightly better. The environmental impact of recycling is inherently better than producing virgin products, but still requires large amounts of energy to transport from pickup location to recycling and re-spinning facilities. Future work on this subject should include a more concrete formula for transportation and production costs, something that does not currently exist on a macro scale.

Glass Recovery is Half the Battle

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Abdullah Almandeel, Anas M Alwatban, Shanthan Reddy Kakulavaram, Daniel J. Kelley | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 9:00 AM-10:15 AM

In an energy conscious society, all methods of saving or conserving energy become important. One such way is through recycling. The energy saved by recycling a single glass bottle could be used to light a 100-watt light bulb for four hours, power a computer for half an hour, or a television for 20 minutes. Ohio sends approximately 90% of consumed glass containers to the landfill. There is tremendous room for improvement for glass recycling. This research focuses on how to increase the glass recovery from consumer to recycling facilities by addressing the social, economical, political, and logistical aspects associated with glass recovery. Social factors that influence likelihood to recycle are investigated through a literature review. The

container deposit law that a small number of states employ will be quantified through statistics and compared to Ohio's statistics. The logistics of recycling availability for Ohioans will be assessed and displayed. The economics of incentive programs and the impacts of an increase in glass recovery will be quantified through a cost savings analysis. An integrated plan of these four aspects will be provided. The results will show what the estimated potential percentage participation increase could be by implementing this proposed plan. The paper will conclude with the impacts of various levels of participation and how much energy savings will increase.

MY GREEN PC: The Government Program to Kick-Off Green Technology

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Hussain Aziz, Matt D Hurtubise, Amanda Leah Post | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

The use of personal computers throughout industry and society has dramatically increased in the last 20 years. In 2010 alone, the number of PCs sold in the U.S. reached nearly 40 million devices. However, according to a study conducted by Columbia University, only 40% of laptops and PC's in the U.S. were recycled in 2010. The environmental concerns for disposing PC's are rising due to the amount of toxic wastes and slow-degrading plastics that are being put in landfills. There are many disposal methods currently used for e-waste but the U.S. has not implemented a plan to improve PC recycling or encourage computer users to resell their old computers. Economically and environmentally, the recycling of a PC is more efficient than disposing of it due to the many recyclable materials within the components of a computer. The objective of this study is prove that a feder-

ally funded strategy can be implemented in the U.S. which will encourage consumers to turn in their used PCs for a rebated price to increase the number of recycled computers throughout the country. The method for analyzing the data on PC recycling is calculated by summing the cost of recyclable materials that can be sold from the computer parts. In addition, wholesale companies will receive benefits for collaborating with the US government to improve the recycling program which is big step toward the program's success. The calculations made in the study prove that a federally funded program is possible with the consumers receiving an 8% rebate on returned computers which will allow the government to hopefully reach a recycling rate of nearly 80% of recycled computers in the United States.

Optimization of Photovoltaics Recycling Network: Case Study of California

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Qi Guo | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

In the United States, there is no systematic movement to set up a photovoltaics (PV) recycling infrastructure as of now. Like any other end-of-life planning, it is vital to develop and institute economically feasible and environmentally viable recycling infrastructure for the emerging PV industry in parallel with the rapid commercialization of these new technologies. PV recycling planning includes various challenging issues in temporal, spatial, and technical dimension. Various stakeholders will be involved in the recycling network and the issue of management covers diverse aspects such as the collection, distribution, inventory, and reclaiming of materials. Within such a complex recycling network, a systematic approach has to be adopted to adequately capture the dynamic interactions between stakeholders. The main objective of this study is to develop a rigorous mathematical framework, with which to analyze the economic feasibility of PV recycling systems in the United States. California is selected as the geographical location of this study because of the prevalence

of PV installation as well as the strict environmental regulation in the region. There are four main steps of research performed: 1) Information about the location of all the PV installation sites in the state of California along with the location of stakeholders involved in the proposed recycling framework are gathered, 2) Geographic Information Systems (GIS) tool boxes are utilize to locate the feasible location of PV recycling centers for various scenarios, 3) total system costs and environmental emissions generated from diverse PV recycling scenarios are compared, 4) economic and environmental trade-off analysis are performed to assist optimized decision making processes. The outcome of this research will facilitate systems analyses for planning of state and national recycling programs for various kinds of PV modules. The general framework developed by the proposed research will allow an efficient decision making on the conservation of natural resources and the mitigation of environmental emission.

Pathway Toward the End-of-life Options for Medical Devices and Equipment

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Tyler J Bagdasarian, Aleksandar Grocic, Julia C Hauser, Jose C Panameno | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 9:00 AM-10:15 AM

At the end of life, medical equipment can follow three major paths. The first being destruction, medical equipment which cannot be sterilized and is contaminated, then are incinerated; an example of this would be surgical waste that is soaked in bodily fluids and cannot possible be re-used. Some equipment contains toxic elements such as mercury and are dealt with according to the proper regulations and standards. The second path is recycling option. For example, in the case of MRI machines and many medical devices, more than 90% by weight can be recycled for material content. The final major path medical devices take is refurbishment. Medical devices on this path are generally collected by the manufacturers, fixed, updated, supplied with a new warranty and resold to the secondary market at a large percent of the original sticker price. This research examines the current

practices of incineration, landfill, reuse, and refurbishment for medical devices and how the the industry can best reduce the environmental impact of these practices, reduce costs for hospitals and consumers, and improve the humanitarian efforts which are already underway. In addition, this research will discuss the philanthropy efforts surrounding reusable medical equipment and government involvement and incentives to recycling, reuse, and donate medical devices. A trend of refurbishment rather than buying new could be emerging from hospitals due to the Affordable Care Act which often case exempts refurbishers from a new medical device tax that was implemented under the law.

