

brother joseph w

STANDER SYMPOSIUM

APRIL 2016

celebrate student research,
creativity, and discovery



UNIVERSITY OF DAYTON
IS AN INSTITUTIONAL MEMBER OF THE
COUNCIL ON UNDERGRADUATE RESEARCH
Learning Through Research

Letter from the Co-Chairs

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 27th year of the Symposium, honoring the late Bro. Joseph W. Stander, S.M., Professor of Mathematics and Provost (1974–1989).

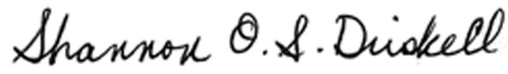
This University-wide celebration of academic excellence exemplifies the Marianist tradition of learning in community. The Symposium's alternate day of learning includes poster sessions, hands-on activities, performances, art exhibits, oral presentations and highlights of capstone course work. The achievements 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,



Randy Sparks, Ph.D.
Co-Chair, Stander Symposium
Professor,
*School of Business
Administration:
Management and Marketing*



Shannon Driskell, Ph.D.
Co-Chair, Stander Symposium
Professor,
*College of Arts and Sciences:
Mathematics*



**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 student Erin Fox for her efforts in developing and creating this year's visual design.

Co-Chairs

Randy Sparks, Professor, School of Business Administration
Shannon Driskell, Professor, Department of Mathematics

Steering Committee

David Darrow, University Honors Program, Department of History
Re'Shanda Grace-Bridges, Student Development/New Student Orientation
Linda Hartley, School of Education and Health Sciences
Diane Helmick, Graduate Academic Affairs
Judith Huacuja, Department of Art and Design
Jack Kanet, School of Business Administration
Brian LaDuca, ArtStreet
Amy Lopez-Matthews, Student Involvement
Grant Neeley, Department of Political Science
Patrick Reynolds, Department of Music
Stephanie Soule, University Libraries

Celebration of the Arts Committee

Sharon Davis Gratto, Chair, Department of Music
Michelle Hayford, Director, Theatre Program
Judith Huacuja, Chair, Department of Art and Design
Brian LaDuca, Director, ArtStreet
Jason Pierce, Dean, College of Arts & Sciences
Patrick Reynold, Department of Music

Graphic Design

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

Celebration of the Arts Intern

Caroline Goodill

Stander Coordinator

Andrea Meyer Wade

Apr 19

OPENING MASS

12:30 P.M. | Immaculate Conception 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 19

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 6:45 p.m. and 7:20 p.m. on April 19.

Apr 20

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

8 P.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.

Free Breakfast

8–9:30 A.M. | RecPlex, Main Gym

**Oral presentations, panel discussions,
performances and visual arts displays**

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

Poster Sessions

RecPlex, Main Gym

9–10:15 A.M. | Session I

10:45 A.M.–12:00 P.M. | Session II

**Stander Symposium closing reception &
Annual Horvath Awards presentation**

5–7 P.M. | Gallery 249, Fitz Hall

Apr 21

**STANDER KEYNOTE ADDRESS:
An Evening with Michael Pollan**

Co-sponsored by the University of Dayton Speaker Series.

7:30 P.M. | RecPlex

Michael Pollan is a best-selling author and sustainable food advocate. He writes about the places where nature and culture intersect: on our plates, in our farms and gardens, and in the built environment. He is the author of The New York Times best-sellers *Cooked: A Natural History of Transformation* (2013) and *The Omnivore's Dilemma: A Natural History of Four Meals* (2006). Join us for this public conversation moderated by Neenah Ellis of WYSO, followed by a book signing.

*All events are free and open to the public. No tickets required.
Parking is available in B and C lots only. Parking in any other lot
requires a permit.*



COLLEGE OF ARTS & SCIENCES

Brand Redesign: Shifting Power from Company to Customer

College of Arts and Sciences: Art and Design | Oral Presentation - Course Project, VAD 415 01

STUDENTS Erin D Fox, Emma C Froelich, Claire C Garvin, Kelsey A Mills | ADVISORS Jayne Matlack Whitaker

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

Not long ago, the central problem of branding was how to align business strategy with customer experience. Today it has more to do with empowering the customer. To quote Marty Neumeier, author of *The Brand Flip*, the new model of brand is similar, but with an important difference: the order of events. Instead of creating the brand first, the company creates customers (through products and social media), then the customers create the brand (through purchases and advocacy), and the brand sustains the company (through customer loyalty). In the case of a brand redesign such as this, the goal is to make the brand more reflective of the brand's current proposition. Students enrolled in the senior level Graphic Design III course, were charged with creating new branding for Nutella, the number one spread in Europe and a product that has reached an icon status in many markets

worldwide. In collaboration with Interbrand, a leading brand consultancy with a network of 29 offices in 22 countries, students redesigned the Nutella brand mark and package within one of four assigned territories. Students also introduced a new Nutella product, and designed packaging, user experience, shelf differentiation, and basic touchpoints ranging from promotional print ads to websites. Students were then asked to create a significant "brand event" that considered things like the product's backstory, its expansion, or community givebacks using aspects of social media to promote the event and its product sponsor Nutella. The branding projects being presented are a selective sampling of 15 case studies on display throughout the day of the Stander and during the closing reception of the annual Horvath Exhibition in the Department of Art and Design in Fitz Hall.

Muses and Musings: the Past and Present of Gender Identity

College of Arts and Sciences: Art and Design | Visual Arts Exhibition - Honors Thesis

STUDENTS Grace Barton Poppe | ADVISORS Glenna Jennings

LOCATION, TIME Alumni Hall 206, Women's Center, 1:00–1:40

This book combines gender theory, portrait photography, creative nonfiction, and interviews to explore the complexities of adopting gender traditions regarding family roles, makeup, shoes, hair,

and fashion; and investigates how this "education" ultimately continues to influence females' gender performance on a daily basis.

Department of Art and Design, Fine Arts Studio, Senior Thesis Presentations

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

STUDENTS Courtney P Hoelscher, Jeffrey C Jones, Allison K Parrish, Monica Marie Rourke, Rebecca K Washington

ADVISORS Jeffrey C Jones

LOCATION, TIME LTC Studio, 1:00–2:00

A presentation of research from Senior students in the Department of Art and Design's Fine Arts Studio area.

Modernities of Chinese Art: Bodies of work by Ai Weiwei and Zhan Wang

College of Arts and Sciences: Art and Design | Oral Presentation - Independent Research

STUDENTS Theresa Grace Lauterbach | ADVISORS Hsuan Tsen

LOCATION, TIME Kennedy Union 331, 1:20–2:00

The focus of this study is the modernities of Chinese art and its attention to national and cultural identity today. My research focuses on how two iconic Chinese artists, Ai Weiwei and Zhan Wang have incorporated political beliefs to produce conceptual bodies of work that address these concerns. Both artists incorporate classic Chinese painting styles such as, guohua, (nationalist style of painting), and literati painting. By focusing on these two artist, which I situate within the context of the history of twentieth century China and its debates over modernity and national identity, I argue that current contemporary Chinese art can not be understood without this background. Chinese artist Zhan Wang

created a body of work titled *Urban Landscape Beijing*, which paid tribute to both guohua and literati painting. Literati is a style of painting characterized by beautiful monochromatic images of rural landscapes that are often accompanied by text, usually poems or short stories. Ai Weiwei also seeks to define what is authentically Chinese to this day. By challenging the Chinese communist regime in his work, Ai allows the viewer to gain a more well rounded, rather than manipulated, idea of Western thought. Both try to connect what has been understood as Chinese history and the ways in which it is still relevant today.

Department of Art and Design, Bachelors of Art, Senior Capstone Exhibition

College of Arts and Sciences: Art and Design | Visual Arts Exhibition - Capstone Project

STUDENTS Yiqiong He, Francesca A Minch, Jalisa J Robinson | ADVISORS Jeffrey C Jones

LOCATION, TIME LTC Studio, 2:00–2:20

An exhibition of research by the Department of Art and Design's, Bachelors of Art Senior students.

Emerge: Photography Major Senior Capstone Projects

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

STUDENTS Flannery A Cohill, Theresa Grace Lauterbach, Allison R Vassanelli | ADVISORS Glenna Jennings

LOCATION, TIME Marianist Hall Learning Space 217, 2:00–3:00

Photography majors from the Department of Art + Design will present visual imagery and discuss their individual Senior Capstone Thesis Projects. Flannery Cohill, Theresa Lauterbach and Allison Vassanelli have created unique, self-directed bodies of work addressing distinct issues in contemporary art. Their work touches on themes including environmental sustainability,

archiving personal memory, and the Cinematic Turn in narrative photography. The projects are being presented collectively off-campus at the Blue House Gallery in the Group Show "Emerge" which will host a reception for the artists on Saturday, April 30 at 6 p.m.

Looking Anew at the Rothko Chapel: The Future of Interfaith Space on the Catholic Campus

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

STUDENTS Krista Elizabeth Bondi | ADVISORS Roger J Crum

LOCATION, TIME LTC Studio, 3:00–3:30

The American university is a microcosm of society, including its religious dimensions; the Catholic university, like other religiously-affiliated institutions, is no exception. In an era of religious diversity, and in a society in which religious and secular rights are equally protected, this distinct societal microcosm represents a challenge but also an opportunity for community development within Catholic universities. While maintaining its foundational religious identity, the Catholic university must accommodate its diverse student communities in order to nurture general cultural and spiritual fulfillment. The University of Dayton is among many Catholic institutions that are experiencing the need for multi-faith accommodation as its students become more diverse in the global 21st century. While the majority of the University's population is Catholic, there are growing numbers of Muslim, Jewish, and Protestant students as well as others of undeclared faiths or of no particular faith tradition who must effectively interact on

campus. In view of the history of Catholic higher education and the current practice and philosophy of interfaith dialogue, how should the University of Dayton approach this new multi-cultural reality in terms of dedicating space and designing or modifying architecture? This research will provide a comparative analysis of existing university spaces and their artistic appointments for multi-faith accommodation. It will argue that these universities are at a stage of preliminary action in their attempts to accommodate their religiously diverse students through the provision of varied sacred spaces. I suggest that the Rothko Chapel is an example of multi-faith religious space that will lead to the next stage of interfaith dialogue and accommodation on Catholic university campuses. With the Rothko Chapel as a model, Catholic universities in America can potentially lead the way toward innovative religious space and provide a necessary, even progressive, artistic context for interfaith dialogue on their campuses.

Connections and Projections: Visual Explorations of the role of Art and Design and the Art and Design gallery at the University of Dayton

College of Arts and Sciences: Art and Design | Oral Presentation - Independent Research

STUDENTS Daniel M Martin, Kaylee N Schneider | ADVISORS John V Clarke

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

This research and the resulting work explore the potential of the gallery of Department of Art and Design to project beyond Fitz Hall and connect effectively to the campus, the community, and

beyond" through visual strategies that include identify design, environmental design, and wayfinding systems.

Philosophical Themes of the Contemporary Japanese Aesthetic

College of Arts and Sciences: Art and Design | Oral Presentation - Independent Research

STUDENTS Monica Marie Rourke | ADVISORS Hsuan Tsen

LOCATION, TIME Marianist Hall Learning Space 218, 3:20–3:40

With a curiosity and reverence for a specific distant culture, I look to Japan to investigate themes and images that inspire an active inquiry of an aesthetic infused with sensitivity, beauty, and understated elegance. The purpose of this research is to consider these themes of the contemporary Japanese aesthetic parallel to the development of philosophical motifs and other historically significant occurrences. The merit of this endeavor is not a consequence of its mere unfamiliarity and exoticism in relation to my own cultural perspective “but is evident in the prevalence of sophisticated aesthetic standards that deeply pervade the many facets of Japanese culture. In considering the nationalized religious and philosophical principles, the dominance of themes, specifically *mono no aware*, *wabi-sabi*, and *yūgen*, seem right

at home amongst a civilization that emphasizes human/nature nondualism with a affection towards that which is impermanent, imperfect, and indefinable. In order to illustrate my understanding of these three aesthetic terms, I will engage visuals that include manifestations of these ideals from periods throughout Japan’s entire history” as the development of these terms represent a gradual deepening and evolution of the ideals that were formerly accepted and widely understood. In this way I will be able to express the rich history that each theme holds and demonstrate that they are applicable to artistic work that is being made even today.

Culture Clash and Commonality: The Interplay of Eastern and Western Influences in “Oriental Art”

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

STUDENTS Krista Elizabeth Bondi, Christina M Haskell, Abigail H Meenan, Maeve A Meier, Brittany A Pfeifer

ADVISORS Roger J Crum

LOCATION, TIME LTC Studio, 3:30–5:00

Culture Clash and Commonality: The Interplay of Eastern and Western Influences in “Oriental Art” will be a symposium presented by Senior Art History majors on the exhibition of Japanese and Japanese-inspired art from the Dicke Collection that is currently on view in O’Reilly Hall. The exhibition presents various views of Japan and Japanese culture produced by both Japanese artists and artists from elsewhere inspired by the Japanese visual traditions. Individually and collectively art history students will explore what is essentially Japanese about

this visual culture and what represent a kind of “orientalizing” perspective on an artist’s chosen motif. The individual students and their presentations are: Abigail H. Meenan, “Estampes Japonaises” Maeve A. Meier, “Japanese Gender Roles Portrayed through Art” Christina M. Haskell, “Diving In: An Examination of Water in Japanese Art” Brittany A. Pfeifer, “Inka Essenhigh: The Imitation of Orientalism” Krista E. Bondi, “DJ Mixalot: The Mash-Up of Cultural Identities in the Work of Iona Rozeal Brown”

Amplifying Signals via Riboswitch Biosensors

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

STUDENTS Annastacia C Bennett | ADVISORS Karolyn M Hansen

LOCATION, TIME RecPlex, 10:45–12:00

The Air Force is always in search of new and efficient ways to protect the lives of their Airman and equipment. Biosensors are self-sufficient, natural systems that can report a signal based on the presence of a specific molecule. However, biosensors are limited by a low signal output. Here we describe how a biological amplification circuit, loosely based on concepts similar to electrical circuitry, will be used to produce and amplify a signal. The biosensor consists of sensing cells and reporter cells that are “wired” together via quorum-sensing signal molecules. The

sensing cells contain a riboswitch that activates the reporter cells only when in the presence of a ligand specific to the riboswitch. When compared to a riboswitch with direct control of expression, the amplification circuit was able to increase the amount of fluorescence generated. The amplification circuit also increased the sensitivity of the riboswitch, resulting in fluorescent signal production at much lower ligand concentrations. Lastly, the amplification circuit reduced the time required for the reporter cells to produce a fluorescent signal output.

Neurochemical Alterations During Limb Regeneration in the Newt Brain

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

STUDENTS Abijeet S Mehta, Jacob Thomas Michalakes, Georgios D Tsissios | ADVISORS Pothitos Pitychoutis, Panagiotis A Tsonis

LOCATION, TIME RecPlex, 10:45–12:00

The neurobiological alterations occurring in the newt brain during limb regeneration are elusive. In the context of the current study we investigated the neurochemical status of the newt brain at different time-points following limb amputation. Specifically, newt limbs were amputated at the mid-ulna-radius plane and newt brains were collected at 10 min, 1h, 24 h and 14 days post-amputation. Following sacrifice, whole newt brains were rapidly

isolated and deproteinized in 0.2N perchloric acid solution. Monoamine neurotransmitters (i.e. serotonin, dopamine and their metabolites) and neuroactive amino acids (glutamate, aspartate and γ -aminobutyric acid) were assessed with high performance liquid chromatography (HPLC) with coulometric detection. Our data show that limb regeneration in the newt is accompanied by a decrease in whole brain tissue concentrations of serotonin

(5-hydroxytryptamine; 5-HT) and its metabolite 5-hydroxyindoleacetic acid (5-HIAA). These intriguing preliminary findings

point to a novel role of the brain's serotonergic systems in limb regeneration in the newt.

Riparian Invasion of Amur Honeysuckle (*Lonicera maackii*) Influences Leaf Litter Availability in Headwater Streams

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

STUDENTS Lucas W Gaynor | ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex, 10:45–12:00

Amur honeysuckle (*Lonicera maackii*) is a successful invasive shrub species throughout the eastern and Midwest USA. This shrub is highly prolific and outcompetes native plant species in riparian zones. Changes in riparian plant communities can alter riparian functions, resulting in impacts on aquatic systems. Our goal was to understand how riparian invasion of *L. maackii* influenced the availability of plant allochthonous materials that provide critical habitat and food resources for aquatic biota. It was hypothesized that *L. maackii* riparian forests would (H1) decrease overall leaf litter within the stream and (H2) impact the seasonal availability of in-stream plant organic matter compared to a stream site without riparian *L. maackii*. The leaf samples were collected weekly during autumn and bimonthly for the remaining seasons at a headwater stream in southwest OH in 2014. In-stream plots (30Å—30cm) were located in riffle and run habitats (n = 21 samples/reach) within a *L. maackii* invaded and

a *L. maackii* removal stream reach. Leaf samples were brought back to the lab, rinsed to remove excess sediment, identified to genus when possible, and dried at 50°C for 48 hours for dry mass estimates. Leaves were combusted at 550°C and then weighed for ash-free-dry-mass (organic matter) estimates. This process determined organic material from plant allochthonous inputs present within removal and *L. maackii* stream reaches. It was expected stream reaches with *L. maackii* riparian forests would 1) have less plant allochthonous organic matter, 2) be dominated by *L. maackii* leaf organic matter compared to the removal reach, and 2) result in seasonal patterns in for in-stream plant availability. By studying how *Lonicera maackii* influences riparian zones we can start to develop an understanding of the environmental impact of invasive species in the surrounding native ecology of headwater streams.

A Temporal View of Stormwater Chemical Levels in Dayton, OH

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

STUDENTS Shante N Eisele | ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex, 10:45–12:00

Stormwater runoff has been a growing area of interest for many years. After the Clean Water Act insured that point source pollution became more regulated, attention has shifted to non-point sources of pollution, such as runoff from impervious surfaces. These surfaces, such as pavement and buildings, collect substances like oil, fertilizer, and salt that build over time. When a rain event occurs, these substances are washed off and enter into Dayton's stormwater system, and eventually make their way to the city's rivers via outfalls. Not only do impervious surfaces result in the collection of harmful contaminants, they also result in an abundance of runoff, because the water is not able to soak into the soil, which would also filter out many of these contaminants. It is important to monitor the stormwater entering Dayton's

rivers to be aware of any unusual concentrations and characterize the impact of the MS4 to the rivers. To do this, the Environmental Management division of the City of Dayton Department of Water regularly samples water coming from the 560 outfalls in the city. For this project, the data collected from 2000–2015 was analyzed using the statistical analysis program R. The analyses were based off of the hypothesis that stormwater quality going to each of the area's rivers would improve through time. This is because there has been added attention given to stormwater protection over time. This long-term data set, covering the last 15 years, is an asset to understanding the health of Dayton's rivers, and provides insight into our collective impact on stormwater quality.

Nanostructured Microcantilevers for the Sensing of Volatile Organic Compounds

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

STUDENTS Ryan J Mcneilly | ADVISORS Karolyn M Hansen

LOCATION, TIME RecPlex, 10:45–12:00

The goal of this study is to create a biomolecular sensing device with high sensitivity and selectivity. The micro-machined cantilever has been selected as the sensing platform, and will be improved using a bio-inspired approach. The sensitivity of the sensor will be increased through the use of a nanostructured surface. Nanostructure will be deposited on the surface of the micro-cantilever using the Glancing Angle Deposition process and the

nanostructure will be viewed using a High Resolution Scanning Electron Microscope. Incorporation of odorant binding proteins will also be used to increase the selectivity of the device. The sensing capabilities of the microcantilever will be tested on three molecules: trimethylamine, acetic acid, and ammonia. Peptides for the detection of these compounds have been modeled using PEP-FOLD and binding interactions have been modeled using

PyRx. A proof of concept for the attachment of biomolecules to a nanostructured surface has been performed on silicon wafers. Silane chemistry and streptavidin-biotin were used to attach a fluorescence marker to the silicon surface. The results of the chemistry were viewed using a fluorescence light microscope

with a Fluorescein Isothiocyanate (FITC) lens, and show a successful attachment of biomolecules. The microcantilever can be constructed in an array format, leading to potential applications in many areas, including environmental monitoring, food quality monitoring, hazardous gas detection, and medical diagnostics.

JNK-Yki mediated signal amplification loop promotes tumorigenesis in epithelial cells

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

STUDENTS Indrayani Waghmare | ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex, 10:45–12:00

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. 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.

Investigating the role of inflammatory cytokines on tumor progression and metastasis in a *Drosophila* cancer model

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

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

LOCATION, TIME RecPlex, 10:45–12:00

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). The TME supports the survival and proliferation of tumors. Current models suggest that cancer cells induce inflammation, and the TME responds by activation of anti-inflammatory response. However many questions remain unanswered e.g., which cells secrete the cytokines, and how cancer cells suppress/avoid cell death despite activation of inflammatory cytokines? The core inflammatory pathways

(e.g., TLR, IMD, TNF etc.) are conserved in *Drosophila*. Using transgenic *Drosophila melanogaster* flies, we co-activated oncogenic Ras or Yki activities in scribble mutant epithelial cells to test if the Toll pathway- a key inflammatory pathway is induced in cancer cells. Here, we report our progress on the study of the effect of TLR and inflammatory cytokines on tumor growth and progression. Our research will help unravel the correlation between inflammatory pathways and tumor progression in an in vivo model.

Role of axial patterning genes in growth regulation during eye development

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

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

LOCATION, TIME RecPlex, 10:45–12:00

An important question in developmental biology is that how axial patterning genes work with growth and patterning to form any three-dimensional organ. In any multicellular organism, Organogenesis, requires axial patterning i.e. formation of Antero-Posterior (AP), Dorso-Ventral (DV), Proximo-Distal (PD) axes. Any deviation in these axes during development leads to genetic birth defects. We use *Drosophila melanogaster* (a.k.a fruit fly), eye as our model. As the genetic machinery between flies and human

is conserved, any insights generated in flies can be extrapolated into humans. In *Drosophila*, DV patterning marks first lineage restriction event where expression of dorsal, ventral fate selectors forms dorsal & ventral compartments in eye respectively. We have identified defective proventriculus (dve), an ortholog of SATB homeobox 1 (in humans), as a new member of DV patterning gene hierarchy. Our previous data establishes dorsal gene hierarchy & states that dve acts downstream of pannier (pnr,

GATA-1 transcription factor), and upstream of Wingless (wg), Loss-of-function of both *dve* or *pnr* results in dramatic dorsal eye enlargements. Furthermore, Wingless, also exhibits similar eye enlargement phenotypes and has also been shown to play a role in growth. Our data also suggests that Wg is downstream target of Hippo pathway (highly conserved) and that the pathway promotes cell differentiation by downregulating wingless. Hereby, I propose to investigate the role of *dve* and *pnr* in growth and patterning during *Drosophila* eye development. I will test

whether these two fundamental processes works independently or in coordination with each other to form an eye. The proposed study will help in elucidating how cell fate specification, pattern formation and growth are involved in organ formation. Our study will have significant bearing on developmental mechanisms, patterning events, growth regulation during organogenesis, and helps us in understanding the etiology of growth related birth defects in eye.

Role of Wingless (Wg) signaling pathway in A β 42 mediated neurodegeneration in Alzheimer's disease

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

STUDENTS Ankita Sarkar | ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex, 10:45–12:00

Alzheimer's disease (AD), a common form of dementia and an age related progressive neurodegenerative disorder affects 21 million people globally. AD manifests as memory loss and reduced cognitive ability. One of the hallmarks of AD is formation of the Amyloid-beta (A β 42) plaques, which initiates oxidative stress due to impaired signaling and finally leads to the death of neurons by unknown mechanism. It is known that loss of neurons in AD is not an outcome of a single gene mutation rather it is an impairment of several signaling pathways involved in growth and survival. The short life cycle of 12–15 days, a plethora of genetic tools, and about 70% similar genetic makeup to that of the humans, makes *Drosophila* an ideal model to study human disease. We have developed a highly versatile *Drosophila melanogaster* model to understand the role of these highly conserved signaling pathways in AD. We misexpressed high levels

of human A β 42 protein in the developing fly retina which mimics AD like neuropathology. Our aim is to use this model to discern the role of signaling pathways involved in neurodegeneration. We performed a forward genetic screen and identified members of highly conserved Wingless (Wg) pathway as modifiers of the A β 42 mediated neurodegeneration. We have demonstrated that blocking Wg signaling pathway, can suppress the A β 42 mediated neurodegeneration. My future goal is to investigate if we can use chemical inhibitors to block Wg signaling in neurons expressing high levels of A β 42 and thereby prevent neurodegeneration in the *Drosophila* eye. We will test antagonists and agonists of Wg signaling to determine if they can work as chemical inhibitor of A β 42 mediated neurodegeneration. I will be testing in these studies whether Wg can be a good therapeutic target in our in vivo animal system.

Towards Induction of Lens Regeneration

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

STUDENTS Abijeet S Mehta | ADVISORS Panagiotis A Tsonis

LOCATION, TIME RecPlex, 10:45–12:00

The lens, by changing shape, functions to change the focal distance of the eye so that it can focus on objects at various distances, thus allowing a sharp real image of the object of interest to be formed on the retina. Common disease of the lens include cataracts, which cause opacity, or cloudiness, in the lens. Cataracts are the most common cause of vision loss in people over age 40 and is the principal cause of blindness in the world. Today, cataracts affect more than 22 million Americans age 40 and older. And as the U.S. population ages, it is projected to affect ~39 million people in the USA in 2030 (NEI statistics www.nei.nih.gov/eyedata/cataract#3, cited 2/9/15). So studying lens regeneration becomes important. *Notophthalmus viridescens* (newts) is a salamander which has marvelous capability to regenerate its organs, like heart, brain, lungs, limbs, tail, spinal cord, and lens. Lens regeneration in newts occurs by trans-

differentiation, a switch of cell fate, where a fully differentiated somatic tissue reprograms and becomes a different one. And it always occurs exclusively from the dorsal aspect of the iris pigment epithelium (IPE), and never from the ventral part. The fact that the same type of cells-differentiated from same stem cell lineage-and belonging to the same tissue, has different regenerative capabilities is intriguing. Previously our lab using transcriptome analysis quantitatively compared gene expression between the dorsal and ventral samples. Very interesting patterns were obtained. *Tbx5* was found over-expressed in the dorsal (>32 times) and *Vax2* was over-expressed in the ventral iris (>32 times). *Tbx5* and *Vax2* are transcriptional factors known to be dorsal axis and ventral axis determinants during eye embryogenesis respectively. Objective of my research is to investigate the role of *tbx-5*, and *vax-2* in lens induction.

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 Lauren N Gresham, Sumant Grover, Victoria Rene Spradling | ADVISORS Thomas M Williams

LOCATION, TIME RecPlex, 10:45–12:00

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.

Investigation of the Role of Mitochondrial Dysfunction as a Trigger for Neurodegeneration in Alzheimer's Disease

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

STUDENTS Lydia C Payton, Ankita Sarkar | ADVISORS Amit Singh

LOCATION, TIME RecPlex, 10:45–12:00

Alzheimer's disease is a progressive neurodegenerative disorder that affects cognitive function and memory of the patient. It results from plaques formed by the abnormal cleavage of the Amyloid Precursor Protein (APP), which result in the formation of 42 amino acid polypeptide, also known as amyloid beta 42 (A β 42). Accumulation of A β 42 peptide triggers cell death in the neuronal cell population of central nervous system. However, the trigger for this abnormal cell death is unknown. I will investigate the role of mitochondrial dysfunction as the trigger for neurodegeneration. Since the mitochondria is the site for triggering neurodegeneration, its malfunction or loss could lead to loss of dendritic branches and alteration of dendritic spines. I will employ *Drosophila melanogaster* eye model of Alzheimer's

disease for my studies. The GAL4/UAS system will be utilized to misexpress the human A β 42 polypeptide in the photoreceptor neurons of the fly retina. The mitochondrial genes pentatricopeptide repeat containing protein (ppr), pyruvate dehydrogenase, and citrate synthase will be investigated in the photoreceptor cells of the *Drosophila*. Loss-of-Function (LOF) and Gain-of-Function (GOF) techniques will be used to determine whether or not the death of photoreceptor and neurodegeneration can be rescued from flies expressing human A β 42 polypeptide. My proposed studies will shed light on how these mitochondrial genes can affect the survival of *Drosophila* photoreceptor neurons where high levels of human A β 42 polypeptide are expressed.

The Role of M1BP in Eye Development of *Drosophila Melanogaster*

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

STUDENTS Ankita Sarkar, Evan J Wypasek | ADVISORS Amit Singh

LOCATION, TIME RecPlex, 10:45–12:00

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 and the suppression of the gene from the complete eye gives us a head loss phenotype.

Effects of Ultrasound on Amyloid Beta 42 (A β 42) Mediated Neurodegeneration

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

STUDENTS Sarah M Byrne, Ankita Sarkar | ADVISORS Amit Singh

LOCATION, TIME RecPlex, 10:45–12:00

Alzheimer's disease (AD) is a neurodegenerative disease that progresses with age. The exact mechanisms that lead to neu-

ronal death are not entirely understood. One of the causes of degeneration is generation of amyloid-beta-42 (A β 42) plaques

are due to mis-cleavage of Amyloid Precursor Protein (APP) and consequentially, form aggregates. This is due to the hydrophobic nature of the extra two amino acids added to the typical and naturally occurring A β 40 in the body. This addition triggers cell neuronal death because of the toxic nature and stress that the plaques place on the neurons. *Drosophila melanogaster* was used as a model in this study to insert the Alzheimer's gene into the imaginal disc of the eye for expression of the gene. In this experiment, ultrasound was utilized as a possible treatment to Alzheimer's. Ultrasound is a high frequency sound wave. In theory, using the energy emitted from these waves would break

down the plaques limiting the damage due to degeneration. The wild type was used as a control to see any side effects of the ultrasound treatment, while an AD affected fly was used to determine effectiveness of the treatments. The goal of this experiment was to standardize the ultrasound treatment, to observe the effects on survival rates, prevent neurodegeneration by removing or decreasing plaque damage. By varying the height, time of treatments, number of treatments, and medium, the survival rate and rescue can be tracked. Further studies using larval imaging approach can be used to see early stage effects of the ultrasound. The results from our studies will be presented.

Distribution of shell formation proteins in oyster hemolymph, hemocytes, and mantle tissue.

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

STUDENTS Donald J Kleppel | ADVISORS Douglas C Hansen, Karolyn M Hansen

LOCATION, TIME RecPlex, 10:45–12:00

Proposed Thesis Abstract: The occurrence and composition of L,3-4-dihydroxyphenylalanine-containing proteins (L-DOPA proteins) that participate in oyster shell formation has not been fully determined. It is known that the oyster mantle tissue is primarily responsible for shell formation and recent research has demonstrated the involvement of the hemolymph (blood) and hemocytes (blood cells). L-DOPA proteins are known to aid in the cross linking of shell formation proteins, in turn creating the insoluble organic matrix formed to produce the organic component of the shell. Using the biomarker amino acid L-DOPA, this research will focus on determining the localization of these shell formation proteins in hemocytes, hemolymph, and mantle tissue of *Crassostrea virginica* (the Eastern oyster). In order to study the localization of these proteins, rapid shell formation/repair will be induced by notching the oyster (mimicking predation) and

shell protein composition and location will be determined as the oyster repairs the shell. Proteins responsible for shell formation and regeneration containing L-DOPA will be collected from the adductor muscle near the site of notching in the oysters. These proteins will be further examined after centrifugation by amino acid analysis of the cell pellet (hemocytes), supernatant (hemolymph), and mantle tissue rinsed in filtered sea water. The newly regenerated shell will also be extracted and analyzed for protein composition and distribution. The newly formed shell will be extracted at regular intervals beginning at time of induction and continuously throughout shell regeneration in order to determine their amino acid composition. Amino acid analysis will be done using integrated pulse amperometry-anion exchange high performance liquid chromatography.

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, 10:45–12:00

In the past few years Five Rivers Metroparks and the Miami Conservancy District has 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. In addition to the removal of the dam, the proposed plan includes the addition of in-stream structural improvements to improve the ecological habitat and a kayak run to increase recreation in the river. Low dam removal will alter the flow and depth of the river above the dam

returning the area from a pool to a more natural state of riffles. Greater flow velocity in the region should improve water quality and remove fine silt from the channel bottom and improve habitat conditions for aquatic life. By decreasing the height of the dam will greatly reduce the drowning danger to recreational users by removing the dangerous undertow that forms below these dams. 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.

One Signal, Two Behaviors: Odor Discrimination in Unmated versus Mated Female Green Bottle Flies, *Lucilia sericata*.

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

STUDENTS George M Iannantuono | ADVISORS Karolyn M Hansen

LOCATION, TIME RecPlex, 10:45–12:00

The green bottle fly, *Lucilia sericata*, is of critical importance in the field of forensic entomology since it is one of the first insects

to arrive at a freshly deceased carcass. These flies use a highly tuned and selective olfactory system to identify and locate the

carcass; response to the decomposition odor usually occurs within minutes. Male flies use the carcass for a small protein meal and for locating females while females use the carcass for feeding (unmated) and egg-laying (mated). This divergence in behavior to a common odor cue is the subject of this thesis proposal: do unmated (feeding) females respond to the same odor cues as mated (egg-laying) females? The presence of two behaviors indicates that there may be an associated up or down regulation of gene expression of odor binding proteins during the two different stages of female sexual development. Olfactory response to selected decomposition odors in unmated versus

mated females was determined using the electroantennogram (EAG) which measures the neuronal depolarization in antennae when an odor triggers a response. Fly heads were mounted on the EAG probes and exposed selected volatiles. Response was measured as the resultant change in voltage (a depolarization). Flies were also subjected to an odor choice behavioral assay. The results show a divergence in antennal response to VOC and choice of VOC at day 4 between the mated and unmated female flies. These results indicate that there are underlying molecular, biochemical, and physiological processes associated with fly response to odors.

Drosophila Models to Investigate the Role of Regulation of Cell Death in Development and Cancer

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

STUDENTS Anam Hussain | ADVISORS Madhuri Kango-Singh

LOCATION, TIME RecPlex, 10:45–12:00

Cell death is of key importance in maintaining health and normal development. In cancer, cell death is improperly controlled provoking uncontrolled proliferation of cells which results in severe harm to the body. While currently the care for cancers involves radiation and then chemotherapy, these treatments are ways of killing the cells, not necessarily curing the person of cancer. With this in mind, it may be helpful to understand the specific genes that usually work in the cell death pathways itself, to see how they impact the overall control of growth. The Hippo pathway is an identified pathway in *Drosophila* that is involved with regulating the different mechanisms of survival and proliferation within the cells. It is known to interact with a gene known as *Dronc* that is a key participant in the cell death pathway of apoptosis. Previous work has shown how the loss of certain caspases, which are

cysteine proteases, is linked with cell survival. My project will be investigating the mechanism by which it happens, by testing the nature of the cell survival pathway. We hypothesize that the loss of function clones of *Drice*, *Dronc*, or *Dark* promote cell proliferation that support tumor growth. It is important to note that the removal of these cell death causing genes may not directly lead to proliferation, cells may just remain suspended within a phase of replication or cell cycle. We will be testing these alternate possibilities using standard genetic and antibody staining protocols (to assess protein expression levels) in *Drosophila* mutants. At the conclusion of these studies, we expect to generate insights into how loss of cell death regulating genes impacts tissues, and if it promotes aggressive growth of cancer cells.

Finding a correlation between zooplankton abundance and the aggregation of *Abudefduf saxatilis* (sergeant major damselfish) beneath boats

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

STUDENTS William George Duritsch | ADVISORS Patrick K Williams

LOCATION, TIME RecPlex, 10:45–12:00

Abudefduf saxatilis, or sergeant major damselfish, are a common reef fish in the Caribbean and western Atlantic that form large feeding aggregations. *Abudefduf saxatilis* are primarily planktivorous, with zooplankton making up over 50% of their diet. Zooplankton are known to have diel movements to avoid predation, which have been shown to be triggered by the presence of ultra violet radiation. Beneath boats along the coast of Bonaire, aggregations of *A. saxatilis* have been observed, but why they prefer these areas over the open water column had not previously been examined. The abundance of zooplankton was estimated beneath boats as well as in the open water, up-current from the boats. Both the abundance and bite rates of *A. saxatilis*

were also estimated beneath the boats that corresponded to the estimates of zooplankton abundance. In addition, the bite rates of *A. saxatilis* were estimated in the open water. It was found that the zooplankton abundance ($p < 0.001$) and the bite rate of *A. saxatilis* ($p < 0.001$) were both significantly greater beneath boats than in the open water. Also, a significant correlation was found between increasing abundances of zooplankton and *A. saxatilis* ($p < 0.01$). These results demonstrate that one of the main drivers for the aggregation of *A. saxatilis* beneath boats is likely to feed on the zooplankton, which are in high abundance. In turn, this could alter community structure on the reef due to a decrease in the amount of algae grazing by *A. saxatilis*.

Dissecting the Sex-dependent Neurochemical Effects of the Rapid-acting Antidepressant Drug Ketamine with In Vivo Brain Microdialysis in Mice

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

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

LOCATION, TIME RecPlex, 10:45–12:00

Major depression is a devastating mental disorder that affects nearly 20% of the world's population. Notably, women experience major depression at roughly twice the rate of men and respond differently to different types of antidepressant drugs. However, the neurobiological mechanisms underlying this sex-differentiated responsiveness remain a largely neglected area of experimentation with current treatments based almost exclusively on research conducted in males. Most importantly, currently marketed antidepressant drugs take anywhere from weeks to months in order to elicit their therapeutic effects, thus leading to increased drop-out rates. Ketamine is a unique, rapid-acting antidepressant drug that alleviates depressive symptomatology in both treatment-resistant depressed patients and in animal models of depression. Despite data regarding the antidepressant efficacy of ketamine in the male sex, there is scant evidence of its neurobiological effects on females. Herein, we implemented an *in vivo* microdialysis approach to investigate the kinetics of glutamate release in the mouse medial prefrontal cortex (mPFC),

a brain region implicated in ketamine's antidepressant mechanism of action. Specifically, male and female mice were administered a single dose of ketamine (10 mg/kg) following stereotactic implantation of a microdialysis probe in the mPFC. Samples were collected every 10 min in a microcentrifuge tube for one hour and glutamate was assayed with high performance liquid chromatography (HPLC) with coulometric detection. Furthermore, we identified the temporal molecular effects of ketamine on the expression of two prominent presynaptic proteins implicated in neurotransmitter release (i.e. Synapsin I and Syntaxin I). Mice were administered a single dose of ketamine (10 mg/kg) and were sacrificed at specific time-points (i.e. 0, 2, and 4h or 1, 3, and 7 days post-administration). Collectively, this study revealed that there is an important time-factor that distinguishes the neurochemical responses of the two sexes to a single dose of ketamine, thereby illustrating that different neurobiological mechanisms underlie its rapid antidepressant actions.

Lethal and sub-lethal effects of the invasive shrub Amur honeysuckle (*Lonicera maackii*) on an aquatic organism, a field-to-lab experimental approach.

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

STUDENTS Eric B Borth | ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex, 10:45–12:00

The invasive plant *Lonicera maackii* (Amur honeysuckle) has caused many negative effects for native vegetation as it spreads through the eastern United States including the loss of biodiversity and alterations in ecosystem function in forests. Many studies focus on effects of Amur honeysuckle invasion on terrestrial habitats, while effects on aquatic habitats have received much less attention. In this set of experiments we aim to improve our understanding how terrestrial invasion of Amur honeysuckle affects aquatic organisms. This will be investigated using *Hyalella azteca*, a standard "model" aquatic organism used to assess toxicity in flowing waters (streams and rivers), to reveal effects that Amur honeysuckle may have on aquatic macroinvertebrates. We hypothesized that exposure to *L. maackii* foliage would alter the growth, survivorship and feeding rates of the generalist shredder *H. azteca*. In the lab, *H. azteca* were exposed to riparian honeysuckle leaf leachate (made by soaking 10 g leaves in 100 mL dechlorinated water for 24 h) and leaf leachate of typically co-occurring riparian native tree species (*Asimina triloba*, *Acer saccharum*, and *Acer negundo*) in 48 h acute static toxicity

tests. When exposed to an Amur honeysuckle leachate dilution series (6.25%, 12.5%, 25%, 50%, 100%) survival was significantly affected in all dilutions (p -value < 0.001). When exposed to native leaf leachate dilutions *H. azteca* survival was only significantly affected in the 100% leachate treatment of the *Asimina triloba*, (p -value < 0.001) and *Acer negundo* (p -value = 0.009), and there were no significant effects in *Acer saccharum* treatments (p -value = 0.446). In future field experiments, *H. azteca* will be placed in microcosms within a stream while being exposed to Amur honeysuckle and native leaves. These microcosms will allow us to assess leaves as a habitat resource *in situ*, which is an important function of riparian leaf inputs. To our knowledge, this is the first field-to-lab microcosm experiment designed to test the aquatic impacts of this terrestrial invasion. These results could have wide-ranging repercussions for management of this species in headwater stream riparian zones which are particularly vulnerable to perturbations and are increasingly a focus of conservation.

Nutrient Availability Across the Terrestrial-Aquatic Boundary in a Riparian Stream Environment as affected by Gradients of invasive Amur honeysuckle

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

STUDENTS Charlotte Anne Shade | ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex, 10:45–12:00

Invasive plant species have the capability to degrade ecosystems, often in numerous and complex manners. For example, the exotic shrub *Lonicera maackii* is known to significantly diminish plant diversity, alter moisture conditions, and leaf litter quality; thus, potentially affecting soil nutrient cycling in forested areas across eastern North America (Arthur et al. 2012, Luken and Thieret 1996, Hutchinson 1997, Miller and Gorchov 2004).

Locally, *L. maackii* has extensively invaded forests across much of Ohio; however, its effects on soil and stream nutrients within said forests are not yet fully understood. As we have previously observed, *L. maackii* flourishes along stream banks and grows dense canopies that arch directly above the stream (Fig. 1). These arching canopies prevent native organic matter from entering the water, while it also inputs its own organic matter.