Retrofitting Retiring Coal Fired Power Plants to Burn Rubber Tire Scraps

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, RCL 572 01

STUDENTS Abijith Guruprasad, Naga Bhavya Kancheti, Abhinandan Ravikumar | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:15 AM

New legislation passed by United States Environmental Protection Agency in 2011 requires fossil-fuel fired electric generation units to limit the amount of toxic emissions releases by combustion. Two most important measures, known as Cross-State Air Pollution Rule and the Mercury and Air Toxic Standards, will effect roughly 1,100 coal-fired electric generation units. These facilities are forced to decide between investing in scrubbing technology to reduce their emission rates and retiring. The number of facilities retiring is unknown but many predictions expect severe electric generation capacity reductions in regions that rely heavily on coal-fired generation. The amount of planned electric capacity additions at this juncture do appear to be enough to replace the minimum projections of coal-fired capacity lost while also sustaining the steadily yearly growth of electric capacity that

has occurred every year to meet increasing electricity consumption in the United States. In this study, the emergence of cleaner burning tire-derived fuels was examined as an alternative fuel source to help combat this loss in electric capacity. Tires produce almost the same energy as petroleum and approximately produces 25% more energy than coal. The pollutants emitted from the combustion of coal versus the combustion of scrap tires, and their environmental impacts are assessed. An actual power plant retiring in 2015 in central Ohio near both tire collection and tire shredding facilities was considered as a case study to test the feasibility of tire-derived electricity generation to replace the coal-fired capacity. In addition, the electricity generated from different grades of coal compared to rubber tires are examined.

A Mechanical Regenerative Brake and Launch Assist using an Open Differential and Elastic Energy Storage

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Vijay Krishna | ADVISORS Andrew P Murray, David H Myszka

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Regenerative brake and launch assist (RBLA) systems are used to capture kinetic energy while a vehicle decelerates and subsequently use that stored energy to assist propulsion. Commercially available hybrid vehicles use generators, batteries, and motors to electrically implement RBLA systems. Substantial increases in vehicle efficiency have been widely cited. This project presents the development of a mechanical RBLA that stores energy in an elastic medium. An open differential is coupled with a variable transmission to store and release energy to an axle

that principally rotates in a single direction. The concept applies regenerative braking technology to conventional automobiles equipped with only an internal combustion engine where the electrical systems of hybrid vehicles are not available. Governing performance equations are formulated and design parameters are selected based on an optimization of the vehicle operation over a simulated urban driving cycle. The functionality of this elastically-based regenerative brake device has been demonstrated on a physical prototype.

Assessing Shape Repeatability in Variable Geometry, Polymer Extrusion Dies

School of Engineering: Mechanical and Aerospace Engineering | Poster - Independent Research

STUDENTS Alex M Watt | ADVISORS Andrew P Murray, David H Myszka

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Polymer extrusion is a manufacturing process of forcing a melted plastic through a die to create a continuous part with a constant cross-section dictated by the die's geometry. The typical process uses a fixed die that creates high output at low cost when compared to injection molding. The overarching goal of this project is to develop dies capable of changing cross sectional area during the extrusion process. Preliminary dies have been designed, created and operated in a production process. In order to test the shape repeatability of these dies, a laser scanner was used to

capture cross sections at numerous locations along the resulting parts. A numerical process was then developed to accept the data from the scanner and create a representation of the profile. These profiles were then compared to the profiles at other locations. The repeatability of the sections from these variable geometry parts has been found to be similar to fixed-geometry parts. Further, the extruded parts have also been compared to the die exit geometry to examine expansion that occurs during the process.

Enhancing Industrial Sustainability by Improving Resource Efficiency

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Dillip Thangamani | ADVISORS Jun-Ki Choi, J Kelly Kissock

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

With ever increasing energy and raw material costs, coupled with environmental regulations and increasing customer aware-

ness of corporate sustainability efforts, industries are seeking to increase energy and resource efficiency. Over the past

decade, the University of Dayton's Industrial Assessment Center (UD-IAC) has developed a systematic methodology and analysis tool to help industry become more energy efficient. The publicly-available Efficiency Guidebook (EEG) is a comprehensive tool that integrates examples and computational resources for improving energy efficiency. This study describes a parallel effort to improve industrial resource efficiency by developing a methodology for improving resource efficiency and incorporating it into a free publicly-available software tool called the Resource Efficiency Guidebook (REG). The methodology focuses on six

types of resources: water, raw material, chemical agents, process scrap, packaging waste, and equipment and applies seven principles of resource efficiency to these resources. The result is a prioritized Integrated Resource plus Principles Matrix that guides manufactures through the resource efficiency process. REG combines the Integrated Resource plus Principles Matrix with real-world saving examples and spreadsheet calculators. Case studies with scenario analyses demonstrate the effectiveness of the REG at cost-effectively improving resource efficiency and reducing waste.

Error in Off-Axis Loading of Off-the-Shelf 6 Component Force Transducers:A Cautionary Tale

School of Engineering: Mechanical and Aerospace Engineering | Poster - Independent Research

STUDENTS Sidaard Gunasekaran | ADVISORS Aaron Altman

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Significant, repeatable errors can result when loading off-the-shelf 6-component force transducers at relatively short distances off-axis. The availability of low-cost high-precision 6-component force transducers has resulted in their wide adoption in aerodynamic testing of small unmanned aircraft and their propulsion systems. Companies such as ATI Industrial Automation (www.ati-ia.com) offer a comprehensive range of force transducers. These transducers are robust, have excellent overload protection, provide good frequency response, weak temperature sensitivity (and integral compensation), are available with an array of different interface options (Ethernet, Differential Voltage), have NIST traceable calibrations, and many are available in waterproof

form. For the most part, these sensors have evolved from sensing elements in robotic end-effectors and as such are extremely accurate when the applied loads are in close proximity to the sensor face and axially aligned with the transducer center. This paper will describe an instance where such axial alignment is not possible. The endeavor of loading the sensor off of the balance center resulted in error in force and significant error in torque. As a result, a number of permutations of off-axis loading were investigated to better elucidate the cause of the error. The magnitude of the measurement error provides substantial incentive to produce an independent sensor interaction matrix when test circumstances dictate similar off balance center loading.

Joint Design and Analysis of Leakage in Movable Extrusion Dies.

School of Engineering: Mechanical and Aerospace Engineering | Poster - Independent Research

STUDENTS Suresh Kumar Kanathala | ADVISORS Andrew P Murray, David H Myszka

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

This project presents an analysis of various joint types used in variable geometry dies that enable the extrusion of plastic parts with a varying cross section. Extrusion accounts for 40% of all manufactured plastic parts because it is a relatively low-cost and high-production-rate process. Conventional polymer extrusion technology, however, is limited to fixed dies that produce continuous plastic products of constant cross section defined by the die exit profile. A shape changing die allows the cross section of the extruded part to change over its length, thereby introducing the capacity to manufacture plastic faster and with lower

tooling costs than injection molding. To allow movement within the die components, various joint designs have been developed. Clearance between the mating parts are required to properly function. These clearances create leakage paths for the plastic melt to escape the die and potentially degrade the quality of the plastic part. Computational fluid dynamics models have been constructed and used to assess the effect of the clearance size on the leakage through the joints. The goal of this analysis is to optimize the geometry of the joints.

Morphometric Skull Analysis Using Jointed Chains of Rigid Bodies

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Bingjue Li | ADVISORS Andrew P Murray, David H Myszka

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Morphometrics seeks to quantify shapes for the purposes of comparison. This work investigates two morphometric problems by applying the theory of shape-changing rigid-body mechanisms. The first problem is the analysis of a head growth in children. The second problem is the spatiotemporal evolution of the longitudinal human skull shape. These problems are specified with a set of curves that represent the cranium shapes as they

change over time, in the child's head as it grows and in the skull as it evolves. Using the rigid-body shape-changing mechanism design methodology, a chain of rigid links connected by revolute and prismatic joints is generated to approximate the set of curves. The advantage of approaching morphometrics in this way is that a modest number of physical parameters describes the changes between the curves.

Multi-segment foot biomechanics with varying foot orthotic postings

School of Engineering: Mechanical and Aerospace Engineering | Poster - Honors Thesis

STUDENTS Hilary F Feskanin | ADVISORS Joaquin A Barrios, Kimberly E Bigelow

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Foot orthotic devices are often used to treat overuse injuries, over- or under- pronation of the foot, knee pain, and other foot disorders. Clinical documentation shows the effectiveness of foot orthoses but there is little understanding of the mechanisms behind these outcomes. Existing studies of foot orthoses focus on rearfoot biomechanics, yet these devices are aimed at changing whole-foot mechanics. Additional research on the mechanical effects of orthoses is often suggested. The main goal of this study was to evaluate the effects of different foot orthotic

devices on foot mechanics. In order to assess the effects foot orthoses have on the midfoot, we placed reflective markers on the participant's lower limbs and right foot and recorded the leg mechanics as the participant walked across a 75 ft walkway. We expected directional movement patterns based on the location and type of orthotic posting or lift. It is possible that a better understanding of the effects of orthotic devices can lead to more effective treatments for patients with foot disorders.

Multistage Flash Desalination with an Integrated Solar System

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Mishal Barki Alsehliv | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Desalination is considered to be a promising solution to overcome the problems of water shortage especially for countries that have dry weather conditions with less rainfall around the year. Thermal processes have the highest capacity among all other desalination processes but it consumes significant amount of fossil fuel which severely affects the environment in diverse aspects. On that end, the importance of using renewable energy source such as solar desalination has increased in the present time. In solar desalination, the energy can be transferred in the form of either thermal energy as used in thermal storage technologies or electrical energy used in photovoltaics (PV) technologies. This research presents a novel design scheme of the solar multistage flash-thermal storage tank (MSF-TST) system. In the designed Solar MSF-TST, the brine heater is eliminated and stages are connected to thermal storage tanks. Storage tanks

system is capable of running a desalination plant for all day at full load. The system is consisted of two tanks where the sea water is heated and stored. On one day, one tank is filled up with sea water and heated by solar collectors (i.e. charging/storage mode) while the other tank provides the desalination stages with hot brine water stored from the previous day (i.e. discharging/feeding mode). On the following days, alternative processes continues. In this research, a mathematical model is developed to predict the Top Brine Temperature (TBT) of MSF-TST under variation of operating parameters in different transient conditions. The MSF-TST system with 20 stages is modeled to produce 250 ton per hour of purified water with expected TBT 90-110°C. The expected saving of fuel consumption is estimated to be eighty percent when compared with the conventional Multistage Flash Desalination.