Lonicera maackii leaf litter is known to be higher in nitrogen and lower in lignin than many native species, with a rapid decomposition rate (Arthur et al. 2012), all of which have the potential to change the nutrient cycling within the stream and between the stream and riparian zone. We hypothesize that across an

invasion gradient there will be a measurable gradient in stream chemistry and nutrient concentration. We specifically predict that areas of high *L. maackii* invasion will be associated with significantly increased concentrations of different forms of nitrogen and phosphorus.

Tracing the Role of bab Gene Duplication and Divergence Events in the Evolution of a Fruit Fly Pigmentation Trait

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

STUDENTS Maxwell John Roeske | ADVISORS Thomas M Williams

LOCATION, TIME RecPlex, 10:45–12:00

Diversity between species is shaped by genetic differences in orthologous genes. The functional expression of these genes are controlled by cis-regulatory elements (CREs) which typically are located in introns, upstream, or downstream of the exon protein coding sequences whose transcription they control. It remains unresolved whether gene functional evolution more frequently follows paths of either CRE evolution, protein-coding evolution, or a blended evolutionary path of both. Moreover, mutation events can duplicate a gene, creating a pair of paralogous genes which can then undergo protein-coding and/or CRE evolution. The fruit fly species *Drosophila melanogaster* possesses the paralogous *bab1* and *bab2* genes after an ancestral duplication event. These paralogs encode proteins to repress abdominal pigmentation in females, whereas pigmentation is unimpeded in males who lack a similar pattern of *bab* expression. This

dimorphic trait and gene expression pattern were derived from a monomorphic ancestor through CRE evolution. However, the possibility and the historical time point for protein-coding sequence evolution have not been explored. This project uses these genes as a model to investigate whether and when *bab* protein coding sequence evolution contributed to this trait's origin. This involves testing whether the *bab* paralogs are functionally equivalent through loss-of-function and gain-of-function methods. Furthermore, the protein coding sequences of orthologous *bab* genes for functional equivalence and DNA-binding necessity in pigmentation suppression will be tested. This will reveal when the suppressive capability evolved and why it might be conserved. Collectively, this work will provide a comprehensive overview of how historical changes to an animal gene made possible the origin of a novel trait.

The role of Polycomb and Trithorax genes in the development and evolution of an animal trait

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

STUDENTS Claire C Konys | ADVISORS Thomas M Williams

LOCATION, TIME RecPlex, 10:45–12:00

Animal traits result from intricate patterns of gene expression that are regulated during development. Differences in gene expression between individuals and species are a prominent cause for variation. In eukaryotes, gene expression regulation occurs at two levels. One is via interactions of transcription factor proteins with cis-regulatory DNA sequences. A second level is via the compaction of DNA sequence into chromatin through interactions between DNA and histone proteins. Gene expression by default is shut "OFF" through a repressive compacted chromatin state, but this state can be turned "ON" through histone modifications and remodeling (repositioning or removals). Histone modifications and remodeling actions are performed by evolutionarily conserved genes. In the fruit fly *Drosophila melanogaster*, the Polycomb Group of genes are needed for the formation of repressive chromatin and the Trithorax Group

of genes are needed for the formation of permissive chromatin. How Polycomb and Trithorax genes collaborate to regulate the development of individual traits remains poorly understood, as is the extent to which these genes contribute to trait evolution. The objectives for my research project are to investigate three questions. One, how many Polycomb and Trithorax group genes contribute to a fruit fly pigmentation trait? Two, which pigmentation network genes are regulated by Polycomb and Trithorax genes? Three, has the expression patterns for these Polycomb and Trithorax genes changed to shape evolutionary changes in pigmentation? Completing these objectives will advance an understanding of chromatin and how its management shapes the development and evolution of an animal trait. Funding for this project was provided by The Tom Williams Lab and the University of Dayton Honors Program.

Understanding Gene Expression Regulation and its Evolution Through Genome Editing and Transgenesis Approaches

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

STUDENTS Jessica L Grilliot, Alexandra M Hallagan | ADVISORS Thomas M Williams

LOCATION, TIME RecPlex, 10:45–12:00

Trait development occurs by patterns of temporally and spatially regulated gene expression, and changes in gene expression are

thought to play a prominent role in the origination, diversification, and loss of traits. Gene expression is controlled by cis-regulatory

elements (CREs), and a CRE's pattern of gene regulation results from its possession of binding sites for a combination of transcription factors that are realized in certain cell types and developmental stages. Furthermore, patterns of gene expression are often driven by the collective input of multiple CREs, including ones that appear functionally redundant. It remains inadequately understood how evolved combinations of transcription factor binding sites drive new gene expression patterns and to what extent gene expression evolution is shaped by the input of multiple CREs. One approach to study CREs is reporter transgene assays, where a CRE is coupled to an easy to monitor reporter gene, such as GFP. However, this method evaluates CREs outside of their endogenous context that may include other, perhaps

redundant, CREs. Also, the necessity of a CRE often remains unexplored as the endogenous CRE is not perturbed in reporter assays. Moreover, orthologous CREs thought to drive divergent patterns of gene expression are typically tested in a convenient model organism, which cannot resolve to what extent differences in gene expression result from the mutational modification of the orthologous CREs and by mutational changes in another gene or genes. We have been utilizing the diverse patterns of fruit fly abdominal pigmentation as a model trait to understand gene expression regulation and its evolution. Here we present our early results for tests of CRE necessity by a genome editing approach and tests for CRE sufficiency in reporter transgene assays in multiple fruit fly species.

Search for Eye-Specific Regulatory Sequences of an Eye Patterning Gene, Decapentaplegic (Dpp)

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

STUDENTS Janan Bati, Ankita Sarkar | ADVISORS Amit Singh

LOCATION, TIME RecPlex, 10:45–12:00

The development of *Drosophila* eye serves as an important model system to study tissue patterning and growth. This development depends on cellular interaction through intercellular signaling. At the early third instar stage, a wave of differentiation sweeps from the posterior to the anterior margin of the eye disc and the front of this wave is marked by the Morphogenetic Furrow (MF). The initiation and proliferation of this MF requires Dpp. Dpp is expressed along the MF in the third instar eye imaginal disc of the *Drosophila*. The function of a gene is dependent

on spatio-temporal gene expression, which is controlled by the regulatory sequences cloned upstream of the target gene. We tested nine of such dpp lines to look for eye specific enhancers. I propose to identify and characterize the upstream enhancer sequences that regulate dpp expression in the third instar eye imaginal disc and the pupal retina. These eye specific enhancer lines obtained through my experiments will serve as a useful resource to unravel the complex genetic hierarchy of eye development.

Assessing the Pleiotropic Role of Pravastatin™ on the Expression of AQP1 in Vascular Endothelial Cells Cultured under Static, Venous, and Arterial Flow Conditions in vitro

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

STUDENTS Raphael J Crum | ADVISORS Carissa M Krane

LOCATION, TIME RecPlex, 10:45–12:00

The current surgical procedure to address coronary artery disease (CAD) involves the grafting of the human saphenous vein (HSV) into an arterial environment in the heart in a process called a coronary artery bypass graft (CABG). However, a high percentage of HSV grafts fail within five years due to the development of intimal hyperplasia (IH). The trigger for IH development is currently unknown. It is possible that difference in exposure to venous vs. arterial shear stress plays a role. Statins, a class of cholesterol lowering drugs, have been shown to suppress the early development of IH. Statins have also been shown to differentially regulate the expression of some members of the aquaporin water channel family of transmembrane proteins. Preliminary results suggest that the expression of aquaporin 1 (AQP1), a water channel abundantly expressed in vascular endothelium, is regulated in part by changes in shear stress in human umbilical vein endothelial cells (HUVECs) in vitro. Based on these observations, it is hypothesized that AQP1 may function

as an early environmental sensor in HSV grafts to promote IH development, and therefore, may be a novel target for the early intervention and prevention of IH. The aim of this investigation is to determine the effects of changes in shear stress and Pravastatin™ exposure on the gene regulation of AQP1. The time-dependent effects of venous and arterial shear stress (6 dynes/cm² and 14 dynes/cm²) on AQP1 protein expression after 0, 24, 48, and 72 hours of static, venous, and arterial flow conditions were assessed using immunocytochemistry (ICC). The expression of AQP1 mRNA isolated from HUVECs cultured under static and flow conditions for 0, 24, and 48 hours with and without Pravastatin™ was analyzed using qPCR. Combined, the results of these experiments will contribute to an understanding of the relationship between the pleiotropic effects of statins and vascular shear stress and the combinatorial role of the two conditions in the early onset and possible prevention of IH in CABG.

Internship Experience Through the Wild Encounters Program of the Cincinnati Zoo

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

STUDENTS Sarah Michelle Lesiecki | ADVISORS Carl F Friese, Ryan W McEwan

LOCATION, TIME RecPlex, 10:45–12:00

In the summer of 2015, I participated in an internship in the Wild Encounters department at the Cincinnati Zoo & Botanical Gardens. The internship required an extensive amount of training in proper animal handling, husbandry, and interpretation. This training allowed me the opportunity to work with a wide diversity of wildlife including several endangered species. The internship gave me access to a wide range of biodiversity including invertebrates such as the Madagascar Hissing Cockroach, and smaller vertebrates, such as Sand Boas and Spiny Tailed Lizards. In addition, I spent time interacting and educating the

public on larger species of wildlife, such as the Greater Flamingo, Maasi Giraffes and the endangered Sumatran Rhino. Throughout the summer, I attended lectures that covered zoo related topics on anything from sustainability to elephant foot care to animal behavior. At the end of the internship, I spent weeks researching and observing the behavior of the Andean Bear. I compiled my findings and personal observations of Cincinnati's Andean Bear into a five-minute interpreter program that will be used by future interns in the Wild Encounters department.

Understanding the repopulation of glioblastoma in Drosophila model system

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

STUDENTS Allison L Harmon, Kirti Snigdha | ADVISORS Madhuri Kango-Singh

LOCATION, TIME RecPlex, 10:45–12:00

Glioblastoma multiforme (GBM) is an aggressive type of adult brain tumor with a poor prognosis. Inevitable recurrence of the tumor even after treatment makes it incurable. Although the genetics of GBM is known in some detail, yet what promotes the repopulation of after radiation therapy or chemotherapy is largely not understood. Hence, there is a need of a simple model system in which the repopulation of GBM can be studied in detail. *Drosophila melanogaster* is a well characterized model organism with completely understood genetic background and availability of tools to generate a tumor and follow its progression. Loss of PI3K pathway inhibitor, PTEN has been frequently seen in GBM. We established a fly model for GBM by suppressing Pten and overexpressing oncogene Ras in glial cells. The flies with genotype UASPTen RNAi;UASRasV12; Repo Gal4 UASGFP

developed aggressive tumor in their brain and failed to survive till adult stage. Larvae of this genotype were exposed to X-ray to test the repopulation frequency of the tumors cells. We observed, after exposure of 3.5Gy X-ray to 1st instars, there is a delay in growth and reduction in tumor size in comparison to unexposed samples. This suggests there is repopulation of the tumor after the x-ray exposure and it happens during the delayed growth period. Thus far we have been able to establish a simple model system which can help in identifying the factors responsible for the repopulation of the GBM. Findings from these studies can be extrapolated to other model system and to humans as the pathways involved are conserved from flies to mammals. This could lead to potential treatments of glioblastomas in humans.

Drosophila Eye Model to Study the Role of Steroid-Responsive Ecdysone Pathway in Alzheimer's Disease

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

STUDENTS Matthew Richard Riccetti, Ankita Sarkar | ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex, 10:45–12:00

Alzheimer's disease, the most common form of dementia, is a chronic neurodegenerative condition that affects nearly 44 million people worldwide. The hallmark of Alzheimer's pathology is the accumulation of extracellular A β -42 protein plaques, which cause inflammation and neuronal death in the brains of affected patients. Currently, no proper early detection methods or cures exist, but promising evidence is arising from studying the development of nervous tissue in model organisms like *Drosophila melanogaster*. In order to better understand the mechanism by which this disease progresses and its interactions amongst the unique nature of nerve cells, we misexpressed human A β -42 in the eye of *Drosophila*, which forms amongst the differentiating photoreceptor cells. This results in a strong neurodegenerative phenotype, which we strive to rescue through genetic and developmental techniques. This project focuses on two signaling path-

ways that have important implications in the development of AD. The Hippo pathway is a conserved signaling cascade that is essential for the proper regulation of organ growth in *Drosophila* and vertebrates. Previous research has shown that downregulation of this cascade causes an increase in cell proliferation in developing somatic epithelium and nervous tissue, exhibiting neuroprotective effects. Recently, research has shown that the related Ecdysone signaling pathway modulates Hippo transcriptional activity in imaginal disc cells. The Ecdysone coactivator Taiman forms a unique transcriptional complex with the Hippo transcription factor Yorkie, suppressing expression of canonical Hippo targets and inducing transcription of germline stem cell factors in regions that have already differentiated. We have tested two new modulators of the Hippo signaling pathway, a downstream target protein called Ajuba and the related Ecdysone

pathway, to study their interactions, ability to induce germ-line-like growth, and prevent the degradation of eye tissue during

development in an AD *Drosophila* eye model. We will present our progress and future direction.

Neuroprotective Function of Lunasin in Alzheimer's Disease Model

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

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

LOCATION, TIME RecPlex, 10:45–12:00

The neuropathology of Alzheimer's Disease (AD) is a complex system of neurodegenerative factors that contribute to the loss of brain function. One of the most studied factors is the aggregation of amyloid plaques within the brain. These plaques are formed from the improper cleavage of the amyloid precursor protein (APP) to form the hydrophobic peptide, A β 42. These peptides congregate in plaques that surround neuronal cells and inhibit their function. As these cells begin to degrade, microglial cells that act as the central nervous system's immune defense attempt to remove these plaques. However these cells are not capable in fully removing these plaques and incite an

inflammatory response through the release of several cytokines and chemokines from the microglial cell. These messengers can induce oxidative stress within the CNS and lead to further cell damage. Our disease model is based on the visual system of the *Drosophila melanogaster*. The A β 42 protein is misexpressed during the development of the photoreceptor neurons which results in observable loss of eye formation in the adult fly. We propose by introducing a known anti-inflammatory protein, Lunasin, into our disease model we can further understand the role of inflammation in AD neuropathology. Here present the findings of our studies.

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 Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex, 10:45–12:00

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.

Behavioral Sex Differences in an Inflammatory Mouse Model of Depression

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

STUDENTS Kathryn G Fasoli, Joseph N Mauch, Jacob Thomas Michalakes, Sara S Mohamed, Anna C Schaffstein, Eric D Schneider, Jonathon P Sens, Connor F Thelen | ADVISORS Pothitos Pitychoutis

LOCATION, TIME RecPlex, 10:45–12:00

Activation of the inflammatory response manifests with sickness symptoms (i.e. decreased locomotor activity, anorexia) and depressive-like neurobehavioral outcomes (i.e. anhedonia, learned helplessness, alterations in neurotransmission) that are prefaced by immune-to-brain communication pathways resulting in cytokine production within the brain. Despite the higher prevalence of major depression in women, the role of sex in the neuroimmunology of this debilitating mental disorder remains elusive. Interestingly, the proinflammatory agent lipopolysaccharide (LPS) has been shown to activate the immune machinery, ultimately leading to depressive-like behavioral and neurochemical alterations in the rodent brain. Herein, we investigated the sickness-related and depressogenic behavioral effects of LPS administration in C57BL/6J mice of both sexes. Behavior

was assayed utilizing relevant behavioral tests to investigate the effects of inflammatory activation on locomotor activity and anxiety levels (Open Field Test; OFT), anhedonia (Sucrose Preference Test; SPT), depressive-like behavior and learned helplessness (splash test and forced swim test; FST) and food consumption, in male and female mice at 6 h and/or at 24 h post-LPS administration. Our data showed that the behavioral effects of LPS administration in mice are sex-differentiated. Specifically, males appear to be more prone to develop anorexia, whereas females are more vulnerable to the depressogenic effects of LPS, as assessed in the splash test. Taken together, our results highlight the important role of sex in the regulation of the behavioral mechanisms triggered by LPS-induced activation of the inflammatory response.

Restoration of an invaded riparian zone influences stream macroinvertebrate biomass

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

STUDENTS Caitlin Michele Buchheim | ADVISORS Rachel E Barker, Ryan W McEwan

LOCATION, TIME RecPlex, 10:45–12:00

In the Midwest USA many riparian plant communities are heavily invaded by Amur honeysuckle (*Lonicera maackii*; hereafter honeysuckle), creating a dense canopy over headwater streams. Management practices aim to remove riparian honeysuckle; however, it is not well understood how these practices influence stream ecosystems. In this experiment, honeysuckle was removed from a headwater stream reach with a dense honeysuckle riparian forest. We investigated how this "restoration" activity influenced in-stream macroinvertebrate biomass dynamics compared to a "control" reach where the honeysuckle invasion remained intact. We predicted removal of honeysuckle would (H1) increase overall macroinvertebrate biomass, (H2) increase in detritivore functional feeding group (FFG) biomass. In August-September 2010, honeysuckle was removed along Black Oak Park stream in Centerville-Washington Park District, OH, creating a 150-meter honeysuckle removal reach and an

upstream honeysuckle (control) reach. Aquatic macroinvertebrates were collected with a Surber sampler monthly from August 2010 to December 2014 within both reaches ($n = 5/\text{reach}$) and identified to genus when possible. Macroinvertebrate body metrics were measured with a micrometer using Image J software. Macroinvertebrate biomass (i.e. standing stock biomass) was estimated for each taxon and FFG using length-mass allometric equations. Preliminary analyses indicated honeysuckle removal did not significantly influence macroinvertebrate biomass; although, there was a clear pattern of increased biomass in the removal reach. Collector-filterer and the collector-gatherer FFG comprised the greatest overall biomass in both reaches. These preliminary results suggest removal of Amur honeysuckle impacts the overall aquatic macroinvertebrate biomass, potentially influencing the flow of energy within the stream food web.

Benthic macroinvertebrates and Amur honeysuckle berries: Lab and field microcosm exposures

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

STUDENTS Sean D Mahoney | ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex, 10:45–12:00

Sean D. Mahoney, Kevin W. Custer, Eric B. Borth, Lucas W. Gaynor, Ryan W. McEwan University of Dayton, Department of Biology, Dayton, Ohio, 45469, USA Amur honeysuckle (*Lonicera maackii*) is an invasive shrub species that is becoming abundant in headwater stream riparian areas. This species has been shown to negatively affect plant-to-plant and plant-to-insect interactions, but has largely been overlooked in stream ecology. In headwater streams, *L. maackii* can form dense canopies which can contribute large amounts of *L. maackii* subsidies (leaves and berries) to these streams. During late fall, *L. maackii* berry production peaks, and berries accumulate on stream sediments. We hypothesized that *L. maackii* berry subsidies on stream sediments will affect survival and growth on selected benthic macroinvertebrates during lab and field exposures. Three organisms were selected to test berry effects: lab cultured *Hyalella azteca* and field collected *Anthopotamus verticis* and *Capniidae*. Invertebrates were exposed to a gradient berry biomass (reference, 1.25 g, 2.5 g, 5.0 g, 10.0 g wet wt.) in

field microcosms at Wiles Creek (2nd order headwater stream) Ohio (USA), and in standard laboratory sediment tests. In the lab, *H. azteca* and *A. verticis* survival and growth was significantly ($p\text{-value} < 0.001$) affected by the presence of berries during 96 h and 48 h exposures, respectively. However, the field microcosm exposures (4 & 7 d) showed varied results. *Hyalella azteca* field exposures experienced comparable survival and growth effects as the lab study ($p\text{-value} < 0.001$), but *A. verticis* and *Capniidae* exhibited no survival or growth effects ($p > 0.05$). During the lab exposures, dissolved oxygen (DO) and pH levels fell below 2 mg/L and 5.5, respectively. However, in field exposures, DO and pH were comparable to stream conditions, and did experience these declines. These results suggest the presence of *L. maackii* berries under realistic sediment exposures can have negative effects on benthic organism survival and growth. Future research will incorporate additional organism responses to explore variation in species sensitivities.

Population Density and Richness of Stream Salamanders Across a Gradient of *Lonicera Maackii* Invasion Intensity in Headwater Streams

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

STUDENTS Margaret E Maloney | ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex, 10:45–12:00

Lonicera maackii is an invasive shrub in riparian zones along headwater streams in much of the Midwestern USA that has been linked to alterations in terrestrial and aquatic ecosystems. The foliage of *L. maackii* release water-soluble phytochemi-

cals into the ecosystem that have adverse effects on terrestrial insects, herbivores, and native plant growth. Previous research demonstrated that *L. maackii* increases mortality in several amphibian species; however, little is known about the impact of

L. maackii on stream salamanders. Although qualitative assessment of salamander communities in streams is a common practice, quantitative methods for the estimation of salamander population density are currently under-developed. Our research goals are to (1) assess salamander population density across a *L. maackii* invasion intensity existing techniques, (2) invent a prototype device for quantification of salamander abundance in streams, (3) validate this prototype through field trials across seasons and habitat types, and (4) implement the developed technology to further understanding of salamander presence and abundance along an invasion gradient of *L. maackii*. We predict

that stream salamander abundance and richness will decrease along an increasing gradient of *L. maackii* invasion due to the shift in food and leaf litter habitat availability. Currently, prototypes are being developed and tested in various riffle and riparian stream habitats in Englewood Metropark in Englewood, OH targeting *Eurycea cirrigera*. The prototypes were surveyed for salamanders every other day for a two-week period. Preliminary results indicated that the prototypes attracted adult and larval *E. cirrigera*. Modifications of the prototypes continue and future surveys will include qualitative and quantitative assessment of salamander abundance across a range of invasion intensity.

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, 10:45–12:00

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 in the *Bab* locus of fruit flies. This locus contains

the duplicate *bab1* and *bab2* genes that shape a derived pattern pigmentation in the 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.

Resolving the Molecular Mechanisms by Which DNA Mutations Alter the Function of a Genetic Switch

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

STUDENTS Emily E Wey | ADVISORS Thomas M Williams

LOCATION, TIME RecPlex, 10:45–12:00

Each human genome possesses around a million mutations that are genetic baggage from DNA replication mistakes or “mutations” that occurred in the past. Each mutation can have one of three outcomes on an individual, these are to improve, reduce, or have no effect on health. Moreover, the effects of such mutations can depend on the presence or absence of other mutations, so called epistatic interactions. A major goal of genomic medicine is to glean diagnostic or predictive health information from the genome sequences of individuals. However, this goal remains out of reach as the effects of mutations and epistatic interactions are difficult to predict without knowing the function of the DNA sequence they reside in. This difficulty is especially heightened for mutations occurring in cis-regulatory element sequences that act as switches to control gene transcription. The research I plan to perform for my Honors Thesis is to use a fruit fly model to test hypotheses about the molecular mechanisms by which mutations

alter a genetic switch's activity and whether these mutations are subjected to the tyranny of epistatic interactions. I will study the *Drosophila melanogaster* dimorphic element which is a transcription-regulating switch for the *bric-Å* -*brac* genes. Three mutations in the dimorphic element were identified that individually alter the level of *bric-Å* -*brac* transcription. The presence or absence of epistatic interactions will be determined by measuring the activity of dimorphic elements from related species that have been engineered to possess the *Drosophila melanogaster* mutations. I will also test the hypothesis that these mutations impart their effects by creating or destroying binding sites for proteins known as transcription factors. The results will provide a sorely needed example where an understanding of molecular mechanisms bridges the gap between a DNA sequence and its in vivo function.

Revealing evolutionary mechanisms by mapping pigmentation character states and developmental mechanisms onto a resolved fruit fly phylogenetic tree

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

STUDENTS Jesse T Hughes | ADVISORS Thomas M Williams

LOCATION, TIME RecPlex, 10:45–12:00

Since the origin of the 36 recognized animal phyla over 500 million years ago, subsequent evolution can be largely summarized as the diversification of physiological, behavioral, and morphological characteristics among these original 36 body plans. Diversification continues to this day and can be seen in humans as differences in coloration, lactose metabolism, and energy storage in fat tissue. As all animal characteristics are products of development, a key challenge for contemporary research is to reveal the ways in which development evolves through changes in the uses of genes. To meet this challenge, investigations must prioritize characteristics that have recently evolved, the direction of character evolution is known, and for which the underlying genes can be studied by modern genetic manipulations. One

ideal trait is the diverse coloration patterns observed on the abdominal tergites of fruit fly species from the *Sophophora* sub-genus. Prior research has supported a scenario where melanic pigmentation limited to the male abdomen evolved once within this clade through the evolution of a sexually dimorphic pattern of expression for the *bric-Ä*-*brac* transcription factor genes. My BIO 421 project challenges this scenario by looking at the patterns of pigmentation on the abdomens of species representing the diverse *Sophophora* species groups and interrogating the patterns of *bric-Ä*-*brac* expression during the development of the abdominal tergites. Success in this work will advance the fruit fly pigmentation model as exemplar of how diversity evolves through the re-working of developmental mechanisms.

Supplementation of propionate inhibits the anaerobic growth of the foodborne pathogen *Listeria monocytogenes*

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

STUDENTS Eric Edward Newton | ADVISORS Yvonne Sun

LOCATION, TIME RecPlex, 10:45–12:00

Listeria monocytogenes is an infectious bacterium that is known to cause severe diseases in people who are pregnant, elderly, or generally immunocompromised through consumption of contaminated food products. To help develop preventative strategies to protect these high-risk individuals, our lab focuses on the approach of enhancing the chemical barrier naturally existing in the intestinal tract to block *L. monocytogenes* from interacting with the human intestinal epithelium and causing fatal infections. The chemical environment inside the human intestinal lumen is rich with fermentation acids produced by the endogenous microbes. In my research project, I tested the efficacy of propionic acid, one of the three major fermentation acids naturally abundant in the human gastrointestinal tract, against the *in vitro* growth of *L. monocytogenes*. If propionic acid exhibits inhibitory effect on *L. monocytogenes* growth, then it can be further developed into a preventative tool against *L. monocytogenes* infections. To determine the effect of propionic acid on *L. mono-*

cytogenes growth, I supplemented *L. monocytogenes* cultures with 0, 5, 15, 25mM of sodium propionate and grew the culture either aerobically with continuous agitation for oxygen saturation or anaerobically inside an anaerobic chamber with a 2.5% hydrogen in nitrogen atmosphere. I monitored bacterial growth by measuring culture optical density every hour for 8 hours and calculated bacterial doubling time during the exponential phase of the growth. I observed that under aerobic conditions, propionate supplementations did not cause a significant impact on bacterial doubling time. However, under anaerobic conditions, propionate supplementation at 25mM led to a significantly increased doubling time, a result indicating an inhibitory effect of propionate on growth. These results demonstrate an inhibitory effect of a naturally occurring fermentation acid in the human intestines and therefore highlighted the potential values for propionic acid as a preventative chemical agent against *L. monocytogenes* infections.

The effects of propionate and oxygen on the intracellular growth of the foodborne pathogen *Listeria monocytogenes*

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

STUDENTS Elizabeth A Abrams, Kristine T Perez | ADVISORS Yvonne Sun

LOCATION, TIME RecPlex, 10:45–12:00

Listeria monocytogenes causes foodborne illnesses in immunocompromised individuals by colonizing the human intestine and disseminating to peripheral organs by crossing the intestinal barrier. During infections, *Listeria* adapts to the intestinal environment, which is low in oxygen but rich in fermentation acids. However, it is unclear how these acids influence *Listeria* pathogenesis under anaerobic conditions. In this study, we investigated the effects of anaerobic exposure to propionate, a major fermentation acid, on *Listeria*. To test the effect of propionate, we used a macrophage cell line as our model host cells and monitored the intracellular growth of *Listeria* after exposure to different levels of propionate under both aerobic and anaer-

obic conditions. Results showed that while anaerobically grown *Listeria* was compromised during late stages of intracellular growth compared to aerobically grown bacteria, supplementation of propionate at 15mM did not significantly impact intracellular growth. Survival and escape from the acidifying phagosomes is critical during *Listeria* intracellular growth. To test the effects of propionate on *Listeria* survival in acidic conditions, we conducted survival assays with aerobically and anaerobically grown *Listeria* after 1 hour exposure to pH 4, 5, 6, or 7 buffers. Our data showed that *Listeria* was not able to survive in the pH 4 buffer. For anaerobically grown *Listeria*, survival at pH 5 was significantly reduced compared to survival at pH 6 and 7. Propionate supplementations

did not cause a significant change in survival. Together, our data suggest that anaerobic exposure, not propionate at 15mM, played an important role in *Listeria* pathogenesis. We plan to

continue our investigations with higher concentrations of propionate. Ultimately, our research will help elucidate the behavior of *Listeria* during the intestinal phase of infections.

Repeated Ketamine Treatment Induces Sex-specific Behavioral and Neurochemical Effects in Stress-naïve C57BL/6J Mice

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

STUDENTS Connor F Thelen | ADVISORS Pothitos Pitychoutis

LOCATION, TIME Kennedy Union 207, 1:20–1:40

The modern treatment for major depressive disorder (MDD) was revolutionized with the finding that a single sub-anesthetic dose of the noncompetitive N-methyl-D-aspartate (NMDA) receptor antagonist ketamine may induce rapid and sustained antidepressant effects in both previously treatment-resistant MDD patients and in animal models of depression. We have recently shown that there is a sex-differentiated response to a single acute dose of ketamine, with female mice showing an increased sensitivity to the drug. Importantly, the antidepressant-like effects of ketamine are transient and can only be sustained with repeated dosing. Despite this, a study focusing on the sex-oriented response to repeated ketamine dosing has previously not been conducted. In an attempt to determine if ketamine administration is still advantageous when given recurrently, two cohorts of male and female stress-naïve C57BL/6J mice were injected once daily with an antidepressant-relevant dose of ketamine (10mg/kg) or saline

(0.9% NaCl) for 21 days. The effects of repeated ketamine treatment were assessed using behavioral tests (forced swim test and open field), ex-vivo neurochemistry (high performance liquid chromatography; HPLC), and protein expression analysis in the synaptoneurosomal fraction of the hippocampus and prefrontal cortex (western blotting). Our data showed that repeated treatment with ketamine elicited an antidepressant-like effect in male mice, but appeared to be harmful to female mice as evidenced by a drug-induced anxiogenic and depressogenic response. Notably, the antidepressant-like effect of repeated ketamine treatment in male mice was accompanied by relevant neurochemical and synaptic molecular alterations in the hippocampus. Taken together, our behavioral and neuromolecular data indicate that female mice are more sensitive to the effects of ketamine treatment, and this becomes problematic when they are treated repeatedly with higher antidepressant-relevant doses of the drug.

Creation of a Beta 2 Tubulin Transgenic vector to express Beta 2 Dipteran orthologs in *Drosophila melanogaster*

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

STUDENTS Peter J Krzywosz | ADVISORS Mark G Nielsen

LOCATION, TIME LTC Team Space, 1:20–1:40

Employed by all eukaryotic organisms, microtubule proteins support numerous structural and functional processes including cell division, transport, and motility. From ancestral gene duplication and sequence divergence, various isoforms of tubulin, the subunits constituting microtubules, have been evolutionarily selected for and compartmentalized to specific expression domains. In *Drosophila melanogaster*, the Beta 2-tubulin subunit is found solely in the testis where it supports the spermtail axoneme, and has remained evolutionary unchanged in Dipterans (flies) over the past 100 million years. Discovering why Beta 2-tubulin has stopped evolving, and what frees it to evolve when it does, is the question inspiring this research. Previous results indicate that slight alterations in the Beta 2-tubulin protein coding sequence

render it unable to produce viable sperm. Therefore, illuminating how it is able to evolve when it does is necessary in order to explain the protein's stasis. To do this, I created a transgenic vector that expresses any coding sequence of interest in the Beta-2 testis domain. By inserting the Beta 2-tubulin gene of Dipterans with a different Beta 2 sequence into this vector and transforming *Drosophila* with it, followed by genetic crosses with Beta 2-tubulin null mutants to generate a fruit fly whose spermtail is supported by a Beta 2 sequence from the transgene, we can determine if a Beta 2 sequence from a different fly species is able to support the *Drosophila* spermtail, and if not, what additional changes resulted in this inability.

Tree Community Phylogenetic Diversity Varies with Topography in an Old-growth Appalachian Forest

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

STUDENTS Julia I Chapman | ADVISORS Ryan W McEwan

LOCATION, TIME Kennedy Union 310, 2:00–2:20

As biodiversity becomes increasingly threatened by human activities, the need to broaden our understanding of factors that regulate the diversity of ecological communities also becomes more urgent. Diversity has traditionally been quantified with

indices based on taxonomic species identities, which grant equal importance to all species and ignore variation in their physical characteristics and biological processes, which may be differentially important to ecosystem function.

This problem has been countered with the development of phylogenetic diversity metrics based on the principle that closely related species tend to be more similar in morphology and physiology than distantly related species and thus occupy similar ecological niches. Tests for phylogenetic clustering and overdispersion provide clues about whether community assembly is driven by environmental filtering or competitive interactions. We used sampling data collected across 80 plots in an old-growth Appalachian forest (1979 and 2010) to analyze phylogenetic diversity among midstory (2.5–25 cm diameter at breast height) and overstory (>25 cm dbh) trees to further understand the role of local topographic variation in structuring communities. Mid-story and overstory phylogenetic diversity was not significantly

related to aspect (all $r^2 \leq 0.02$, $P > 0.11$) or slope steepness (all $r^2 \leq -0.013$, $P > 0.36$) in either year. We found that the within-plot species assemblages tended to be more phylogenetically clustered at higher elevations (all $r^2 \geq 0.34$, $P < 0.001$) in both years, and that this relationship was stronger among overstory trees. This suggests that tree communities at higher elevations experience an environmental filtering effect, resulting in phylogenetic clustering where mature communities contain closely related species with similar adaptations for surviving in xeric conditions. Lower elevation communities contain species that are on average more distantly related and likely represent a more diverse array of functional traits that help to minimize competitive interactions.

Establishing a connection between anaerobic virulence regulation and metabolism in *Listeria monocytogenes*

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

STUDENTS Nathan C Wallace | ADVISORS Yvonne Sun

LOCATION, TIME Kennedy Union 207, 2:20–2:40

Listeria monocytogenes (*Listeria*) is a Gram positive, facultative anaerobe responsible for gastrointestinal infections. *Listeria* is able to proliferate and survive in places with low or no oxygen such as soil, packaged food products, and the mammalian gut. As a model organism studying the immune response to intracellular pathogens, *Listeria* has mostly been studied aerobically. Yet, it remains unclear how *Listeria* pathogenesis is affected by anoxic conditions. A lack of oxygen serves as a significant strain to bacterial metabolism, thus potentially serving as a signal for virulence regulation. It has been demonstrated in many bacteria that anaerobic growth results in decreased activity of the Tricarboxylic Acid (TCA) cycle. To establish a connection between anaerobic metabolism and virulence regulation in *Listeria*, we first tested the effect of anaerobicity on TCA cycle activity. By measuring the activity of a TCA cycle enzyme, aconitase, in aerobically and anaerobically grown *Listeria*, we demonstrated

decreased aconitase activity in anaerobically grown *Listeria* compared to aerobically grown *Listeria*. A result implying reduced TCA cycle activity under anaerobic conditions. Anaerobically grown *Listeria* also exhibited decreased production of the toxin listeriolysin O (LLO), but increased invasion in a tissue culture model for infection. To further investigate the role of anaerobic TCA cycle activity on LLO production and infections, we supplemented anaerobic cultures with the TCA cycle intermediate citrate to induce TCA cycle activity. Upon supplementation of citrate anaerobically grown *Listeria* exhibited an increase in LLO production and a decrease in cellular invasion. Our results highlighted for the first time a connection between *Listeria* anaerobic metabolism and virulence regulation. Future investigations into the underlying mechanisms will strengthen our ability to protect high-risk individuals against *Listeria* infections.

Study of the Behavior of Diazobenzene Carboxylic Acid (ADA) in Aggregated and Monomeric Form

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

STUDENTS Christin M Martins | ADVISORS Angela Mammana

LOCATION, TIME RecPlex, 10:45–12:00

An attractive question for the design of supramolecular aggregates is how to understand the conditions necessary to induce aggregation and realize photo-induced control over the structural properties of the formed species. One response to this question is the introduction into the aggregate of a photo-responsive molecule able to change geometry with light. In this project we choose to use an azobenzene derivative that undergoes cis-trans isomerization when irradiated with UV and visible light. The other components of the aggregates are: i) a synthetic polypeptides (poly-L-glu), which changes its secondary structure as a function of pH and acts as a chiral template; ii) a positively charged porphyrin (TMPyP) known to self-aggregate. Initial experiments showed a successful formation of a chiral aggregate of poly-L-glu/TMPyP/ADA at pH values lower than 4.5 (poly-L-glu in β -helical structure) but an unusual increase of the pH with time. The

goal of my research project is to study the behavior of the ADA at various pH values to explain the phenomenon observed and to allow for a better design of a dynamic water soluble supramolecular material. We prepared 5 solutions of ADA at different pH values. We observed that when a solution of ADA was left in the refrigerator for 24 hours at pH=4 or 5 the pH raised to almost 8 while if it was left at pH=3 it was found approximately unchanged. Probably the ability of the ADA to self-aggregate forming H-bonds between the carboxylic acid functional groups plays a role in this unusual behavior; the formation of the aggregate could alter the pKa of carboxylic acid and its promoted protonation could lower the concentration of the protons increasing the pH of the solution over time. Future experiments will include an accurate calculation of the pKa values of the ADA in water.

Mutant PriA C-Tev ML346 and its Unwinding DNA Capabilities

College of Arts and Sciences: Chemistry | Poster - Course Project, CHM 498 06

STUDENTS Sydney E Kirk | ADVISORS Matthew E Lopper

LOCATION, TIME RecPlex, 10:45–12:00

DNA damage can cause the process of DNA replication to stall and this can lead to dissociation of the DNA replication enzymes from the DNA. In bacteria, a protein called PriA recognizes this, unwinds a portion of duplex DNA at the site where replication stalled, and reloads the replication enzymes to restart DNA replication. PriA has multiple structural domains that are closely associated with one another to give rise to a compact globular protein. The winged helix domain, however, is connected to the

remainder of the protein by a long, flexible portion of polypeptide, akin to a tether. I examined the significance of the winged helix domain's long, flexible tether by lengthening it at its C-terminal end even further. I hypothesized that this would alter its DNA unwinding capability. Through a helicase assay I observed that lengthening the C-terminal tether did not change its capability to unwind duplex DNA.

New Boron Substituted Dipyrrromethenes and Their Potential Application in Dye Sensitized Solar Cells

College of Arts and Sciences: Chemistry | Poster - Course Project, CHM 418L 01

STUDENTS Amber N Johnson, Jenna P Ladner | ADVISORS Shawn M Swavey

LOCATION, TIME RecPlex, 10:45–12:00

Two new dipyrrromethenes have been synthesized by combining aromatic aldehydes and a naphthylpyrrole in the absence of solvent. Their boron difluoride analogs have also been synthe-

sized and characterized by ¹H NMR and high resolution mass spectroscopy. Their electronic absorption, emission, and electrochemical properties will be presented.

The Development of a First Year Chemistry Laboratory

College of Arts and Sciences: Chemistry | Poster - Course Project, CHM 498 13

STUDENTS Leslie M Porter | ADVISORS David W Johnson, Rochael J Swavey

LOCATION, TIME RecPlex, 10:45–12:00

The purpose for this project was to redesign a past General Chemistry Laboratory experiment with emphasis on student learning objectives in support of lecture material. The experiment was first introduced into the second semester CHM124L course in 1997 as "Preparation and Investigation of Salt Solutions. For the Fall 2016 curriculum, the modified experiment will be conducted in the first semester General Chemistry course CHM123L as Equilibrium of Salt Solutions. This experiment was chosen for modification because the concept of equilibrium, especially when applied to pH of salt solutions, is one that many students find dif-

ficult to understand. Experiencing the concept in lab is one way for the students to increase their understanding. Our approach with the modification of the experiment was to step back and view the procedure from a first year student's point of view. To take into account their laboratory skill set as a first semester student and to consider background material they would be exposed to by the time the experiment was conducted. The goal was to create an experiment that lead students through a thought provoking qualitative and quantitative analysis of the subject.

Photodegradation of ¹²C-Carotene in the Presence of 1Å°, 2Å° and 3Å° Organic Radicals

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

STUDENTS Patrick Joseph Dugan | ADVISORS Mark B Masthay

LOCATION, TIME RecPlex, 10:45–12:00

"carotene (¹²C; C₄₀H₅₆), a natural orange pigment that absorbs ambient light corresponding to wavelengths in the violet, blue, and green portions of the visible spectrum, is found in the leaves of many green plants, and in yellow fruits and vegetables, such as oranges, carrots, and squash. ¹²C is incorporated into the human body "where it plays an important antioxidant role by quenching free radicals and reactive oxygen species (ROS), thereby protecting tissues with low oxygen concentrations from oxidative damage"through dietary means.This research project

is designed to specify (1) how ¹²C interacts with light-induced 1Å°, 2Å° and 3Å° free alkyl radicals in biological systems by measuring photodegradation rates of solutions of ¹²C dissolved in various alkane solvents, and (2) how the antioxidant/prooxidant properties of the resulting products differ from those of ¹²C, which was determined by measuring photodegradation rates of various solutions. The ultimate objective of the project is to help identify the specific ¹²C photoproducts responsible for suppression of the immune system induced by ultraviolet (UV) light.

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, 10:45–12:00

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 PriA⁰²⁰⁷ 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 PriA⁰²⁰⁷ATP, PriA⁰²⁰⁷DNA, and PriA⁰²⁰⁷ATP⁰²⁰⁷DNA 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 PriA⁰²⁰⁷ 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.