Quantifying the Impact of Adding Renewable Energy on the Grid from Economic Point of View

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Seyed Ataollah Raziei | ADVISORS Robert J Brecha, Malcolm W Daniels, Kevin P Hallinan

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Growth in renewable energy, particularly of wind power and solar photovoltaics (PV) has been rapid over the past decade, averaging 25-30% a year. There are several reasons for this growth, including recognition that mitigation of anthropogenic climate change, mainly due to emissions of carbon dioxide from fossil-fuel combustion will require a dramatic transformation in our energy system over the course of the next few decades. Renewable energy generation has several benefits not only for our generation, but for our children as well. However, the problems of adding more renewable energy, specifically from the point of view of the stability and reliability of the grids have gradually come to light. Nowadays rather than uncertainty behind the demand behavior, electricity entities have to deal with

uncertainty behind the renewable energy generation. Because of this, stabilizing the electrical grids has become more complicated. Substantial research is going on in order to remedy the problems of stabilizing the grids having a notable percentage of renewable energy on the grid. One of the best offered solution is adding storage systems on the grids. However the main problem is a lack of consideration of the problem from the economic point of view. The primary aim of the proposed research is to pair the offered solutions of stabilizing the grid to the economic assessment of the grid. The main focus will be on the macro scale of the grid when distributed storage and renewable energy generation exist. Both short term and long term feedback of deploying each scenario will be considered.

Rapidly Locating and Accurately Tracking the Center of Mass Using Statically

Equivalent Serial Chains

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Ali Almandeel | ADVISORS Andrew P Murray, David H Myszk

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Identifying the center of mass location (CoM) provides a significant aid in controlling the balance of humanoid robots. For human beings, the stability of motion is highly influenced by their ability to control their CoM and center of pressure (CoP). Additionally, computing the CoM can prove critical to assessing rehabilitation and in elite sports training. Human body segment parameters can be obtained from anthropometric tables. Their accuracy for a given individual is questioned due to differences in age, race, and fitness level from the sample population. This research presents an estimation technique that uses the statically equivalent serial chain (SESC). A SESC is a represen-

tation of any multilink branched chain, like a human or humanoid, whose end-effector locates the CoM. The SESC's construction during an experimental phase depends on the node positions from a motion capture system (like the Microsoft Kinect), and the total mass and CoP from a force plate (like the Wii Balance Board). Additionally, the presence of a static body in the workspace (a walker or chair, for example) to create stability in test subjects is presented. The utility of the presented method as compared to other common methods for CoM estimation is that the force plate is not needed to track the CoM after the SESC is constructed.

Reducing Structural Error in Function Generating Mechanisms via the Addition of Large Numbers of Double-Crank Linkages

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Hessein Ashour | ADVISORS Andrew P Murray, David H Myszk

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

This research presents a methodology for synthesizing planar linkages to approximate any prescribed periodic function. The mechanisms selected for this task are the slider-crank and the geared five-bar with connecting rod and sliding output (GFBS), where any number of drag-link (or double crank) four-bars are used as drivers. A slider-crank mechanism, when comparing the input crank rotation to the output slider displacement, produces a sinusoid-like function. Instead of directly driving the input crank, a drag-link four-bar may be added that drives the crank from its output via a rigid connection between the two. Driving the input of the added four-bar results in a function that is less sinusoid-like. This process can be continued through the addition

of more drag-link mechanisms to the device, slowly altering the curve toward any periodic function with a single maximum. For periodic functions with multiple maxima, a GFBS is used as the terminal linkage added to the chain of drag-link mechanisms. The synthesis process starts by analyzing one period of the function to design either the terminal slider-crank or terminal GFBS. A randomized local search is then conducted as the four-bars are added to minimize the structural error between the desired function and the input-output function of the mechanism. Mechanisms have been "grown" in this fashion to dozens of links that are capable of closely producing functions with a variety of intriguing features.

Rural Area Microgrid Implementation Repository (RAMIR): A tool for Integrating Economic, Environmental, and Societal Aspects of Microgrid Systems Implementation.

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Jada Williams | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Installing an efficient power generation infrastructure requires sensible selection strategies to consider significant variations of planning requirements for specific geographical regions. There has been a growing effort of research to provide a technically sound and economically feasible source of electricity to underdeveloped regions through microgrid systems. However, there has been little effort to provide information through easily accessible web spaces or repositories to locate relevant research for rural area microgrid development. The main intention of this research project is to generate an open source web based tool named the Rural Area Microgrid Implementation Repository (RAMIR) to support microgrid implementation for rural cities and towns. RAMIR is intended to compile, track, and present relevant and useable information about the intended site for policymakers and student researchers in academia while aiming to facilitate

decision making process on planning the implementation of the rural microgrid system. In order to show the efficacy of the tool, a case study of Sourou, Burkina Faso is presented. Energy demand of the city was calculated by interpolating values from a renewable energy installation project. HOMER software was used to select the size of the system and other inputs such as energy generation, conversion, and storage technologies. In order to evaluate impacts outside of the technical aspect of the optimized microgrid system, a decision making software (DMS) is used to compare the environmental and societal impacts of the candidate systems. This effort bridges the gaps where HOMER lacks in functionality and allow decision makers to consider the broader impacts of microgrid implementation projects within a community.

School-Books on Tape: The Tensile and Adhesive Strength of Duct Tape in a College Backpack

School of Engineering: Mechanical and Aerospace Engineering | Poster - Honors Thesis

STUDENTS Robin E Ker | ADVISORS Margaret F Pinnell

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Two general categories were used to assess the strength of duct tape constructions: adhesive strength and tensile strength. Previously made duct tape backpacks frequently suffered from adhesive failure around the narrowest portion of the shoulder straps, and where small cosmetic patches were applied. When a backpack is lifted, it experiences a force which is greater than the resting weight. The hypothesis states that there is an area of application between two pieces of duct tape such that they will behave as a uniform piece and experience tensile failure, that two sufficiently overlapped pieces can hold within 5% of the load carried by a single piece, and that there is a relationship between the resting weight of a loaded backpack and the load applied to the straps when lifted. Five types of tape underwent tensile and lap shear testing in an Instron 4486 load frame. The tension test specimens were of uniform length, the lap-shear specimens had

lengths which varied with the areas of overlap. There were two types of lap shear specimens: with adhesive layers in contact (LSA), and with the adhesive layer of one half adhered to the backing layer of the other (LSN). Maximum load and extension data was collected. Three backpacks were tested to determine the apparent load carried by the shoulder straps and handles when various static loads were applied. The backpacks were lifted with a Desik analog push-pull gauge which recorded maximum load. The maximum loads for the lap shear specimens were within 5% of the tension test results for four types in LSA and three types in LSN. The results for static vs. apparent loading means that a 25 lb. backpack needs to withstand 40 lbs. when lifted. The type of duct tape which is recommended for future backpack construction is 3M 3900.

Singularity Traces of Planar Linkages That Include Prismatic and Revolute Joints

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Saleh M Almestiri | ADVISORS Andrew P Murray, David H Myszka

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The purpose of this research is to understand the motion characteristics of a linkage as a design parameter is altered. Understanding the motion characteristics of a mechanism is an important step in designing machinery. Kinematic analysis theory utilizing isotropic coordinates is implemented to construct mathematical models of planar linkages composed of rigid bodies, revolute joints, and prismatic joints. A graphical representation has been developed to represent the gross motion characteristics of

a linkage called a singularity trace. The singularity trace provides a visual snapshot of the effects of altering a design parameter of the linkage by including the number of assembly circuits and the location of locked configurations. Bertini, software for solving large algebraic systems of equations, is used to determine the critical points of the singularity trace. MATLAB is then used to integrate from the Bertini solutions to plot the complete singularity trace.

Study on Graphene's photovoltaic potential and its comparison with other conventional materials

School of Engineering: Mechanical and Aerospace Engineering | Poster - Independent Research

STUDENTS Ashish Gogia | ADVISORS Kevin P Hallinan

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Graphene has unique optical properties that make it different from other materials that are used to turn light to electricity. Graphene when absorbs a photon, generates multiple electrons while materials like silicon and gallium arsenide, generate a single electron for each photon absorbed. This means that when these conventional materials are being replaced by Graphene, the efficiency of solar cells will be increased and it also reduces

the light dissipation as heat. Graphene is one of the most diverse materials available and has a variety of other remarkable electrical and mechanical properties. It has applications in fields of biological engineering, optical electronics, ultra filtration, photovoltaic, sensors and devices, nanotechnology etc. Through this paper, we will study all such properties that make it different from all the materials available.

Synthesizing Coupler-Drivers as a Novel Method for Actuating Mechanical Systems

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Hameed Juma | ADVISORS Andrew P Murray, David H Myszka

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Abstract: The objective of the proposed work is to change the mechanical design of an automated manufacturing or assembly process by introducing coupler drivers. Currently, the design of a mechanism to be included in a manufacturing or assembly process requires one of the joints in the mechanism to be used for actuation. That is, the desired motion of the device and how it will be moved are coupled and this complicates its design. The proposed work looks at decoupling the kinematic synthesis of a mechanical system from the actuation synthesis of the system. This is accomplished via a mechanical chain called a coupler driver. This work develops the kinematic synthesis theory needed to design a coupler driver for any single degree of freedom mechanical system. The research will develop the mathematical representation of coupler drivers. A MATLAB code for solving

the mathematical model will be developed to validate and verify proposed solutions. During the kinematic synthesis of a single degree of freedom mechanism for a given task, a challenge is finding a solution mechanism that is not hindered by branch singularities relative to any of its driving joints. Trying to achieve the motion characteristics while avoiding the branch singularities severely limits the design space. This work approaches the problem of avoiding branch singularities by actuating a mechanism via an additional chain (set of links) attached to it. The challenge is identifying end point locations that is mechanically feasible and, drive the mechanism monotonically through its task thereby avoiding the branch singularities. The goal of this proposal is to develop the mathematical framework for identifying all possible end points for a coupler-driver for a user-defined mechanism.