Asymmetric Synthesis of Organophosphate Derivatives

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

STUDENTS Cori K Young | ADVISORS Jeremy Erb

LOCATION, TIME RecPlex, 10:45–12:00

The project objective is to develop new and effective methods for generating pure stereoisomers of organophosphate derivatives. Lewis acid catalysis and organocatalysis look promising as methods for the synthesis of chiral organophosphorus derivatives. Besides the desire to solve a challenging synthesis problem, motivation for this project also comes from the need for scientists to improve and control the synthesis of organophosphate based pharmaceuticals. Use of chiral organophosphate attachments on existing drugs is a new and successful strategy that addresses issues such as cell permeability and triggered release. The need for providing cost-effective methods for creating this class of molecules is crucial for cost reduction of pharmaceuticals. Sofosbuvir, Gilead Pharmaceutical's new blockbuster drug with an organophosphate core, cures patients with Hepatitis C at a rate greater than 90% when combined with other treatments. This treatment costs patients anywhere from \$84,000 to \$178,000 in

the United States. Clearly, a cost reduction obtained through a more efficient synthesis would make Sofosbuvir, as well as other drugs, accessible to more than the wealthy and would mark a high impact scientific achievement. At the present time, there are few methods for synthesizing enantiopure organophosphate derivatives. The methods in which pharmaceutical companies obtain these compounds are ineffective by time and financial standards, requiring multiple purifications, special equipment, and low yields. In fact, the only methods that are currently feasible generate mixtures of chemicals that must be laboriously separated. For example, the patent for Sofosbuvir documents that the attachment of the chiral organophosphate core can take around 5 days for reaction and purification in 15.2% yield from simple achiral starting materials. The best yield reported is only around 20%. We aim to provide the first catalytic, asymmetric synthesis that offers a wide scope of products in high yield.

Identification of Potential AcrAB-TolC Efflux Pump Inhibitors in Escherichia coli using an Ethidium Bromide Method.

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

STUDENTS Tyler Thomas Mack | ADVISORS Matthew E Lopper

LOCATION, TIME RecPlex, 10:45–12:00

Many bacteria are known to exhibit antibiotic resistance through overexpression of efflux pumps. In this experiment, inhibition of a bacterial efflux pump through the physical binding of small molecule inhibitor compounds was explored as a way to combat substrate expulsion. The TolC protomer of the AcrAB-TolC efflux pump in Escherichia coli was targeted in a virtual screen for novel small molecule inhibitor compounds. PyRx AutoDock

Vina was used to virtually dock the various small molecules to the TolC protein and rank the compounds based on favorable binding energies. Five lead-compounds from the virtual screen were ultimately selected for in vivo efflux testing with and without prolonged incubation of the bacterial cells with the test compounds. Efflux activity was monitored using an ethidium bromide substrate to determine the relative extent of inhibition.

Results showed little to no effect on efflux activity unless the bacterial cells were cultured with the test compound for an overnight incubation. Bacteria with prolonged compound incubation displayed significantly decreased efflux activity for several small

molecule compounds that were tested. These findings suggest that efflux pump inhibition should be focused mainly on halting underlying synthesis and assembly mechanisms rather than hindering the functionality of the pump.

Synthesis and Studies of Hydrazophosphonates and Azophosphonates

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

STUDENTS Maeve A Meier | ADVISORS Vladimir A Benin

LOCATION, TIME RecPlex, 10:45–12:00

Phosphoryl chlorides were reacted initially with ethyl or t-butyl carbazate. The resultant hydrazophosphonates were oxidized with either lead tetraacetate or N-bromosuccinimide (NBS), leading to the corresponding azophosphonates. Both the hydrazo- and azophosphonates are being studied for their potential use as

reactive flame-retardants. They are two classes of unexplored structures, with interesting structural and thermal properties. Also, successful Diels-Alder reactions of the azophosphonates would lead to the generation of new types of heterocyclic structures, rich in phosphorus-based functionalities.

Media Law: Disparaging Vegetables, Accessing Autopsy Records, Newsgathering in Public, Libel on Social Media and National Security to Justify Prior Restraint

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

STUDENTS Natasha Baker, Adel M Bin Khulayf, Alexis Catherine Burchfield, Gregory Kennedy, Christopher Robert Santucci

ADVISORS Annette M Taylor

LOCATION, TIME Marianist Hall Learning Space Commons, 1:00–2:00

Natasha Baker: A Farmer's Take on Veggie Libel Laws: This paper and presentation will provide an overview of the Ohio food libel laws and court cases, along with an agricultural perspective from the author who owns a 90-acre livestock, produce and grain farm in Waynesville, Ohio. Alex Burchfield: A Life or Death Matter in Journalism: This paper and presentation will review Dale Earnhardt's death in 2001 at Daytona 500, the legal fight over his autopsy records by the press that had been investigating the safety of race cars, and public access laws in Florida, California and New Jersey. Greg Kennedy: Privacy & News Gathering in the 21st Century: This paper and presentation will examine 2nd and

9th U.S. Circuit Courts of Appeals' definitions of public spaces where the press can legally gather information for news without violating privacy interests of the individual. Adel Bin Khulayf: National Security as a Justification for Prior Restraint on the Press: This paper and presentation will examine how the U.S. Supreme Court and 6th U.S. Circuit Court of Appeals have balanced free press rights and government's duty to keep the nation safe. Christopher Santucci: An Examination of Social Media Libel: This project examines libel suits relating to Tweets, Facebook posts and reviews on services, such as Yelp and Angie's List, that have increased substantially over the past 10 years.

Opportunities and Challenges: Designing Media Literacy Education for a Diverse Audience

College of Arts and Sciences: Communication | Panel Discussion - Course Project, CMM 471 01

STUDENTS Kathryn Emily Arensmeier, Grace Bauer Armstrong, Samuel Thomas Bennett, Anthony A Dalpiaz, Madeline E Ecklund, Morgan O'Neill Ford, Tessa L Gough, Sarah M Harrison, Brittany G Hopkins, Kara H Konow, Kylie Lynn Kroeger, Hannah Catherine Lindesmith, Paola Nicole Ortiz, Anne M Pavlis, Daniel A Quaicoe, Rose M Roche, Ronda M Scantlin, Jackelyn C Shelley, Jamie E Sima, Caitlin W Whalen, Ziru Zhao | ADVISORS Ronda M Scantlin

LOCATION, TIME Kennedy Union 331, 2:00–3:00

We now live in complex, media-saturated environments "ones filled with televisions, DVD and Blu-ray players, personal computers, tablets, the Internet, video gaming systems, iPods, smart phones, and other portable devices. Media have transformed the ways in which we communicate, educate, and entertain. Furthermore, we continue to develop dependencies on our technological devices without fully understanding the consequences for our personal well-being and real-life relationships. The purpose of this panel discussion is to explore student projects reflecting diverse perspectives on what it means to be media literate.

Participants will discuss topics surrounding changes in brain physiology, relationship development, prevalence of cyberbullying, implications for self-esteem, perceptions of body image, portrayals of gender messages, impact of media violence, consequences of sexting, role of corporations and marketing strategies, effects of technology access and use on child development, and role of adult mediation. These projects highlight media's overwhelming influence in the lives of children, adolescents, and adults and explore one of the primary goals of media literacy education "encouraging responsible digital citizenship.

All You Can(t) Eat

College of Arts and Sciences: Communication | Oral Presentation - Independent Research STUDENTS Joseph D Buffo, Rachel C Keck, Kerri Elizabeth Marks, Rhiannon Marie B Matuszak, Gregory C Rotuno

ADVISORS Gregory Kennedy

LOCATION, TIME Marianist Hall Learning Space Commons, 4:20–4:40

We are creating a documentary that defines and illustrates the issue of food deserts within the Dayton area. We will take a look at the history of Dayton and food consumption and how that has led to the problem at hand. In addition to history and analysis, we will interview various organizations and individuals in the area that are combating food deserts. Unfortunately, food deserts are prevalent throughout the country and even our own community. The University of Dayton has taken numerous measures to educate its students on this topic, and we plan to continue its efforts with the support of the Hanley Sustainability Institute. Our documentary will give students a chance to see the hard-

ships many face not too far off campus and experience a call to action. Our goal for this project is to increase awareness of the food desert issue among people in the Dayton area. We also hope to reach people on a larger scale since food deserts are a national dilemma. Through our documentary, we hope to educate and inspire the community to act on this problem. Although we are highlighting many efforts already in place, our documentary seeks to call the public to do more to facilitate change. In addition to presenting our work at the Stander Symposium, we hope to show our documentary at outside events and festivals.

Campus Police and Student Relationships

College of Arts and Sciences: Communication | Poster - Course Project, CMM 420 01

STUDENTS Carl E Baldassarre, Daniel R Dudek, Andrew S Matejcek, Nicholas Miranda | ADVISORS Heather R Parsons

LOCATION, TIME RecPlex, 9:00–10:15

Across the United States, many Universities struggle to establish stable relationships between campus police and students. These unpredictable relationships between the two parties has led to mixed emotions and opinions regarding the true nature of campus police and their intentions toward the campus community. Despite strides by both parties, there still remains conflict between campus police and the respective students they are called to protect. From the research conducted, data compiled from primary and secondary research indicates a pattern of

rising conflict between campus police and university students. This conflict is not exclusive to either private or public institutions, however, each University has a unique struggles arise when protecting and holding students accountable within the parameters of the law. This report aims to identify the overarching issues facing institutions, the specific solutions being taken at universities and the public opinion of campus safety within the University of Dayton community.

Sexual Assault on College Campuses and Implications of Positive Communication Practices Through the Green Dot Program at the University of Dayton

College of Arts and Sciences: Communication | Poster - Course Project, CMM 420 01

STUDENTS Samuel Lee Brunner, Emma Elizabeth Jensen, Rachel S Knopf, Cassidy L Martin | ADVISORS Heather R Parsons

LOCATION, TIME RecPlex, 9:00–10:15

Sexual assault is a prominent source of conflict on many college campuses. A simple conflict between two individuals can quickly escalate into a dangerous situation, if the conflict is not well managed. Research of current statistics and literature on sexual assault shows how it is common in college culture, and presents a solution to this problem through programs like Green Dot. The Green Dot Strategy is a violence prevention program that focuses on the power of peers and cultural influences to participate in proactive behavior towards a potentially destructive situation. The program encourages bystanders to become active participants in high-risk situations to help prevent a violent

outcome. The goal in implementing the Green Dot Strategy is to change the way a community reacts to a negative situation by changing norms and cultural values. Active intervention of high-risk situations are taught through awareness, education, practicals, and reinforced behavior over time. Green Dot is being used on the University of Dayton's campus to improve student responses to high-risk situations, aiming to increase the number of positive responses, shifting the number of students who act as an active participant, and making students be accountable for their actions.

Greek Life and Catholic Universities: Do the Values of Greek Life Match with Those of the Catholic Church?

College of Arts and Sciences: Communication | Poster - Course Project, CMM 420 01

STUDENTS John A Goebel | ADVISORS Heather R Parsons

LOCATION, TIME RecPlex, 9:00–10:15

Greek Life organizations face many negative stipulations across the United States due to several allegations of disrespectful actions. Due to these negative actions, there are Catholic institutions across the United States that do not allow Greek Life organizations on their respective campus. Such reasons Catholic institutions give is that Greek Life is not needed on campus for students to live out Catholic values. Instead, students have service, special interest and sports clubs to join to live out Catholic values. As a student apart of Greek Life on the University of Dayton's campus feel that the values between Greek life and the Marianist match up. If Greek life can encourage members to live

out their catholic values at Dayton, then why is their trouble on campuses such as the University of Notre Dame to accept Greek life? I used a data and statistical approach to understand the amount of Catholic institutions that accept Greek Life. I discovered there are many institutions that find Greek Life valuable to living out Catholic Values. In this presentation, I am comparing the schools that accept to those that don't accept Greek Life. Secondly, I am explaining the reasons why and why not Greek Life is acceptable on Catholic campuses. Lastly, I am covering the survey answers from University of Dayton graduate and undergraduate students.

Conflict Management: Following Your Passion in College

College of Arts and Sciences: Communication | Poster - Course Project, CMM 420 01

STUDENTS Grace C Ahern, Kimberly M Brinati, Samantha Marie Gorbett, Emma Christian Lagone | ADVISORS Heather R Parsons

LOCATION, TIME RecPlex, 9:00–10:15

Consistently throughout our lives, we are told to go after our dreams, do what we love, take chances, and follow our passions. Inspired by many, we came into college our freshman year highly motivated to turn those dreams into reality. For many new students, freshmen year was an unexpected reality check. For this project, our group examined the struggles of following your passions here at UD and how the pressures of society and discouragement of professors and advisors can lead students into an unsatisfactory career path. We then analyzed how UD students dealt with this loss of confidence and if it indeed did change their original career plans. This study is not to say that the University

of Dayton is not motivating, empowering, or supportive of its students. Its current success of its students in the workforce proves that overall it has pushed its students into successful careers after graduation. The purpose of this study is to address the underlying conflicts that some students may be faced with in following their passions that the university's administrators may not be aware of. Our group conducted an online survey for UD students with a platform of questions involving how they feel pressured by society to follow certain paths, their experiences with professors and advisors here at UD, and their ways of handling any discouragement that may have presented itself.

Conflict in the LGBT Community at Catholic Universities

College of Arts and Sciences: Communication | Poster - Course Project, CMM 420 01

STUDENTS Molly P Cason, Brian C Fontaine, Constantina B Miller, Marguerite Monica Quinn | ADVISORS Heather R Parsons

LOCATION, TIME RecPlex, 9:00–10:15

"The University embraces the Marianist vision of community, meaning a community based on the conviction that every person has innate dignity because all people are made in the image and likeness of God." We are in a pivotal time where gay marriage has been legalized in the United States, and Lesbian Gay Bisexual Transgender (LGBT) groups on Catholic University campuses are becoming more prominent. While the University of Dayton is committed to nondiscrimination against all groups, the LGBT community does not have as great of a presence as other groups on campus. According to the National Gay and Lesbian Task Force, "About 20% of LGBT faculty members and students reported they feared for their physical safety on cam-

pus, while 43% of LGBT faculty members and students reported they felt their campus climate to be homophobic." This statistic proves that colleges need to make an active change against the discrimination of the LGBT members on campus — one that will make these students feel safe and welcomed. After applying the knowledge we have gained throughout the semester and discussing this issue with members of this group, we hope to inform the Dayton community about the purpose and prominence of the LGBT organization on campus. As a group, our goal is to raise awareness about this conflict between the gay society and the Marianist values that the University of Dayton holds so we can create equality within our community.

College Roommate Conflict and its Effect on Mental Health

College of Arts and Sciences: Communication | Poster - Course Project, CMM 420 01

STUDENTS Sarah M Harrison, Kathryn E Sass, Rachel N Smith, Ellen D Yoder | ADVISORS Heather R Parsons

LOCATION, TIME RecPlex, 9:00–10:15

Living with other people causes a lot of conflict. As college students, many of whom have roommates, this is an important issue. Conflict between college roommates has a large effect on students' stress level, grades, and mental health. Empirical evidence suggests these relationships can enhance or reduce mental health and adjustment to college (Erb, Renshaw, Short, 2014). Many issues arise because of personal schedules, guests, noise,

sleep schedules, general cleanliness, and other stressors. These conflicts carry over and affect the mental health of the students. The research will be conducted through online credible sources, interviews, real life experiences, and surveys. This information will be gathered in a university setting which will allow for accurate results and relatable information to our audience. The results of our study demonstrate how everyone is affected by

roommate conflict at some point in their lives, but particularly during the college years. This can be positive and negative conflict, but we found that more often than not roommate conflict turned out to be negative due to how the conflict was handled from both parties. People handle conflict situations in different ways, and within roommate conflict, one roommate often will have no idea their actions are bothering the other roommate

unless something is said. Overall our findings discovered that roommate conflict can cause serious effects on the mental health of a student. Because conflict is unavoidable in most situations, the likelihood of added stressors of everyday life is also unavoidable. We found out first-hand how differently people handle conflict and how they let it affect their daily routines.

Marriage and Conflict

College of Arts and Sciences: Communication | Poster - Course Project, CMM 420 01

STUDENTS Noha Mohammed Jan | ADVISORS Heather R Parsons

LOCATION, TIME RecPlex, 9:00–10:15

We face conflict in every relationship we have in our lives. One of the most important and most sacred relationships is marriage, and it can be one of the most challenging and tensioned relationships if we didn't know how to handle conflict in the right way. Marriage is a part of human nature, everyone wants a life-long loving partner and to start a family, and everyone wants to succeed. Marital conflict is important to study because it is not only about relationship of two people, it is associated with a number of problems like depression, prolonged illness, poor parenting, where it will involve innocent, guiltless parties, your own children. In addition, because there are many researches representing

marriage saying that individuals are influenced by their own parents' marriage, and this may anticipate more marital conflict. Without understanding the nature of the real conflicts and how to solve them, we will not accomplish that goal, the happy life. In this project, I will be explaining an understanding of "Marital Conflict" concept, and how we can anticipate different types of marital conflict like cooperation, avoidance, stonewalling, and how children play a role in parental conflict. Furthermore, how we can solve each one of the conflicts successfully and strengthen the relationship instead of letting it push us apart.

College Roommate Conflicts: How it is Handled and What Causes Tensions to Escalate

College of Arts and Sciences: Communication | Poster - Course Project, CMM 420 01

STUDENTS Qing Cai, Rachel E Fuhrman, Nicole E Lacy, Thomas P Ransom | ADVISORS Heather R Parsons

LOCATION, TIME RecPlex, 9:00–10:15

This is a study on how college roommates handle conflict at the University of Dayton and factors that contribute to tensions among roommates. We looked at how conflict arose in domestic and international roommates, randomly assigned roommates, and roommates who were already friends. We constructed a survey of University of Dayton students and asked them questions

about their living styles, how often conflict comes up and how the conflict is handled. Beyond the surveys, university students were interviewed and asked to describe the type of conflict they have experienced with their roommates. Students all handle conflict with their roommates differently, sometimes for the better sometimes for the worst.

Family Structure and Media Influences on Juvenile Delinquency

College of Arts and Sciences: Communication | Poster - Course Project, CMM 420 01

STUDENTS Charles Edward Rice | ADVISORS Heather R Parsons

LOCATION, TIME RecPlex, 9:00–10:15

Although, in recent years, overall juvenile delinquency rates in the United States have fallen, juvenile delinquency remains a concern in today's society. To quote a famous song, "Children are our future, teach them well and let them lead the way..." Throughout history, the family has been the corner stone in the education of our youth. Children learn a great deal about who they are and their place in society from the family unit. The structure of the family has changed drastically in the last 50 years. The once valued structure of mother, father and children is now accompanied by a myriad of alternative parental archetypes. How does the family structure influence juveniles, does the structure of the

family play a role in the delinquency of juveniles? Also, having a great influence on today's youth is modern media. Have movies, the internet, video games and social media negatively influenced our youth and contributed to juvenile delinquency? The family, no matter how it is structured, is still the key stabilizing factor in the life of our youth. It is imperative that we exercise due diligence in protecting and nurturing our youth. The family structure and modern media might be one of many factors influencing juvenile delinquency. However, examination of these two factors seem to hold the greatest promise for the further reduction of juvenile delinquency.

Cyberbullying on UD Campus

College of Arts and Sciences: Communication | Poster - Course Project, CMM 420 01

STUDENTS Kaitlin Marie Bell, Samantha M Cook, Tyler E Jasensky, Hannah Catherine Lindesmith | ADVISORS Heather R Parsons

LOCATION, TIME RecPlex, 9:00–10:15

An alarming statistic from the US Department of Health and Human Services states that 52% of students have been a victim of cyberbullying. More than half of students are experiencing the physical and mental threats that follow them constantly in the cyber world. Our world today is filled with the use of internet in a majority of tasks, whether in an office building or in a classroom full of students. With so many people using social media and the internet comes consequences. The idea of cyberbullying is that the internet provides an anonymity that allows a vicious comment to be said without placing the blame on a direct person. In addition, the internet is filled with fake accounts that interact with a person on a daily basis. In contrast to traditional bullying at school, cyberbullying has created an environment where a photo or statement can be shared continuously. At the University of Dayton, students have social media on their phones or com-

puters constantly. Some of the more popular social media sites used are Twitter, Facebook, Snapchat, YikYak, and Instagram. An article conducted by Flyer News expressed the concern that YikYak posed because of the ability to post racist or awful comments about others without your identity being exposed. With the increased use of social media here on UD's campus, there is a heightened chance that cyberbullying will or already has presented itself as a serious issue. Sixty-eight percent of teens report cyberbullying as a serious issue and 81% think it is much easier to bully someone via social media/online rather than in person (dosomething.org, 2016). In conclusion, whether or not we see it often here on our campus, cyberbullying is an issue and it is up to us students to be educated on it and attempt to stop it.

Media Issues: A Case of Distress from Blocked Public Access in Ferguson, and Pre-Trial Publicity and Fair Trial

College of Arts and Sciences: Communication | Poster - Course Project, CMM 432 01

STUDENTS Enrique G Austria, Amanda Jean Dee | ADVISORS Annette M Taylor

LOCATION, TIME RecPlex, 9:00–10:15

Can a defendant get a fair trial in the U.S. today? Can an unbiased juror be found when there has been widespread media coverage of an event? The press and courts have long struggled with finding a balance between free press rights in the First Amendment and rights of the accused in the Sixth Amendment. Enrique Austria explores pre-trial publicity, gag orders, prior restraint and how the 2nd U.S. Circuit Court of Appeals has

handled such cases. Amanda Dee looks at Ferguson, when, on a summer day in 2014, Michael Brown became a symbol for thousands of lives lost. She analyzes in what ways journalists and citizens had access to information about the case, the application of local Sunshine Laws and FOIA, and how official maneuvers restricting access to information should be considered as unconstitutional instances of prior restraint.

Press Access Rights: Journalists Covering War and Seeking Information at Home

College of Arts and Sciences: Communication | Poster - Course Project, CMM 432 01

STUDENTS Megan E Burton, Alison R Cozad | ADVISORS Annette M Taylor

LOCATION, TIME RecPlex, 9:00–10:15

The Pentagon's Law of War manual, updated in summer 2015, has indicated that journalists could be viewed as "unprivileged belligerents" by the U.S. military during wartime, which has raised concern by First Amendment proponents and journalists nationwide. Megan Burton explores analyzes journalists' legal efforts to cover wars in the past, as well as previous agreements between the press and Department of Defense, in order to pre-

dict how courts might resolve future conflicts between the press and the DOD. Alison Cozad examines sunshine laws in Ohio and California to see how state governments approach and comply with requests for information. By looking at court challenges, rulings and sunshine laws, we can get an idea of how these two states compare with their approaches to freedom of information.

Media Issues: Newsworthy Exception to Right of Publicity, and Libel Tourism in New Media Age

College of Arts and Sciences: Communication | Poster - Course Project, CMM 432 01

STUDENTS Jacqueline M Berardi, Caroline E McCormack | ADVISORS Annette M Taylor

LOCATION, TIME RecPlex, 9:00–10:15

Jacki Berardi looks at one of the most important cases involving the right of publicity, *Zacchini v. Scripps-Howard Broadcasting Co.*, in which a newscast showed the entire act of a man shot from a cannon without the performer's consent. The U.S. Supreme Court held that while the First Amendment protects

newsworthy coverage, it does not protect the press when it drastically undermines a person's ability to make a living, as happened in that case. This research paper examines 6th U.S. Circuit Court of Appeals cases dealing with the question of how much journalists can report and record before they encroach

on the commercial aspect of a person's performance or name. This research points allows us to better understand the balance between what is newsworthy and what is a violation of the right of publicity. Caroline McCormack looks at states' efforts to make it easier for their allegedly defamed state residents to get their cases heard at home. In the days before online publishing,

defamation plaintiffs and defendants tended to live in the same state. Now they are often in different states. To deal with the problem, many states have passed "long-arm" statutes to better reach out-of-state defendants. This research explores statutes of Ohio and Virginia and compare how state courts have handled jurisdictional challenges in libel cases.

Reporter's Privilege in the 21st Century

College of Arts and Sciences: Communication | Poster - Course Project, CMM 432 01

STUDENTS Patrick R Mcadams, Ebony A Munday | ADVISORS Annette M Taylor

LOCATION, TIME RecPlex, 9:00–10:15

Journalists have been subpoenaed and otherwise pressured to give up information and sources more times in recent years than any other period of time. Most states have shield laws for reporters, but efforts to pass a federal shield law have thus far failed. With this in mind, Patrick McAdams analyzes cases in the 2nd and 6th U.S. Circuit Court of Appeals since the turn of this

century to establish the legal landscape of reporters' privilege in these regions, and considers whether it is time for a federal shield law. Ebony Munday examines reporter's shield laws in New Jersey and Ohio and compares how courts in each state handle challenges to journalists' efforts to protect sources.

Fair Use and Deceptive Advertising

College of Arts and Sciences: Communication | Poster - Course Project, CMM 432 01

STUDENTS Ryan J Krouse, Brie A Sandridge | ADVISORS Annette M Taylor

LOCATION, TIME RecPlex, 9:00–10:15

Ryan Krouse examines how the 2nd U.S. Circuit Court of Appeals defines fair use, and the degree to which copyrighted material can be copied without harming the potential market value of the material. Brie Sandridge explores the development of laws barring deceptive advertising in the media and how the

9th U.S. Circuit Court of Appeals has handled cases of false advertising. This research suggests how the courts and Federal Trade Commission are likely to deal with issues of deceptive advertising in the future.

Modeling and Operationalizing Flexible Human-Computer Dialogs

College of Arts and Sciences: Computer Science | Poster - Independent Research

STUDENTS Joshua W Buck | ADVISORS Saverio Perugini

LOCATION, TIME RecPlex, 10:45–12:00

We demonstrate a tool for rapidly prototyping dialog-based systems for interactive use. The tool enables a dialog designer to evaluate a variety of dialogs without having to program each individual dialog, and provides a proof-of-concept for our approach

to mixed-initiative dialog modeling and implementation. Applications of our tool can be applied to human-computer dialogs common in automated teller machines (ATMs), kiosks, personal assistants, and online forms including course scheduling.

Results on some generalizations of interval graphs

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

STUDENTS Jonathan D Ashbrock | ADVISORS R Sriharan

LOCATION, TIME LTC Meeting Space, 1:20–1:40

In mathematics, a graph is a collection of points (vertices) and lines (edges) connecting them. These structures are often used to model a collection of objects where the important consideration is the connections between them. A class of graphs known as interval graphs are those graphs that encode the information of a collection of intervals on the real line. These are extensively used in areas such as resource management and scheduling

theory. These graphs are thoroughly studied and many problems which are hard on general graphs permit efficient solutions in interval graphs. My thesis is a study of two generalizations of interval graphs. In the first part, I provide a characterization and polynomial time recognition algorithm for the so called 3-star path graphs. In the second, I present a result on the boxicity of a similar class of chordal graphs.

Culture and Popularity: A Critical Analysis of Contemporary Dystopian Texts

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

STUDENTS Joseph A Spieles | ADVISORS John P McCombe

LOCATION, TIME RecPlex, 10:45–12:00

The past two decades have seen a surge of dystopian novels aimed at teenaged and young adult audiences. Many of the novels have been so well received that they were rapidly adapted into films. I am investigating the cultural obsession with dystopian stories and their popularity in young adult audiences through a critical analysis of The Hunger Games trilogy, novels and films, with references to additional contemporary dystopian novels and

films. My work draws from the psychology of popularity as well as studies of popular culture aimed at predicting and explicating film and novel success. I also aim to explicate the differences between dystopia as a literary genre and other forms of society demonstrated in literature that show civil unrest. I am analyzing the novels, films, and social movements behind these contemporary texts to account for their popularity in young adult culture.

“Instafamous” Women and the Question of Empowerment: A Feminist Reading of Popular Constructions of the Female Body on Instagram

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

STUDENTS Sarah E Spech | ADVISORS Susan L Trollinger

LOCATION, TIME RecPlex, 10:45–12:00

Instagram has skyrocketed in popularity over the last few years, catapulting some of its users into a new type of fame--“Instafame.” Female users who achieve “Instafame” do so in large measure by carefully constructing an identity that articulates a popular ideal of the female body. Many commentators see this presentation of self as a new means of empowerment. But others

argue that these “Instafamous” women are pressured to objectify themselves in order to accumulate thousands of “likes” to create and sustain their celebrity status. In this presentation, I analyze the images on some popular fitness Instagram accounts using the feminist work of Kate Millet.

Activism, Community and Cultural Heritage: “Communitism” in Creek Literature

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

STUDENTS Rachel Maria Cain | ADVISORS Tereza M Szeghi Dempster

LOCATION, TIME RecPlex, 10:45–12:00

“Communitism” refers to literature that encourages activism by celebrating and promoting American Indian communities. This thesis investigates how the literary works, *The Fus Fixico Letters* (1902–1908) and *Drowning in Fire* (2004), are communitist by supporting specific political and social changes in Creek communities. Through *The Fus Fixico Letters* Alexander Posey promoted his progressive political convictions, including that Creeks should embrace land allotment and endorse the creation of a separate state for American Indians. *Drowning in Fire*, by

Craig Womack, takes place throughout 1904–1993 and relates traditional Creek stories and practices to modern life. The novel delves into issues such as homophobia, racism, and the negative repercussions of land allotment. These literary works’ use of communitism elucidates how the writers responded to their particular political and social challenges by addressing different specific communities within their tribe, while still supporting the survival and continuance of their Creek culture in general.

Creating Inclusive Community: First Cohort in Action

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

STUDENTS Jesse T Hughes, Kaleigh Ann Jurcisek, Brandon A Rush | ADVISORS Thomas L Morgan

LOCATION, TIME Kennedy Union 310, 2:20–3:00

This presentation will discuss our class project/ initiative from the Creating Inclusive Communities course, the CIC: Giving Power

Back Conference. We will assess the success of our conference and discuss future plans to improve and bring in more people.

Creating Inclusive Community: Social Justice and Action at UD

College of Arts and Sciences: English | Panel Discussion - Course Project, UDI 380 M1

STUDENTS Gabrielle E Boltz, Rachel Maria Cain, Angela M Eck, Shaylynn A Hespeth, Jesse T Hughes, Kaleigh Ann Jurcisek, Tessa V Marsh, James Edward Mclean, Maeve A Meier, Justin J Merriman, Tiara B Middleton, Sarah M Renfrow, Catherine A Ricci, Brandon A Rush, Amanda M Safko, Allison R Saracina, Virginia Abigail Saurine, Margaret Ann Schaller, Thomas Brewster Tappel, Sydney Dionne Thomas, Kwynn E Townsend Riley, Solange M Tumusange | ADVISORS Thomas L Morgan, Leslie H Picca

LOCATION, TIME Kennedy Union East Ballroom, 3:00–4:00

Creating Inclusive Community involves 22 students who enrolled in UDI 380 “Understanding, Respecting, and Connecting: Examining Privilege and Taking Action” and (along with faculty/staff: Tom Morgan, Staci Daniels-Sommers, Chanel Wright, Malcolm

Daniels, Margie Pinnell, Staci Rucker and Michael Key) attended a diversity conference in Philadelphia, PA in April 2016. The focus of the conference was to examine the challenging concepts of privilege and oppression and to develop strategies for

creating a more equitable world. Come hear about the students' experiences at the conference and the skills and knowledge they gained. They will also engage 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!). Please join us for a lively discussion!

Indigenous Poetics: Revising the White Self

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

STUDENTS Joseph B Ferber | ADVISORS Thomas L Morgan

LOCATION, TIME Marianist Hall Learning Space 217, 3:40–4:00

This three-chapter project explores the work of three poets, each identifying with different North American indigenous tribes. Their work challenges western poetic conventions and notions of individualism to offer alternative worldviews and complicate mainstream oversimplifications of American Indian identity. Brandi MacDougall investigates assumptions of the Western Self represented by the "I" Perspective common in Western thought; Sherman Alexie revises the sonnet form to portray the complex-

ity of how contemporary American Indians navigate the blending of capitalist institutions and native traditions; Kristi Leora offers readers an enlightened conception of self-hood by balancing processes of western socialization with native cosmology. Ultimately, this project is a student's dive into the shallow waters of a deep, perhaps infinite pool of understanding and existence that can never be fully learned, understood or experienced from his personal, subjective perspective

Ghetto University: A Critical Analysis of a Word's Power in a Community

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

STUDENTS Amanda Jean Dee | ADVISORS John P McCombe

LOCATION, TIME Kennedy Union West Ballroom, 4:00–4:40

I am investigating the contexts that shape a name or symbol and how that name establishes, counters, and/or reinforces power within a community. This name is "The Ghetto," the name ubiquitously used by outside media outlets and University of Dayton students, alumni, and some of its faculty and administrative staff to describe the university-owned student neighborhood, until questions of the name's use began to gain widespread traction on public platforms and in conversation during the 2014–16 academic years. Partially as a result of a community collaborative art exhibition, GHETTO, and columns addressing the name in the student newspaper, Flyer News, debate over the word has

ignited across campus and beyond. A conversation about race underlies this debate, which I hope to capture to start a dialogue. Based on voices of university and city community members from public platforms and original interviews in tandem with comparative cases at other universities and in pop culture, I will offer an analysis of this moment of discourse from a critical perspective. This is not the end of this study on "ghetto," but rather a starting point—a case study—which will hopefully serve as a resource for others at the University of Dayton and other universities and studies broaching similar documentations and critical analyses of the power of language in our social lives.

Modern Maturation: Coming of Age in American Society

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

STUDENTS Stephanie Marie Loney | ADVISORS Albino Carrillo

LOCATION, TIME Kennedy Union 310, 4:20–4:40

Although the coming-of-age story is an important literary genre in many societies and time periods and the basic structure remains constant, cultural factors shape the details of each individual story, making them all unique. As the paradigm dictates, the stories that I will write will focus on a singular main character as she develops from childhood into adulthood, cataloguing in particular the struggles that she must face to reach the end goal of maturation; however, the contemporary issues involved will allow for a distinct perspective. My thesis project takes the form of a

short story cycle that follows a young woman, Abigail, from the end of her high school career through her matriculation in and completion of college. The stories focus on her transition from childhood into adulthood, and I emphasize the ways in which the American Dream affects this process as well as the personal and social choices that she must make. In these short stories, I utilize the techniques outlined in fiction writing guides, such as John Gardner's *The Art of Fiction*.

Getting the Facts About "Nutrition Facts"

College of Arts and Sciences: English | Poster - Course Project, ENG 366 02

STUDENTS Bridget Ann Lally, Thomas R Lawler, Andrew J O'Connell | ADVISORS Ann E Biswas

LOCATION, TIME RecPlex, 9:00–10:15

Health literacy is the ability to understand and evaluate health-related information. Most health information is written to an

advanced literacy level, which often presents a challenge to individuals with lower literacy. The average adult in the United

States reads at an 8th grade reading level. Our team addressed the challenge of comprehending Nutrition Facts labels. We chose a document that explains how to read and interpret a Nutrition Facts label. This document is available on the Food and Drug Administration's website. Our target audience was students in the University of Dayton Reading and Vocabulary Level 2 Intensive English Program (IEP) Class. These individuals are from foreign countries, where English is not their primary language. We visited the class twice and each time they provided us with suggestions on how to improve the document. Next, we revised

this literature through the Flesh-Kincaid Readability test and a Load Analysis. The document was originally a 9.4 reading level. We assessed the four aspects of health literacy: fundamental, scientific, civic, and cultural. The goal for the revised version of this health document was to lower the reading level to 6th grade, in order to help the IEP students comprehend the document with ease. With the help of the students in the IEP class, we were able to lower the reading level and make the document easy to comprehend for individuals whose primary language is not English.

Partnership with IEP Students to Determine the Readability of Seasonal Influenza Health Documents

College of Arts and Sciences: English | Poster - Course Project, ENG 366 02

STUDENTS Khalifah S Alghatam, Nichole A Hamburg, Rachel L Singer | ADVISORS Ann E Biswas

LOCATION, TIME RecPlex, 9:00–10:15

Partnership with IEP Students to Determine the Readability of SeasThe ability to comprehend and use health information is a growing problem in the United States. To be health literate means you are able to interpret instructions from health care providers, act upon what was instructed, and are able to understand health documents or forms. The average reading level of U.S. adults is 7th–8th grade. Most health documents are written to a much higher level. For this project, we revised an existing health document from the Center for Disease Control (CDC) website regarding seasonal flu. We presented the original and revised health document to the Intensive English Program (IEP) level 2 students at the University of Dayton. We partnered with the IEP students to test the readability of our document. On our first visit

we inquired what the students already knew about the flu and how we could increase their understanding. We then created a brochure using their input as well as the original document. We used the Flesch-Kincaid readability test to determine the reading level of the CDC document, which we discovered to be at an 11th grade level. We performed the same test on our revised brochure which we determined to be at a 2nd grade reading level, legible to the average U.S. adult. We presented the brochure on the second visit to the IEP students. Some students still needed further clarification on the wording, in which we later revised on the brochure. This project allowed us to create a legible health document targeted towards audiences of lower literacy. onal Influenza Health Documents

Finding Physicians Fast: Making finding a doctor easier for ESL students

College of Arts and Sciences: English | Poster - Course Project, ENG 366 02

STUDENTS Katherine J Gross, Marissa Christine Jama, Charles Conner Yancey | ADVISORS Ann E Biswas

LOCATION, TIME RecPlex, 9:00–10:15

In the realm of healthcare, it is often difficult to decipher how to locate personal and primary physicians. Those living in the United States are familiar with the role of family care physicians, however, individuals who have immigrated to the U.S. may not fully understand how to find a family physician. The topic of family physicians is important because many other countries do not have primary care physicians that require appointments. For our project, we took two documents that tested at a reading level of 12th grade. We did this by testing the original documents with the SMOG test and the Flesch-Kincaid Test. The SMOG test was performed manually and evaluated the documents' sentence structure and individual word syllables. The Flesch-Kincaid Test was performed via the program Word and measured the documents' average reading level. We then presented this document

to students in the Level 2 Intensive English Program (IEP) at the University of Dayton to gauge how readable our revised document was. In addition to lowering the level of the vocabulary, we provided the students with a visual step-by-step guide outlining the process of finding a family physician in America. The processes included routes that the individual can take to find a physician if they do possess health insurance or if they do not possess health insurance. Through several meetings with the IEP students we were able to obtain feedback as to how to improve the quality of our document. By lowering the readability level of our documents to a 6th grade level, we made the information of locating a primary care physician in the Dayton area to these students.

Dayton and Beyond: Community Engagement through Writing for Grants and Non-Profits

College of Arts and Sciences: English | Poster - Course Project, ENG 370 H1

STUDENTS Jacob L Allsop, Morgan Elizabeth Beemiller, Sarah A Bergen, Major Augustine Bernhold, Taylor K Boyd, Colin E Bukovec, Manda C Cash, Christina M Haskell, Beverly Yvonne Johnson, Jason M Johnson, Devin M Joss, Matthew J Mcevely, Jonathon P Sens, Colin Elliott Wilson, Karianna J Zabaglo | ADVISORS Nicole F Adams

LOCATION, TIME RecPlex, 9:00–10:15

Through five different grant writing projects, students in Honors Report & Proposal Writing (English 370) are learning about and producing the research and writing non-profit organizations must engage in to address community needs and social problems. Corporate Social Responsibility has evolved from a trend to a necessity as corporations face increased global competition in retaining customers and employees. Partnerships with non-profit

organizations have allowed companies to “give back” within their communities, and young professionals across industries are seeking such service opportunities in prospective employers. Understanding the roles and needs of non-profits is key to students’ connecting with the communities in which they will work and live upon graduation.

Usability and the AARP Guidebook for Apple iMac/Macbook Air/Pro app, iMovie

College of Arts and Sciences: English | Poster - Course Project, ENG 371 01

STUDENTS Margaret Mary Hurley, Beverly Yvonne Johnson, Victor Samuel Pollack, Amy C Skoba, Maura Taaffe

ADVISORS Maura Taaffe

LOCATION, TIME RecPlex, 9:00–10:15

Six groups are writing an AARP guidebook on a different type of software, doing a usability test, and proposing a new Beta version of their guidebook. Each group will present their process on a Poster.

Usability for the AARP Facebook User Guide

College of Arts and Sciences: English | Poster - Course Project, ENG 371 01

STUDENTS Luke F Bugada, Michelle Jude Difalco, Robert J Olson, Michael J Sebastian | ADVISORS Maura Taaffe

LOCATION, TIME RecPlex, 9:00–10:15

Six groups are writing an AARP guidebook on a different type of software, doing a usability test, and proposing a new Beta version of their guidebook. Each group will present their process on a Poster.

Usability for AARP Instagram Guidebook

College of Arts and Sciences: English | Poster - Course Project, ENG 371 01

STUDENTS Madeline Marie Connaughton, Hannah M Nash, Nicole A Weigand | ADVISORS Maura Taaffe

LOCATION, TIME RecPlex, 9:00–10:15

Six groups are writing an AARP guidebook on a different type of software, doing a usability test, and proposing a new Beta version of their guidebook. Each group will present their process on a Poster.

Usability for AARP Blogger Guidebook

College of Arts and Sciences: English | Poster - Course Project, ENG 371 01

STUDENTS Matthew P Freese, John R Laufersweiler, Brian Terry Thomas | ADVISORS Maura Taaffe

LOCATION, TIME RecPlex, 9:00–10:15

Six groups are writing an AARP guidebook on a different type of software, doing a usability test, and proposing a new Beta version of their guidebook. Each group will present their process on a Poster.

Usability for AARP Twitter Guidebook

College of Arts and Sciences: English | Poster - Course Project, ENG 371 01

STUDENTS John H Beaudoin, Cameron William Clapp, Steven B Fitzpatrick | ADVISORS Maura Taaffe

LOCATION, TIME RecPlex, 9:00–10:15

Six groups are writing an AARP guidebook on a different type of software, doing a usability test, and proposing a new Beta version of their guidebook. Each group will present their process on a Poster.

Usability and AARP LinkedIn Guidebook

College of Arts and Sciences: English | Poster - Course Project, ENG 371 01

STUDENTS Carson C Chatterton, Thomas Joseph Harr, Kyle Thomas Janowicz, Maura Taaffe | ADVISORS Maura Taaffe

LOCATION, TIME RecPlex, 9:00–10:15

Six groups are writing an AARP guidebook on a different type of software, doing a usability test, and proposing a new Beta version of their guidebook. Each group will present their process on a Poster.

Improving Student Resources for Overcoming and Preventing Alcoholism at the University of Dayton

College of Arts and Sciences: English | Poster - Course Project, ENG 373 H1

STUDENTS Michael A Coladipietro, Michael J Hudock, Ross Alan Sattler | ADVISORS Rachel Bloom-Pojar

LOCATION, TIME RecPlex, 9:00–10:15

Alcoholism, as defined by Healthline, is as an “addiction” that can be characterized by a “physical and psychological need to drink.” This definition relays the importance of alcoholism being a both a physical and mental issue. Some confuse alcoholism with alcohol abuse, but according to Healthline, alcohol abuse is an earlier stage of alcoholism, involving occasional excessive drinking with no physical or mental dependence. Therefore, with alcoholism being a mental issue, having resources readily available for students is key for them to overcome or prevent its development. The current resources that the University of Dayton provides are comprehensive: both student organizations and University programs exist for helping students with overcoming or preventing alcoholism. These organizations/programs include those provided by the Wellness Center (i.e. Alcohol/Drug Check-Ups and Sober Flyers), Counseling Center, and Alcohol and Other Drug Prevention Office. Thus, a myriad of resources exist, however after textual research and student interviews, our

group thinks improvements can be made. Our recommendations for improving current resources at the University of Dayton primarily revolve around three ideas: centralization of resources, advertising these resources, and reducing the stigma of alcoholism. Centralizing the resources is critical for students obtaining information since a central location would allow students easily access the information, and a prime location would be the Wellness Center. Moreover, these resources need more advertising. Currently, students seem to lack knowledge of all of the available resources, and thus, making these resources known could help students, who are unaware of the opportunities. Finally, the ultimate long-term goal of the University of Dayton should be to reduce the stigma of alcoholism, so students feel comfortable asking for help. Student feedback on these ideas have been positive, and so our group thinks these improvements could help students overcome and avoid alcoholism.

Chronic Depression: A Mental Illness

College of Arts and Sciences: English | Poster - Course Project, ENG 373 H1

STUDENTS Christian R Jensen, Kaitlin Leigh Restrepo, Kendal G Schaetzle | ADVISORS Rachel Bloom-Pojar

LOCATION, TIME RecPlex, 9:00–10:15

Chronic Depression affects the lives of thousands of Americans each year, and it seems to be an increasingly prevalent problem amongst college students. Chronic Depression can have profound impacts on an individual’s life, as it can lead to sleep disturbances, eating disorders, an inability to make and maintain meaningful relationships, and it can ultimately result in suicide. This last effect is well understood within the University of Dayton community, as multiple students have committed suicide over the past couple of years. Therefore, we believe that it is extremely important to discuss the current status of the available resources for those suffering from depression and those that would like to learn more. We went about this by analyzing materials from the Counseling Center, which offers extensive counseling services for those suffering with mental illnesses. We also looked into student run organizations such as Active Minds and To Write Love

On Her Arms; both of these organizations are very involved with open discussions of depression and what individuals can do to help those in need. Although these resources are extremely valuable, we feel that additional things can be done to fight Chronic Depression on campus. In this presentation, we recommend that the RecPlex should sponsor a mental health month, where individuals can take yoga and meditation classes for free. We also suggest that certain CBM meetings should be designed to specifically discuss Chronic Depression and what individuals can do to seek help and/or support friends. These meetings coupled with the reward of “Path Points” would be priceless additions to growing list of resources. Colleges have a great potential to educate students about mental illnesses such as depression and this poster examines how the University of Dayton can enhance its approach to supporting students affected by it.

The Hidden Nature of Eating Disorders on College Campuses

College of Arts and Sciences: English | Poster - Course Project, ENG 373 H1

STUDENTS Raphael J Crum, Shannon Marie Hayes, Lisa E Laurenzana | ADVISORS Rachel Bloom-Pojar

LOCATION, TIME RecPlex, 9:00–10:15

Eating disorders are a prevalent, but often overlooked and misunderstood issue that affects both men and women on college campuses. This presentation outlines the various types of eating disorders, their symptoms and lasting effects on health, and reasons why this issue hits the college population particularly hard. In addition, it comments and critiques the resources available at the University of Dayton for students or friends of students who suffer from these disorders. Interviews were conducted with

members of the student population, faculty, and the Assistant Director of Counseling on campus, Dr. Rebecca Cook. The responses of these interviews were used to guide our analysis of the available resources in regards to their overall effectiveness and accessibility. Through our investigation, it was discovered that although these resources are a good place to begin helping those affected by the disorders, constant accessibility to resources and emotional support for the affected are lacking

In addition, a substantial effort to create awareness around campus for students that do not personally have eating disorders but could possibly know a friend suffering appear to be lacking as well. It is suggested that the resources available at the Univer-

sity of Dayton become electronically available in order to appeal and become more readily accessible for a collegiate generation dependent on technology.

Website Genre Analysis and Usability Testing Report

College of Arts and Sciences: English | Poster - Course Project, ENG 375 01

STUDENTS Cosette A Bergin, Manda C Cash, Christopher J Cuddy, Hannah Marie Frimel, Conner M Haenszel, Jessica Lynn Kerr, Alexander Kubalski, Yang Li, Erin Rebecca Malone, Patrick James Montgomery, Scott D Peterson, Ji Qi, Claire T Sauer, Brett J Slaughenhaupt, Sarah E Spech, Matthew A Stephen, Jana M Sztuk, Kwynn E Townsend Riley, William W Van Winkle, Harry Robert Wahl, Mackenzie J Walsh, Hannah Alyse Weiker, Andrew C Yedlick | ADVISORS Xiaoli Li, Patrick Thomas

LOCATION, TIME RecPlex, 9:00–10:15

Eleven group of students will present findings with evidence from genre analysis and usability testing of current UD English Department website as a series of poster presentations. This presentation will bridge their planning for content strategy for redesigning the English department website and the production of a new website that is not only easy to use, but also focuses on conversations site visitors want to have with the Web site. They interviewed the client (department chair) to understand his primary purpose for the Website. In order to find out the types of conversations of site visitors, each group has researched the demographic information and information needs of a typical user group, such as current students, high school students, high school English teachers, current graduates, English faculty members, alumni, faculty advisors from other departments, undecided students, parents, prospective faculty members, English TAs,

etc. Through surveys, interviews, focus group discussion, each group developed personas and scenarios for the Web site. To compare the existing Web content with the content strategy the Web should have, the students conducted genre analysis of four academic departments' (2 at UD and 2 outside UD) Websites. In addition, they tested the existing Web content with real site users to learn if users could find the content they want and need; if the content is presented with good information design; if the content is organized and broken up in a way that works for users; if the writing help users skim easily and read quickly; and if they immediately understand the words used on the site. The findings of genre analysis and usability testing will lead them to propose how to redesign the Web content that will satisfy the site users' conversations.

Making Sense of Stereotyping Appalachia

College of Arts and Sciences: English | Poster - Course Project, ENG 380 02

STUDENTS Flannery A Cohill, Maria T Czerwonka, Andrew J Eckrich, Thaddeus J Masthay | ADVISORS Leah W DeAloia

LOCATION, TIME RecPlex, 9:00–10:15

As members of the “Untangling Appalachia: Appalachian Literature, Culture, and the Politics of Representation” course, we recognize Appalachia as a geocultural space which is rich in diversity and cultural heritage. Historically the region has been economically exploited and culturally ridiculed by wider American culture. In a wider context, Appalachia has been defined by outsiders through stereotypes in various ways that have contributed to a discourse on Appalachia built around marginalization of its people for the exploitation of labor and land. In this sense, stereotypes must be considered in a wider analytic framework than evaluating their accuracy. Rather stereotypes must be analyzed for their participation in erasing a culture, removing autonomy for peoples to define their own culture, and render peoples vulnerable to being exploited and controlled.

In following this consideration, we analyzed literary, filmic, and journalistic texts for how Appalachia is made Other and defined as distanced from wider US culture through stereotypes. This analysis focused on how these texts’—such as the 1972 film *Deliverance* and appropriations of the Daniel Boone legend—render, distribute, and legitimize stereotypes of Appalachians as “wild” or “quaint” or “backwards” and discursively makes Appalachia other and renders it subject to commodification and control. In this framework, we sought to situate the social relevance to Appalachians these discourses have including the historically-situated economic and political context in the eras of President Johnson’s War on Poverty, the Great Recession, and the rise of coal as an industry.

Cultivating Care for the Creek: The Flow of Stewardship from One Generation to the Next

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

STUDENTS Anna E Adami, Brian Sebastian Kessler, John A Weniger | ADVISORS Leslie W King

LOCATION, TIME RecPlex, 10:45–12:00

Each year the senior cohort of River Stewards completes a capstone project grounded in the Fitz Center Pillars for Leadership in Community. The 2016 cohort collaborated with the teachers of

Edison Elementary School to create and implement an environmental education program for the 7th grade class. As an interdisciplinary team, the stewards communicated with mentors, with

Edison teachers, and with the NSC site coordinator to develop a widely shared vision. They hoped to instill in Edison students a connection, an ownership, and a responsibility for the creek that runs parallel to the school. The project started with after-school tutoring and culminated with Creek Day, a three hour program of six interactive educational stations. Stewards taught about

watersheds and aquifers, plants and trees, recycling and reusing. The project united Dayton college students with Dayton 7th graders. One generation of stewards shared their expertise and passion with the next, ultimately cultivating a collective care for the environment we all share.

Dayton Civic Scholars 2016: Perseverance and Partnership in Audubon Park

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

STUDENTS Kristen R Abbarno, Sydney Marie Antolini, Ian Andrew Dollenmayer, Olivia R Hirt, Beverly Yvonne Johnson, Jasmine H Lahoud, Jacob Maxwell Morrison, Samuel A Mullins, Logan Dyslin O'Keefe, Morgan E Pair, Margaret M Quinn, Theresa Mae Schneider, Sarah C Thomas, Joshua D Tovey | ADVISORS Donald A Vermillion

LOCATION, TIME Kennedy Union 310, 3:40–4:20

For our capstone project for the Dayton Civic Scholars program, we facilitated the creation of a brand new park in the city's Ole Dayton View neighborhood. This presentation details the journey of brainstorming, setbacks, relationships, and triumphs that ultimately lead to the construction and establishment of Audubon Park. Building our project on Fitz Center principles of personal connections and community assets, we developed a strong relationship with the Ole Dayton View neighborhood association and residents to determine how best to enhance interpersonal cohesion in the area. After a great deal of communication and contemplation, we were able to build a unified vision for a neigh-

borhood park. Our presentation outlines how this vision came about and portrays the processes we went through with Greater Dayton Premier Management and Housing and Urban Development in order to fund and finalize the park. We also include personal anecdotes and recognition by local news media on the positive impacts of Audubon Park. Finally, we will discuss the neighborhood's role in our project's sustainability. Throughout the long and arduous process of making Audubon Park a reality, our cohort learned innumerable lessons about patience, perseverance, and the power of relationships to make tangible change possible for our communities.

Great Lake Region Water Temperature Analysis and Relationship to Climatic Variability during Last Two Decades

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

STUDENTS Jordan Taylor Watson | ADVISORS Shuang-Ye Wu

LOCATION, TIME RecPlex, 10:45–12:00

Lakes as a whole both regionally and globally can be adversely affected by climate change and can impact the ecology, economics, and resources of these reservoirs of water. As ambient air temperatures rise, examining the Great Lake region's response to environmental condition changes is extremely important in understanding what effect rising temperature will have on this region as well as foreseeing the possible consequences of these rising temperatures. This study uses both ambient air and lake temperature data as well as remotely sensed data satellite imagery collected from NCDC and CMAN buoys, stations,

and satellites surrounding the Great Lake region. Using spatial analyzation techniques such as regression, geostatistics, and interpolation to examine the data it would appear that the lake water temperature is rising at a faster rate than the surrounding air temperature. After analyzing satellite imagery of the region, winter ice cover loss and the resulting extension of the summer warming and evaporation period appears to be related to the more extreme increase of lake water temperature compared to the ambient air temperature increases.

A Regression Analysis of Industrial Pollution with regards to Socioeconomic Factors in Pittsburgh and the Surrounding Metropolitan Area

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

STUDENTS Kara Ann Lamantia | ADVISORS Shuang-Ye Wu

LOCATION, TIME RecPlex, 10:45–12:00

Environmental justice is now a prominent and commonly used term in the context of environmental health, policy, research and education (Perlin et al, 2001). Environmental justice studies have been used many times to asses areas for a wide variety of problems. The effects of pollution on different socioeconomic backgrounds in different ways is a topic that is often brought up. However, there are many different types of pollution and many different ways to analyze the effects that they have on a com-

munity. There have also been a number of comparisons done between different cities and communities to see if the pollution rates and environmental justice issues could possibly only occur in one location or be applicable to more than one community. This study involves a regression analysis of the Pittsburgh area and how air pollutants effect the residents in the surrounding area. The areas were analyzed to determine if people of different socioeconomic classes were more or less effected by pollu

tion from surrounding industrial plants. Five industrial source locations were used to analyze Pittsburgh and the surrounding

metropolitan area.

Tooth Enamel Carbon Isotope Tells It All: From Diet to Environment

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

STUDENTS Emily A Lestingi | ADVISORS Zelalem Bedaso

LOCATION, TIME RecPlex, 10:45–12:00

Analyzing carbon isotopes ($\delta^{13}C$) of fossilized herbivore tooth enamel can aid in reconstructing dietary adaptations of mammalian fauna and further signify the paleoenvironmental conditions both in space and through time. The use of carbon isotope in tooth enamel, as a paleoenvironmental proxy, is based on differences in carbon isotope discrimination between plants that use the two major photosynthetic pathways (C3 and C4) and the transfer of isotopic signatures from plants to tooth enamel. Temporal $\delta^{13}C$ fossil tooth enamel data from terrestrial sedimentary deposits has the potential to provide detailed information about dietary adaptations as well as diet change of mammals from pure C3 browsing to C3/C4 mixed to pure C4 grazing diet, and suggesting the presence and relative proportion of vegetation on the paleolandscape. Here, we used new and compiled modern and fossil tooth enamel $\delta^{13}C$ data from seven different

Plio-Pleistocene east African herbivores in the last 5.5 Ma. Our results indicate that C4 grasses were a significant part of the mammalian diet throughout the record. Equids and Alcelaphini exhibited a consistent C4-dominated diet throughout the record, while Aepycerotini and Tragelaphini were mainly fed on C3/C4 mixed diet. Hippo and Bovini adopted to C3/C4 mixed diet prior to 3Ma but they shifted to exclusively C4-dominated diet. On the other hand, most of the modern herbivore taxa show relatively similar diet as compared to their fossil closest relatives, except Tragelaphini, which relies on pure C3 diet. These diverse diets observed in the mammalian fauna since Late Miocene indicates the presence of both C3 and C4 vegetation and the significance of C4 grasses on the paleolandscape, which further provides an insight to the resources available for early hominin.

Environmental Sensor Networking & The Internet of Things Prototype

College of Arts and Sciences: Geology | Poster - Course Project, CPS 499 03

STUDENTS Surya Margaret Freeman, Raymond C Gaier, Joshua Latham, Garrett M O'Grady, Christopher Weisenborn

ADVISORS Andrew Rettig

LOCATION, TIME RecPlex, 10:45–12:00

This project aims to set up an environmental sensor network at the Mission of Mary local urban farm using current Internet of Things trends. The goal is to be able to view and log geospatial temperature data from a greenhouse site. The first step is to take temperature readings from several sensor points located inside and outside the greenhouse to retrieve the ambient air temperature. The temperature sensors will be connected via Ethernet cable to a low-power, open-source hardware, single-board computer called a Raspberry Pi. Data will be transmitted via HTTP protocol over a cellular connection to our cloud servers. Our main method for viewing the data will be an iOS app that Mission of Mary workers can download and view real-time temperature data at each point in the greenhouse. This will ensure that they

are always able to monitor the site regardless of where they are and can take steps to release heat if needed. The app will also allow them to view historical data for each of the sensors. A secondary method based on RESTful web services is an online query tool where data can be exported as a .csv file and easily imported into excel. Statistical analysis of the data will be done using a two-tailed t-test comparing the mean values of redundant sensors. Analysis will also be done using applicable local temperature data from Dayton International Airport and the Miami Conservancy District. To complete the project partnerships have been created with Intrust IT, a leading cloud provider in Cincinnati, and Kore Telematics, the leading global M2M communication company.

Global and Regional Chitinozoan Biodiversity Dynamics in the Ordovician: Relationships to Sea-Level, Carbon Cycling and Tectonics

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

STUDENTS Jordan Taylor Watson | ADVISORS Daniel Goldman

LOCATION, TIME RecPlex, 10:45–12:00

Fossil species provide extensive information about the past history of life on Earth. This thesis focuses on the global and regional biodiversity dynamics of the extinct fossil group Chitinozoa, and analyzes the impact and influences of sea-level, global carbon cycling and tectonics on their biodiversity. Biodiversity curves were generated from three different paleo-continent, Laurentia, Baltica, and Gondwana using the automated graphic correlation computer program CONOP9. Traditional methods of

biodiversity analysis count fossil taxa in individual intervals of geologic time. The results of these methods are highly dependent upon interval length and the relationship of taxon range to interval boundaries. CONOP9 utilizes an interval free approach to biodiversity analysis. Chitinozoan stratigraphic range data from fossil species collected on several ancient continents (Baltica, Laurentia, and Gondwana) were also combined and analyzed to compare the regional and global biodiversity plots. These biodi

versity patterns were then compared to existing sea-level and carbon isotope excursion curves to examine the relationship between environmental change and Chitinozoan biodiversity. The three major carbon isotope excursions of the Ordovician, the MDICE, GICE, and HICE all occur during periods of reduced

global chitinozoans biodiversity. Additionally, sea level to some extent appears to be related to chitinozoan biodiversity with reduced biodiversity during periods of sea level decrease and increasing biodiversity during periods of higher sea level.

Surface Temperature Estimations of Debris Covered Peruvian Glaciers using Remote Sensing and Satellite Imagery

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

STUDENTS Kara Ann Lamantia | ADVISORS Umesh K Haritashya

LOCATION, TIME RecPlex, 10:45–12:00

With the current climate changes the Earth is experiencing, there is a noticeable retreat of the glaciers that exist on the Earth. Tropical glaciers in Peru are an important resource to the people who live there and depend upon them for farming, consumption and hydro-electric power. Due to the steady and rapid retreat of these glaciers, the people of Peru could potentially lose this valuable resource significantly in the next few decades. This study processes Landsat 5 satellite images into black and white thermal outputs to assess how the glaciers behave with respect to climate changes. The five glaciers located around 9°S in

the central Cordillera Blanca Range in Peru were examined for change in centerline temperatures between 1999 and 2010. Along with an increase in surface temperature over eleven years, the lakes present at the terminus increased in area as well. Due to the limited availability of data, comparing temperature changes in mismatching months can become complicated. The central Cordillera Blanca Range that lies at 9°S has shown an overall increase in temperature between 1999 and 2010 which falls in correlation with other studies that have shown an over increase in 0.5°C in the overall Cordillera Blanca Range.

INVESTIGATION OF SVALBARD, NORWAY CARBONATES IN BASALTIC SAMPLES AS AN EARTH ANALOG FOR CARBONATE GLOBULES WITHIN MARTIAN METEORITE ALLAN HILLS 84001.

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

STUDENTS Michael A J Sekerak | ADVISORS Andrea M Koziol

LOCATION, TIME RecPlex, 10:45–12:00

Martian meteorites provide knowledge about the evolution of current and past geological and climatic conditions on our neighboring planet, Mars. The meteorite Allan Hills 84001 (ALH 84001) is critical in understanding the aqueous history of Mars. ALH 84001 is an orthopyroxenite formed from cooling basaltic magma around 4.5 billion years ago. Because of Mars' violent history with asteroids and other impacts ALH84001 has many deformities and alterations. This primarily includes extensive crush zones. At a later point in its history the orthopyroxene-rich rock experienced Mg/Fe - Ca carbonate deposition. The presence of carbonates infers an aqueous environment, and consensus has centered on a low temperature hypotheses of formation, most likely hydrothermal interactions with the orthopyroxenite rock. The goal of this undergraduate research is to compare carbonate globules found within ALH84001 and samples from an analog site: volcanic centers on Svalbard, Norway, to better understand

the formation of the globules. Only optical microscopy was used when examining the thin sections. The microscopes allowed us to examine the thin sections and compare directly between Martian and terrestrial carbonates. Through examination of thin sections from both ALH84001 and Svalbard, Norway we have taken note of the similarities and differences between the two. We noted several similarities, including size, shape, and chemical zoning of the globules along with similar composition of the host rock. Therefore, we conclude that the globules formed in a similar geological environment, this environment being carbonate rich hydrothermal interaction with the basaltic host rock. The differences between the two sets of carbonates are mostly a result of ALH84001's complex geological history, including multiple shock events, including some events that happened after formation of the carbonate globules.

Oxygen and Hydrogen Isotopes in Precipitation, Dayton Ohio

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

STUDENTS Molly Louisa Parks | ADVISORS Zelalem Bedaso

LOCATION, TIME RecPlex, 10:45–12:00

The stable isotopes of oxygen ($\delta^{18}\text{O}$) and hydrogen ($\delta^2\text{H}$) in precipitation can be used as powerful tracers in the hydrologic cycle and further be used in fields of ecology, paleoclimatology, and forensic studies. However, in order to fully use this tool, we need to establish temporal and spatial variation of water isotope in precipitation, and better understand how isotopic composition

of water relate with climatic processes and physiographic factors. Today, most of precipitation collections are limited to monthly resolution but to identify local controlling factors, there is a need to increase the data resolution. Here, we present $\delta^{18}\text{O}$ and $\delta^2\text{H}$ precipitation data from a yearlong collection at the University of Dayton where samples were collected at daily, weekly, and

monthly basis between March 2014 and March 2015 (n=138). Our result indicates a large range of $\delta^{18}\text{O}$, $\delta^2\text{H}$, and d-excess values. Daily $\delta^{18}\text{O}$ values range from -28.0‰ to 4.22‰ , weekly -24.1‰ to -0.84‰ , and monthly -15.8‰ to -3.8‰ . Daily $\delta^2\text{H}$ values range from -214.2‰ to 28.8‰ , weekly -189.3‰ to 2.8‰ , and monthly -114.2‰ to -20.7‰ . Daily d-excess values ranged from -22.2‰ to 20.5‰ . Both $\delta^{18}\text{O}$ and $\delta^2\text{H}$ show seasonal variations where the isotope values are lower between October and March with the lowest value recorded in January, and higher between April and September with the highest values in May. D-excess, however

shows consistent average values, close to the global meteoric water average 10‰ , throughout the year except slightly higher values in November and December. Comparing our results with the factors that control isotopic composition of precipitation (temperature, amount, seasonality, and moisture source etc.), it is evident that the water isotopes in precipitation in Dayton shows seasonality and are controlled mainly by seasonal changes in temperature, source of moisture and moisture trajectory, while other factors such as precipitation amount are less significant.

Deconstructing the Disney Delusion: A Critical Analysis of Disney's World Showcase and the Disney Princesses

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

STUDENTS Krista Elizabeth Bondi, Christina M Haskell | ADVISORS James T Uhlman

LOCATION, TIME Kennedy Union West Ballroom, 1:00–1:40

For the American Studies senior capstone projects, Chrissy Haskell and Krista Bondi deconstruct the idyllic visual experience in the Disney parks and films. The Disney Studios, and more broadly the entire Disney Corporation, is dedicated to creating a world of fantasy. Haskell focuses on the World Showcase in the Disney World Park in Orlando, Florida. Haskell argues that the portrayal of various countries creates a hyperrealistic experience for the visitors. The World Showcase is a carefully curated space that creates the appearance of "authentic" international travel, but in reality the space conveys an ideal representation of each

country around the world. Bondi places her focus on the representation of changing beauty as portrayed in the Disney princess films. Beauty is an archetypal characteristic of the princess in fairy tales and folklore, but how does Disney characterize beauty through its various princess characters? The physical appearance of princesses in Disney films parallels the changing ideals of beauty within the American society, but is also influenced by shifting gender expectations. Together the two projects explore the underlying beliefs of the visual and physical world created by the Disney Corporation.

Daily Life in Early Modern Europe

College of Arts and Sciences: History | Oral Presentation - Course Project, HST 103 H4

STUDENTS Katie L Breitenbach, Patrick J Casale, Kennedy G Hale, Riley T Hart, Jonathon E Rymer | ADVISORS Bobbi Sutherland

LOCATION, TIME Kennedy Union 312, 1:00–2:00

The papers in this session are the result of individual and varied projects, but each of them approaches history through the lens of "daily life." Rather than focus on major political events, these papers look at the way historical changes impacted ordinary people or the impact of seemingly trivial things on changes in politics or economics. Jonathan Rymer will present "The Role of Sports in Early Modern Europe" This paper will look at the role sports and athletics plays in the daily life in early modern Europe. The paper will also include a focus on individual sports, as well as the shift from military style sports to an autotelic manner of play. Katie Breitenbach's paper "Differences in the Early Modern Period's Western European Cultures Arising from Differences in Food Systems Among the Classes" explores how food shaped the differences among the cultures of the different classes of this

time period, and what these cultures entailed, in reality. More specifically, the project approaches this concept through the lens of the sumptuary laws, which were significant in Western European culture in the early modern period. Kennedy Hale explores the rise of fashion and its effect on society and status in her paper "The Birth of Fashion in the Early Modern Era". Riley Hart looks at the Enlightenment, but specifically at the way the Enlightenment impact the development of English legal doctrine and its effects on the daily life of citizens. His paper is entitled "English Enlightenment and Law." Finally, Patrick Casale reexamines a scandalous figure in "Pope Alexander VI: A Great or a Glutton". This essay will explore Rodrigo Borgia's scandal ridden papacy and more specifically his efficacy as leader of the Church in spite of the gossip surrounding his personal life.

The History and Development of Science through Time.

College of Arts and Sciences: History | Listening Station - Course Project, HST 103 H4

STUDENTS Michael J Beebe, Samuel V Eagan, Michael Hampo, Riley N Zelczak | ADVISORS Bobbi Sutherland

LOCATION, TIME LTC Rotunda, 1:00–5:00

Sciences play an important role in society; they continually change and progress to fit the needs of the growing society. In our podcast we will be discussing the major changes in science and technology throughout history, focusing on architecture, astronomy, medicine, and technology. We will be hitting the big

turning points in history, covering what these sciences looked like during these time periods, and how they progressed to what they are today. We will be discussing our research with one another and how it interconnects, while moving through different time periods. Riley Zelczak will be discussing the development of

towns, villages, and cities through the lens of civil engineering. Sam Eagan will be explaining the development of technology in common diseases, how the disease affected the population, and methods of curing them. Michael Hampo will be talking about the field of astronomy, focusing on how our ability to see space

has improved over time. Michael Beebe will be talking about technology — the most advanced tool that existed in a given time — asking how it came about, how it was used, whether it was effective or not, and how it was either improved upon or replaced.

The Conflict of Belief: Discussion of Global Political and Religious Tension

College of Arts and Sciences: History | Listening Station - Course Project, HST 103 H4

STUDENTS Nathan G Mansour, Kathryn R Rohrer, Dillon K Schneider, Jonathon N Smith, Benjamin R Wilson

ADVISORS Bobbi Sutherland

LOCATION, TIME LTC Rotunda, 1:00–5:00

Religion of all kinds is practiced on a global scale and is an incredibly influential factor that affects how people live and make decisions. Various practices have left marks on political, social, and economic processes worldwide. In some cases, religion has been a source for political tension and violence, and in others it has attempted to settle such conflicts. This podcast will discuss examples of religious conflict throughout history such as the

relationship between Shia and Sunni Muslims and the Islamic State, the schism between the Catholic and Russian Orthodox Church, and the violence and class struggle between Hindus and Muslims in India. It will also detail the influence of religious institutions on governments in the present and throughout history and the possible interactions between politics and religion in the future.

The Time Traveling Table

College of Arts and Sciences: History | Listening Station - Course Project, HST 103 H4

STUDENTS Saptarshi Chakraborty, Tyler B Cronin, Brooke A Diviak, Dominic M Donofrio, Katherine M Schrader, Sarah C Whitehouse

ADVISORS Bobbi Sutherland

LOCATION, TIME LTC Rotunda, 1:00–5:00

Straight from the creative minds of a group of students in an Honors West and World class comes the unusual story of a weary University of Dayton student who's day transforms from boring to utterly mind-blowing in a very timely manner. When simply seeking inspiration for his Honors West and World proj-

ect, Dom, this oblivious student, stumbles upon an accidental invention for the ages. This is the story of how procrastination and accidental time travel can combine and create a historical day that Dom will never forget.

Inaugural History Capstone Seminar

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

STUDENTS Kenneth Wayne Brate, Erin Nicole Dingle, Hayley E Feightner, Caroline W Merithew, John B Patlovich, Monica I Ryan

ADVISORS Caroline W Merithew, Haimanti Roy

LOCATION, TIME LTC Forum, 1:00–2:30

The papers for this session spotlight the work that History Majors have completed for their capstone course in the program. The papers feature original archival research as well as historiographical debates. Students will present the following papers:

1. "Changing Landscapes in the Metropolitan Dayton Area: The

- Interstate Highway System and Segregation";
2. "Why NCR: Dayton's Last Fortune 500 Company and the Enigma Codebreakers";
3. "Women During Wartime: Exploring Shifts During WWII";
4. "Student Activism in the 1960s";
5. Race Relations in Ohio: Laws, Codes, and Legal Processes in the Pre-Civil War Era."

Debating the British Empire

College of Arts and Sciences: History | Oral Presentation - Course Project, HST 319 01

STUDENTS Michael Joseph Bender, Kenneth Wayne Brate, Benjamin R Buchwald, Mary K Caserta, Allison L Daugherty, Madeleine E Friedman, Ryan Benton Gabbert, Jessica L Grilliot, Zachary D Hendricks, Louis Joseph Kosse, Michael T Marrocco, John T McEnroe, Allyson M Mitchell, Benjamin Conrad Poole, Leslie M Porter, Haimanti Roy, Benjamin Louis Spaeth, James W Stevenson, Nicholas A Wicher, Riley J Wikman, Andrew C Yedlick, Kathleen A Zahn | ADVISORS Haimanti Roy

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

India (India, Pakistan Bangladesh) and Africa (South Africa, Kenya, Ghana, Nigeria, Egypt) benefitted more than they lost in the experience of British colonialism. How would the following individuals and groups debate this issue? Based on rigorous historical research, logical argumentation, adopt the persona of your chosen character or group, and make a case for or

against the British imperial experience in Africa or India. Cast of Characters 1. Winston Churchill 2. Citizens in Great Britain (before 1930s) 3. Egyptian Nationalists (1882–1919) 4. Kwame Nkrumah 5. Mohandas K Gandhi 6. Indian Women (1850–1947) 7. White settlers in Eastern Africa

African Immersion Experience

College of Arts and Sciences: History | Panel Discussion - Course Project, HST 337 01

STUDENTS Anna E Adami, William J Gross, Emily V Kegel, Adanna Maista Smith, Rosalia Mary Stadler | ADVISORS Julius A Amin

LOCATION, TIME Kennedy Union 311, 3:00–4:30

During the last several years students have visited and spent time in African nations engaged in different activities. Initially, they went to serve but as they did their assignment they became influenced in so many ways. This session focuses on those experiences which in the word of a participant “transformed” the group. Participants gained lessons about diversity, inclusion, and what it means to be human. The immersion experience ranks among their most transforming experiences so far in college. In this session, former participants tell their story and how they

were impacted by the experience. They also proceed to show how they have been able to transfer those lessons to the larger community. The second part of the presentation focuses on the role of the International Monetary Fund (IMF) and the World Bank in Africa. Based on case studies this paper argues that while achievements have been made by those financial institutions, those institutions must make adjustments in their policies if they hope to continue to succeed in the region.

The Importance of Corn in Medical Developments

College of Arts and Sciences: History | Poster - Course Project, HST 103 H4

STUDENTS Emily E Currier, Marie F Harla, Amanda M Schleper | ADVISORS Bobbi Sutherland

LOCATION, TIME RecPlex, 9:00–10:15

The corn plant that we have today is very different than the corn plant that existed when people first started farming it 10,000 years ago, but it has been a major food source all throughout history and still is today. Besides being a food source it has played a major part in the making of large amounts of penicillin for medicine. Finally, corn is a genetically modified food, and now it is possible to make a more pest resilient and successful corn plant due to these changes in DNA. This presentation will be focused on the history of the corn plant and how it has evolved along with its nutritional content, using corn to make penicillin, and the effects of genetically modifying corn. Corn has been evolving ever since farmers first started farming and domesticating it 10,000 years ago. It started as wild grass called teosinte. This was the

common ancestor for the corn plant we have today, and the two plants are very similar genetically, but have distinct differences. As the ears of corn have developed, their nutritional content has also changed. Since ancient times, corn has played a key role in medicinal treatments. Ancient peoples used corn to treat headaches and bruises, and they also used it as a diuretic. Through the ages the uses of corn medicinally have evolved. While it is no longer used as a treatment for bruises and headaches, corn silk is still used as a diuretic. In the 1940s it was discovered that corn steep liquor was a prime medium in which to make penicillin. This has greatly influenced the mode and amount of penicillin production today.

The Importance of Corn in Scientific Developments

College of Arts and Sciences: History | Poster - Course Project, HST 103 H4

STUDENTS Sarah P Baxter, Joshua W Romo | ADVISORS Bobbi Sutherland

LOCATION, TIME RecPlex, 9:00–10:15

Corn has been a staple for humans for more than 10,000 years. As civilization progressed, so did the use of corn. It not only remained a staple in the food industry, but also played a key role in many scientific developments. In this presentation, we aim to investigate two specific chemicals, ethanol and ammonia, their uses, how they employ corn in their manufacturing process, and the effect they have had on overall corn production. Ethanol directly employs corn in its manufacturing process. Corn has been used in the ethanol-making process since the 15th century when ethanol was first made in the form of moonshine whiskey. While ethanol had been available for many years, it only began to develop in the 1800's. In recent years, there has been a push

to increase the usage of ethanol as an alternative energy source. Farming has been around since the Neolithic Age, however, it was revolutionized in the 1900's with the creation of ammonia via the Haber Process. This effective process directly utilized corn, and its effects were widespread for the agricultural world. Ammonia became a necessity in the production of fertilizer, one of the most important agricultural chemicals used by farmers all over the globe. The development of ethanol and ammonia have had a significant impact on society, both made possible by the use of corn. An in-depth study of the use of corn in ethanol and ammonia allows one to grow in understanding and appreciation of the value of corn and the role it has in the modern world.

Vocation and Arts

College of Arts and Sciences: Institute Pastoral Initiative | *Oral Presentation - Course Project, ASI 357 H1*

STUDENTS Elizabeth A Abrams, Randy T Brackman, Renee Katharine Brown, Ian N Cali, Kieran L Campbell, Jessica L De Groot, Blaise T Eby, Alexandra M Hallagan, Claire Elizabeth Sanfilippo, Virginia Abigail Saurine, Thomas Brewster Tappel, Marsha Turner, Mary Elizabeth Turner, Sarah Frances Wood | ADVISORS David W Darrow, Angela Ann Zukowski

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

The Chaminade Scholars 'Vocation and Arts' class have been preparing all semester for an in-depth pilgrimage to Italy in May. The interactive Stander Symposium experience introduces par-

ticipants to the Art, Culture and Spirituality of Assisi and Rome. Included is an exhibit of students' photography and "Awakening to Beauty" publication.

Star Decompositions of the Complete Split Graph

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

STUDENTS Adam Christopher Volk | ADVISORS Atif A Abueida

LOCATION, TIME RecPlex, 10:45–12:00

A graph is a discrete mathematical structure that consists of a set of vertices and a set of edges between pairs of vertices. A problem of interest in graph theory is that of graph decomposition, partitioning the set of edges into disjoint sets, producing subgraphs which are isomorphic to each other. Here we consider

the problem of decomposing a class of graphs called complete split graphs into stars of a fixed size. We present conditions for the decomposition as well as an algorithm for the decomposition when it is possible.

A Mathematical Model for Alcoholism Epidemic

College of Arts and Sciences: Mathematics | *Poster - Independent Research*

STUDENTS Marina Li Mancuso | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 10:45–12:00

Mathematical models are widely used to study the dynamics of infectious diseases as well as the social networks. This study considers a mathematical model for alcoholism transmission for a closed population. The model is derived from the SIR model for

infectious diseases. The study utilizes the Runge-Kutta method as the numerical method to solve a system of differential equations describing the transmission of alcoholism.

Math doesn't need rain to grow, but banded vegetation in semi-arid environment do.

College of Arts and Sciences: Mathematics | *Poster - Independent Research*

STUDENTS Benjamin R Buchwald, Daniel A Mizdrak | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 10:45–12:00

In semi-arid environments, banded vegetation has been seen to grow in a pattern based on a mathematical model. In this model for vegetation pattern the system of ordinary differential

equations is solved numerically using methods such as Euler's method and Runge-Kutta methods.

Analyzing Low Weight Birth Rates Using Logistic Regression

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

STUDENTS Brandon Thornton | ADVISORS Maher B Qumsiyeh

LOCATION, TIME Kennedy Union 207, 1:00–1:20

Logistic regression is modeling a categorical or discrete response variable (dependent variable) with categorical, discrete, or continuous regressor variables (independent variables). A Model where the dependent categorical variable is either success or fail is called a Binary Logistic model. Babies born at low birth weights are at risk for serious health problems (Respiratory distress syndrome, bleeding in the brain, ect.) and long-term

health problems such as diabetes, heart disease, and high blood pressure (marchofdimes.org). The purpose of this project is creating a model that effectively predicts the probability of a patient having a low-weight birth gives doctors and patients the ability to identify the risk, pre-emptively treat causes of low-weight birth, and have early preparation for potential health issues at birth.

14th Annual Integration Bee, Mathematics

College of Arts and Sciences: Mathematics | Interactive Competition

ADVISORS Arthur H Busch, Maher B Qumsiyeh

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

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 12:00–1:00 PM prior to the Integration Bee.

Domains and Topological Completeness

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

STUDENTS Matthew D Devilbiss | ADVISORS Lynne C Yengulalp

LOCATION, TIME LTC Meeting Space, 2:00–2:20

A topological space X is domain representable if there exists a continuous directed complete partially ordered set D such that X is homeomorphic to the maximal space of D . Domain representability is a topological completeness property with applications to computer science that is weaker than subcompactness and

stronger than Baire. We explore the relationship between domain representability and some other topological completeness properties. Specifically, we show that the box product of a collection of domain representable spaces is domain representable.

Mathematical Models of Dumping Atomic Waste Drums

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS David J Kreinar, Belal Yoldash | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

We can use mathematical models to determine the velocity of objects falling through a liquid. This model, described by differential equations, is a convenient way to understand the danger

of disposing atomic waste into the ocean. Our team is analyzing these differential equations with a numerical method in order to determine the velocity of the drums as a function of distance.

Predicting the Price of a Used car

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 543 01

STUDENTS Ahlam M Abid, Sarah E Alshammari | ADVISORS Maher B Qumsiyeh

LOCATION, TIME RecPlex, 9:00–10:15

In this project, we try to predict the price of 2005 used cars, depending on several independent variables (regressors) such as the number of cylinders, mileage, make and so on. Data on the

prices of 183 used cars was analysed. Our analysis depends on several characteristics of these used cars. A model that relates the price to these other variables is provided.

A Numerical Solution of a Model of Diabetes

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Malle R Schilling, Nathan D Volk | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

Many researchers use mathematical models to understand and predict the behavior of biological systems. In this work we consider a mathematical model for diabetes mellitus presented by Hussain and Zadeng to study a metabolic disease for the regulation of glucose in the body by pancreatic insulin. The math-

ematical models consists of two ordinary differential equations for glucose concentration and insulin concentration. In particular, this study attempts to numerically solve the model using the Runge-Kutta methods of order 2 and 4. We will also perform a qualitative analysis on the behavior of the system

A Mathematical Model to Quit Smoking

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Alison M Gaines, Alexis L Wingfield | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

Mathematical models are often used to track the spread of diseases. Smoking can be tracked using a similar model. Numerical results will be presented here according to the Non-standard

finite difference method (NSFD). These results will be compared with the ones obtained using the Runge-Kutta methods of order 2 and 4. We will use MATLAB builtin functions ode23 and ode45.

Numerical Techniques to Study Transmission Dynamics of Zika Virus

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Benjamin C Hansen, Christopher W O'Brien | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

Mathematics can be used for infectious diseases modeling. Mathematical modeling helps us to understand the spread of a disease as well as its control. In this work we consider a system

of coupled differential equations that model the Zika virus dynamics. We will use numerical techniques to solve the model in order to understand the Zika virus transmission.

Let's Get Graphical: Understanding Differential Equations with Random Initial Values

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Thomas H Benton, Charles T Brookshire | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

This mathematical analysis examines how the solutions of differential equations will change with randomly changing initial values. Graphs are constructed as a solutions of system of coupled differential equations modeling the spring mass systems.

The system of differential equations will be solved using the Runge Kutta Method and animated in MATLAB to show how the solutions change.

Type 1 + Type 1 = Type 2

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Thomas R Krokey, Stephanie S Townsend | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

Diabetes is a common disease that can be difficult to diagnose simply by human observation alone. We will consider a mathematical model developed for the blood glucose regulatory system that focuses on one or two criteria of a common glucose toler-

ance test (GTT) in order to distinguish and detect the severity of diabetes in patients. Several differential equation techniques and methods such as Euler's and Runge-Kutta of order two and four will be used to solve this model.

Nonlinear Duffing Systems may be chaotic, but Math definitely isn't

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Samuel E Jacobi, Michael D Molchan | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

There are many chaotic physical things that occur in our world. The differential equations in this model are used to simulate things that are hard to determine through normal mathematical techniques. These chaotic phenomenon are things such

as navigation in the ocean, the movement of rockets or other planets, and the flection of dynamic machines. This model will be solved using different numerical solving methods such as Euler's Method and the Runge-Kutta Methods.

Meteors get meatier with mathematics!

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Andrew J Albers, James C Lenard | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

With the help of mathematics one is able to compute and model the behaviors of meteors as they penetrate the Earth's atmosphere. Given the numerical values of mass, drag, atmospheric density and velocity we will be able to model the trajectory of

a meteor throughout its path towards earth. With these values in differential equations we will be able to determine the mass required for the meteor to penetrate the atmosphere and impact the Earth's surface.