Trends in Early Vortex Formation on a Wall-to-wall Plate in Pure Plunge

School of Engineering: Mechanical and Aerospace Engineering | Poster - Independent Research

STUDENTS Sidaard Gunasekaran | ADVISORS Aaron Altman, Kenneth Granlund

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Discernible trends in early vortex formation have been in inter vortex-plate distance, circulation, and vortex maximum azimuthal velocity when plunging a wall-to-wall flat plate at fixed angles of attack ranging from 15° to 90° with two different accelerative profiles. Vortex formation and shedding continues to play an important role in unsteady aerodynamics with applications ranging from flapping wings to maneuvering flight to helicopter rotors. Above a relatively low angle of attack when a flat plate is plunged in a fluid a leading edge vortex (LEV) is formed close to the leading edge and a trailing edge vortex (TEV) is formed close to the trailing edge. The formation, growth and convection of the LEV and TEV strongly influence the pressure field surrounding the flat plate and ultimately the forces experienced by the plate. Experiments were performed at the United States Air Force Research

Labs Horizontal Free Surface Water Tunnel (AFRL/HFWT) with linear and sinusoidal acceleration profiles. The formation of the LEV was investigated for both acceleration profiles using Particle Image Velocimetry (PIV). Trends were identified in both the LEV distance to the plate as a function of convective distance and with angle of attack. Similarly, trends were identified in maximum vortex azimuthal velocity. The LEV normalized azimuthal velocity profiles were compared with several vortex models in the literature. The existing models were unable to reproduce the asymmetric azimuthal velocity distributions resulting from vortex proximity to the plate. A new model based on experimental results is proposed for the LEV core azimuthal velocity distribution inclusive of plate proximity effects.

Variable Extrusion Dies that Exhibit Significant Change in Exit Area

School of Engineering: Mechanical and Aerospace Engineering | Poster - Independent Research

STUDENTS Heather M Smith | ADVISORS Andrew P Murray, David H Myszka

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Conventional polymer extrusion is a common manufacturing process in which plastic resin is melted and pulled through a fixed-geometry die plate to produce a shape. This process creates long parts with a uniform cross-sectional area, including pipes, molding, and window frames. Shape-changing dies would expand the capabilities of extrusion by allowing the cross-sectional area to change over the length of the extruded part. This would allow for parts manufactured more quickly and at a lower tooling cost, as compared to other processes such as injection molding. A constant extruder screw speed is desired throughout

the process due to the pellets being melted by friction within the screw. As the area of the orifice changes throughout the extrusion, problems arise which may be pacified by varying the line speed, or tracking differences between the final shape and the exit area of the part. The goal of this project is to design a series of variable extrusion dies that exhibit significant changes in area. Three types of die were created, each evaluating a different strategy, including bypass ports and shape modifying features beyond the die exit. The dies have recently been produced, installed, and tested to evaluate the various features of each design.

Wright B Flyer Silver Bird Replica Senior Design Project

School of Engineering: Mechanical and Aerospace Engineering | Poster - Capstone Project

STUDENTS Domenic M Miccinilli, Matthew R Pulfer, Denton G Sagerman, Alex M Watt, Seth D Wiegung | ADVISORS Aaron Altman

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

The Wright Model B Flyer was one of the first piloted aircraft produced by the Wright brothers in 1910. Wright B Flyer Incorporated specializes in fully functional Wright Model B replicas. The

Silver Bird was an aircraft designed and manufactured by the company back in 2007. Unfortunately, the plane and its two pilots were lost due to a welding failure that caused the propeller mal-

function. The company has since commissioned another model to be designed and built. The overarching goal of this research is to verify the existing design and perform sensitivity studies to see if the performance can be improved given certain model constraints. Thus far, engineering drawings, as well as 3D models were used to extract crucial dimensions and aerodynamic locations. Other considerations including, but not limited to, airfoil design, constraint analysis, weight buildup, and CG envelope have also been investigated. Test pilots have flown the model to compare the flight characteristics of the simulated aircraft to the

previous Silver Bird. The pilots' feedback, input from other Wright B Flyer Inc. personnel, and flight test data comparisons have been used to evaluate the accuracy of the model. Further investigations will involve looking into various geometric changes to the model and analyzing the effect of these deltas on various flight parameters. These cause and effect results will impact the future design of the Silver Bird, as Wright B Model Inc. looks to build a more effective and transportable model that encompasses the original Wright B Silver Bird model.

Enhancing Industrial Sustainability by Improving Resource Efficiency

School of Engineering: Mechanical and Aerospace Engineering | Oral Presentation - Graduate Research

STUDENTS Dillip Thangamani | ADVISORS Jun-Ki Choi

LOCATION, TIME Kennedy Union 311, 2:00 PM–2:20 PM

With ever increasing energy and raw material costs, coupled with environmental regulations and increasing customer awareness of corporate sustainability efforts, industries are seeking to increase energy and resource efficiency. Over the past decade, the University of Dayton's Industrial Assessment Center (UD-IAC) has developed a systematic methodology and analysis tool to help industry become more energy efficient. The publicly-available Efficiency Guidebook (EEG) is a comprehensive tool that integrates examples and computational resources for improving energy efficiency. This paper describes a parallel effort to improve industrial resource efficiency by developing a methodology for improving resource efficiency and incor-

porating it into a free publically-available software tool called the Resource Efficiency Guidebook (REG). The methodology focuses on six types of resources: water, raw material, chemical agents, process scrap, packaging waste, and equipment and applies seven principles of resource efficiency to these resources. The result is a prioritized Integrated Resource plus Principles Matrix that guides manufactures through the resource efficiency process. REG combines the Integrated Resource plus Principles Matrix with real-world saving examples and spreadsheet calculators. Case studies with scenario analyses demonstrate the effectiveness of the REG at cost-effectively improving resource efficiency and reducing waste.