The Model of How Persistent Viruses Resist The Immune Responses

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Yuhang Lin, Xinkai Ma | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

Using population models to study the interaction between viruses and immune cells offers a way to understand the dynamics of immune responses and to test various hypotheses. Comparison of infected and uninfected cells, and immune responses are modeled using coupled system of equations. We will use numerical techniques to simulate the models using MATLAB.

Mathematical Study of Ebola Outbreak in West Africa

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Derek A McGrew, Keegan M Mcafferty | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

The purpose of using mathematical models is to determine the rate at which the Ebola virus is spread. The infection rate and total infected will be measured with the numerical solutions. The model will be based on how people are infected and how the virus is spread. We will come up with numerical solutions for system of ODEs in order to determine how the virus will spread in the population for West Africa. The numerical solutions will come from using data that exist and using Euler's Method, Runge-Kutta methods (RK2 and RK4), and Taylor Series to determine the numerical solutions of the model.

Global Warming: A mathematical model of the spread of computer worm attacks

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Daniel M Lenz, Dakota K Waller | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

This mathematical model provides a system of ordinary differential equations. The model under consideration is similar to the models for infectious diseases, where basic reproduction number R_0 determines whether a disease is going to be epidemic or not. In this model the rate of reproduction (R_0), is computed as to whether or not the virus will remain asymptotically above or below a global epidemic state. The group will analyze the model presented by using the Runge-Kutta methods of orders two and four in order to find the numerical solution with different initial equations.

Is your computer sick? It might have a virus. See Dr. Math.

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Owen T Miller, Dylan P Niese | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

Computers just like humans are susceptible to illness and spreadable viruses. Since computer viruses act in the same manner as human viruses, researchers developed models to study the propagation of worms/viruses. In this work, we consider a model for such a computer worm consisting of differential equations. We will use the numerical methods learnt in the differential equation class to solve this model numerically to understand the phenomena.

It's Presence Poisons our Bodies: A Mathematical Study of Lead in Living Tissues

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Marlys K Bridgham, Matthew L Schmidt | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

This mathematical study investigates the chronic biological problems that have evolved due to high levels of lead in living tissues. Bone, blood, and soft tissue are three types of tissues that will be identified in this mathematical model. This model uses the basic idea that the rate of change of lead in a tissue is equal to the difference between the rate of lead entering and leaving the body. We will explore the solution using a system of three differential equations. It is essential to understand the nature of the elements that enter and exit our bodies, so why not use mathematics to explore this biological study?

Mathematical Telescope for Star Formation in the Galaxy

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS Taylor A Curtis, Conor R Pausche | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

One can use mathematics to locate where star formation takes place, using the location of luminous blue stars. The three components used in this model are the total mass of active stars, total mass of molecular clouds, and total mass of atomic clouds.

The two differential equations used explain that the rate of changes of two of the masses will lead you to find the mass of all three components, which indicates whether or not star formation will occur.

The Walking Dead: Don't Run, Use Math!

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS David J Fink, Theodore J Stitzel | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

To study the effect of a zombie outbreak, our team used several differential equations and techniques learned in class to predict the population of humans and zombies during a zombie outbreak. It is important to be able to study the population of both humans and zombie to understand the odds of getting infected

and to predict how long the outbreak will last for. This information could then be given to the Center of Disease Control for proper defensive measures to ensure the survival of humans. If there is an outbreak, it is best to be prepared.

Zombie Mathpocolypse

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 03

STUDENTS James P Gallagher, Claire T Shannon | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

Do you watch zombie movies? Have you ever wondered what will be the climax? Now you can use mathematics to figure out who will win. In this work we consider a mathematical model for zombie infection from the literature. The model consists of three

ordinary differential equations for three classes Susceptible, Zombie and Removed. We will solve the model using numerical techniques such as the Euler's method and the Runge-Kutta methods.

Measles epidemic, the Next Big Thing?

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 219 06

STUDENTS Robert J Detorres, Vignesh Krishnaraja | ADVISORS Muhammad Usman

LOCATION, TIME RecPlex, 9:00–10:15

This study utilizes mathematical models in order to path and predict a measles epidemic in the future. Records from the Great Plague of London and the New York measles epidemic; along with the factors of susceptibility and infectiousness, with respect to time are used in this model. These factors are in the form of

system of coupled differential equations. All this information will be used to predict the future viability of another measles epidemic by using numerical techniques as well as qualitative methods.

University of Dayton Crime Forecasts

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 544 01

STUDENTS Dalton S Gannon, Kelli Renee Marquardt | ADVISORS Maher B Qumsiyeh

LOCATION, TIME RecPlex, 9:00–10:15

This project uses data from the UD Public Safety Crime Report Database. Our goal is to forecast the crime rates at the University of Dayton in the upcoming year. To do this, we analyze crime reported each month over the past four years and use different Time Series Analysis techniques to build our model. These tech-

niques include differencing and the Box-Jenkins (ARIMA) model. We use these techniques to analyze data trends and seasonal variations in order to forecast future crime incidents. The results could be used to determine months of increased crime and therefore suggest a need for increased public safety surveillance.

Best Model for Forecasting Future Sales of Company X

College of Arts and Sciences: Mathematics | Poster - Course Project, MTH 544 01

STUDENTS Amal I Alsomali, Rabab O Alzahrani | ADVISORS Maher B Qumsiyeh

LOCATION, TIME RecPlex, 9:00–10:15

In this project we try to forecast the future sales of some American Company depending on the data provided on their website. We will use the techniques learned in our time series class (MTH 544) to try to come up with the best model on this real life data.

Honors Recital Audition

College of Arts and Sciences: Music | Performance - Honors Thesis

STUDENTS Alec Brown, Dana Juliana Clark, Emily C Freyberger, Luke A Grieshop, Jonathan A Higgins, Victoria C Obermeier, Alissa Leigh Plenzler, Danielle M Reynolds, Kyle E Schreiber, Ann E Scott, Gillian Claire Taylor, Elizabeth M Turnwald

ADVISORS Phillip C Magnuson

LOCATION, TIME Sears Recital Hall, 1:00–14:30

Twelve students have been selected by the music faculty from the weekly Friday 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, 29 April 2016 in Sears Recital Hall at 1:25 pm.

String Chamber Music

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

STUDENTS Molly Beth Dickson, Jessica R Edwards, Adam M Essling, Maxwell A Harlor, Anna L Herrmann, Marsha A Japutra, Kaitlyn M Jones, Lauren T Kell, Sean M Miller, Alexander J Rice, Emily R Robinson, Jackson W Roush, Timothy D Schroeder, Carly Marie Thie | ADVISORS Phillip C Magnuson, Kara Manteufel, James R McCutcheon, Shelbi J Wagner

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

Student musicians will present a program of string chamber music.

Student Songwriter ConcertGuitar Students of Jim McCutcheon, UD Artist-in-Residence in Guitar

College of Arts and Sciences: Music | Performance - Course Project, MUS 399 39

STUDENTS James R McCutcheon | ADVISORS James R McCutcheon

LOCATION, TIME Sears Recital Hall, 4:00–5:00

Several students of Jim McCutcheon, UD Artist-in-Residence in Guitar, will present original songs.

Trauma and Identity: A Philosophical Approach to Justice in Catholic Communities

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

STUDENTS Dominic R Sanfilippo | ADVISORS Vera D James

LOCATION, TIME Marianist Hall Learning Space 218, 1:40–2:00

Many disciplines, including psychology, anthropology, sociology, and cognitive science, have contributed to the evolving understanding of trauma. The discipline of philosophy offers us the opportunity to ask the question: what should we be doing to create conditions of justice in communities where people have experienced trauma in relation to identity? In this thesis, I will use

philosophy to propose ways that we can ameliorate the injustices of trauma in social & religious settings, particularly Catholicism. By examining historical and contemporary questions around identity and the self in relation to trauma, I hope to begin to articulate particular ways we can create more just communities for people who identify as LGBTQ Catholics.

Impact of Growth Temperature on the Electrical Properties of InAs/InGaSb Superlattice Structures

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

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

LOCATION, TIME RecPlex, 10:45–12:00

Infrared detector research has been the focus of several research groups worldwide. This intense interest arises from the many possible commercial applications of these devices. One of the important materials being investigated for such an application is the InAs/InGaSb superlattice structure. A key advantage of this material is that its detection wavelength can be tailored by varying growth parameters of the superlattice structure. To fully exploit the full potential of the InAs/InGaSb superlattice structure,

it is paramount that both its optical and electrical behaviors are fully understood. A key goal for all researchers in this area is a reduction in the background carrier density in these structures. Growth conditions have a significant impact on the level of this density. In this study we will report results of transport measurements conducted on superlattice structures to evaluate the impact of sample growth temperature on the background carrier density.

Electrical Properties of InAs/InGaSb Superlattice Structures on p-type vs n-type GaSb Substrates

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

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

LOCATION, TIME RecPlex, 10:45–12:00

Infrared detector research has been the focus of several research groups worldwide. This intense interest arises from the many possible commercial applications of these devices. One of the important materials being investigated for such an application is the InAs/InGaSb superlattice structure. A key advantage of this material is that its detection wavelength can be tailored by varying growth parameters of the superlattice structure. To fully exploit the full potential of the InAs/InGaSb superlattice structure, it is paramount that both its optical and electrical behaviors are fully understood. A key goal for all researchers in this area is

a reduction in the background carrier density in these structures. Growth conditions have a significant impact on the level of this density. Electrical measurements are necessary to understand the impact various growth conditions have on this density. One of the challenges that impedes electrical measurements is the role the substrate has on the overall conduction in these structures. In this study we will report results of transport measurements conducted on superlattice structures grown on p-type and n-type GaSb substrates and demonstrate that the latter offer a significant advantage.

Human Rights are a Matter for Businesses

College of Arts and Sciences: Political Science | Poster - Course Project, POL 300 05

STUDENTS Alexandra Budabin, Chenrui Ma, Emanuele M Passerini, Whitney N Strause, Ziru Zhao | ADVISORS Alexandra Budabin

LOCATION, TIME RecPlex, 10:45–12:00

What is the relationship between human rights and business? Is business the newest frontier in the postwar human rights movement? These posters explore 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 international mandates, corporate social responsibility (CSR) practices, voluntary codes, and cause-marketing campaigns.

Is There Room for God in the Universal Declaration of Human Rights?

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

STUDENTS Joshua D Tovey | ADVISORS David J Watkins

LOCATION, TIME RecPlex, 10:45–12:00

In today's world the Universal Declaration of Human Rights is one of the major moral codes of the world. It is quoted by the media, politicians, professors and students both secular and religious, yet the whole time the document does not have a clear metaphysical foundation. This begs the question "Is there room

for God as the foundation of the UDHR?" Through research on the history of the drafting of the document and an examination of the philosophical writings of the drafters this question hopes to be fully examined.

State Initiatives, Ballot Language, and the Media: Do They Overlap?

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

STUDENTS Alison R Cozad | ADVISORS Nancy A Miller

LOCATION, TIME RecPlex, 10:45–12:00

State Initiatives are seen throughout every state, some more than others, but every election brings them. However, not every election is equal when it comes to turnout, depending on if it is a presidential or midterm year. Some are given more media attention, some are given minimal attention, if at all. The fundamental question is what role does media play in turnout during elections and does any amount of roll-off occur during presidential or governor's elections? Does this poll-off or turnout have to do with media (or lack of) attention, or is there something more going on? Besides looking at the media aspect of covering ballot

initiatives, there is also the idea that ballot language can have an impact on how voters vote. In this thesis, I hypothesize that the shorter word count, the more likely the initiative will get a "yes" vote; the better readability an initiative has, than the more likely it is to get a "yes" vote; and a greater amount of roll-off will occur in years with a presidential or governor's race. By exploring these questions, we can see perhaps a bigger picture of how the media plays a role in the passage of state initiatives and also how what voters see on the ballot affects the passage of state initiatives.

The Evolution of the Scope and Political Ambition of the State Attorneys General

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

STUDENTS Elizabeth A Brumleve | ADVISORS Nancy A Miller

LOCATION, TIME RecPlex, 10:45–12:00

This research assesses the expanding scope of the office of state attorneys general and the political ambition of the office holders. It provides both qualitative and quantitative analyses of

state attorneys general and their participation in litigation, campaign finance and appointments to or campaigns for higher office.

Human Rights and Healthy Societies: Opening Social and Cultural Spaces for Peacebuilding

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

STUDENTS Margaret Ann Maloney | ADVISORS Joel Pruce

LOCATION, TIME Kennedy Union 331, 1:00–1:20

Exploring peace demands rethinking many of the assumptions that have driven the field of peacebuilding. Previously, scholars have investigated the content of peace agreements for guidance in sectors that include security, justice, and democracy. However, we hypothesize that by focusing narrowly on these areas, scholars and peacemakers overlook crucial ingredients that create stable post-conflict societies. This senior thesis examines the impact of a human rights based approach and the inclusion of social and cultural rights in peace agreements and aims to

contribute to a more robust understanding of whether traditionally “soft” issues like education and art may have significant impacts on the long-term health of society” and therefore positively influence the root causes of conflict. I study the transitional processes in Northern Ireland to determine how the inclusion of social and cultural rights protections — specifically in the areas of educational rights, women’s rights, and cultural rights — relate to the prospects for sustainable peace.

Discrimination in Law School and Law-Related Work: Where Does it Happen?

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

STUDENTS Sean D Kenny | ADVISORS Jefferson L Ingram

LOCATION, TIME Kennedy Union 222, 1:00–2:00

Law School is a stepping stones future lawyers need to pass. However, are minorities being discriminated against when it comes to entering law school or finding a job involving the law? Research has shown that there are three areas that minority students are being discriminated in: the Law School Admission Test (LSAT), during the admission process, and stability within the job or firm they choose to work in. The Law School Admission Test is documented to have minorities, particularly with African

Americans, score traditionally lower than whites. The admission process has also shown signs of problems as students who apply for law school who are judged based on only their LSAT instead of their LSAT and Undergraduate Grade Point Average. Finally, the problem minorities are facing are with job stability and upward mobility. The rate at which discrimination is occurring is rising for some groups.

Gender Differences Within Law School

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

STUDENTS Devin Marie Shook | ADVISORS Jefferson L Ingram

LOCATION, TIME Kennedy Union 222, 1:00–2:00

This literature review uncovers the many gender differences that exist within law schools today. By reviewing and analyzing recent articles and studies published about present day law schools, much is revealed about the underlying advantages and disadvantages experienced by both male and female students. This review both analyzes and critiques the various aspects of law school education including the competitive and intense environment and its effects on student participation within the classroom, the traditional teaching pedagogy of law schools, looking at specific techniques used such as the Socratic Method

and the case-study method, comparative scores and grades, as well as the overall law school experience of male versus female students. In conclusion, this review will call to question whether the traditional law school culture, dating back to an all-male institution, still remains the most well rounded educational approach today allowing for equal success of male and female students.

this variance. I will take into account the states’ political culture and multiple socioeconomic factors in trying to understand the variance in local school district reliance on state funding.

Funding the Future: How Education Finances Differ Across the States

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

STUDENTS Elaine Simone Laux | ADVISORS Nancy A Miller

LOCATION, TIME Kenedy Union 211, 1:00–2:00

With education funding left up to the states, we see varying methods of collection and allocation of revenue to our nation's schools. Some states opt to fund public schools with property tax, while others use sales tax, or even implement a "Robin

Hood" method where all tax dollars come into one pot and are then equally divided between all districts. This results in varying levels of reliance on state funds by school districts across the states. In this research, I will analyze factors that account for

Human Rights and Immigrant Testimonies

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

STUDENTS Ann A Balke, Joseph F Byrne, Francesca Elizabeth Chaba, Julia N Court, Amanda Jean Dee, Casey Brynn DiNino, Mark Francis Digiandomenico, Steven J Dougherty, Anamaria T Karrels, Karoline Rose Klump, Natalie A Kretzschmar, James R Lee, Morgan E Loucks, Austin T Mckenzie, Brian A Mercado, Bridget R Oleksy, Bradley G Petrella, Joel Pruce, Leena Tarek Sabagh, Thomas A Taylor, Sydney Dionne Thomas, Kwynn E Townsend Riley, Jada M Woods | ADVISORS Joel Pruce

LOCATION, TIME Roesch Library Collab Space, 2:00–3:30

Students in Human Rights and Mass Media spent the semester studying how information can be a crucial tools for advocates and activists. In groups, the students went out into the Dayton community to interview, take testimony, and document the immi-

grant experience. By learning about the lives of individual with unique stories, we can demystify "the other" and build a strong, harmonious society.

The United Nations System

College of Arts and Sciences: Political Science | Panel Discussion - Course Project, POL 336 01

STUDENTS John P Adams, Alexander M Altick, Alexander K Amankwaah, George N Brehl, Frances Margaret Carroll, Logan Monet Cobbs, Kevin D Freier, Nicholas J Hancart, Coletun E Long, Jade A Poa, Lauren E Reid, Lauren P Stamatel, Ana K Torres

ADVISORS Anthony N Talbott

LOCATION, TIME LTC Meeting Space, 2:40–3:40

Panelists will present and discuss a wide range of issues currently before various committees and agencies of the United Nations. Panelists will explain the structure of the UN, provide

background on issues and member states, and offer creative and appropriate solutions to real world problems from the perspective of official delegations to the UN.

Preachers, Politics, and the Pulpit: The Influence of Church Structure on How Clergy Approach Political Topics and How Congregations Receive Their Messages

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

STUDENTS Michael Joseph Bender | ADVISORS Joshua Ambrosius

LOCATION, TIME Marianist Hall Learning Space 217, 4:00–4:20

Inspired by the Catholic Church's nationwide resistance to President Obama's contraceptive mandate in the summer of 2012, this honors thesis paper attempts to discover a link between church polity (or church structure) and whether political messages are more or less likely to be preached by clergy from the pulpit and accepted by their congregants. Given that churches are places where attendees are exposed to political messages, this paper hypothesizes that structurally centralized Christian denominations are more likely to have preached on the contraceptive mandate than decentralized denominations. Accordingly, it is assumed that Catholics are more likely to have heard about the mandate than mainline Protestants and evangelical Protestants. Additionally, I suppose that clergy who oppose the mandate will be more likely to have addressed the mandate from the pulpit

than those who support it. Finally, it is assumed that Catholics will be more likely to oppose the mandate than evangelical Protestants who are more likely to oppose the mandate than mainline Protestants. I gather primary data via semi-structured interviews with clergy from six select denominations with different church governance polities and theological views. Secondary data was obtained from the Pew Research Center for the People and the Press's February 2012 Political Survey concerning self-identified Christians' views regarding the mandate. I find that church structure and views on the mandate had no bearing on whether Protestant pastors addressed it (though all Catholic priests did so) and that church attendance has little influence on how congregants view it.

University of Dayton Mock Trial Team Demonstration

College of Arts and Sciences: Pre-Law Program | Mock Trial - Course Project, PLW 302 M1

STUDENTS Raika N Casey, Anna R Choquette, Gianna F Gizzi, Jennifer R Guerriero, Laura H Hume, Jacob H Kidd, Julia A Kokenge, Kailey Ann Ruggiero, Sydney C Skidmore, Nikita Srivastava | ADVISORS Laura H Hume

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

Mock Trial is both a class for credit and a student organization housed 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 by working with a coaching staff drawn from a variety of legal practice fields. 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 2016–2016 AMTA season case, the State of Midlands

v. Chase Covington, a criminal case. Case Summary: On April 19, 2015, officers from the Midlands State Police Department arrested Chase Covington, the chair of the Midlands Gambling Commission, and Avery Bancroft, a local businessperson, on suspicion that Bancroft bribed Covington in an attempt to procure Covington's support for a new casino license. Covington argues that no bribe occurred. The students participating in this demonstration from the case will be Gianna Gizzi as witness Tracey Minetos, Jacob Kidd as defendant Chase Covington, prosecution attorneys Raika Casey, Julia Kokenge and Kailey Ruggiero, and defense attorneys Anna Choquette, Sidney Skidmore and Nikita Srivastava. Time will be allowed at the end for questions.

Titles Make all the Difference: Additional Information Influences Pleasingness of Paintings

College of Arts and Sciences: Psychology | Poster - Course Project, PSY 493 PA

STUDENTS Cody Allen Buckholdt, Jillian R Marron, Sara Ann Vrabel | ADVISORS Susan T Davis

LOCATION, TIME RecPlex, 10:45–12:00

Aesthetic preferences involves the many factors that determine how people respond to art. Millis (2001), for example, studied the effect of context, such as that given by the title of an artwork, on aesthetic preferences for photographic and illustration art. Results were that elaborative titles (those that allow the viewer the opportunity to think more deeply about the meaning of the artwork, such as "Water sustains life") increased pleasure in viewing art more than did descriptive titles (those that name what the viewer can already determine from viewing the artwork, such as "Flowers in a vase"). One criticism is that the stimulus artwork used in the research is often produced by various artists, a factor that contributes to the error variability in the research and reduces the power of identifying a real difference in the effect of the different titles on aesthetic pleasure. The present research

corrected for this factor uncontrolled in previous research and investigated the presence of each type of title or no title (control condition) on the aesthetic pleasingness of paintings completed by a single artist. Our hypotheses were that, regardless of the art background of the participants, (a) titles that were elaborative rather than descriptive would produce higher ratings of pleasingness, and (b) the elaborative more than the descriptive titles would create the perception that a painting is of a higher quality, a phenomenon called "added value." Results reported will include participants' ratings of each painting according to how pleasing they found it, their likelihood of purchasing it if they could, and the likelihood they would hang it in their home if it were given to them. Participants also completed a questionnaire about their previous art education and exposure to art

Memory is Better Following Sleep unless there were Interruptions in the Study Process

College of Arts and Sciences: Psychology | Poster - Course Project, PSY 493 PA

STUDENTS Kelly A Dunne, Alexander N Lawriw, Emily R Ruffolo | ADVISORS Susan T Davis

LOCATION, TIME RecPlex, 10:45–12:00

Memory research consistently indicates the importance of sleep and its positive benefits for memory (Rasch & Born, 2012). Sleep facilitates newer memories to fit within the context of previously established memory networks. Specifically, newly acquired memories are processed during sleep in a process called consolidation (Rasch & Born, 2008). Consolidation is the manner in which recent memories are integrated into existing long-term memory systems. Studies have shown that memory is initially unstable after acquisition, and continues to be processed by consolidation so that the memory can be stabilized and resistant to interference (Robertson, 2011). The objective of the present research

was to examine the effects of an interruption on consolidation and memory. Participants studied pictures of common objects in a slideshow and experienced a bogus computer interruption while memorizing the pictures. While the experimenter supposedly attempted to amend the situation, participants were asked to complete a distracter task to prevent rehearsal of the pictures. Following the distracter task, study of the remaining pictures in the slide show continued. All participants completed a recognition task of the pictures from the slideshow immediately after the slideshow. Some participants were also given the opportunity to complete a second recognition task of the pictures on the

following day. We hypothesized that, due to the additional time for consolidation that takes place during sleep, memory for the pictures that were seen after the interruption would be better on the second day in comparison to memory tested immediately

after the slideshow. In comparison, however, memory for the pictures studied immediately before the interruption would be poorer, even after consolidation.

Distinctions Between Primary and Secondary Psychopathy: Gender-Match as a Facilitator of Victim Empathy?

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

STUDENTS Reilly K Kincaid, Cody Stitzel | ADVISORS Catherine Lutz Zois

LOCATION, TIME RecPlex, 10:45–12:00

Due to inconsistent findings in the literature regarding the relationship between psychopathy and empathy, this study uses a between-subjects design to examine the relationship between the constructs of psychopathy and victim empathy in 120 jail inmates. Specifically, this study seeks to identify whether primary and secondary psychopathy subtypes experience empathy for victims of their own gender (i.e., gender-matched) or for victims of the opposite gender (i.e., gender-nonmatched) differently. Thus, various types of empathy measures are used. To assess implicit affective victim empathy, participants are randomly assigned to one of two conditions, wherein they listen to a voice recording of either a male or female victim describing a physically violent attack. While listening to the recording, participants wear a heart rate monitor and measurements are taken to determine if participants experience a change in heart rate in response to the empathy provoking stimuli. To assess

explicit victim empathy, both affective and cognitive, participants complete self-report questionnaires regarding how they felt while listening to the recording and how they believe the victim felt, respectively. Participants also complete self-report measures that assess for psychopathy, along with its primary and secondary variants, general empathy, and trait anxiety. It is hypothesized that secondary psychopathy will be positively related to implicit and explicit measures of victim empathy for gender-matched victims, yet will be negatively related to implicit and explicit measures of victim empathy for gender-nonmatched victims, as well as the measure of general empathy. Additionally, it is hypothesized that primary psychopathy will be negatively related to implicit measures of affective victim empathy and positively related to explicit measures of both victim and general empathy, regardless of the victim's gender in relation to their own.

Destined for Trouble? : A Prospective Analysis of the Effects of Temperament and Parenting on Externalizing Problems

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

STUDENTS Sarah A Wilhoit | ADVISORS Jackson A Goodnight

LOCATION, TIME RecPlex, 10:45–12:00

Researchers have suggested one developmental pathway of behavior problems in childhood from infant irritable temperament eliciting negative parenting behaviors (e.g., Bell, 1968; Paterson & Sanson, 1999; Patterson 1986; Rothbart & Bates, 2006). Children and infants with an irritable temperament evoke more negative or hostile reactions from both their parents (Van den Boom et al., 1994) and parents of other children (Dumas & LaFreniere, 1993). In middle childhood, an irritable temperament predicted negative parenting, and negative parenting predicted behavior problems, although these variables were not fully prospectively assessed (Lengua & Kovacs, 2005). The present study improves on prior studies by using a fully prospective design. To do so, we used a subset of data from a large, nationally representative sample of mothers and their offspring. We first hypothesized that infant irritable temperament would predict externalizing behavior problems in mid-childhood. Second, we hypothesized that negative parenting practices (e.g., lack of maternal warmth, lack of learning stimulation, and harsh practices) would mediate

the relationship between infant temperament and externalizing behaviors. Finally, we tested this mediation model both between families and within families, as a sibling comparison. Results indicated that maternal warmth and lack of learning stimulation mediated the relationship between infant temperament and behavior problems between families, but not within. Specifically, within families, infants with an irritable temperament evoked lower levels of maternal responsive, but these lower levels of responsiveness were not predictive of behavior problems. Regarding learning stimulation, neither step of the mediation was significant within families. Finally, harsh parenting did not mediate the relationship between temperament and behavior problems within or between families. However, within families, harsh parenting predicted later behavior problems. These findings suggest that passive gene-environment correlations account for much of the variation observed between families in the role of temperament and parenting in the development of behavior problems.

Can the Color Red Improve Men's Perceived Mate Value?: Examining the Interactive Effects of Facial Masculinity and Color on Female Evaluation of Potential Mates

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

STUDENTS Alejandro Trujillo | ADVISORS Erin O'Mara

LOCATION, TIME RecPlex, 10:45–12:00

We manipulated facial masculinity (masculine-morph/feminine-morph) and color (red/white) through two independent studies—one in-lab at the University of Dayton and one online using Amazon's MTurk—to examine its effect on social status and attractiveness for men when rated by women. We specifically aimed to see if the color red could serve a compensatory effect for feminine-faced men, who were least likely to be found

attractive by women at peak fertility. When paired with red, women rated the masculine and feminine faces higher in social status. Through this increase in social status, the color red was also able to indirectly increase the physical attractiveness of the men. Additionally, the sensitivity to the color red was predicted by conception risk, such that women closer to peak fertility were most attentive of the color red.

Examining the Protective Effects of Self-Positivity on Information Avoidance

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

STUDENTS Amanda Caterina Ferrante | ADVISORS Erin O'Mara

LOCATION, TIME RecPlex, 10:45–12:00

Although information could provide insight, comfort, or opportunity, people are motivated to avoid information that challenges preexisting belief or cause unpleasant emotion. Previous research shows that affirming people's self-worth can reduce information avoidance. The present study measures whether self-enhancement, or exaggerating qualities to maintain a positive sense of self, can also reduce information avoidance. Self-enhancement is associated with positive mental health and reducing physiological stress symptoms if the exaggeration is within the same domain as threatening information. Participants

in the self-enhancement category were asked to give examples of how they are better at maintaining social relationships than the average college student. They were then asked if they would like to see results of a personality test that could potentially show them they are not socially successful. The difference in information avoidance did not vary between those in the self-enhancement condition, those in the self-affirmation condition, and those control condition. Self-enhancement as a method of information avoidance could be more effective if the domain was more threatening like health information or career outlook.

Model Behavior: An Assessment of Role Model Attachment

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

STUDENTS Patrick Charles Doyle | ADVISORS Lee J Dixon

LOCATION, TIME RecPlex, 10:45–12:00

Despite the term existing since the early part of the 20th century, little is known about role models and relationships that individuals develop with them. Using attachment theory, a cornerstone of interpersonal theory, relationships between individuals and their role models are compared to relationships between those individuals and their parents in the present study. While data did

not support the hypothesis, that those with anxious attachment to their parents will experience more secure attachment to their role model, promising opportunities for future research were suggested by the qualitative data that was collected. For example, the experience of many participants revealed a potentially complex relationship between role model expectations and gender.

Honor's Thesis Proposal: Effects of Tactile versus Electronic Games on Attention, Distraction, and Understanding

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

STUDENTS Samantha A Malick | ADVISORS Mary Fuhs

LOCATION, TIME RecPlex, 10:45–12:00

The ability to attend to relevant information and resist attention to distractors is important for children's cognitive development. Difficulties with attention can impede memory development and impact learning. Much has been written in the news about the impact of electronic media on children's development of attention skills, but little research has been done explicitly comparing children's attention to relevant information and resistance to distractions across activities that are presented in either tactile or electronic format. The goal of this study is to compare levels of attention and distraction among preschool-aged children while they engage in a common childhood activity, playing a board game, which is either presented in an electronic or tactile format. Also, comparing children's basic understanding of the game across conditions will provide information on whether tactile

or electronic games are more beneficial for children to get the most out of the task. Previous research is mixed on the potential benefits of electronic activities compared to tactile versions. One recent study suggested that the use of electronic media increases attention problems while decreasing executive function skills, but that it improves visual attention (Swing, 2013). Recent research also indicates that interactive websites appear to have many benefits for learning, but there is little empirical evidence to show media is more effective for learning as opposed to other types of instruction (Schmidt & Vandewater, 2008). Therefore, I hypothesize that while children's visual attention to the game may be greater while playing the electronic game, the use of tactile pieces and the tactile game itself may serve as an interactive way to boost understanding. Therefore, I hypothesize that

children will have a greater understanding of the game when it is a tactile board game. I will observe 10–20 families playing either the tactile or electronic version of Linear Numbers Board Game

(Siegler & Ramani, 2009). Children's attention, distraction, and understanding will be coded by the experimenter to determine how tactile and electronic games affect these skills.

Honors Thesis Proposal: The Effect of Psychosocial Therapy on Executive Functioning Skills in Children with High-Functioning Autism Spectrum Disorder

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

STUDENTS Kelsey A Clayback | ADVISORS Mary Fuhs

LOCATION, TIME RecPlex, 10:45–12:00

This proposed research will be examining the effect of a psychosocial treatment program on the executive functioning skills (EF) of children ages 7 to 12 with high-functioning autism spectrum disorder (HFASD). Autism Spectrum Disorder (ASD) is a DSM-5 diagnosis characterized by deficits in social communication and interaction and restricted, repetitive or stereotyped behaviors, interests or activities (American Psychiatric Association, 2013). Executive functioning skills are a set of cognitive skills including inhibitory control, working memory and cognitive flexibility that are noted as essential for school achievement and the preparation and adaptation of our future workforce (Center on the Developing Child, 2012). Previous research has noted EF deficits in children with HFASD compared to children with typical development (Corbett, Constantine, Hendren, Rocke & Ozonoff, 2009; Happé, Booth, Charlton & Hughes, 2006). This research proposes to examine if a psychosocial treatment program is

effective in improving EF skills in this population. This longitudinal experimental study will be taking place during the summer of 2016. Participants will include those attending an experimental summer treatment program that focuses on improving social skills by using instruction followed by therapeutic activities to practice the skills. Previous research on this program has found that the children in the program experience significant gains in social skills and decreases in problem or unusual behaviors as reported by staff and parents (Lopata, Thomeer, Volker, Nida & Lee, 2008); however, EF skills and gains in EF have not yet been evaluated in the program. Methods I propose to use for evaluating EF include Day/Night Task, CANTAB Spatial Span (SSP) and CANTAB Attention Switching Task (AST). Participants in both the control and experimental group will be evaluated at the end of June and again at the end of July. Results will be reported in the spring of 2017.

The Effectiveness of Active Interaction in Interactive Visual Imagery as Created by the Keyword Method

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

STUDENTS Morgan E Pair | ADVISORS Robert J Crutcher

LOCATION, TIME RecPlex, 10:45–12:00

Mnemonic devices have been proven to be extremely effective methods for learning and subsequent retention of information. In recent years, as our country becomes more multi-cultural and the need for bilingualism increases, mnemonic devices have been increasingly utilized in foreign language learning. One of the most effective mnemonic devices being used in this way is the keyword method. The keyword method uses paired-associate learning and visual imagery to more strongly encode the English and foreign word pairs (Raugh & Atkinson, 1975).

Recent research has shown the effectiveness of visual imagery increases when there is an interaction shown between the paired words (Crutcher, 1990). However, there have not been any sufficient investigations into what aspect of the inter-active visual imagery makes it so effective for learning and retention. This study sought to answer this question by investigating the nature of the interactions used to relate the English translation and keyword mediator pair.

The Effect of Early Life Social Stress on Anxiety-like Behaviors and Ethanol Drinking in Female Long-Evans Rats

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

STUDENTS Alyssa Rose Roeckner | ADVISORS Tracy Butler

LOCATION, TIME RecPlex, 10:45–12:00

Among women with Alcohol Use Disorders (AUDs), women have higher rates of anxiety-disorders and are more influenced by early life stress compared to men. Preclinical models have been used to study the relationships between early life stress, anxiety-like behavior, and alcohol intake and preference. However, fewer studies have been done with female rats than male rats. To that end, we used a model of early life stress in females that

utilizes chronic social instability. In this model Long Evans rats are placed in different pairs every day, and this has previously produced anxiety-like behavior in female rats (McCormick et al., 2008). Our study extended the McCormick et al. model by including an extra experimental group and including an alcohol self-administration paradigm. Experimental groups were: (1) chronic social instability (pair-housed for 17 days with a novel

cage mate introduced every 24h); (2) Social stability; pair-housed with same cage mate daily); (3) Isolated; single housed for entire study); (4) Acute social instability; pair-housed with same cage mate for 16 days but novel cage mate for 24h on last day). A well-validated model for assessment of anxiety-like behavior, the elevated plus maze, was utilized to evaluate anxiety-like behavior after the housing manipulation, and plasma corticosterone (CORT) levels were measured. Following these measures, rats

were given a two bottle choice and intermittent access between alcohol and water, and alcohol consumption and preference was measured. Following these measures, no significant differences were found between experimental groups for anxiety-like behavior, CORT levels, or alcohol intake/preference. Thus, further study is needed to find a preclinical model of early life stress that promotes anxiety-like behavior and alcohol consumption.

Effects of Acute Stress and Ethanol Consumption on IL-1 β in Female Long Evans Rats: A Pilot Study

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

STUDENTS Kristin Rose Creel | ADVISORS Tracy Butler

LOCATION, TIME RecPlex, 10:45–12:00

Background: Acute stress may elicit many physiological, behavioral, and neuropathological responses, and studies aim to better our understanding of these responses and their effects on human behavior. However, a majority of preclinical studies that involve Long Evans rats are currently using male test subjects. This study thus aims to evaluate the physiological response of interleukin 1 beta (IL-1 β) to various acute stressors in adult and adolescent female Long Evans rats. Methods: Female Long Evans rats were exposed to three acute stressors over the course of three consecutive days. In order, these stressors were Swim Stress (SS), Open Field with High Light (OF-HL), and Predator Odor (PO). Plasma samples were collected both prior to and following each stressor, and IL-1 β levels were measured using a 96-well ELISA. For the two weeks that followed, EtOH self administration was assessed in an intermittent access two-bottle choice design, followed by a final measure of IL-1 β

levels. Results: No significant difference was found between the pre-stress and post-stress levels of IL-1 β for any of the acute stressors. However, the general trend of our data suggests that IL-1 β levels decreased following the stressor for both adult and adolescent subjects. IL-1 β levels were also lower at final measure than compared to pre-stress baseline, suggesting that ethanol consumption may impact basal levels of IL-1 β . Conclusion: The goal of this pilot study was to assess the physiological reactivity of female rats to various acute stressors with the hope of finding behaviorally meaningful stressors that allow us to further study the neurobiological substrates of anxiety-like behavior, stress, and ethanol consumption. Though these data are preliminary and would require further replication, they do suggest that acute stress and alcohol consumption may decrease IL-1 β levels. Future studies will assess how IL-1 β is affected by chronic stress in female subjects.

The Layered Look: A Deeper Look into the Relationship of Clothing and Body Schema

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

STUDENTS Michael J Tymoski | ADVISORS Benjamin R Kunz

LOCATION, TIME RecPlex, 10:45–12:00

Clothing is essential in most cultures: it displays personal style, occludes body parts from view, and provides protection from the elements. In a previous study we determined that clothing alters affordance judgments, or one's perceived ability to act. To broaden our knowledge of the influence of clothing on affordance judgments, we are conducting three additional experiments in which participants make affordance judgments about their ability to complete motor tasks while wearing multiple layers of clothing. The first experiment employs the method of limits, whereby the experimenter raises or lower a bar until the participant indicates that the bar is reachable or no longer reachable; this is repeated in several trials while the participant is wearing from 1 to 5 additional layers of clothing. In a second study, participants make affordance judgments regarding the passability of their arms through variously-sized apertures while wearing layers of

clothing. A third study employs the mirror illusion to examine the relative contributions of visual and touch information to the body schema and affordance judgments. In this study, the right clothed arm is placed out of sight behind a mirror while the unclothed left arm and its reflection are visible in a mirror, giving the illusion that the actions and accoutrement of the right arm are those of the left arm. Participants will make affordance judgments about the passability of their clothed arm through an aperture while wearing varying layers of clothing on their right (and hidden) arm. We predict that clothing will influence perceived affordance judgments even though it has little impact on actual action capabilities. Together, these studies will provide insights as to how visual and tactile information about clothing influence the perception of the body and subsequent judgments about one's capability to act in the environment.

Estimating Distance Through Apertures

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

STUDENTS Sierra F Corbin, Brittany C Fischer, Sarah Anne Plassenthal, Emily G Wright | ADVISORS Benjamin R Kunz

LOCATION, TIME RecPlex, 10:45–12:00

Distance estimates for targets up to 40 feet away are remarkably accurate, consistent with the notion that precise distance perception is critical to guiding actions in three-dimensional space (e.g. navigating the environment). Previous studies, however, have demonstrated accurate distance judgments primarily for targets viewed across an uninterrupted ground plane. In this study, we asked participants to judge the distances to targets viewed through a window in an adjacent room versus to targets viewed

in the same room. We predict that participants judge the targets as closer to them when the target is located in the same room and, correspondingly judge targets as farther away when viewing the target through an aperture. This study, along with planned follow-up studies, will provide insights into the environmental cues that inform distance perception and spatial awareness of the surrounding space and spaces outside direct view.

Personality Pathology and Hedonic Response to Odor

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

STUDENTS Rhiannon A Gibbs, Russell J Mach, Maia A Mclin, Lisa E Stone | ADVISORS Julie Messinger

LOCATION, TIME RecPlex, 10:45–12:00

Olfaction prominently figures into our day-to-day processing of emotion as it relates to memory for events, preconscious social tendencies, and inferences about the emotions present in others. It comes as little surprise that smell and human emotional faculties are so deeply intertwined, provided the considerable overlap between the neural centers of olfaction and emotion processing. Individual differences in smell have seldom been considered in the context of personality, despite there being an identifiable role of emotion in both normal and abnormal personality functioning. The overarching goal in this investigation was to explore relationships between odor processing and select maladaptive personality traits related to emotion and social dysfunction (Anhedonia, Emotional Lability, Intimacy Avoidance, Restricted Affectivity, Withdrawal). We assessed olfactory sensitivity, identification, and judgments of odor pleasantness and unpleasantness in a pilot sample of 16 undergraduate students. Participants

also completed the Personality Inventory for DSM-5 (PID-5), a self-report measure of maladaptive personality traits. Significant positive correlations emerged between participants' ratings of odor unpleasantness across all odorants and the PID-5 facets of Anhedonia ($r = .595, p = .015$), Intimacy Avoidance ($r = .672, p = .004$), and Restricted Affectivity ($r = .865, p = .000$). Furthermore, higher Restricted Affectivity was associated with lower pleasantness ratings of unpleasant odors ($r = -.582, p = .018$). While results must be interpreted with caution due to the small sample size and low overall personality pathology, the findings of this pilot study do lend support to the feasibility of odor unpleasantness ratings as markers of trait Anhedonia, Intimacy Avoidance, and Restricted Affectivity. Future directions for this line of research include replication in a larger sample and in individuals with clinical levels of personality pathology as well as sex-specific analyses.

Am I Hurt or Injured? Assessing Adult Attitudes Toward Pain and Injury

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

STUDENTS Thomas E Boggs, Nicholas Fadoir | ADVISORS Keri J B Kirschman

LOCATION, TIME RecPlex, 10:45–12:00

Objective: Very little is known about how attitudes toward injuries and pain predict a variety of health-risk behaviors relevant to unintentional injuries. The purpose of the present study was to examine the psychometric properties of measures that assess attitudes toward pain and injury. We hypothesized that attitudes toward pain and injury would form unique constructs able to predict injury risk and global risk taking behaviors. Procedure: 2 studies examined the psychometric properties of measures used to reflect attitudes toward injurious experiences and pain. In study 1, an exploratory factor analysis of injury and pain scales was evaluated with data from a sample of 237 undergraduate students (139 Female, 56 Male). In study 2, a confirmatory factor analysis was done with a sample of 390 adults (234 Female, 122 Male) who were registered users of Amazon's Mechanical Turk service. Concurrent and discriminant validity was determined by

examining the relationship between attitudes toward pain and injury with measures of global risk taking and social desirability. Results: In Study 1, pain and injury measures exhibited strong internal consistency ($\bar{I} \pm = .72$ to $.92$) and test-retest reliability ($r = .71$ to $.80$). Study 2 indicated adequate to good fit with a 4-factor model of pain and injury attitudes, $\bar{I} \pm 2 (146) = 336.43$, CFI = $.96$, TLI = $.95$, RMSEA = $.06$ (CI90% = $.05$ – $.07$). Additionally, injury and pain attitudes were independent of social desirability bias and correlated significantly with global risk taking and an index of injury risk across both samples. Conclusions: Results from exploratory and confirmatory factor analyses revealed that injury and pain attitudes are unique constructs. Attitudes toward injury and pain can be assessed reliably, and they are associated with health behaviors relevant to injury risk.