Developing New Test Methods for Ceramic Matrix Composites using Digital Image Techniques

School of Engineering: Mechanical and Aerospace Engineering | Oral Presentation - Independent Research

STUDENTS Brittanie M Rooths | ADVISORS Margaret F Pinnell

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

Ceramic matrix composites (CMCs) are a promising material for high temperature applications (1000-1500°C) and are potential candidates for structural aerospace applications. A major concern when designing a CMC component is delamination due to their low interlaminar tensile strength. This work focuses on developing a new method which uses the coupon geometry to generate an interlaminar tensile load. Micro digital image correlation (DIC) was used to measure localized strains to identify

discontinuities in the gage section of the test coupon. While this new ILT test looks promising, there are several challenges that need to be addressed. Computed Tomography (CT) scans were used to acquire detailed images of the internal structures of the CMC. Additionally, the CT images were used to determine the feasibility of conducting digital volume correlation (DVC) on Ox/Ox CMCs.

Additive Manufacturing Research of 3-D Printed Parts (Minority Leaders Program)

School of Engineering: Minority Engineering Program | Poster - Independent Research

STUDENTS Zakariye Issa Ali, Christopher Alexander Barrett, Lewis E Forman, Aaron F Lassalle, Lauren M Rivera

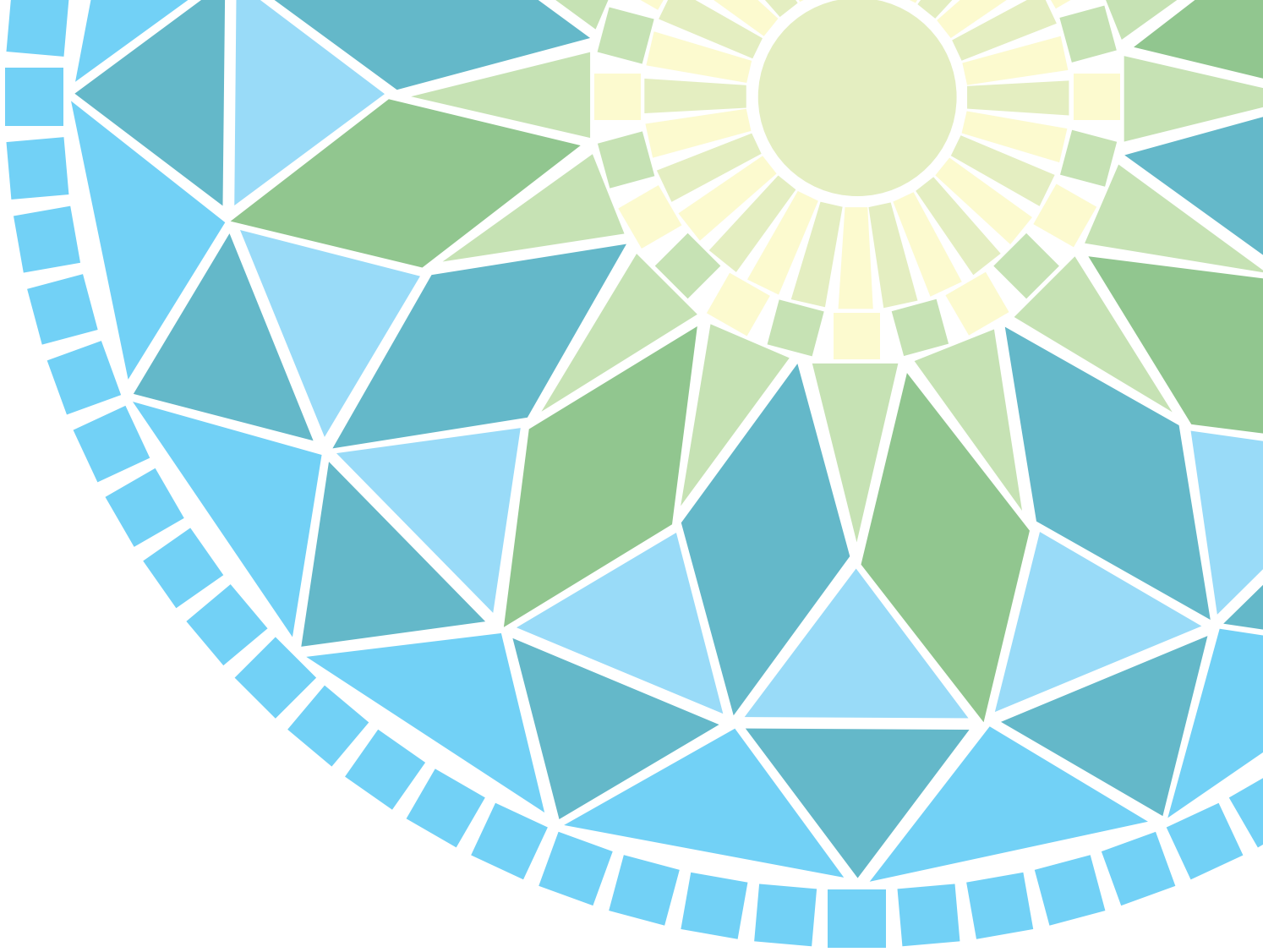
ADVISORS Maceo E Cofield

LOCATION, TIME RecPlex Main Gym, 10:45 AM–12:00 PM

After injury humans produce scar tissue as part of the wound healing process. This process does not generate new tissue, but prevent the remaining tissue from further damage. Without the ability to create new tissue, humans are limited in their capacity to regain lost function after severe injury. However, axolotls have the ability to regenerate a variety of organs within the first two weeks of hatching, allowing for complete recovery of tissue func-