Words Will Never Hurt Me?: Examining the Relation between Non-Physical Abuse and Perceived Severity

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

STUDENTS Amber M Blazer, Benedetta Rossi, Sarah A Wilhoit | ADVISORS Lee J Dixon

LOCATION, TIME RecPlex, 10:45–12:00

The relationship between past experiences of psychological abuse, preferences for dating partners, and the degrees of non-physical abuse has been previously studied (James & MacKinnon, 2010; Zayas & Shoda, 2010). The Tip of the Iceberg theory hypothesizes that non-physical abuse varies according to severity “verbal, emotional, and psychological” with verbal abuse perceived as intending to emotionally hurt someone, emotional abuse consisting of acts of omission, and psychological abuse having the effect of destroying the target person’s psychological sense of self (James & MacKinnon, 2010). Past research has shown that psychological abuse is perceived as the most threatening form of non-physical abuse (Henning & Klesges, 2003). The present study examined how degrees of non-physical abuse, an individual’s past experiences, and their current involvement in the relationship affect their perceived severity of non-physical abuse. Undergraduates from the University of Dayton completed

a questionnaire about their current romantic relationship. In addition, they read vignettes depicting different degrees of non-physical abuse occurring in either another’s (e.g., Danny and Jen) or their own (e.g., you and your significant other) relationship, and were then asked to rate the severity of abuse on a 9-point scale. We predicted that the relation between the degree of non-physical abuse and perceived severity will be moderated by the level of personal involvement in the relationship, such that actual and perceived severity will be more strongly related when participants read vignettes of other, as opposed to their own, relationship. We further predicted that a past experience of abuse will affect the relationship between the degree of non-physical abuse, personal involvement, and the perception of severity, such that participants who have a history of abuse will give higher perceived severity ratings. Results will be presented, and implications and limitations will be discussed.

Is insecure attachment always a bad thing? Moderating effects of relationship contingent self-esteem

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

STUDENTS Caesar Fukuda, Miranda R Micire, Rebekka A Wendland | ADVISORS Lucas Keefer

LOCATION, TIME RecPlex, 10:45–12:00

Past research finds that attachment style, expectations about the (un)supportiveness of close others, has a number of important effects on well-being. In particular, individuals with less secure forms of attachment style, that is, individuals high in either the expectation that partners will be unpredictable (attachment anxiety) or the expectation that they will be neglecting (attachment avoidance), generally show deficits in mental well-being (Mikulincer & Shaver, 2007). The current study investigates whether these effects vary as a function of relationship contingent self-esteem (RCSE; Bush, Canevello, Cook, & Knee, 2008). Because RCSE is commonly considered an unhealthy form of self-esteem that depends on one’s relationship quality, we hypothesized that this trait may enhance the negative effects of insecure attachment across a wide range of well-being

outcomes, including satisfaction of basic psychological needs (autonomy, competence, and relatedness), depression, and mood. We tested this prediction with a sample of 2903 University of Dayton alumnae in the first wave of a longitudinal study of adult development. Replicating prior research, we found that greater anxiety and avoidance, as well as RCSE, were associated with deficits in well-being. Additionally, we found in several cases that greater RCSE strengthened the negative effects of attachment anxiety on well-being. This study further demonstrates that attachment style, originating in early childhood experience, has important long-term implications for well-being. Furthermore, it enhances our understanding of the personality traits that may increase or diminish the costs of attachment insecurity.

Regulatory Focus and the Influence of Peers’ Drinking Consequences

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

STUDENTS Angela L Receveur | ADVISORS Jackson A Goodnight

LOCATION, TIME Kennedy Union 312, 2:00–2:20

Fifty-nine percent of college students reported consuming alcohol in a national survey (SAMHSA, 2014). While it is well established that peers play an important role in drinking behaviors, the role of personality in susceptibility to peer influence is less clear. The concept that some people are promotion-focused (focused more on gains), while others are prevention-focused (focused more on avoiding losses) is known as regulatory focus (Molden, Lee, & Higgins, 2008). Regulatory focus has been found to influence the effects of positively versus negatively-framed messages

(Yeung-Jo, 2006). Specifically, using primed regulatory focus, participants with a prevention-focus were more responsive to negatively-framed advertisements which highlighted the negative consequences of smoking, while those with a promotion-focus were more responsive to positively-framed advertisements which highlighted the health benefits of not smoking. Additionally, there is evidence of positive alcohol expectancies being associated with an increase in alcohol consumption and negative alcohol expectancies being associated with a decrease in alcohol

consumption (Jones, Corbin, & Fromme, 2001). The current study explored associations between participants' chronic regulatory focus, peers' positive and negative consequences for alcohol use, participants' alcohol expectancies, and one's own drinking behavior, while controlling for perception of friends' alcohol use. Two hundred and thirty-five students from the University of Dayton completed a series of questionnaires to measure these constructs. The results of this study were mixed, with prevention

focus strengthening the association between peers' negative consequences and participants' alcohol use, but promotion focus did not influence the association between peers' positive consequences and participants' alcohol use. Both types of regulatory focus moderated the association between consequences for peers' alcohol use and expectancies, though not in the predicted direction. There was not support for alcohol expectancies to be a mediator.

When Seeing is Not Noticing: A Subtle Test of Change Blindness While Proofing Text

College of Arts and Sciences: Psychology | Panel Discussion - Course Project, PSY 493 PA

STUDENTS Anne M Horn, Kacie M Kinkade, Nicholas J Latorre, James Edward Mclean, Erin Marie Straslicka

ADVISORS Susan T Davis

LOCATION, TIME Kennedy Union 312, 4:00–4:20

Change blindness is an inability to detect changes in a 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, such as in the present research. This research investigated blindness to changes in the type font between paragraphs of stories. Participants read a three-paragraph-long passage in which the type font of one paragraph was different from the other two. That is, the font change could take place in the second paragraph and there would be two opportunities to notice the change; or, the change could take place in the third paragraph and there would be only one opportunity to notice the change. Participants were told to proofread the passages, but were not told to look explicitly for changes in font. 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 replicated those results and examined the relationship between English competency, visual awareness, and change blindness. This experiment, using subjective reports of change detection, assessed three hypotheses of interest: first, participants would detect more frequently the subtle font change in the second paragraph of the text than a font change in the third paragraph. Second, participants who accurately identified errors (e.g., typos) that had been planted, would be more likely to notice the change in type font; and, third, participants who were less accurate in detecting changes in type font would express more overconfidence in their accuracy than those participants who were more accurate.

Behavioral Activation in Homeless Shelters for Men and Women: Examining Outcomes and Future Directions

College of Arts and Sciences: Psychology | Panel Discussion - Graduate Research

STUDENTS Julie A Baffoe, Kristen M Baker, Thomas N Ballas, Kaitlin Marie Bell, Anna N Bettner, Jessica L Bloemer, Nathanael Thomas Bloss, Lucy E Bratton, Amy Marie Brentlinger, Collin P Bryant, Julia C Carroccio, Anthony A Dalpiaz, Sophia D Dinardo, Elizabeth A Edurese, Brittany C Fischer, John F Gutmiedl, Lauren A Hoody, Charles A Hunt, Kaysa Linnell Jarrard, Madeline C Johnson, Dana Jean Jones, Brendan M Koors, Morgan E Longstreth, Margaret E Maloney, Cassidy L Martin, Elizabeth A Miller, Elisa M Nordmeyer, Bernadette D O'Koon, Alana M Parey, Anthony M Rasso, Morgan N Reiser, Alyssa Rose Roeckner, Mallory H Schrier, Rachel A Schroeder, Megan E Schuman, Jennifer H Sebell, Jamie A Stanton, Keegan Andrew Sunderhaus, Lindsey G Whittemore | ADVISORS Greg C Elvers, Alyssa P Gretak, Roger N Reeb

LOCATION, TIME Kennedy Union East Ballroom, 4:00–5:00

Guided by the Psycho-Ecological Systems Model (Reeb & Folger, 2013), this transdisciplinary project implements behavioral activation at homeless shelters for men and women. The project utilizes a participatory community action research strategy within a service-learning pedagogy. Behavioral activation, rooted in Skinner's operant conditioning, can 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). Behavioral activation sessions, which are open to all shelter guests,

are designed to enhance (1) empowerment, (2) coping, and (3) the social climate of the shelters. The use of service-learning to support this research is guided by a recent book written by Bringle, Reeb, Brown, and Ruiz (2016) and published by the American Psychological Association (i.e., "Service Learning in Psychology: Enhancing Undergraduate Education for the Public Good"). Results indicate that guests find behavioral activation sessions to be important, meaningful, worthy of repeating, and enjoyable. Further, guests perceive behavioral activation sessions as contributing to their hope, mood, empowerment, social support, positive social climate perceptions, purpose/meaning in life, and quality of life. The following long-term hypotheses are

currently being considered: 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 et al., 2015). Efforts to link the project to

the Montgomery County Office of Ex-Offender Reentry, extending the project to Transitional Housing Programs, and examining qualitative data to supplement our quantitative findings will be discussed.

Empathy and Social Awareness Accompany Detection of Subtle Changes in Facial Expression of Emotion

College of Arts and Sciences: Psychology | Panel Discussion - Course Project, PSY 493 PA

STUDENTS Angel C Agu, Madison Alyse Groeninger, Marissa E Sander, Shyamal Vasudevan, Kendall Lorraine Wolowicz

ADVISORS Susan T Davis

LOCATION, TIME Kennedy Union 312, 4:20–4:40

Change blindness (CB) is the inability to detect changes in a stimulus. Research has shown that gradual changes in facial expression of emotion can produce significant levels of CB (David et al., 2006). The present research attempts to replicate these results as well as examine the relationship between CB and social awareness (cognizance of each other's needs in a social situation) and empathy (sensitivity to each other's emotions). In addition, based on indications that participants may actually detect the change on an unaware level yet fail to report it, this research examined implicit (unaware) memory for detection of the changes in emotion. Participants viewed videos that showed changes in facial expression of emotion or in neutral objects; each video was followed by animated emoji that either matched or not the change in the video. Participants were asked if they detected the change presented in the video, to describe the nature of the change, and to indicate their confidence in their

answer. To examine unaware memory, participants were then timed on their reactions to the emoji animations that followed the videos, stopping each animation as soon as the emoji was recognizable. Participants then responded to measures of empathy and social awareness. We have found evidence in support of four hypotheses in this research: (a) participants would more often report changes in facial expression of emotion than changes in neutral objects, (b) participants with greater social awareness and empathy would more often report changes in facial expression of emotion, (c) participants less reliable in reporting changes in facial expression of emotion would express greater overconfidence in their ability to detect changes and greater overconfidence than those participants more reliable in reporting changes, and (d) participants would identify faster those emoji that matched than did not match facial expression of emotion.

Typology, Tabernacle, and Tradition: A History of Interpretation of Hebrews 9:11–14

College of Arts and Sciences: Religious Studies | Poster - Honors Thesis

STUDENTS Samuel A Mullins | ADVISORS Meghan Henning

LOCATION, TIME RecPlex, 10:45–12:00

The texts of the Bible have been used and interpreted in various ways across different time periods and different cultures, and there is much to be gained by studying these changes. Changing attitudes about and uses of Scripture tell us something about other changes taking place in society. They reflect new ideas about religion, knowledge, and authority. Most of all, they demonstrate the techniques used by pastors, theologians, and other authors to make texts written long ago relevant to contemporary problems. The purpose of my study is to use Hebrews 9:11–14 to

look at the ways in which the interpretation of Scripture and the uses of Scripture change across time and geographic locations. By analyzing the text itself in its first century context, as well as documents citing this passage from the Early Church, the Middle Ages, the Reformation, and the present day, I am able study both the ways that the interpretation of this particular passage has changed, and how methods of biblical interpretation themselves have changed.

W.A.T.E.R. Watershed-Aquifer Toxicity and Ethical Responsibility

College of Arts and Sciences: Religious Studies | Oral Presentation - Course Project, REL 369 H1

STUDENTS Jason R Darpel, Brad J Kallenberg, Eric M McGill, Tanner Nicholas Rolfe, Jingzhe Sun | ADVISORS Brad J Kallenberg

LOCATION, TIME Marianist Hall Learning Space 218, 2:00–2:40

The course in engineering ethics has looked at clarifying what counts as a satisfactory response to problems that fall under the category of “wicked.” Wicked problems are those that have no definitive formulation and for which each of the possible responses that could be made may generate additional chains of wicked problems. Making moral judgments over wicked problem is particularly difficult. Wicked problems are an inescapable part of the messy nature of the physical world we inhabit, including

the Dayton community. Currently the Ohio EPA is monitoring, but has not set baselines for regulating, a class of compounds called perfluorinated compounds (PFCs) in Montgomery County. Among this class of compounds are chemicals used in waterproofing fabrics and nonstick coating for pans, as well as more significant compounds used to combat chemical fires. These compounds are associated with developmental complications and are potentially carcinogenic. Unfortunately, PFCs are

extremely stable and tend to bioaccumulate, eventually entering drinking water. They have been discovered as far away as the Arctic Circle in polar bear fat and as close to home as in human breast milk. Our project is the investigation of the role of PFCs

in two competing goods (fire-safety vs drinking-water-safety) and the construction of an ethical argument to make our case, employing standard terminology (claims, reasons, warrants, and backing).

Excluding Inclusion: Feminists, Augustine, and Gender Equality in God’s Image.

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

STUDENTS Robert N Parks | ADVISORS Jana M Bennett

LOCATION, TIME Kennedy Union 312, 2:20–2:40

This paper discusses the personal and scholarly formation of feminist theologians Rosemary Radford Ruether and Sarah Coakley to contextualize their negative readings of Fifth Century bishop Augustine of Hippo on the equal dignity of men and women. The Christian theological presupposition is that man and woman are both created in God’s image (Genesis 1:26–28). Augustine distinguishes between male/female equality in human “substance” (what humans are) and inequality in what each symbolizes. Substantial equality is important in a source of Christian tradition like Augustine, although the inequality he describes remains problematic. What in Ruether’s and Coakley’s formation blinds them to this possibility in Augustine and in the Christian tradition he hands on? An American with an Episcopalian father and a Catholic mother, Ruether chose Catholicism, yet she does not identify as only Catholic. Her early experiences in Christianity in several denominational communities profoundly impacted

her perceptions of revealed truth which, for her, is found in neither one Christian denomination, nor only in Christianity. As a British subject and now an ordained priest, Coakley has remained decidedly Anglican, though open to other Christian and non-Christian thought. British society’s maintenance of tradition bears on Coakley’s search for seeds of gender equality within Christianity’s ancient sources. Ruether and Coakley fail to notice Augustine’s nods toward gender equality. This is due in part to similar scholarly formations in politically divided cultures. In America and Britain, one statement by an authoritative source can negate that source’s other statements in the eyes of the opposing party’s members. As a religiously authoritative source, Augustine’s negative statements about women seem to cancel his positive statements. This is a mistake since Augustine’s positive statements about women actually give Ruether and Coakley what they seek.

A Review of the Literature on the Effects of Diversion Programs on Juvenile Recidivism

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Christian A Bondra | ADVISORS Arthur J Jipson

LOCATION, TIME Kenedy Union 211, 1:00–2:00

The purpose of this literature review is to determine the effectiveness of diversion programs on recidivism rates of juvenile offenders, specifically in the Southwestern portion of Ohio. The motivation behind such a review comes from my belief that our justice system must begin working to fix the issues of society, not condemn them, and this review is to assess if that is at all possible. In approaching such an issue I began by establishing

what creates a juvenile offender, what constitutes a diversion program, and how the two work in conjunction with one another to help reduce recidivism. The findings of my research conclude that diversion programs in Southwestern Ohio can help to divert individuals, but is based on the offender’s willingness to want to divert.

Unintentional Consequences of Ohio’s Conceal Carry Law

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Eric Joseph Gavin | ADVISORS Arthur J Jipson

LOCATION, TIME Kenedy Union 211, 1:00–2:00

The debate over stricter gun laws has been a hot topic over the past few years. Ohio has recently changed the competency requirement to renew a conceal carry permit, making it more lenient. The burden is on the individual to ensure they are competent with a firearm, ultimately putting both the concealed carry holder and the general public at risk. Thus, Ohio’s current conceal carry law is inadequate in protecting the public and ultimately

puts both the conceal carry holder and the general public at an increased risk. A survey was conducted of military personnel, law enforcement, and concealed carry holders. The purpose of this research is to determine the demographics of individuals who carry a concealed weapon and to conclude if individuals who conceal carry are familiar and/or participate in adequate training to reduce unintentional firearm injuries and deaths.

#GHETTO

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Christopher M White | ADVISORS Arthur J Jipson

LOCATION, TIME Kennedy Union 222, 1:00–2:00

The purpose of the project is to examine the mindset associated with college drinking subculture through a brief anonymous online survey that examines student practices and the understanding of those practices. Questions will be asked on the survey in order to examine perceptions at the beginning and conclusion of a student's time in college in order to see if there is

a pattern in the understanding and if that understanding changes over time. If that perception does change, this project may be able to identify key ideas or critical thoughts in the college drinking subcultures that can be addressed at the start of college to help alleviate the negative consequences of drinking cultures.

Perceptions and Understandings of Cyberbullying and Conformity Among College Students

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Elizabeth C Metzger | ADVISORS Arthur J Jipson

LOCATION, TIME Kenedy Union 211, 1:00–2:00

This project will explore the perceptions of cyberbullying and conformity among college students at a Midwestern private university. The specific research question that I am seeking to answer is: Why and how adolescents experience cyberbullying and if conformity plays a role in cyberbullying? I will examine cyberbullying and the effects it has on individuals that are the victims to cyberbullying based on the perceptions of college students via an anonymous online survey. This project will also explore the ideas and knowledge that college students have about cyberbullying. And a central focus in this project is the interpretation on the role that conformity plays in the experience of cyberbullying. The literature draws a strong connection between the rationalization to engage in cyberbullying and the

effects and outcomes (Patchin and Hinduja, 2010). I also want to examine if cyberbullying is the only form of harassment that the victim has experienced based on their answers to the online survey. Cyberbullying has become a significant problem and typically involves students and adolescents (Patchin and Hinduja, 2006). Cyberbullying may lead to various outcomes such as physical and emotional harm. Numerous lives have been lost due to bullying and cyberbullying (Anderson et al, 2014). Conformity is a problem in younger generations and this could be a reason why cyberbullying has become such a significant social problem (Santor et al, 2000). I want to investigate the reasons that individuals are bullied and what leads to bullying.

Dispatches from the University of Dayton's Inaugural Inside-Out Prison Exchange Program Course

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Panel Discussion - Course Project, SOC 392

STUDENTS Milton T Alston, Dashay K Berry-Purnell, Raika N Casey, Brittany C Fischer, Molly K Gaskell, Georgette K Harrold, Ki'Erra L Knox, Jamie Longazel, Emily M Prill, Olivia G Scott, Bridget T Shane, Yuan Zhou | ADVISORS Jamie Longazel

LOCATION, TIME Kennedy Union East Ballroom, 1:00–2:00

The Inside-Out Prison Exchange Program brings college students together with people who are incarcerated to take a course, side-by-side. This panel will feature the students who were part of the University of Dayton's inaugural Inside-Out

class, which was taught at a local correctional institution this spring. They will share their experiences and will do so in a style that provides the audience with a glimpse of what is unique about Inside-Out pedagogy.

Rethinking Global Health: Biosocial Approach and the Question of Equity

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Panel Discussion - Course Project, ANT 392 02

STUDENTS Allison C Bailey, Elizabeth A Clement, Charles L Dant, Simanti Dasgupta, Sean M Desrosiers, Patrick T Doyle, Tyler Aaron Gamble, Katelyn M Gibson, Alexander P Knueven, Michelle L Naporano, Kevin L Outwater, Logan D Proffitt, Elizabeth T Thurgaland | ADVISORS Simanti Dasgupta

LOCATION, TIME Kennedy Union West Ballroom, 2:00–3:00

While the phrase "global health" has become almost ubiquitous and seemingly recognizable, it also has led to some serious problems as to how one would actually understand it both conceptually and practically. From an anthropological perspective, the problem relates to how can one comprehend, analyze and represent the experience of suffering related to the illness experience at a global scale. The edited volume, Reimagining

Global Health that this course panel is based upon, has an interesting story since it is a product of faculty teaching and student contribution starting originally at Harvard College. Building upon Reimagining Global Health, this panel is conceptually unique for its biosocial perspective and an interdisciplinary framework that particularly privileges the question of equity over equality. Central to this panel is the discussion of the "biosocial" approach.

“What does a biosocial approach to analysis of global health problems and interventions require? What does it make possible? How is it different than other approaches that one may have encountered? The panel presents the goals of the course, which

was to gather a set of analytical tools to apply to case studies. These tools include both social theories -- like biopower -- and concepts -- like biosocial that will deepen our comprehension of health and illness.

Recruiting Inequality: Race, Wealth, and the Recruitment of Division 1 Non-Scholarship Athletes

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Milton T Alston | ADVISORS ADVISORS Jamie Longazel

LOCATION, TIME Kenedy Union 211, 2:00–3:00

This research examines disparages in the recruiting practices amongst Division 1 FCS non-scholarship football programs, with an in depth look at the University of Dayton's. Using secondary data analysis, I will be investigating where players were originally

recruited (e.g. hometown, high school). From there, I will examine the make-up of said communities (race, wealth and class) in order to determine a pattern of recruiting and link this to the larger topic of both critical race theory and systemic inequality.

Perception of Law Enforcement: How Incidents Like Ferguson Impact Perception of Law Enforcement

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Matthew J Walsh | ADVISORS Jamie Longazel

LOCATION, TIME Kenedy Union 211, 2:00–3:00

Over the past year to eighteen months issues of race and law enforcement have received a lot of media coverage. Incidents like the Michael Brown shooting in Ferguson, Missouri and the death of Freddie Gray in Baltimore are two examples of incidents that have dominated the news at times. Issues of race and use of force have been debated a lot since then. How these incidents affect perception of law enforcement and how it affects police officers are several questions that have been raised as well.

Using surveys completed by students majoring in Criminal Justice at the University of Dayton, I researched how the shooting in Ferguson affected their view of law enforcement as dangerous and whether or not it affected their decision to pursue a career in this field of work. Questions regarding their personal demographics were asked along with how much news media they watched and from what sources they received media coverage about it.

The forgotten population: analyzing media coverage of mental illness in the general population compared to mental illness in the prison population

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Bridget T Shane | ADVISORS Jamie Longazel

LOCATION, TIME Kenedy Union 211, 2:00–3:00

In the United States, 1% of the population is currently incarcerated. Mental health care is a service rarely provided to people who are incarcerated, despite research indicating that such care could improve the United States' incarceration rate. Adding to this impelling research, this project examines whether the media gives as much attention to mental illness in the prison population as they do to mental illness in the general population. To do this, I have tabulated the number of times mental health terms such as “depression”, “anxiety”, “schizophrenia”, and “PTSD” have been used in New York Times articles. I have found that the media has consistently given a substantially smaller amount of attention to mental illness in prison inmates. By exploring various

across decades (e.g., articles from 1986, 2000, and 2015), this research also explores whether we have devoted more news space to the issues over time. I have found that the media has discussed mental illness much more frequently in recent years; however, the media's discussion of mental illness regarding prison inmates has consistently been discussed a small fraction as frequently as mental illness in the general population. This research can make an impact in several fields including forensic psychology, criminal justice, and sociology by helping to initiate a larger dialogue about the lack of mental health care in prison along with the lack of attention this significant problem receives.

Nonmedical Prescription Stimulant Use on the University of Dayton's Campus

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Kara H Konow | ADVISORS Paul J Becker

LOCATION, TIME Kennedy Union 222, 2:00–3:00

The National Institutes of Health, the Center on Young Adult Health and Development, and numerous college studies, have been conducted regarding nonmedical prescription drug use to

find the vast and rising popularity it holds among college students. The purpose of this study is to examine the prevalence of nonmedical prescription stimulant use (Adderall® Ritalin® and

Vyvanse®) as well as the causes and effect of this misuse on the University of Dayton campus. In addition I will compare and contrast these findings with other studies that have been done nationally about this drug use.

Relationship Between Adolescent Animal Crimes and Adult Interpersonal Violent Crimes

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Kelsey Leann Durham | ADVISORS Paul J Becker

LOCATION, TIME Kennedy Union 222, 2:00–3:00

The relationship between a person committing animal crimes as an adolescent and then committing interpersonal violent crimes as an adult is a debate among sociologists which still exists today. In order to understand what is being researched, it is important to know the definitions of animal crime and violent interpersonal crimes. Animal crimes are actions that result in suffering or harm from a human upon any animal for purposes that are not for self-defense or survival. Interpersonal violent crimes are unlawful physical force committed to a person from another

person. The following literature review analyzes the historical views of the relationship between adolescent offenses against animals and violent interpersonal offenses in adulthood. Current research was investigated to determine if the link is found to be present. The results found are contradictory from one researcher to the next. Therefore, there isn't one clear answer to whether or not interpersonal violent crimes can be predicted by adolescent animal crimes.

Veterans with PTSD in Law Enforcement

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Brandon Paty | ADVISORS Timothy F Apolito

LOCATION, TIME Kennedy Union 222, 2:00–3:00

Many military veterans are returning home from war and some have unseen mental issues. Some of these veterans may turn to law enforcement as a way to continue their service of the country and its' people. This research examined the outcome of veterans with posttraumatic stress disorder (PTSD) and their ability or non-ability to gain employment as a law enforcement officer. When an honorably discharged veteran applies to law enforcement they are automatically given a 5-point preference, but does

it really help if there are unseen health issues? A survey was sent to law enforcement agencies and asked all military veterans to voluntarily take the survey. Based on the answers about their own PTSD they were able to continue or the survey ended for them. The research gave insight into what it is like for a veteran with PTSD to gain employment and continue serving as he or she was in the military.

The Impacts of Media Violence on Children

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Brittany C Fischer | ADVISORS Jennifer Davis-Berman

LOCATION, TIME Kennedy Union 222, 2:00–3:00

Violence in the media has impacted society in a variety of ways, especially among the youth population. Violent media content has been associated with aggressive behaviors that are seen in children. After viewing violent content, children are said to be the most vulnerable to the inappropriate content. Research has also shown that children have easier access to various forms of violent media due to an advanced technological society. Due to children having greater access to violent content, several preventative measures have been identified through the use of policy and a variety of recommendations and guidelines have been suggested for the parents. Extensively reviewing the current literature, this paper will identify the impact of violence in the news media, TV and video games, and internet access on children and their behaviors. Implications of violence in the media on children will be examined. Preventative approaches will be analyzed. Finally, conclusions and implications will be presented.

Breaking Out and Coming In: The Inside-out Prison Exchange Program

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Ki'Erra L Knox | ADVISORS Jamie Longazel

LOCATION, TIME Kenedy Union 211, 2:00–3:00

This paper will explore the transformative effects of the Inside-Out Prison Exchange Program from various angles. First, it will review the literature relating to the Inside-Out. Second, drawing on my own experience as a student in an Inside-Out class, I will provide a personal reflection on the transformative effects the

program has had on me and my classmates. As I go through the course, I will observe, engage and learn different viewpoints from both the inside and outside students. Going through the course, I plan on challenging my own thoughts and ideas and also coming out my confront zone to adapt to the environment of the class.

Mainstream Media and How it Portrays Victims of Human Trafficking

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Meggie Fahrner | ADVISORS Dorie M Farrell

LOCATION, TIME Kenedy Union 211, 3:00–4:00

The purpose of this project is to show how mainstream media overlooks the true victims of human trafficking. This is significant because the media's portrayal of human trafficking victims alters the public view of who the victims typically are. Films are being analyzed to show how the media has grabbed onto the concept that sex sells and that the primary victim getting attention are victims of sex trafficking. I analyzed films on human trafficking, and collected data on the victims, including the age, race, and

gender. I will also report on where they were trafficked from and to, and for what reason. There are countless different reasons for a human being to be trafficked, including for prostitution, sex slavery, hard labor, combat, and organ removal. Human trafficking is modern day slavery and I will be looking at films to see if they accurately depict the truth behind the victims. I found that the films, unsurprisingly, focus on sex trafficking and do not portray all aspects of human trafficking and its' victims.

Gangs of Chicago

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Christopher A Flores | ADVISORS Miranda Hallett

LOCATION, TIME Kenedy Union 211, 3:00–4:00

The focus of this literature review is to examine various gangs of the city of Chicago in various ways. The main reasons for the gangs taking part in the activities that they do and some of the history of Chicago's gang problem will be one of the main focuses of this literature review. This aspect of the project will not only be analyzed from a criminal point of view, but also an economic and social point of view as well. Various criminologi-

cal theories will also be examined in this literature review in the hopes of better explaining what circumstances may or may not push certain people into the life of a street gang member. Among these theories are those of Robert Merton, Edwin Sutherland, and more. Territoriality will also briefly be examined to get a better understanding of where each analyzed gang operates and what their geographical boundaries are.

Dayton's Intellectual and Developmental Disabilities' Experience

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Corey Robert Mitchell | ADVISORS Ruth Thompson-Miller

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

This study aims to find out how Adults with Intellectual and Developmental Disabilities feel about law enforcement officers. In the wake of all the media coverage of police brutality cases nationwide a less publicized group, adults with Intellectual and Developmental Disabilities have had their share of interaction with the police. This study is the result of 10 interviews with

Intellectual and Developmental Disabilities adults that share their feelings about the police. Despite this group being misunderstood by the police-- as reported in the literature; this empirical research project reveals a different story from the perspective of the adults with Intellectual and Developmental disabilities in the Dayton area

Economic, Political, and Environmental: Factors Influencing International Students Decision to Stay or Leave

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Katherine M Norman | ADVISORS Ruth Thompson-Miller

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

In an increasingly global economy, it is important to understand the reasons international students decide to pursue careers in the United States or return to their home countries upon graduation. Research focusing on the ways in which U.S. institutions can improve the likelihood that students will want to stay after graduation is scarce. This systematic literature review seeks to understand the many factors that international students consider when making this decision. The studies analyzed indicate that there are many social, personal, and professional factors that

influence students. Some of these factors include: social support systems, cultural competency, political and economic standing, and opportunities for career advancement. The research also indicates that many countries are implementing incentive programs which motivate graduates to return home. Analysis of these studies offers a unique perspective that encourages changes in current U.S. immigration policy and the implementation of various programs within Higher Education.

Acceptability by Law Students of Enhanced Interrogation Techniques

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Paige E Madden | ADVISORS Ruth Thompson-Miller

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

Inspired by the 2014 release of the Senate Select Committee on Intelligence's Report: "Committee Study of the Central Intelligence Agency's Detention and Interrogation Program", I am using both quantitative and qualitative data to attempt to answer the following question: do students who study law, who analyze the complexities of the legal system believe that it is ethical and moral to continue the use of enhanced interrogation techniques as a means to gain intelligence of threats towards the United

States of America? I collected my data through a survey that asked questions about the general knowledge of enhanced interrogation, specifics about the techniques: walling, waterboarding, and chaining positions, and knowledge of the legality of these techniques. This senior research project examines the correlation between programs of study/education and acceptance of the use of enhanced interrogation techniques.

The Use of Police Discretion

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Todd S Hansen | ADVISORS Simanti Dasgupta

LOCATION, TIME Kenendy Union 211, 3:00–4:00

This project focuses on police discretion, or the unwritten rule used by officers that allows them to make quick decisions in the field. This is a topic that affects decisions made by lawmakers at local, state, and federal levels of the criminal justice system. The major argument that comes into play with the use of discretion is the fact that members of American society are very split as to whether or not lawmakers should have the option to make these split second decisions. Many people believe that police officers need to have the option to use discretion in the field in order to protect not only themselves, but also the innocent citizens that surround them. Others see the use of discretion as something that needs to be limited to very specific situations or perhaps not used at all. To be specific, this two-sided argument has come to light in American society in the last few years. There have been multiple cases in which a decision made by an officer has been seen as questionable, especially those cases involving minority

citizens. The major goal of this project is to provide the audience with arguments being created on both sides of the police discretion argument. This will allow me to keep a neutral opinion on the topic, which in turn will help me attempt to answer the questions brought about by the recent uses of police discretion. Specifically, I will be concentrating on the question of whether or not the use of discretion should become something that is included in the "rule book", limiting its use to certain situations. I have reviewed current literature and writings that concentrate on the practice of police discretion. This presentation is comprised of an introduction that defines police discretion as well as the argument at hand. The introduction will be followed by a section that concentrates on the method use throughout the project process. The major method used in this process was to draw upon existing material. Finally, the majority of the paper will refer to the results of my exploration of current writings and research.

"Lady Justice is Colorblind"

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Nikita Srivastava | ADVISORS Jamie Longazel, Ruth Thompson-Miller

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

In this law review, I will be examining colorblind racism in the case of *The State of Florida v. George Zimmerman*. Was racism present when Zimmerman shot Trayvon Martin? To answer this question, I start by defining Critical Race Theory and colorblind racism. Then, I look at the closing arguments made the attorneys

who tried this case. Colorblind racism can be overlooked or go unnoticed; that is why it is important to examine thoroughly the contents of a closing argument from this case. At the end of this law review, I will show how there was colorblindness and why being colorblind does not bring justice.

Sexual Assault on College Campuses

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Baylie K Caulfield | ADVISORS Arthur J Jipson, Jamie Small

LOCATION, TIME Kenedy Union 211, 3:00–4:00

This criminological project examines the issue of sexual assault on college campuses in the United States. In April 2011, the Department of Education's Office for Civil Rights stated that providing all students with an educational environment free from discrimination is critically important (Ali 2011). The issue of sexual assault has unfortunately become more prevalent and has raised concerns regarding public safety. Despite many legal efforts and grassroots mobilization, sexual assault rates remain high on college campuses. This project is an analytical literature review which will investigate the social conditions that lead to growing rates of sexual assault. This issue continues to be an important area of criminological research. The key themes investigated in this research project "" as drawn from the literature -- include 1) the fear of being victimization, 2) concerns regarding

repeated trauma, and 3) negative educational consequences that result from the trauma (for example dropping out of college due to perceived pressures and stresses that result from the initial victimization). There are several patterns that arise from the literature and explain the higher instances of sexual assault on college campuses, including the consumption of drugs and alcohol, cultural expectations of masculinity; victim blaming and the subsequent traumas; and finally the societal stigma placed on those who report an assault. "Dear Colleague Letter from Assistant Secretary for Civil Rights Russlynn Ali.-- Pg 1." Dear Colleague Letter from Assistant Secretary for Civil Rights Russlynn Ali.-- Pg 1. N.p., 04 Apr. 2011. Web. 01 Mar. 2016. <<http://www2.ed.gov/about/offices/list/ocr/letters/colleague-201104.html>>.

The effects of food insecurities on school aged children

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Jordan Elise Spiegle | ADVISORS Jeanne A Holcomb

LOCATION, TIME Kennedy Union 222, 4:00–5:00

A high number of children in the United States are overweight, suffer from food insecurity, and live in households facing parental stressors. Child food insecurity has been associated with diverse developmental consequences for U.S. children. Longitudinal data has been used to examine how food insecurity over time

is related to changes in academic performance, psychological well-being, weight, and social inequalities. Despite numerous initiatives to address childhood hunger and malnutrition, these problems remain prevalent in our society today.

Portrayals of Mental Illness in Media: A Content Analysis of Popular Film

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Anna J Jakimcius | ADVISORS Jeanne A Holcomb

LOCATION, TIME Kennedy Union 222, 4:00–5:00

Mental illness remains one of the most misunderstood topics in today's society. With such a wide range of illnesses, the portrayal and interpretation of mental illness has created a negative stigma towards the individual's suffering. The media is often credited in playing a large role in creating this stigma, and has used different techniques to portray the mentally ill as crazy, dangerous, and rejected from general society. With an increasing amount of indi-

viduals experiencing the effects of mental illness, the negative stigma around the topic has been put into question. This review looks at 12 movies released between 1960–2015 that each feature at least one main character with 1 or more of 8 common mental illnesses. This content analysis shows that portrayals of mental illness in this 55-year time span have become more accurate and sympathetic.

The Impact of Parental Substance Abuse on Children

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Kaitlin A Warren | ADVISORS Jeanne A Holcomb

LOCATION, TIME Kennedy Union 222, 4:00–5:00

Substance abuse impacts approximately one out of every ten people in America today changing the lives of many people across the country. While substance abuse directly impacts the person who is dependent on drugs or alcohol, the impacts on friends, family, and children are often forgotten. This literature review aims to identify the physical, psychological, and social

implications on children as a result of their parent's substance abuse. The detriment on this group of children is great ranging from fetal drug addiction, to serious mental illnesses, and social abnormalities. By continuing research on this topic the quality of life for many children of addicted parents may be greatly enhanced.

Complementary Programs in the Prison System

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Sarah Mercer Van Leeuwen | ADVISORS Jennifer Davis-Berman

LOCATION, TIME Kennedy Union 222, 4:00–5:00

Mass incarceration in the United States has been rapidly increasing since the 1970's. One contributor to this phenomenon is deinstitutionalization, which began in the 1950's after mental hospitals were either downsized or closed. As a result, the mentally ill are often incarcerated rather than offered treatment. The prison environment itself often contributes to the development

or worsening of mental disorders. The present paper discusses current mental health treatment in prisons. An argument is made for the need for complementary approaches. Yoga, dog training programs and art classes are discussed as complementary treatments. Implications and suggestions for future research are presented.

Reaching Beyond the 1 in 6: Exploring the Impact of Developmental Disabilities on the Family

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Kelly Joan Maloney | ADVISORS Leslie H Picca

LOCATION, TIME Kenendy Union 211, 4:00–5:00

Between the years 2006–2008, about 1 in 6 children in the United States were reported to have a developmental disability, signaling a rise of reported cases of developmental disabilities from previous years. With their growing prevalence, it is imperative that an increased awareness of developmental disabilities and their effects follows. The impacts of a developmental disability reach beyond these 1 in 6 children and are felt by those they interact with including teachers, health care professionals, classmates and friends, and most specifically, the family. Families with children with a developmental disability are presented with a set of experiences that result from the needs of the child, which with

the rising prevalence of these disabilities ought to be considered. This study aims to examine current literature that addresses the experiences of families with a child with a developmental disability as compared to families with children without a developmental disability. Specifically, it focuses on aspects of family dynamics and functioning including parenting, caretaking, family relationships, and stress. This study will also address system-level factors that influence these family experiences and the level of access these families have to social support. Implications of this study are discussed as well and suggest future research in this area.

Dueling Educations: Formal Education, Social Interaction, and How They Affect Bigotry

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Nicholas J Leeper | ADVISORS Paul J Becker, Leslie H Picca

LOCATION, TIME Kenendy Union 211, 4:00–5:00

In this presentation, the dissonance between the tolerance and understanding one learns in their formal education, and what they experience in their social life will be discussed. Topics will include bigotry both on and offline, why such behavior is

normalized, some common well-meaning language and behavior racially-charged baggage, and whether being exposed or even a part of all this undoes any of one's formal education.

Women in Male-Dominated Occupations and the Glass Ceiling Conception

College of Arts and Sciences: Sociology, Anthropology, and Social Work | Oral Presentation - Capstone Project

STUDENTS Sarah M Harrison | ADVISORS Theophile J Majka

LOCATION, TIME Kenendy Union 211, 4:00–5:00

The concept of inequality between men and women in the workforce has been a longstanding issue. In most occupations, men hold the top level positions. Even with the many feminist movements over time and equal opportunity policies, disproportionately fewer women enter high status jobs and many that do struggle to become upwardly mobile in their fields. Concepts and hypothesized have been developed to describe both physical and psychological barriers that prevent women from succeeding in the corporate world. Some of these terms are thought to be

related to the concepts of the "glass ceiling" and the "glass cliff". Other articles in the literature examine the power of inequalities in male-dominated work where sexuality is frequently used as control over women. The following literature reviews attempt to dissect and explain the inequalities women face in male-dominated occupations.



SCHOOL OF BUSINESS ADMISISTRATION

Flyer Pitch: The University of Dayton Business Plan Competition Student Experience

School of Business Administration: Crotty Center for Entrepreneurial Leadership

Panel Discussion - Independent Research

STUDENTS Andrew Kenneth Hamilton, Jessica Lynn Kerr | ADVISORS Vincent Lewis

LOCATION, TIME Miriam Hall 207, 11:00–11:30

In this panel discussion, student members of the six finalist and alternate teams from the 2015–2016 UD Business Plan Competition (UDBPC) will discuss their experiences in the competition. Presenters will include members from finalist teams ChurchLink Aer and Infinipure. 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.

Introduction to Entrepreneurship, The Sophomore Micro-Business Experience

School of Business Administration: Crotty Center for Entrepreneurial Leadership

Panel Discussion - Course Project, MGT 221 01

STUDENTS Allyson M Ayoob, Katherine A Cordier, Michael D Keller, Brooke V Larney, Vincent Lewis, Daniel C McManamon, Todd R Price, Patrick F Rourke, Benjamin D Steinhart, Scott T Stoermer, James E Studer | ADVISORS Vincent Lewis

LOCATION, TIME Miriam Hall 207, 1:00–2:00

The Sophomore Micro-Business Experience course is the highly acclaimed introductory course to entrepreneurship majors. This is a yearlong experience that covers the first two entrepreneurship classes, MGT 220 and MGT 221. Students start the year by pitching product ideas to the class, think Shark Tank! Everyone in the class acts as an investor, and votes on the what they believe are the best proposals. The top ideas in each class are selected and the person who pitched the idea becomes the team pres-

ident. The team president then has to recruit other students to their micro-business and begin the process of creating a start-up. Each business is funded with a \$5,000 loan from the university, and at the end of the spring term the profits from the business are shared between a charity of the team's choice and the members of the team. Through February this year's micro-businesses have generated almost \$40,000 in revenues with over \$12,000 in profit.

Flyer Consulting

School of Business Administration: Crotty Center for Entrepreneurial Leadership

Oral Presentation - Independent Research

STUDENTS Joseph M Armstrong, Hannah R Heffernan, Mark J Mcevely, Brandon G Snyder, James E Studer

ADVISORS Vincent Lewis

LOCATION, TIME Miriam Hall 207, 2:20–3:20

Flyer Consulting (FC) is a unique extra-curricular organization at the University of Dayton composed of an elite group of students from various majors. FC offers solutions to nonprofit organizations through conducting research and analysis in areas such as financial planning, marketing, and community presence. FC provides final analyses 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.

Cultural Continuity from 1845 to the 2008 Presidential Election

School of Business Administration: Economics and Finance | Poster - Honors Thesis

STUDENTS Gurjot Kaur | ADVISORS Marc A Poitras

LOCATION, TIME RecPlex, 10:45–12:00

This paper intends to examine the durability of culture in elections with a civil rights component by conducting a multiple regression analysis. The difference in the Democratic vote between 2008 and 2004 is regressed on a number of demographic and socioeconomic variables, as well as a cultural variable. The model attempts to demonstrate the persistence of culture in New York counties over a span of more than 150 years. County level cross-sectional data was used, obtained from the 2010 Census, the 1845 New York Census, the Bureau of Labor

Statistics, and the New York State Board of Elections. The model was constructed using ordinary least squares regression, and the AICc was used to find the model most likely to align with the true model by dropping variables without explanatory power. At an alpha level of 0.10, it was determined that the percentage of the county's population born in New England in 1845 did have a statistically significant impact on the difference in the Democratic vote, supporting the hypothesis that culture is durable and persistent over time.

A Portfolio Weighting Strategy For a Portfolio of 9 Large Cap Healthcare Stocks: The Case for Capture Ratios, 2010–2015

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Mitchell V Schleyer | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

The Capital Asset Pricing Model (CAPM) indicates that individual stocks are systematically influenced by overall price movements in the market. One way of measuring these systematic movements is through capture ratios. In this study I utilize upside/downside capture ratios to develop portfolio weights for 9 large cap Health Care stocks which make up the largest overall weight

in the Health Care Sector XLV. I test the following hypotheses: (1) The upside/downside capture ratio weighted portfolio outperforms the market (S&P 500), (2) the upside/downside capture ratio weighted portfolio outperforms XLV. (3) The performance of the upside/downside capture ratio weighted healthcare portfolio compares favorably to other weighting strategies.

Portfolio Weighting Strategies for a concentrated portfolio of Consumer Discretionary stocks: An Empirical Analysis, 2010–2015

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Alexander Kubalski, Margaret E Schutter | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Recent interest by investment managers in Portfolio Weighting Strategies other than market capitalization has led to a rapid increase in fundamental based indexing. In their study I use the price dynamics of firms relative to the market (S&P 500) to weight a 10 stock portfolio of Consumer Discretionary firms. The weighting model is based on the capture ratio of the price changes for each stock compared to the S&P 500. In particular, an upside/downside capture ratio is developed for each stock based on a

years worth of daily price changes. The following hypotheses are tested: 1) Firms with higher upside/downside capture ratios have higher expected returns. 2) The Consumer Discretionary portfolio weighted by upside/downside capture ratios outperforms the market and the Consumer Discretionary Sector. 3) The upside/downside capture ratio performs well against other portfolio weighting strategies.

Inflation Trends in Personal Consumption Expenditures, 2001–2015

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Courtney E Cady | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

The Federal Reserve, as a key element in its monetary policy, uses a 2% target inflation rate to determine if the federal funds rate needs to be increased. The purpose of this study is to evaluate long, intermediate, and short term trends in inflation to determine if the inflation policy objective has been reached. My inflation metric is Personal Consumption Expenditure (PCE)

and the period of analysis is 2001–2015. I develop linear trend equations for both PCE and PCE less food and energy using the b coefficients from the regressions as a proxy for the PCE inflation rate. Out of sample forecasts are made for 2015 and the first couple of months in 2016.

Portfolio Weights and Capture Ratio Analysis: A Look at Performance in the Consumers Staples Sector 2010–2015

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Sam William Verrilli | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Since the recession in 2008, the stock market has experienced periods of extreme volatility, with market moves of 200–400 points on almost a daily basis. One sector that should do well when market volatility is high and rising is consumer staples. In this study I use a dynamic pricing model to determine the portfolio weights for the 10 largest value weighted stocks in the consumer staples sector. The model relies on the upside/down-

side Capture Ratios (U/D) for each stock to calculate the portfolio weights and dollar investment in each stock. I test the following hypotheses: (1) Stocks with higher U/D ratios generate higher excess returns relative to the market, (2) The U/D weighted portfolio of consumer staples stocks outperforms the consumer staples sector (XLS), (3) The U/D weighted portfolio performance wise, compares favorably to other portfolio weighting strategies.

Capture Ratio Analysis and The Materials Sector XLB: A Performance Review for 2010–2015

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Nicholas C Jacobs | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

The materials sector performance has had a challenging time over the last few years. A slow down in China and Europe certainly have been contributing factors in XLB's weak performance. In this study, I evaluate a portfolio weighting model based on capture ratios. The covariance in price performance between large-cap stocks in the materials sector and the market (S&P 500). In this study I use a concentrated portfolio of the 10 biggest cap-weighted stocks in XLB and weight their position in the port-

folio by upside/downside capture ratios. I then test the following hypotheses; 1.)The 10 materials stocks portfolio weighted by upside/downside capture ratios outperforms the market (S&P 500) 2.) The upside/downside capture ratio weighted concentrated portfolio of materials stocks outperforms XLB and 3.) The concentrated portfolio of materials stocks, performance wise, compares favorably to other weighting strategies.

Quantitative Modeling: The Impact of Volatility on Stock Returns, 2015

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Daniel Robert Caponi | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Since the 2008 recession, stock market volatility has increased significantly with differing impacts on stocks and sectors of stocks. In this study, using Bloomberg's propagation model, I identify S&P 500 stocks that historically perform well in relative terms as volatility increases. A basic log linear equation is used to determine the relationship between S&P stock returns and the VIX (our index of volatility) i.e. $\ln Pt+n/Pt=f(VIX)$. Stocks

are sorted by their B coefficients within sectors to obtain the expected top performing stocks in 2015, an equal weight portfolio of 41 stocks were selected for analysis, representing 8 SPDR sectors. The performance of the VIX friendly portfolio was calculated and then compared to the equal weighted S&P index (RSP ETF). The hypothesis to be tested is the VIX portfolio outperforms RSP.

Size, Value and Momentum in Stock Returns: an Empirical Analysis, 2010–2014

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Matthew Peter Fazio, Erik Jameson Kurcz | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Based on the landmark studies of Eugene Fama and Kenneth French in the 1990's, most financial economists consider a firm's market capitalization (size) and price to book as two of the most important factors affecting the cross section of stock market returns. In recent years, other factors including stock price momentum have been accepted as predictors of stock returns in the cross section. In this study, I develop a three factor analysis of S&P 500 stock returns for the period 2010–2014. This period

was chosen because it is not included in more recent studies. It also reflects a period of high volatility in the market with a strongly accommodating monetary policy. Using the factors firm size, price to book and stock price momentum, I test the following hypotheses: (1) Small cap stocks outperform large cap stocks, (2) growth stocks outperform value stocks, (3) growth stocks have longer periods of market out-performance (momentum) when compared to value stocks.

Do High ROE Stocks Outperform the Market with Persistence: An Empirical Analysis, 2009–2014

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Andrew M Imhoff | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Academic studies by Eugene Fama and Kenneth French as well as Robert Novy Marx identify profitability as one of the factors determining the variation in excess returns in the cross section of stock returns. Using return on equity (ROE) as my measure of profitability and the S&P 500 as my universe of stocks, I examine the impact of ROE on S&P 500 stock performance for the period

2009 – 2014. I test the following hypotheses with respect to ROE: (1) Portfolios of firms with high ROE's (40% or higher) outperform the market with persistence i.e. over long periods of time, (2) Growth firms with high ROE's outperform value firms with high ROE's, (3) Portfolios of high ROE firms outperform portfolios of low ROE firms.

Economic Value, Return on Invested Capital and S&P 500 Stock Return: An Empirical Analysis, 2010–2014

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Thomas Michael Campbell | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Financial economists consider profitability an important determinant of the cross section of excess returns for common stocks. For most empirical studies, return on equity (ROE) or return on assets (ROA) have been used as the appropriate measure of profitability. In this study, however I use return on invested capital (ROIC) because it is a better measure of a firm's economic profit. Using S&P 500 stocks over the period 2010–2014,

I test the following hypotheses: (1) The higher the ROIC/WACC (weighted average cost of capital), the higher a firm's excess returns, (2) portfolios with high ROIC firms, outperform portfolios with low ROIC firms, (3) ROIC is directly related to performance persistence i.e. high ROIC firms outperform the market over long periods of time.

Wage Costs and Inflation Trends: An Empirical Analysis 2001–2015

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Alison M Berry, Carmen M Derosé | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Rising wage costs have often been used as a leading indication of inflation in national economies. In the US since the 2008 recession wage costs growth has, to say the least, been erratic with no discernible upward trend. In 2015, however, wage cost growth showed some signs of picking up steam suggesting that overall spending in the economy will likely pick up. In this study we examine trends in the employee cost index (ECI) from 2001 to 2015, the long term trend period, and 2009 to 2015, an

intermediate term period after the 2008 recession. Linear trend equations are developed year over year by quarter, sequentially across quarters, and yearly (based in four quarter averages). The following findings will be discussed: (1) long term growth rates in wage costs on a quarter by quarter basis are declining. (2) Since the 2008 recession the growth trend is positive. (3) Over the last three years, on a sequential quarterly basis, the ECI growth rate has picked up significantly.

Producer Prices, Cost-Push-Inflation and Stock Market Returns

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Anthony J Bello | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Although the Fed looks at the Consumer Price Index (CPI) and the Personal Consumption Expenditure index (PCE) as the key measures of inflation, in this study I focus my attention on Producer Prices (PPI) as a leading indicator of inflation in final goods produced. I want to test three hypotheses. First there is a high pass through rate for prices in the 4 basic stages of production identified by the Bureau of Labor Statistics (BLS). Using regression analysis to measure the pass through rate, I expect the b coefficients to be greater than zero and close to one. This would indicate that a cost-push inflation process is working at the producer price level. I also want to test the hypothesis that out-of-

sample forecasting models of cost-push inflation at the various stages of production are both efficient and stable with acceptable levels of forecast error. Finally, I want to test the hypothesis that stock market prices co vary with producer prices. An inverse relationship suggests that rising factor costs cause the aggregate supply curve to shift upwards and to the left, lowering or reducing the rate of GDP growth, which results in a decline in stock market prices. A direct relationship suggests that factor costs are rising because of demand pull inflationary forces in the economy, leading to rising stock market prices.

Developing Trend Equations for CPI: An Empirical Analysis 2001–2015

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Daniel J Whitehead | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Since the 2008 recession, overall inflation as measured by CPI has been perceived to be almost non-existent. In recent months, however, inflation is picking up, which in a perverse sort of way is seen as good for the economy. The purpose of this study, therefore, is to more clearly understand CPI trend inflation. To that end, I looked at a long term trend, 2001–2014, two intermediate term trends, 2001–2007 and 2009–2014 and a short term trend, 2013–2014. Monthly and yearly linear trend equations were developed for the long and intermediate term time periods.

For the shorter time period both a simple monthly year-over-year comparison and a sequential monthly comparison of the change of inflation were calculated. Three key findings were discussed: 1) since 2001, the long term trend has risen close to the target rate of 2%. 2) There has been a decline in the inflation rate from 2001–2007 period to the 2009–2014 period. 3) Short term inflation rates are more robust indicating a bottoming out in the decline in inflation.

Monetary Policy and Unemployment Rates: Is there a relationship? An Empirical Analysis: 2001–2015

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS John C Scheuble | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

The Federal Reserve has a dual mandate to carry out Policy objectives that bring about full employment in the economy with price stability. On the full employment side, monthly job growth along with unemployment rates are two key metrics that indicate how well the fed is doing in achieving the mandate. In this study, I focus on unemployment rate trends over the period 2001–2015. In 2001, the U.S. economy was dealing with a mild recession and in

2008 a severe recession. I look at the trend in the unemployment rate for the periods 2001–2007 and 2009–2015 to obtain a better understanding of how the unemployment rates differed over each time period. Finally, I look at the relationship between the unemployment rates, inflation and the money supply in the 2009–2015 period to determine if these factors are inversely correlated.

A Dynamic Pricing Portfolio Weighting Model For the Industrials Sector(XLI) From 2010–2015

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Rory T Houser | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Because of the slow growth globally as well as in the United States after the 2008 recession, the firms in the Industrials Sector(XLI) have experienced uneven and quite volatile stock price performance. In this study, I test a new approach to Portfolio Weighting using the Top 10 Capital Weighted Stocks in the XLI Sector. In particular, I use upside and downside Capture Ratios(U/D) and give higher weights to the stocks with the higher U/D ratios. The argument here is that U/D ratio weighting

dampens the price volatility for the overall Portfolio and should increase overall Portfolio returns. Using 2010–2015 as my period of analysis, I test the following hypotheses:(1) The U/D Capture Ratio Weighted Portfolio of Industrial Stocks outperforms the market, 2010–2015(2) The U/D Capture Ratio Weighted Portfolio of XLI Stocks outperforms the overall sector(XLI) 2010–2015(3) The XLI Capture Ratio Weighted Portfolio, performance wise, compares favorably to other portfolio weighting strategies

Fundamentally Based Portfolio Weighting Models: A Multi-Factor Approach

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS John P Klingler | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Over the last decade, based on the pioneering work of Rob Arnott, a growing number of investment managers are now using fundamental indicators to determine portfolio weights for stocks within exchange traded funds (ETFs). In this study I use fundamental metrics to evaluate the performance of three sector ETFs. In addition, I test the efficacy of using a concentrated portfolio of stocks for each sector as a proxy for total sector performance. The sector ETFs included in the study are consumer staples, consumer discretionary, and health care. The fundamental metrics used are Price to Book, Price to Sales, Price to Cash Flow, Price to Earnings and expected earnings per share growth one year ahead. The year of analysis is 2014.

Hours Worked and Earnings: A Closer Look At Demand Pull Effects on Inflation

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Luke A Bir, Evan J Schatz | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Federal Reserve Economists consider average hours worked and average hourly earnings as key factors in explaining inflation trends. In this study, we look at the trends in hours worked and average hourly earnings from 2006–2015. We also look at the period 2009–2015 to see if the hours worked and earnings trends have materially changed after the 2008 recession. Demand pull

effects are evident in both hours worked and earnings if they exhibit upward trend patterns. Using linear trend equations, we hypothesize that if the b coefficients are >0 demand pull inflation forces are at work in the economy. A flat or downward sloping trend line i.e. $(b=0$ or $b<0)$ would indicate that demand pull inflation effects, at the margin, do not exist.

A longitudinal analysis of the Information Technology Sector (XLK) performance 2010–2015: The Case for Capture Ratios.

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS William A Binnie | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

The Information Technology Sector has experienced very uneven price performance since the 2008 recession. Slower growth globally as well as in the United States clearly has contributed

to this uneven performance. In this study I examine whether or not a different portfolio weighting scheme based on more volatile market price dynamics provides a better mean - variance

efficient performance for XLK. Using a concentrated portfolio of 10 XLK mid to large cap stocks, I developed portfolio weightings for each stock based upon their upside/downside price capture ratios. I then test the following hypotheses; 1.) The 10 XLK stocks, weighted by upside/downside capture ratios outperform

the market 2010 – 2015. 2.) The 10 XLK stock capture ratio weighted portfolio outperforms the sector XLK. 3.) The 10 stock XLK portfolio, performance wise, compares favorably to other portfolio weighting strategies.

Output per Hour and Unit Labor Cost; A Closer Look at Cost Push Inflation, 2005–2015

School of Business Administration: Economics and Finance | Poster - Independent Research

STUDENTS Samuel R Russell | ADVISORS Trevor C Collier

LOCATION, TIME RecPlex, 10:45–12:00

Rising unit labor costs suggest that cost push inflation is at work in the economy provided that output per hour is not keeping pace with unit labor cost growth. In this study, I look at the long term trends in both metrics over the period 2005–2015. I also look at the output per hour and unit cost trends for the period 2009–2015 to see if the 2008 recession impacted these cost and output trends. If output per hour is rising faster than unit costs.

Productivity at the margin is increasing and cost push inflation is declining. If the converse is true, cost push inflation is rising in the national economy. Both quarterly and yearly geometric growth rates in both cost and output metrics are calculated for the above time periods. The geometric growth rates are then used to determine the direction of cost push inflation.

Richard P. & Susan P. Davis Stock Pitch Competition

School of Business Administration: Economics and Finance | Oral Presentation - Independent Research

STUDENTS William A Binnie, Brett W Bradford, Ashley Brown, Daniel Robert Caponi, Douglas S Carey, Alfred J Conway, Tyler B Cronin, Brendan P Cunningham, Larry J D’Onofrio, Sallie R Deyoung, Elizabeth A Diller, Chase R Dollar, Peter John Frac, James W Fyda, John T Gizzie, Adam D Gorzelanczyk, John A Gottwald, Michelle L Hirnikel, Eric P Kraemer, Erik Jameson Kurcz, Grant A Lyons, Alexander Ian Middleton, Ryan Michael O’Neal, Benjamin B Pfeifer, Joseph A Roslovic, Patrick F Rourke, Evan J Schatz, Mitchell V Schleyer, Eric J Seals, Neil Matthew Sipes, Robert C Smyjunas, Steven M Staffan, Steven Alexander Stahl, Christopher J Topp, Kevin Michael Wargo, Evan J Willmann, Daniel E Wollenberg | ADVISORS Leslie S Mundew

LOCATION, TIME Miriam Hall 103, 1:00–5:00

This campus-wide competition challenges teams of 2 to 4 undergraduate students to prepare and present a stock “pitch” or recommendation up to 12 minutes in length. The participating students will analyze a firm’s products/markets, strategy and

financial condition; evaluate the industry dynamics; and assess the macroeconomic environment to project a stock’s upside potential. The competition will be judged by a panel that includes industry professionals and UD faculty.

E-commerce’s 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 Kennedy Union 312, 3:40–4:00

With electronic commerce, or e-commerce, now at 71 billion or 6.2% of total retail in the first quarter of 2014 and growing at a pace of 15% annually as compared to 2.4% for all of retail, e-commerce is quickly gaining ground on the overall market. (U.S. Census Bureau, 2014) These numbers do not necessarily mean that retail as a whole is exploding, but rather transforming. From mom and pop specialty stores, to catalogues, to department stores, to big-box retailers, e-commerce is the next stage of development. My thesis project attempts to quantify how

e-commerce is affecting big-box retail by looking at their year over year square footage growth rates of their stores as well as the percentage growth of their stocks. I am asking two questions: (1) As more products are sold online in a retail category, are the big-box retail stores growing or shrinking in size? (2) Also are the stocks in that retail category performing better or worse as more products are sold online? I will analyze these two questions by building two different statistical models that are described further in the paper and presentation.

ENVIRONMENTAL ECONOMICS: Incident Reports

School of Business Administration: Economics and Finance | Oral Presentation - Course Project, ECO 435 01

STUDENTS Stephen L Annas, Gwendolyn A Bartot, John D Begley, Matthew Joseph Bergant, Shawn James Berkeybile, Taylor K Boyd, Rosemary C Brown, Megan L Dee, Adrian A Diaz-Munio, Kevin Mcdermott Doering, Matthew P Freese, Ethan W Hahn, Garrett Austen Haywood, Shengxi Hu, Jordan G Johnson, Joseph B Keating, Katie L Klima, Matthew R Kolb, Clara J Krajci, Philip J LaFleur, Jack Thomas Lanahan, Amy M Parish, Haley Alexis Ploucha, Ben Polansky, Jonathan D Puricelli, Brandon A Rush,

Feiyuan Shen, Nolan E Sroczynski, Brian Terry Thomas, Joseph F Velten, Emily E Vucovich, Peter J Wallace, Justin M Wampler, Dongdong Wang, Paul J Zagzebski, Huangye Zheng | ADVISORS Barbara Heroy John

LOCATION, TIME Miriam Hall 214, 9:00–4:00

While Environmental Economics might appear to be an oxymoron (since conventional economics seems to endorse economic growth to the detriment of the environment), 'reality-based economics' and new work in anthropology and psychology suggest that humans have actually 'ascended'--acquired evolutionary fitness--less by competing than by cooperating. Cooperation--especially with respect to addressing damage to the 'commons' (the

planet, our home and habitat)--can be construed as enlightened self-interest. This presentation consists of 37 distinct performances, each revealing and reflecting on the causes, consequences and possible solutions to an 'incident': an environmental challenge to the prospects if not the survival of modern Homo sapiens and the natural and economic systems they inhabit.

Eco 490 Empirical Research Presentations

School of Business Administration: Economics and Finance | Oral Presentation - Capstone Project

STUDENTS Alhassan Abubakar, John Anthony Apap, Daniel C Bertke, William D Bishop, Joseph D Bolek, James L Calvano, Joshua M Conner, Kurt R Cornett, Brian J Craighead, Joseph Anthony Demarco, Elizabeth Julia Fox, Peter John Frac, Meghan Ann Freise, Harrison T Hunt, Bryce F Johnson, Gurjot Kaur, Andrew J Lightner, Kelli Renee Marquardt, Kyle F Mooney, Madison M Mulcahy, Benjamin R Peace, Benjamin J Piper, Ben Polansky, Ji Qi, Joseph Nicholas Racchi, Kyle R Sess, Feiyuan Shen, Amanda Marie Silcox, Alaina K Smith, Nolan E Sroczynski, Mitchell A Walton, Huangye Zheng | ADVISORS Nancy Haskell

LOCATION, TIME Miriam Hall 109, 9:00–6:00

Students pull together four years of economics coursework by writing and presenting a research project in the senior capstone course. The research will demonstrate the use of economic the-

ory and econometric techniques to answer an empirical research question of their choosing.

Teradata Project Portfolio Management Solution

School of Business Administration: Information Technology, MIS, OM and Decision Sciences

Oral Presentation - Capstone Project

STUDENTS Jacob L Allsop, Yuqi Chai, Michelle Elaine Ranly, Hannah P Scott

ADVISORS William D Salisbury, Arthur R Santoianni

LOCATION, TIME Miriam Hall 213, 2:20–3:20

This project will define, develop, and implement a web-based system for project management within the Teradata IT Services business. The system will be a Project Portfolio Management solution for the registration, communication, maintenance and reporting of details on projects within the Teradata IT business community. This project is targeted at developing a single end to end system to manage the details, status, risks, and upcoming activities of current and candidate projects for Teradata IT business managers. This project will develop and implement a system for the management of projects within Teradata for different

strategic initiatives from the inception of candidate project ideas through the completion of approved projects. Within the portfolio management system, over the life of the projects, metadata about the project including costs, benefits, schedules, status, size, risk and issues will be maintained and communicated within the organization and to the business community. The system will create a consistent, simple, integrated, and detailed dashboard hosted over the internet to allow IT members to track the status of a series of projects.

CareSource Business System Integration Project

School of Business Administration: Information Technology, MIS, OM and Decision Sciences

Oral Presentation - Capstone Project

STUDENTS Matthew Vincent Diccico, Matthew M Huber, Elisabeth Inkrott, Matthew Allen Kubiak

ADVISORS William D Salisbury, Arthur R Santoianni

LOCATION, TIME Miriam Hall 213, 2:20–3:20

The UD Senior Project team will integrate two business application systems, OnBase into SharePoint, so that information, such as IT Intake data, is able to be viewed on a new web in SharePoint. Sharepoint is used by the vast majority of CareSource users, compared to OnBase which is used by a small fraction of employees. Onbase is used for CareSource's core business processes such as IT Intake documentation and other

case-sensitive information. A new web part in SharePoint will be designed so that data from OnBase is able to be accessed easily by employees. The UD Team is working with the CareSource IT Intake Team in implementing a way to view the status on a particular IT Intake ticket.

SBA/China Institute Consulting Project Competition Client Presentations for GE Aviation

School of Business Administration: Management and Marketing | Oral Presentation - Independent Research

ADVISORS Terence J Lau, Paul D Sweeney

LOCATION, TIME Miriam Hall 106, 9:00–3:00

How can GE Aviation in Suzhou increase its share of the exploding market for commercial aircraft jet engines?

OPS 485-495 Operations and Supply Management Senior Consulting Project Presentations, Session 1 of 3

School of Business Administration: MIS, OM and Decision Sciences | Oral Presentation - Capstone Project

STUDENTS Brian D Bates, Rosemary C Brown, Craig A Carden, Oliver J Flesher, Emily J Froment, Janna Renee Krafka, Scott A Mcalinea, Ryan J Mulligan, Brian Joseph Mustee, Kevin F Patzke, Patrick T Radoha, Paul C Schulz, James W Stall, Margo C Vachon, Jacqueline Christine Zondlo | ADVISORS Michael F Gorman, Stephen Russell Hall, John J Kanet

LOCATION, TIME Miriam Hall 104, 11:00–12:15

Students in OPS 495 provide summaries of their capstone projects with regional industry.

OPS 485-495 Operations and Supply Management Senior Consulting Project Presentations, Session 2 of 3

School of Business Administration: MIS, OM and Decision Sciences | Oral Presentation - Capstone Project

STUDENTS David R Arsenault, Justin P Davis, Reese Cody Eckenrode, Bradley J Knickle, Amanda Marie Lochtefeld, Erin Elizabeth Mohney, Lauren Renee O'Connor, Robert T Ress, Kevin Daniel Ricker, Khristian Alejandro Santiago, Elaine Marie Sims, Daniel J Wolfe

ADVISORS Michael F Gorman, Stephen Russell Hall, John J Kanet

LOCATION, TIME Miriam Hall 104, 1:00–2:00

Students in OPS 495 provide summaries of their capstone projects with regional industry.

Imagery Solutions Geospatial Information System (GIS System)

School of Business Administration: MIS, OM and Decision Sciences | Oral Presentation - Capstone Project

STUDENTS Jana M Sztuk, Eric Albert Taglieri, Colin Elliott Wilson | ADVISORS William D Salisbury, Arthur R Santoianni

LOCATION, TIME Miriam Hall 213, 1:00–2:00

Imagery Solutions is a small start-up company that specializes in imagery gathering technology using aerial methods for customers who need precise imaging data, such as those in precision agriculture and energy distributing industries. The purpose behind this image gathering functionality is to provide decision oriented information derived from image data. The mission for the company is to have this information come to the customer in

a timely, accurate, and relevant way. Open GIS is the established open source application for this process. The task presented to our team is to create a business process for the organization from the point of sale to final delivery of a finished product where the users access this information and recommend an appropriate software package to support this.

Emerson Climate Controls Meeting Made Easy Mobile Application

School of Business Administration: MIS, OM and Decision Sciences | Oral Presentation - Capstone Project

STUDENTS Christa Marie Cieslewicz, Alise Marie Jarmusz, Noelle Elizabeth Rogers, Jacob Ryan Wischmeyer

ADVISORS William D Salisbury, Arthur R Santoianni

LOCATION, TIME Miriam Hall 213, 1:00–2:00

The purpose of this project is to create a mobile application that will allow employees of Emerson Climate Technologies to book conference rooms at the Sidney, Ohio facility using their mobile device. The application will be an iOS Mobile App that is compatible on an iPhone to efficiently book conference rooms. It should be able to generate a list of available rooms at a particular time and date with information regarding accessible resources in any

given room. The project will be completed using Emerson's Standard Mobile App Stage Gate Process. The Senior Project Team is responsible for gathering and documenting the requirements in addition to creating a prototype of the app. The Senior Project Team will also be responsible for communication with Emerson's developers in Manila, Philippines to effectively create and test the app to meet Emerson's needs.

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 Katherine Anne Ahrens, Connor R Judd, Mary E Macklin, Kyle F Mooney | ADVISORS Peter G Wagner

LOCATION, TIME Miriam Hall 119, O'Leary Auditorium, 1:00–2:00

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, courses offered at the University of Dayton China Institute (UDCI), 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.

OPS 485-495 Operations and Supply Management Senior Consulting Project Presentations, Session 3 of 3

School of Business Administration: MIS, OM and Decision Sciences | Oral Presentation - Capstone Project

STUDENTS Jay J Carson, Chao Deng, Ethan W Hahn, Emily Catherine Harwood, Katie L Klima, Molly R Kunkel, David Nicholas Marnell, Bridget U Mollaghan, Ryan M Pizzuti, Kevin Reid Rooney, Nicholas William Rothaar, Nicole M Saint Clair, Carter F Smith, Peter J Wallace, Mackenzie J Walsh, Wanyun Zhang | ADVISORS Michael F Gorman, Stephen Russell Hall, John J Kanet

LOCATION, TIME Miriam Hall 104, 3:40–4:55

Students in OPS 495 provide summaries of their capstone projects with regional industry.



SCHOOL OF EDUCATION AND HEALTH SCIENCES

Cross-Cultural Engagement: Is it happening?

School of Education and Health Sciences: Counselor Education and Human Services

Poster - Course Project, EDC 569 D2

STUDENTS Johanna B Lantz | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

This study examines the cross-cultural engagement between international and domestic undergraduate engineering students at a private, Midwestern university. It uncovers the situations in which international and domestic students are engaging and explores the components which help or hinder the cross-cultural interaction between these students. This study informs higher education professionals endeavoring to provide under-

graduate engineering students a greater ability to function in a global world. Data was collected through the use of one-on-one interviews with current international and domestic undergraduate engineering students. The study revealed that while international and domestic engineering students are engaging, the frequency remains low and there continues to be barriers to this engagement which should be addressed.

Increasing Retention in Male Students of Color Through Student Leadership Experiences

School of Education and Health Sciences: Counselor Education and Human Services

Poster - Course Project, EDC 569 D2

STUDENTS Nakita M Saxon | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

This study explores the implications of leadership experiences on undergraduate male students of color and its impact on their sense of belonging at a private, religious, Predominantly White Institution. Enrollment statistics depict a low retention rate among minority students, especially male students of color identifying as Black, Latino, Asian American, and Pacific Islander. A sense of belonging is a vital component to the academic success of all students, and essential to the experience of multicultural students on Predominately White Institutions. According to researchers, a student's sense of belonging comes as a result of many different factors. For many students, their leadership experiences cultivate a sense of belonging and stronger connection to the institution. The exploration of involvement and leadership experiences, sense of belonging, and campus climate assist in visualizing the complexities of this problem for male students

of color. Through in-depth one-on-one interviews on the lived experiences of male students of color, this research examines the impact of student leadership roles on their collegiate careers. Findings included insight on the interrelated concepts of retention, campus climate, sense of belonging, and servant leadership for the participants of this study. As expected, students are impacted by the university's faculty and staff but are also heavily influenced by their peers and the leadership opportunities as they engage in student organizations on campus. Recommendations will allow both faculty and staff to identify the benefits of cultivating environments where male students of color are encouraged to seek out and actively participate in student leadership roles on campus where they feel their differences are welcomed, valued and supported.

Renew Your Interest...So your best potential can come to Light!Examining the Effectiveness of Academic Renewal Course & Coaching (ARCC)

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Shanon C Davis | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

This research explores how the seven week academic intervention course, Academic Renewal Course and Coaching (ARCC) at the University of Dayton, affects student learning development and the parallel to decreasing attrition. The objective of this research was to extract the academic intervention practices and strategies that work best to increase academic performance amongst students who are academically and motivationally challenged. It also explains how and why student learning is affected when the appropriate conditions and resources aren't identified and/or utilized by students. Academic intervention program assessment of ARCC is the all-encompassing purpose of this research. Through qualitative and quantitative data collection, the assessment revealed how effective ARCC is for students.

Through personal interviews with former ARCC participants, the data showed how student's sense of belonging, self-efficacy, and self-authorship are affected, along with transitional college adjustments. Students also shared that they gained additional knowledge about learning styles, learning environments, time management techniques, and note taking strategies. Post ARCC cumulative GPA reports revealed that students benefited from the course well into their collegiate career. This data, in combination with personal interviews revealed that students attributed their long term success to their ARCC involvement, as the course served as tool to get them back on track and fully acclimated. to college requirements.

Culture as Context: Effects of Cultural Polarization on Chinese International Student Adjustment

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Geordan L Burress | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

Due to the fact that Chinese international students are such a significant population within American universities across the country, it is worth investigating how this population typically adjusts to living in the United States and what stresses or issues are unique to them. However, it is also important to investigate whether or not Chinese international students experience

positive transformations within themselves as a result of the adjustment challenges that they are faced with. This qualitative inquiry examines these vital questions surrounding Chinese international student adjustment, in order to contribute to a more holistic understanding of the complex experiences of Chinese international students.

Examining Factors Associated with High Leadership Self-Efficacy Among International Women College Students in the U.S.

School of Education and Health Sciences: Counselor Education and Human Services

Poster - Graduate Research

STUDENTS Chanel M Winston | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

Leadership self-efficacy is an area of self-efficacy related to the level of confidence one has in his or her knowledge, skills, and abilities to lead others (Bandura, 1997). When leadership self-efficacy is placed within the context of student development, it has the ability to contribute to or negate from a student's motivation to persist and succeed in leadership associated tasks (Bandura, 1993; Stage, 1996). The goal of this research is to explore how international female undergraduate students perceive their

leadership abilities in relation to their personally constructed definition of leadership. Through qualitative interviews with six international female undergraduate students, this research identifies specific experiences that contribute to their leadership self-efficacy. Common themes associated with high leadership self-efficacy are pre-college leadership experiences, on campus involvement, and overall self-confidence.

Social Support Influences in Graduate International Student Engagement

School of Education and Health Sciences: Counselor Education and Human Services

Poster - Graduate Research

STUDENTS Chin Yi Chen | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

Changes that graduate international students face in acculturating to U.S. educational environments can often impact the ways they engage on campus, and their subsequent personal and career success. This poses the question of "What are the key themes that institutions can build upon to better support and

encourage their growth?" In conducting a mixed-methods study on the lived experiences of graduate students from India, main findings suggested that mentoring relationships, social ties, and factors of perception were crucial to influencing students' academic and social engagement.

What's in an Ally?: LGBTQ+ Students' Perspectives on Allyship and Campus Climate

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Laura D Gentner | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

College students in America who identify as LGBTQ+ face a lack of universal acceptance, both on campus and beyond, resulting in unique challenges. The perception of campus climate that these students hold can have a profound impact on their college experience and personal wellbeing. Campuses across the nation have undertaken ally training programs in order to make campuses more welcoming for LGBTQ+ students. However, little to no research has focused on allyship from the perspec-

tive of LGBTQ+ identifying students, especially in relationship to perceptions of campus climate. Utilizing in-depth qualitative interviews, this research aims to address this gap in the literature and to explore the relationship between LGBTQ+ identifying students' expectations of and experiences with allies and LGBTQ+ identifying students' perceptions of campus climate, as well as implications for student affairs professionals.

The Power of Prayer: Impact of Spiritual Practice and Access to Spiritual Resources on Resident Assistants' Experience of Burnout

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Fiona Corner | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

This qualitative study was designed to identify a correlation between the increased spiritual practice of resident assistants and decreased experiences of burnout. The challenges of burnout affect the daily lives of resident assistants as well as the experiences of the residents they serve. The literature argues that the pressures of serving as a resident assistant has a significant impact on how students perform in their role as well as the experience for the resident served. The twenty-four lifestyle often places high and emotionally exhausting demands on students

and can lead to burnout. Spiritual practice allows for self-reflection and space for resident assistants to take a break from the demanding expectations. Findings provide a summary of the experience of burnout for resident assistants at the University of Dayton as well as their spiritual practices and access to spiritual resources. Recommendations are also made to preemptively decrease the experience of burnout for future cohorts of resident assistants through the following of spiritual practice.

The Sophomore You Know: Socialization and Peer Influences on Masculine Expression

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Max D Sullivan | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

During the collegiate years, some men engage in high-risk behaviors and adopt detrimental attitudes, which can be dangerous to not only their own personal development, but also the development of their peers. There is a strong correlation between these behaviors and attitudes, and the ideals of masculine hegemony (Wagner, 2015). In addition, college men are more likely to be the perpetrators of most forms of violence and commit violations of campus policies when compared to their female counterparts (Edwards & Jones, 2009). College men interviewed in the study identified external expectations influencing them to act tough and demonstrate other traits of hyper masculine hegemony. It can be argued that some of these men may gain their

masculine related beliefs, values, and behaviors from each other, demonstrating the power of socialization (Harris & Struve, 2009). The experiences of these men illustrate that they want to learn how to be a man, but do not necessarily have a safe space and/or lack the support to craft their definition masculinity. Therefore, many college men are not receiving this support and types of support have not fully been explored. This quantitative study gathered data from over 60 college sophomore men to better understand their perceptions and expression of masculinity. The data is then utilized to provide professionals with recommendations for practice.

International and Domestic Students Relationships: Impact of Interpersonal Relationships on the Development of Cultural Understanding

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Sandra Leigh Nickell | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

Contributing to the campus diversity, the population of international students attending American higher education institutions continues to rise. Higher education institutions strive to develop a diverse campus community that will enrich students prospective of other cultures. It is through examining how relationships between international students and American college students will provide an understanding of how these relationships evolve and affect the campus community. Although, research has

explored the topic of the cause for international students' disengagement to form relationships, there is limited research focus on building interpersonal relationships with their American peer. This research examines the impact of interpersonal relationships between international students and American students contribute to the development of cultural understanding within a university community. Five international undergraduate students and five American undergraduate students participated in the study.

The Current State of Academic Services for Hearing Impaired Students at Public Universities in Saudi Arabia

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Nihad Maneaa Alogail | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

The majority of hearing impaired students in public universities in Saudi Arabia encounter several challenges, including inadequate learning infrastructure and poor academic inclusion. Although they have the potential to succeed, these inadequacies curtail their ability to attain desirable academic standards. In most cases, they feel left out not only in class work, but also in co-curricular activities, which results in dismal performance and

low self-esteem. University administration can fix these problems so as to give the hearing impaired students a productive and fulfilling learning environment at the university. This research examined the impact of the inadequate learning infrastructure in Saudi Arabia, and academic inclusion on the performance of first-year hearing-impaired students. Findings suggest that there is still a need for program development for hearing impaired students.

Impact of King Abdullah’s Scholarship as Determined by The Success in Obtaining a position for Saudi Arabian Students

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Amal M Albdrani | ADVISORS Abd El Nasser A Abd El Razeq

LOCATION, TIME LTC Forum, 4:30–6:30

Surveying 105 graduates of Saudi Arabia’s largest scholarship program, the King Abdullah Scholarship Program (KASP), this study measured the success of the program through graduate satisfaction and employment rates. The study addressed two questions: 1) Is KASP successful when defined as graduates finding employment in their area of study? and 2) Is KASP successful when defined as the graduates’ satisfaction with the study abroad program? The study used a factorial design to capture the effect of several independent variables affecting employment such as gender, age, and field of study, prior experience, and or level of education. Survey questions also captured vari-

ables affecting graduate satisfaction with KASP will address the graduate’s language barrier, multicultural experience, academic readiness, and perceived academic difficulty. The data generated are significant to the Kingdom of Saudi Arabia in assessing the ability of programs like KASP to improve the country’s historical problem with low employment among Saudi citizens. Findings are particularly relevant because 60% of Saudi’s population is under the age of 18, and developing solutions to workforce preparation in a global economy is an increasingly relevant with the status of the workforce in Saudi Arabia.

White Identity Saliency and the Effect on Campus Climate

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Hannah K Williamson | ADVISORS Abd El Nasser A Abd El Razeq

LOCATION, TIME LTC Forum, 4:30–6:30

Since the election of President Obama, many have argued that the issue of racism and equality has been resolved and the United States had moved to a “post-racial” society (Vega, 2014). In recent years, racial tensions have been rising as seen by the shootings of Trayvon Martin and Michael Brown, protests in Ferguson, and national social media campaigns such as #blacklivesmatter. Given these and many other events, Higher Education and college campuses provide a space to confront and discuss race and racial identity. This study focused on White identity awareness at a predominantly White, religiously-affiliated, private university in the Midwest and any effects on the campus

climate as a result of identity awareness. Eight participants were interviewed with interviews transcribed and evaluated to develop a thematic understanding of the students’ perception of their White identity and a connection to the campus climate. Findings discuss the variety and similarities of experiences and identity development of the eight students and the potential affect it has on the campus. Finally, recommendations are presented to support further racial development of White students and institutional educational programs to enhance a more racially aware campus climate.

Academic Honesty from A Saudi Student’s Point of View: Dealing With Negative Stereotype

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Walaa H Alhassoon | ADVISORS Abd El Nasser A Abd El Razeq

LOCATION, TIME LTC Forum, 4:30–6:30

Despite all the research showing the academic dishonesty of Middle Eastern students, and Saudi students in particular, many Saudi students are working hard to obtain their degrees honestly. Unfortunately, this is causing a negative stereotype towards Saudi students in general, and this stereotype is making it difficult for these students to succeed academically in the United States. In fact, when questioned, more than half of the Saudi stu-

dents at the University of Dayton indicated that they had felt the repercussions of a negative stereotype, and 80 percent of these students found it difficult to handle this negativity. Findings of the current study indicates that the negative stereotype is indeed an issue that is having a negative impact on the academic performance and the overall college experience of the Saudi students who come to study in the United States.