tion. Specifically lens regeneration is studied due to the dynamic changes that occur in the surrounding iris tissue following lens removal. Dorsal and ventral iris cells proliferate and eventually regenerate the missing lens. Since axolotls are not able to regenerate the lens succeeding two weeks from hatching, this is the control group representing non-regenerating tissue. These axolotls contain the same genes which allows for specific manip-

ulation of iris tissues and examination of the different outcomes in hope of revealing the cause of regeneration. The goal of the current project is to study tissue regeneration at the molecular level, by influencing target genes through drug treatments within a specific biological pathway, in order to gain further insight about the mechanism of regeneration. When the mechanism of tissue regeneration is entirely understood, this research could be used to provide treatment in humans with severe tissue damage.



OTHER UNITS

WISDOM: Who Are You?an IAN II installation

Academic Affairs and Learning Initiatives: ArtStreet | Visual Arts Exhibition - Course Project, UDI 372 M1

STUDENTS Brian LaDuca | ADVISORS Brian LaDuca

LOCATION, TIME ArtStreet White Box Gallery, 3 PM–4 PM

A premiere installation designed and created in collaboration with the University of Dayton's ArtStreet student residents and detained youth from the Clark County Detention Center that explores the human journey from birth to death through an imaginative and curious questioning of the infinite roads we may take,

the virtues we do embrace and the choices we may make in our 21st century world. Presented in partnership with Project Jericho, Clark State Community College and Clark County Department of Job and Family Services.

Citizens of the World

Academic Affairs and Learning Initiatives: Center for International Programs | Poster - Independent Research

ADVISORS Nichole Lucas, Nicholas Taggart

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:45 AM

pending

Women Who Have Made a Difference

Academic Affairs and Learning Initiatives: Center for International Programs | Poster - Independent Research

STUDENTS Hamed A Al Balushi, Mohammed S Alalwani, Lamyia S Algohrihi, Maram A Alsafran, Mashael F Alsolaimani, Bilakiani Awili, Kwang Kyu Choi, Bashayer H Taher | ADVISORS Karin Avila-John, Cheryl Hils, Janice Showers

LOCATION, TIME RecPlex Main Gym, 9:00 AM–10:45 AM

The presenters are students of the Intensive English Program. The posters they created were an assignment for their Oral Communication and Listening & Note-taking Level 3 class, a class for students at the intermediate level of English language

proficiency. The goal of this assignment is to give students a chance to improve their presentation skills and to serve as an introduction to research.

The Virgin Mary: “the Rose of Sharon, the Lily of the Valleys” (Sg 2:1)

Roesch Library: Marian Library | Oral Presentation - Independent Research

STUDENTS Maria Enriqueta Garcia | ADVISORS Gloria Dodd

LOCATION, TIME LTC Meeting Space, 3 PM–3:20 PM

The Blessed Virgin Mary is often associated with the bride of the Song of Songs. In this holy poem, the bride describes herself as both “the Rose of Sharon and the Lily of the Valleys” (Sg 2:1). This presentation will provide some description of these flowers and how some authors and commentators have identified Mary

with the bride of the Song of Songs in relation to them. These two Middle Eastern flowers symbolize the beauty and the purity of the Our Lady. The cultural significance of these two flowers leads to a deeper understanding of Mary and the role of every member of the Church.

An Operatic Depiction of Mary’s Spiritual Maternity: Boito’s Prologue

Roesch Library: Marian Library | Oral Presentation - Independent Research

STUDENTS Richard E Lenar | ADVISORS Gloria Dodd

LOCATION, TIME LTC Meeting Space, 3:20 PM–3:40 PM

The “Prologue in Heaven,” the opening section of the opera *Mefistofele* by Arrigo Boito, includes dramatic elements which are related to Marian doctrine and devotion, especially Mary’s spiritual maternity. Examples include Mary’s role in opposing and overcoming the devil; Mary as advocate and intercessor; the heavenly liturgy, which praises both God and Mary; Mary’s close relationship to the Trinity; and Mary, Queen of Angels. The

talk will examine these elements through the use of recorded excerpts, musical analysis and theological commentary. The discussion will focus on how aspects of Mary’s spiritual maternity influence the reciprocal relationship between the opera’s musical content and the devotional/theological perspectives of the opera’s libretto.

Mary, a Teacher and Evangelizer of the Sciences?

Roesch Library: Marian Library | Oral Presentation - Independent Research

STUDENTS James Koelsch | ADVISORS Gloria Dodd

LOCATION, TIME LTC Meeting Space, 3:40 PM–4:00 PM

What wisdom could a first-century Jewish Christian like Mary, the mother of Jesus, possibly impart to modern scientists, engineers,

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and other technologists? For many, the answer is absolutely nothing. In fact, some would even go so far as to say that religion is an obstacle to science and its power to improve the lives of vast numbers of people worldwide. This presentation will argue that quite the opposite is true—that Mary is a teacher of a

particular kind of wisdom that is indeed capable of guiding the sciences in their quest for doing the good. The presentation will describe what this wisdom is, explain how the scientific culture lost it, and propose how the mother of Jesus can help scientists and engineers to rediscover it.