(I Can't Get No) Satisfaction With my College Major: Impact of Motivation to Choose a College Major on First-Year Students' Satisfaction and Sense of Belonging

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Andrew J Morrow | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

Social norms, parental desires, peer influence, and money. Some students resort to these extrinsic motivations to choose their major, while ideally, students should be utilizing intrinsic motivations to inform their decisions. Choosing a major can be a difficult process for first-year students, as the complex and stressful decision influences a multitude of future implications. This study connects the motivations first-year students at the University of Dayton used to choose a major to their self-identified satisfaction and sense of belonging as they approach their sophomore year. Findings provide a glimpse into the procedures that first-year

UD students prioritized and how their satisfaction and sense of belonging has been affected while at the institution due to choice of academic program. Satisfaction and sense of belonging are integral to understand further due to the retention and persistence consequences for student and institution. Attendees will walk away from this poster presentation with a framework for understanding the research and strategies for advising students who are embarking on, or inundated in, the multifaceted processes of choosing a major.

Are We Out of the Woods Yet? Students' Perceived Values of Outdoor Pre-Orientation Program Experiences Over Time

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Victoria Heithaus | ADVISORS Abd El Nasser A Abd El Razek

LOCATION, TIME LTC Forum, 4:30–6:30

Often the first welcome to university life for students comes in the form of an orientation program. Pre-orientation camps, like Camp Blue at the University of Dayton, serve to ease the transition through a leadership development lens. The purpose of this research is to examine the effects of the Camp Blue leadership lessons over time, assessing students' perceived value of their camp experiences. A focus group comprised of six

former campers, representing first-year through senior students, highlights some key themes and characteristics from the camp experience that remain relevant post-program. This study informs future practices for camp curriculum and activities, and assists orientation professionals in developing effective pre or extended orientation programs for new students.

Get in the Box: The Impact of Male Socialization and its Relation to Conformity Among College Football Players

School of Education and Health Sciences: Counselor Education and Human Services | Poster - Graduate Research

STUDENTS Vet A Smelko | ADVISORS Molly A Schaller

LOCATION, TIME LTC Forum, 4:30–6:30

Masculinity is a social construct that allows all men to use their manliness as status symbol. Often times, men who have a narrow definition of masculinity will see it as a competition where they must conform to societal norms of traditional manliness in order to prove their worth among their peers, teammates, or other men in general. In turn, this does not allow many men to develop a genuine and authentic sense of self. This study was distributed to the entire varsity football, which consist of 96 players ranging from freshman to fifth year seniors. Using quantitative data from the Conformity to Masculine Norms Inventory, this study illustrates that the rate of conformity to masculine norms

among college football players at a Division 1 non-scholarship, religiously affiliated institution. The conformity is based upon a player's prior socialization experiences, athletic identity, and their ability to make meaning within a college environment. The data represented show that as a whole, college football players at the division one non-scholarship level have a high rate of conformity in regards to traditional forms of masculinity. Specifically the data show the highest ratings of conformity among college football players who have a defensive position, and are first or second year student-athletes.

The Use of the Bruininks-Oseretsky Test of Motor Proficiency and the Y Balance Test to Assess Balance in Typical Children Ages 6–10 Years

School of Education and Health Sciences: Physical Therapy Doctoral Program | Poster - Honors Thesis

STUDENTS Mackenzie Lea Wilson | ADVISORS Betsy K Donahoe-Fillmore

LOCATION, TIME RecPlex, 10:45–12:00

One of the most commonly used tests to measure balance in the pediatric population is the Bruininks-Oseretsky Test of Motor Proficiency, 2nd edition (BOT-2). With this balance assessment, a ceiling effect is often seen, making it challenging to assess changes in balance before and after intervention for many children. The Y-balance test is another balance tool, but normative data for this test has not been established for the pediatric

population. The purpose of this study was to develop normative values for the Y Balance Test in typical children ages 6–10 years and to compare it to the BOT-2. Results of this study can be used to develop normative balance values in children in this age group and to determine if the Y Balance Test can be utilized to accurately assess balance in the pediatric population.

Effects of Body Weight Loading on Arch Height

School of Education and Health Sciences: Physical Therapy Doctoral Program | Poster - Honors Thesis

STUDENTS Anastasia Bjelopetrovich | ADVISORS ADVISORS Joaquin A Barrios

LOCATION, TIME RecPlex, 10:45–12:00

Foot functionality is integral to normal human locomotion. The most commonly assessed area of the human body studied during locomotion is the medial longitudinal arch and its deformation. The Arch Height Index Measurement System (AHIMS) is the most reliable tool to measure this arch. This system typically measures arch deformation in two baseline conditions, sitting and standing. The sitting condition is considered unweighted and approximately 10% of a person's body weight. The standing condition is considered a loaded condition and represents 50% of body weight. The first aim of this study was to see if the baseline measurements traditionally taken with the AHIMS were valid assessments of their perspective body weight conditions. The

second aim was to characterize the body weight load and arch deformation relationship. This study used the AHIMS to replicate loaded body weight conditions during gait, from 10–120% of a subject's body weight. The subjects' arch height was measured at twelve different body weight measurements of 10% increments (10–120%) using a real-time force data stream. The subjects were also loaded with a weighted vest that contained 20% of their body weight in order to aid them in achieving the higher loads of weight. Their arch deformation was recorded at all 12 conditions. The results will further the understanding of how the foot and specifically the arch change during ambulation.

Fall Risk Assessment of Older Adults with Dementia Attending Goodwill Easter Seals Adult Day Services Programs

School of Education and Health Sciences: Physical Therapy Doctoral Program | Poster - Honors Thesis

STUDENTS Jamie L Wynk | ADVISORS Kurt J Jackson

LOCATION, TIME RecPlex, 10:45–12:00

Older adults with dementia are at an increased risk for falls. However, little is known about what specific factors increase fall risk in this population. The purpose of this study was to assess performance based fall risk factors among older adults with dementia who attend day service programs in the Miami Valley so that more specific interventions can be designed to reduce future falls. To be included in this study, participants had to attend Goodwill Easter Seals Adult Day Service and have a diagnosis of dementia. There were 19 participants in this study (8 male) with an average age of 72 years old (ranged 64–86 years old). Participants were assessed for cognitive function by using the Montreal Cognitive Assessment (MoCA). Testing also

included gait speed, the Timed Up and Go test, a 30-second sit to stand test, and a grip strength test. The average MoCA score (16 points) was consistent with MoCA scores for the cognitively impaired or Alzheimer's population. MoCA scores ranged greatly (0–29 points) signifying a wide range of cognitive abilities among this population. Participants scored lower than published age matched normative values for each measure, signifying an increase in fall risk by each parameter. In the future, an intervention should be designed that can be easily implemented in day service programs with an emphasis on targeting the strength of large anti-gravity muscles of the lower limbs and trunk.

High School Students with Disabilities and the Postsecondary Transition: Patterns of Intention and Recommendations for Practice

School of Education and Health Sciences: Educational Leadership | Poster - Independent Research

STUDENTS Heidi Maria McGrew, Daniel J Trunk | ADVISORS Carolyn S Ridenour

LOCATION, TIME RecPlex, 10:45–12:00

Increases in diversity of student race, age, gender, and socioeconomic status, as well as the rise in enrollment of students with disabilities, have allowed colleges and universities to become communities rich in culture and ethnicity. Admissions data suggest that the number of students with disabilities attending college has grown significantly in recent years, with an estimated 400% increase between the mid-1970s and the turn of the

century. A study conducted by the National Center for Education Statistics revealed slightly over 11% of students in U.S. postsecondary institutions were identified as having a disability during the 2011–2012 academic school year. Despite this increase in admission and attendance compared to students without disabilities, individuals with disabilities in the United States are still significantly less likely to attend college and less likely to earn

college degrees. The purpose of this mixed methods study was to examine the rates to which one Southern Ohio sample of 12th grade high school students with disabilities intended to pursue higher education compared to their peers without disabilities. Selected participants from this sample were interviewed to attempt to compliment the statistics to provide further understand of the meaning students make of their postsecondary choices. The theoretical framework for the study was grounded in the his-

tory of public policy that has increasingly promoted educational opportunities for students with disabilities in the K-12 setting and how these policies impact higher education opportunity and access. Conceptual in nature, the study provides a foundation for transition service delivery in K-12 settings for students with disabilities, and how community colleges may form partnerships with local education agencies in order to best meet the transition needs of students.

Acute Effects of Sugar-Sweetened Beverage Consumption on Reactive Hyperemia in Young, Healthy Humans

School of Education and Health Sciences: Health and Sport Science | Poster - Graduate Research

STUDENTS Joshua Keller | ADVISORS Anne Crecelius

LOCATION, TIME RecPlex, 10:45–12:00

Studies have reported that chronic consumption of sugar-sweetened beverages (SSBs) is associated with greater cardiovascular disease prevalence including hypertension, stroke and myocardial infarction. Reactive hyperemia (RH) has been identified as a measure of microvascular function that is associated with cardiovascular disease risk. The purpose of this study was to test the hypothesis that consumption of an SSB would acutely impair microvascular responses. Thirteen subjects were given 24 fluid ounces of water or SSB (68g mixture of fructose and dextrose mimicking high fructose corn syrup, diluted in water). Prior to, immediately after, and 1 hour post-beverage consumption, venous occlusion plethysmography was used to measure the forearm blood flow (FBF) during baseline and post-ischemia (5 min) RH conditions. Whole blood [glucose] was determined via finger-stick samples and rapid glucometry. Heart rate (HR; ECG) and blood pressure (BP; automatic sphygmomanometry) were monitored throughout the experiment. SSB consumption increased whole blood [glucose] from pre-beverage (68 ± 3

vs 104 ± 6 mg/dl) whereas the placebo did not (69 ± 3 vs 72 ± 3 mg/dl). After 1 hour post-beverage, [glucose] was near pre-beverage values for both SSB (76 ± 5 mg/dl) and placebo (75 ± 4 mg/dl) conditions. A small decrease in peak RH FBF was observed 1 hour post-SSB (27.6 ± 2 vs 31.0 ± 2.7 ml/dl/min; $p=0.05$); however, no other significant changes were observed. Interestingly, the dynamic response of the RH was altered such that the area of the curve (AUC) was slightly greater 1 hour post-SSB vs immediately after beverage consumption (104.0 ± 17 vs 84.5 ± 17 ml). Increased systolic and diastolic BP was observed in the SSB condition following the drink and this persisted 1 hour post-beverage. In general, HR was unchanged across all conditions. These findings indicate that young, healthy humans maintain microvascular functioning following acute consumption of an SSB. Future studies should address at-risk populations as well as whether chronic SSB consumption directly attenuates RH responses.

BMI Associations Between Mother and Offspring From Birth to Age 18: The Fels Longitudinal Study

School of Education and Health Sciences: Health and Sport Science | Poster - Graduate Research

STUDENTS Stacie S Swanton | ADVISORS Lloyd L Laubach, Jon K Linderman

LOCATION, TIME RecPlex, 10:45–12:00

Introduction: It is reported that two of three American adults are classified as overweight or obese; and one in three of their offspring will become overweight or obese (Sun et al., 2012). Because parental obesity is a risk factor for childhood obesity, children can also be pre-exposed to risk factors for chronic diseases such as diabetes, hypertension, coronary artery and cardiovascular diseases. It has been well established that body composition is affected by many variables such as age, sex, race, in addition to the familial environment affects such as diet and exercise habits (Baumgartner et al., 1994). Previous research has shown a stronger maternal than paternal influence on BMI during infancy and early childhood (Magarey et al., 2013). The purpose of this research was to investigate the BMI associations between mother and offspring from birth to age 18 years. Methods: Participants were selected from the Fels Longitudinal Study, in which information regarding the study has been previously published in great detail (Roche et al., 1992).

The current study sample includes 6,263 mother/child pairings ($n=3,215$ mother/son, $n=3,048$ mother/daughter). Inclusion criteria required that mothers be a mean age of 35 ± 5 years, the children be aged from 0–18 years, and have height, weight, and body mass index (BMI) data present. BMI correlations between mothers and offspring were analyzed by Spearman correlations and standardized beta coefficients. Results: BMI correlations for the mother/son relationship became statistically significant ($p < 0.05$) around the boys age 5–6 years and continued through puberty and into early adulthood at age 18 years. The mother/daughter relationship became significant at age 1.5 years for girls and also continued through adolescence, puberty and early adulthood at age 18 years. Conclusions: The mother/daughter relationship was more strongly correlated than the mother/son relationship, and also became statistically significant at an earlier age than boys.

Effect of Combination Ice and Compression Socks on Resting Calf Blood Flow in Trained Male Athletes

School of Education and Health Sciences: Health and Sport Science | Poster - Honors Thesis

STUDENTS Michael J Hudock | ADVISORS Anne Crecelius

LOCATION, TIME RecPlex, 10:45–12:00

Compression socks are common tools that are utilized in the realm of athletics. The purpose of the compression is to increase blood flow to the lower extremities, thereby increasing oxygen and energy sources needed for increased skeletal muscle function and/or recovery. Recently, a product has been marketed that combines the compression element and cryotherapy, with the goal being increased blood flow to the lower extremities while reducing inflammation post-workout to quicken recovery. However, to our knowledge, direct measures of blood flow using this type of product have not been performed. Thus, this study

looks at the effects of compression with and without cryotherapy (e.g. icing) on the blood flow of trained male athletes. The hypothesis was that compression would increase blood flow, ice would reduce it, and a combination of both would produce an intermediate result. The present results indicate that compression, alone or in combination with ice, does not increase CBF as measured by venous occlusion plethysmograph, at rest in trained males. Furthermore, CBF was not attenuated during the ice alone condition. Taken together, the marketed effects of this product are questioned in the present experimental setup.

Effects of single-dose dietary nitrate on oxygen consumption during and after maximal 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, 10:45–12:00

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 maximal and 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 cycle ergometry at maximal efforts. Six young, moderately active, healthy males (age: 26.5 ± 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 (8 ± 1 min) 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). Additionally, NO₃⁻ slightly attenuated VO₂ max during exercise (Ctrl: 30.9 ± 3.4 ml/kg/min vs NO₃⁻: 29.4 ± 3.2/kg/min) and post exercise energy expenditure (Ctrl: 112.9 ± 22.1 kcal/min vs NO₃⁻: 94.1 ± 15.7 kcal/min). While NO₃⁻ supplementation may have performance benefits, especially in elite athletes exercising at high intensities, it would not be an ideal choice of a supplement to aid in weight loss and increased energy expenditure.

Intellectual Property and The NCAA

School of Education and Health Sciences: Health and Sport Science | Poster - Honors Thesis

STUDENTS Mitchell W Pollard | ADVISORS Corinne M Daprano

LOCATION, TIME RecPlex, 10:45–12:00

The research aim of this project is to examine the legal issues regarding intellectual property with student athletes who participate in sports under governance of the NCAA. Intellectual property rights are for creative works which are designated to specific people or businesses by law. This research thesis will examine the conflict the NCAA has with student athletes that argue they should be obtaining revenue from autographs, jersey sales, etc. The Ed O'Bannon case, which just concluded and is now in the

settlement phase, will be a major focal point of this research project. Ed O'Bannon sued the NCAA for using student athlete images commercially. The NCAA holds that these "athletes" are amateurs, and should not profit from sales of their jersey or autographs. In essence, this research project will examine the documents and court cases dealing with intellectual property and the NCAA, and other cases outside of the NCAA that present the same issues.

Effects of a Peer Developed Nutrition Education Intervention of the Fruit and Vegetable Intake in Elementary School Children

School of Education and Health Sciences: Health and Sport Science | Poster - Honors Thesis

STUDENTS Sydney Marie Antolini | ADVISORS Diana Cuy Castellanos

LOCATION, TIME RecPlex, 10:45–12:00

The Center for Disease Control estimates that nearly one in three children in the United States are overweight or obese. Under the Healthy, Hunger Free Kids Act 2010, school systems operating under the School Lunch Program are required to provide 1 fruit and 1 vegetable to children during lunch to help to improve the nutritional value of lunches and address obesity. However, plate waste is high and efforts need to be made to increase consumption and decrease waste. The purpose of this study is to examine a peer developed nutrition education intervention that aims to increase fruit and vegetable intake in students and decrease plate waste. In collaboration with a six-grade student from Snow-

hill Elementary School, a children's story, emphasizing the importance of fruit and vegetables was created and read to second and third grade children. Fruit and vegetable consumption and plate waste were measured pre- and post-intervention to determine its effect on fruit and vegetable intake in the children. To promote consumption and decrease plate waste, it is important to find innovative ways to encourage fruit and vegetable intake in children. In this study, collaborating with and educating students on nutrition brought attention to the issue and raised awareness in the school system of the need for better nutrition education.

Effects of Temperature on Muscle Force and Fatigue during Isometric Contractions of the Forearm in Young Healthy Humans

School of Education and Health Sciences: Health and Sport Science | Poster - Independent Research

STUDENTS Paige Elizabeth Morrison | ADVISORS Anne Crecelius

LOCATION, TIME RecPlex, 10:45–12:00

Alterations in temperature has been previously linked to changes in both muscular force output and fatigue, but they have been seen to display varying intensities of change based on the specific muscular region examined and the internal temperatures achieved. The purpose of this research study is to determine the effects of temperature on the function of forearm muscles, specifically the brachioradialis and flexor carpiradialis, during isometric contractions in healthy young adults. We measured the muscular force and fatigue at room temperature and after a heating period of 20 minutes. Subjects were supine for the duration of the experiment with arm abducted at 90 degrees. An initial maximum con-

traction value was first obtained in all subjects. Then, maximal voluntary contractions and rhythmic exercise at 75% of maximum contraction (at a 2:4 rest: contraction duty cycle) to failure were performed in thermoneutral and heated conditions in a randomized order. Surface EMG was used to determine muscle activity, contraction strength was measured by isometric dynamometer, and systemic hemodynamics were also determined (heart rate and blood pressure via 3-lead ECG and sphygmomanometry, respectively). Muscle activation (as a percent of maximum) and time to fatigue were calculated.

Adjustment of weightlifting performance by fat-free mass: Division I sport-specific allometric models

School of Education and Health Sciences: Health and Sport Science | Poster - Independent Research

STUDENTS Caleb Andrew Holtzmann, Joshua Keller | ADVISORS Anne Crecelius

LOCATION, TIME RecPlex, 10:45–12:00

Previously, we derived allometric equations to scale bench press and squat performance for Division I collegiate male and female athletes using data obtained by the University of Dayton Strength and Conditioning Program. Rather than a simple ratio based adjustment, allometric scaling 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. While the allometric scaling of scores seemed to appropriately account for body-weight

bias (greater strength in larger athletes) in males, we may have inappropriately adjusted strength scores in females. Previously, it has been shown that even in athletic populations, females have a greater percentage of fat mass as compared to males and this may have impacted our adjustment. Therefore, here, we sought to utilize body composition data (body fat percentage obtained by skinfold measures) to create new models based on fat-free mass, rather than simply body mass.

Social Media Best Practice in College Football Division I National Championship Game 2016

School of Education and Health Sciences: Health and Sport Science

Oral Presentation - Course Project, HSS 285 H1

STUDENTS Claire E Fischer | ADVISORS Peter J Titlebaum

LOCATION, TIME Marianist Hall Learning Space 218, 1:00–1:20

The purpose of this research study is to analyze best practice of College Sports Information Directors as it relates to social media. Currently, there are a variety of strategies when it comes to social media analytics. Information was gathered by interviewing sports information directors and analyzing social media. This

research can be used to determine best practice in measuring social media success within organizations, especially college football, specifically at the 2016 College Football Playoff National Championship game between Alabama and Clemson. Comparing and contrasting the two schools' social media strategies will

shed insight on best practices and these results will be used to determine how to quantify social media interactions. This study

provides an extensive look into the interactive world of social media in college football.

Understanding How Analytics Tie Social Media and Business Together

School of Education and Health Sciences: Health and Sport Science | Oral Presentation - Independent Research

STUDENTS Ryan T McGarvey | ADVISORS Peter J Titlebaum

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

According to AdWeek, 50% of top marketers do not know how to demonstrate social media's spending's effect on business. In addition, only 41% of marketers say they are capitalizing on their social media data. This means that a majority of marketers do not know how to demonstrate the value of their social media to their business, nor do they understand what types of content perform better than others. The purpose of this study is twofold. The first goal is to understand the emerging field of social media

analytics, how marketers can understand it and use it. Second is tie social media analytics to Return on Investment (ROI) and Return on Objective (ROO) for businesses. The methodology of this research will be conducted through a literary review as well as interviews with industry professionals. From this study, professionals will gain a stronger understanding of how analytics can be used to improve a business's social media, as well as gauge how it can be valued to a company's business objectives.

The History of Physical Education-Activity, Sport, and 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 10

School of Education and Health Sciences: Health and Sport Science | Poster - Course Project, HSS 275 01

STUDENTS Jeri Lynn Brandy, Devyn Shea Hickman, Astrid Margarita Jetter, Paul Nikolaus Karthan, Mary K Lewis, Andrea N Mick, Cameron D Richey, Sierra N Speck, Mckenzie L Wilson, Nathaniel A Wourms | ADVISORS George M DeMarco

LOCATION, TIME RecPlex, 9:00–10:15

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, edifying, and enlightening, the stories told by the Teaching Assistants (N=10) and students (N= 63) of two (2) separate sections of the course HSS 275 - History of Physical Education/Activity and Sport "" during the spring semester of 2016 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 Greatest Two Minutes in Sports: The History of the Kentucky Derby: Part III2.The History of Women's Ice Hockey in the United States3.Pursuit to Be the Best: Who is the

REAL Richard Sherman?4.The History of Weight Sports and Weight Lifting5.The Tough and Triumphant Life and Times of Tom Blackburn6.Hall of Fame Coach Don Donoher: A UD Legend7. The Life and Times of Ryan "Archie" Miller 8.The History of Rugby9.The History of Tommy John Surgery10.The History of the Departments of Health-Physical Education and Sport Science at UD 1850–2016. These 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 2016 Stander Symposium.

Assessment of Health Related Fitness in University of Dayton Faculty and Staff Wellness Program Participants

School of Education and Health Sciences: Health and Sport Science | Poster - Course Project, HSS 405 H1

STUDENTS Olivia K Albers | ADVISORS Megan A Clayton

LOCATION, TIME RecPlex, 9:00–10:15

The University of Dayton offers a Wellness Program for faculty and staff in an effort to create a "culture of health" by offering tools to support and encourage individuals in their pursuit of overall wellness. This classroom-based research will collect preliminary, mid-semester and late-semester (post) assessments of health related fitness on Wellness Program volunteer participants. Health and Sport Science students will specifically assess aerobic performance, muscular strength, muscular endurance,

flexibility, and body composition on up to 20 Wellness Program participants. Data will be statistically analyzed using SPSS to look for fitness related improvements throughout the participants' involvement in the program this semester. This research will provide insight into the volunteers' individual fitness goals and may also offer insight to the helpfulness and efficacy of the program itself.

The Effectiveness of a Personalized Peer Physical Education Program on the Health Related Physical Fitness, Diet, and Attitudes Toward Exercise/Diet of Selected College Students

School of Education and Health Sciences: Health and Sport Science | Poster - Course Project, HSS 428 02

STUDENTS Cody William Behm, Harmeet S Bhatti, Philip D Browne, Ashley E Campbell, Matthew Scott Clegg, Emma R Fiorita, Megan Elaine Fridley, George M Iannantuono, Paul Nikolaus Karthan, Megan C Kenney, Donald J Kleppel, Brigid R Kovach, Alyssa Marie Manzione, Ashley Briana Marolo, Mary Margaret R Mckenna, Colleen Marie Mcshane, Zachary J Noth, Danielle A Ondreka, Patrick C Reed, Christina Marie Sinak, Cory T Stuart, Anna C Szpalik, Morgan D Taylor, Casey L Townson, Tyler J Tumberg, Nicole J Waters, Luke J Welsh, Nathaniel A Wourms, Sam M Young | ADVISORS George M DeMarco

LOCATION, TIME RecPlex, 9:00–10:15

The purpose of this major course research project is to determine the effectiveness of a Personalized Peer Physical Education Program (PPPEP) on the cardiovascular endurance, muscular strength/endurance, flexibility, body composition (i.e., components of health related physical fitness, HRPF) diet, and attitudes toward exercise/diet of selected college age students (N=25). During the 2016 spring semester, students in one section of an undergraduate research methods course offered in the university's Department of Health and Sport science will exercise w/ peers during ten (10) separate sessions. Team members will participate in five (5) sessions conducted during class time and five (5) sessions conducted outside of class. Two (2) additional sessions will be allocated for pre- and post-testing. All in exercise and testing sessions will be conducted at the University's recreation fitness center RecPlex. Students will be divided into 4 separate research-fitness teams assigned to one of two (2) conferences utilizing different types of specialized exercises focusing on (a) muscular strength-endurance, (b) cardiovascular endurance, and (c) flexibility. Each team will design exercise programs according to protocol assigned to their conference inclusive of free weight, body-weight training, Dynaband Resistance Training, exercise and medicine balls; running/walking, slow sustained static stretching, and Proprioceptive Neuromuscular Facilitation (PNF). A quasi-experimental mixed-method research design (Ridenour & Newman, 2008) will be utilized. Quantitative mea-

asures will include estimates of percent body fat, the President's Challenge Adult Physical Fitness Test (PCPFN, 2016) <https://www.adultfitnessstest.org/> and Borg Critical Rating (CR10, Borg, 1998). SuperTracker at ChooseMyPlate.gov (USDA, 2016) will be utilized to monitor students' caloric intake throughout the study. Descriptive and inferential statistics will be calculated via the use of SPSS v22. Directional and non-directional hypotheses will be tested at the .05 level of significance. Sources of qualitative data will include (a) interviews/questionnaires focusing on students' personal-family exercise-medical history and (b) fitness journals-nutritional logs. Qualitative data will be subject to content analysis via the theoretical/analytical framework of Symbolic Interactionism (Blumer, 1969). As/if revealed, emergent common perspectives, themes, and categories will be developed into Grounded Theory (Glaser & Strauss, 1967) describing students' health/exercise histories vis-a'-vis attitudes toward exercise and diet. Case histories will be constructed and all measures of pre- and posttest data will be compared to determine the effectiveness of the PPPEP on students' HRPF, diet, and attitudes toward exercise. It is (a) hypothesized that all quantitative measures of students' HRPF and diet will improve as a result of participation in the PPPEP and, (b) theorized that students' health/exercise histories/journal entries will reveal positive attitudes toward exercise in general and the PPPEP in specific.

The Effects of Early Science Education on the Acquisition of Executive Functioning Skills in Preschoolers

School of Education and Health Sciences: Teacher Education | Poster - Graduate Research

STUDENTS Nouf M Alhakami | ADVISORS Shauna M Adams

LOCATION, TIME RecPlex, 10:45–12:00

The presentation will describe a study that focuses on how early science education impacts the development executive functioning (EF) skills. Early science education can be an effective method for improving preschoolers' working memory and inhibitory control. The study involves observations of preschoolers in a STEM-focused classroom and those in a more traditional classroom where science is not the focus of the curriculum. Objectives: First, Participants will develop a better understanding of how early science education affects engagement in EF skill development. Second, Teachers and curriculum leaders will develop a better understanding of how curriculum supports EF skills. The poster session will introduce executive functioning skills and explain why they are important for children during the first 5 years. EF skills are acquired through both formal learning

experiences and also through life experience. These skills are not innate and skills such as working memory, and inhibitory control must be intentionally developed in preschool children. This poster will explain the role of a STEM curriculum in improving EF skills and will demonstrate how preschoolers in a STEM focused classroom are more engaged in EF skills than those in a non-STEM focused classroom. The results of structured observations in two types of classrooms, STEM, and non-STEM through circle time and learning centers of the daily schedule will be shown. The methodology of the study includes the use of a structured observation tool, the Engagement Check II (McWilliams, 1994), which was used to assess child engagement/focus and also a structured observation of the Ohio Early Learning and Development standards that address approaches to learning. A discussion of

the results will provide a better understanding of the difference in STEM focused and non-focused curriculum practices and the

impact of those practices on the opportunities for children to engage in EF skill development.

The Implementation of Two-Way Immersion Programs

School of Education and Health Sciences: Teacher Education | Poster - Honors Thesis

STUDENTS Kara Marie Jankowski | ADVISORS Colleen Gallagher

LOCATION, TIME RecPlex, 10:45–12:00

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. One option of bilingual education is called two-way immersion (TWI) programs. TWI classrooms are comprised of students who are native speakers of two different languages. Together, these students communicate in both languages, while receiving instruction in both languages as well. These programs have been shown to be effective in teaching two languages without lowering student achievement. Bilingual education also takes advantage of children's natural ability to acquire language.

Being exposed to language at a young age is much easier than learning another language after the age of ten. TWI programs in elementary schools provide the language learning supports needed to become bilingual without detriment to other areas of content learning. Now, the question that remains is the feasibility of implementing these programs in the United States. Societal attitudes, budget concerns and the availability of qualified teachers could pose to be challenges for TWI programs to expand. By examining these possible challenges through qualitative research, the researcher compiles evidence indicating whether or not TWI programs can be implemented practically. With this understanding, policy makers and educators can decide to implement and fund more TWI programs in the United States.

An Analysis of the Educational Systems in Finland and the United States: A Case Study

School of Education and Health Sciences: Teacher Education | Poster - Honors Thesis

STUDENTS Caroline Ann Goodill | ADVISORS Kathryn A Kinnucan-Welsch

LOCATION, TIME RecPlex, 10:45–12:00

The millennial trend of globalization has engulfed the field of education, creating an inter-national dialogue of educational ideologies, practices, and policies. International tests have ranked education systems, leading the world's attention to those who achieve the highest on the tests: Finland. Finland and the United States offer similar practices and programs in terms of special education and teacher education, two dimensions of the educational system that could influence standardized test

results. However, these two countries achieve quite differently on international tests. The disparity of test results may lie within the differences of scope and implementation processes for these programs. Research from the Finnish models regarding these programs create guiding vessels that, when "Americanized" to fit the context of the diverse American background, could foster an equitable education system in the United States.

Synthesis of research on dyscalculia and The Common Core State Standards

School of Education and Health Sciences: Teacher Education | Poster - Honors Thesis

STUDENTS Melissa Rachel Siegel | ADVISORS Mary Catherine Sableski

LOCATION, TIME RecPlex, 10:45–12:00

This thesis analyzed the implications for instruction under the newly adopted Common Core State Standards (CCSS) and the effects they have on students with dyscalculia. The CCSS is an educational initiative created for students to succeed in their academic endeavors through college and their professional careers.

Correlations were found in the research between the instructional implications under the CCSS and intervention strategies for students with dyscalculia. Parents, teachers and students were interviewed as evidence to verify this correlation.

Identification of English Learners as Gifted Students

School of Education and Health Sciences: Teacher Education | Poster - Honors Thesis

STUDENTS Riley Catherine Weber | ADVISORS Stephen B Richards

LOCATION, TIME RecPlex, 10:45–12:00

The United States educational system has faced several challenges and reforms regarding assessment and identification in the past fifty years which continue to change as the nation develops new goals and needs (Giuliani & Pierangelo 2012). In recent years, schools have included a large population of immigrant

students from families with native languages other than English (Carter 2005). The need for educating students in English as a second language has led to new policies and programs developed specifically for ELL or English Language Learners (Elizalde-Utnick 2008). Another current topic of educational policy

concerns the emphasis on assessment and high-stakes testing. In 2004, the Individuals with Disabilities Education Act, IDEA, provided legal rights and expectations for special education students which includes students with learning disabilities; however, English Language Learners are not covered under IDEA unless they are identified with a learning disability. IDEA also does not cover the rights of students who qualify for gifted and talented programs, even though students who qualify for these programs require a form of specialized education. Due to these recent educational initiatives, this research study will focus on how the assessment of English Language Learners impacts their identification and placement in gifted and talented programs. This is a current topic to research because most studies have focused on

the overrepresentation of English Language Learners as learning disabled or the misidentification of students of color in learning disabled programs. However, some case studies and other forms of research have considered the underrepresentation of ELL in gifted and talented programs and whether or not students learning English as a second language can be successful in gifted and talented programs. For this Honors Thesis, the research questions include: What are the most appropriate and effective assessments to accurately identify gifted and talented English Language Learners? Are there appropriate accommodations for ELL that may assist in their identification and success as gifted and talented?

Effects of Diversity in the Classroom

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110 H1

STUDENTS Marie H Feyche, Sarah M Scoville, Taylor K Tovey | ADVISORS Kathryn A Kinnucan-Welsch, Rochonda L Nenonene

LOCATION, TIME RecPlex, 9:00–10:15

Within developing classroom environments, diversity plays a prominent role in the lives of the community. The goal of this EDT 110H poster is to explore the effects of diversity in gender, language, and sexual identity.

Non-academic Factors that Maximize Student Engagement and Success in the Classroom

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110 H1

STUDENTS Margaret A Moeller, Adilyn F Smith, Elizabeth A Viterisi | ADVISORS Kathryn A Kinnucan-Welsch, Rochonda L Nenonene

LOCATION, TIME RecPlex, 9:00–10:15

Research suggests that students need a substantial amount of energy in order to be productive during the school day. Our presentation explores how factors such as sleep, breakfast, and class schedule influence student's energy levels and academic success.

The Impact of Differing Curriculum Practices

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110 H1

STUDENTS Jessica L Grilliot, Alaina N Lewis, Rachel G Zinck | ADVISORS Kathryn A Kinnucan-Welsch, Rochonda L Nenonene

LOCATION, TIME RecPlex, 9:00–10:15

Different curriculum practices impact students in a variety of ways. The goal of this EDT 110 H1 project is to discuss the particular effects of the Arts, censorship in English Language Arts classrooms, and STEM courses in schools.

Creating a Learning Environment in the Classroom

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110 H1

STUDENTS Christina Y Kang, Adam J Notarianni, Samantha D Windsor

ADVISORS Kathryn A Kinnucan-Welsch, Rochonda L Nenonene

LOCATION, TIME RecPlex, 9:00–10:15

Homework, technology and ADHD are prevalent in today's typical American classrooms. We will be discussing how to create a learning environment that engages students to meet their academic needs within the classroom.

Creating a Safe and Effective Learning Environment

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110 H1

STUDENTS Hannah K Carnevale, Logan C Cooper, Kayla B Needham, Madison E Rinderle

ADVISORS Kathryn A Kinnucan-Welsch, Rochonda L Nenonene

LOCATION, TIME RecPlex, 9:00–10:15

This EDT 110H project will explore how policies as well as student and teacher behavior can have an impact on the school environment. Topics will include: the effects bullying, if a dress

code can help prevent violence, how praising students could reduce class disruption, and the effectiveness of and possible alternatives to zero tolerance policies.

Standardized Testing: Development and Implication on Students and Teachers

School of Education and Health Sciences: Teacher Education | Poster - Course Project, EDT 110 H1

STUDENTS Cecilia D Hoffart, Courtney E Lamb, Noelle E Rizzo, Lauren S Vanisko

ADVISORS Kathryn A Kinnucan-Welsch, Rochonda L Nenonene

LOCATION, TIME RecPlex, 9:00–10:15

Standardized testing is used in many ways within the classroom. We will be discussing the pros and cons of standardized testing and tracking, the effect of students' home environment on stan-

standardized test scores, and how performance pay affects teacher practice and credibility.



SCHOOL OF ENGINEERING

Data Evaluation and Control of Pollutants in the Air

School of Engineering: Chemical & Materials Engrng | Poster - Capstone Project

STUDENTS Hassaan Fahim | ADVISORS Sarwan S Sandhu

LOCATION, TIME RecPlex, 10:45–12:00

This project is about the data evaluation of the pollutants in the open atmosphere such as carbon monoxide, sulfur dioxide, nitrogen dioxide, particulate matter, etc. The main aim of this project is to evaluate the data for the pollutants mentioned above as well as to generate different curves with the help of data obtained for past couple of decades and to develop some curve-fit equations to predict the approximate emission values of the pollutants for upcoming future years. As environmental pollution is one of the biggest challenges we are facing now-a-days in the cur-

rent technology-based world, this work also shows the different allowable exposure limits of the pollutants as per regulations provided by the United States Environmental Protection Agency. Also, this work presents the air quality index specifications with its (U.S.EPA) different zones, providing the ways to protect our health from the long term exposure of the pollutants which can cause various diseases and disorder for living organisms, especially, human beings.

Evaluation of Mammalian Stress and Inflammatory Response to a Novel Porphyrin

School of Engineering: Chemical & Materials Engrng | Poster - Graduate Research

STUDENTS Thomas L Bennett | ADVISORS Kristen K Comfort, Jayne B Robinson, Shawn M Swavey

LOCATION, TIME RecPlex, 10:45–12:00

Porphyrins are a specific class of aromatic, heterocyclic compounds that are either naturally occurring or artificially synthesized. Porphyrins have demonstrated robust antibacterial properties, which arise from the generation of singlet oxygen. However, most porphyrins are photodynamic, meaning they require activation by light at an optimal wavelength. A novel porphyrin, developed by Dr. Shawn Swavey (UD Chemistry Department) has shown exceptional antibacterial efficiency against *Pseudomonas aeruginosa*, even without photoactivation. As *P. aeruginosa* infections are often the root cause behind lung diseases, such as cystic fibrosis, identifying a way to safely control bacterial presence is a major concern. The ability of this novel porphyrin to effectively work in the dark identified this molecule as belonging to the rare group of porphyrins that hold potential for lung therapeutics. Therefore, this project evaluated

the response of human lung co-culture model following exposure to the synthesized porphyrin. The lung co-culture was comprised of A549 epithelial and U937 macrophage cells, thereby allowing for the detection of inflammatory responses, in addition to cellular viability and stress induction. The viability of the lung co-culture model was assessed after a 24 hour exposure to the porphyrin at multiple concentrations, with no induction of cellular death identified. Looking beyond toxicity, the stress and inflammatory responses were investigated through evaluation of reaction oxygen species (ROS) levels and secretion of target cytokines, respectively. Taken together, these results will help support the development of novel porphyrins for lung therapeutics through determination of their safety within enhanced mammalian models.

Cooling with Sunlight: Proof-of-Concept of Solar-Driven Adsorptive Refrigeration Using Ethanol and Activated Carbon

School of Engineering: Chemical & Materials Engrng | Poster - Independent Research

STUDENTS Amnah M Altaher, Claudia J Labrador Rached, Jacob J Schlueter, Kathleen E Willard, Bjoern Oliver Winter, Matthew O Worsham | ADVISORS Jun-Ki Choi, Amy R Ciric

LOCATION, TIME RecPlex, 10:45–12:00

In locations without reliable electricity, refrigeration of critical medicines and vaccines is nearly impossible. Solar panels provide a possible source of electricity to power refrigeration units, but oftentimes, these solar panels are scavenged to serve other immediate needs. Solar thermal adsorptive refrigeration using ethanol and activated carbon as an adsorption working pair has been demonstrated to have significant potential for refrigeration in the areas of the world that lack access to reliable electricity. The ETHOS Program has been studying the potential of this working pair in Patna, India, for four years. As a working pair, ethanol and carbon have the advantage of being environmentally benign and locally available almost everywhere in the world.

By using sunlight to drive the adsorption/desorption cycle, the refrigerator can provide cooling without electricity. Unfortunately, using ethanol as a vaporizing and adsorbing species means that the system must operate at near absolute vacuum conditions. Once a vacuum of -29 in Hg was applied to the system, it was shown that liquid ethanol could cool itself down to 5 Å°C by evaporating and adsorbing to the activated carbon. Future work includes heating up the saturated carbon to force the ethanol to desorb which ultimately recharges the system. Once this step is confirmed, the complete refrigeration cycle can be completed and used to remove heat from a water bath that chills the medicine or vaccines.

Exposure to Metal Oxide Nanoparticles in Physiological Fluid Induced Synergistic Effects in a Keratinocyte Model

School of Engineering: Chemical & Materials Engrng | Poster - Independent Research

STUDENTS Deidre Simone Cathey, Kristen K Comfort, Jasmine N Whitaker | ADVISORS Kristen K Comfort

LOCATION, TIME RecPlex, 10:45–12:00

Nanoparticles (NPs) possess distinctive physicochemical properties that differentiate them from their bulk counterparts; making them attractive for application in a vast number of sectors, including medicine, consumer goods, industrial, and energy. However, these unique parameters have been associated with negative cellular consequences, including cytotoxicity, activation of stress pathways, and genetic modification. Standard in vitro techniques have been the primary means of evaluating NP safety, but suffer from a lack of physiological relevance. One way to overcome this limitation is through the use of artificial physiological fluids, which mimic the composition and behavior of in vivo environments, thereby allowing for evaluation of NP characteristics under more accurate biological conditions. In this study we identified that the behavior of copper oxide (CuO) and titanium dioxide (TiO₂)

NPs were substantially modified in artificial interstitial fluid (IF) versus traditional cell culture media, including extensive agglomeration and altered surface charge. When keratinocyte cells underwent CuO NP exposure, synergistic stress and toxicity responses occurred with IF experimental conditions. However, following IF incubation alone or concurrently with TiO₂ NPs, which are not innately toxic, no combinatorial responses transpired. These results indicate that synergistic outcomes arise when toxic NPs undergo fluid-induced alterations to key physicochemical properties. This study highlights the necessity of characterizing NP behavior in physiologically-representative environments, as altered behavior patterns have the potential to induce bioresponses not identified within traditional cell culture models.

A Theoretical Model for a Lithium Ion Cell/Battery Electrode.

School of Engineering: Chemical & Materials Engrng | Oral Presentation - Course Project, CME 595 01

STUDENTS Srikar Pramod K Dudi | ADVISORS Sarwan S Sandhu

LOCATION, TIME Marianist Hall Learning Space Commons, 2:00–2:20

A theoretical model of a very thin platelet-like active material particle in contact with an electrolyte in a composite material electrode of a lithium ion cell/battery has been developed which predicts the lithium ion concentration profiles in the solid active material as a function of time for the case of lithium ion diffu-

sion as the dominant mechanism for the lithium ion transport in a composite electrode active material and the assumption of uniform initial distribution of (lithium ion- electron) pairs in a thin platelet type particle of a composite electrode.

2016 Civil Engineering Senior Capstone Design Presentation

School of Engineering: Civil and Environmental Engineering and Engineering Mechanics

Oral Presentation - Capstone Project

STUDENTS Mai Mohammad Alhamad, Hasan A Alsaleh, Eelaf Aqeel, Thomas P Behr, Joshua C Bortmas, Matthew David Brown, Nabil N Challita, Robert M Greene, Cameron M Grim, Joseph R Gruensfelder, Kevin Ryan Gustafson, Jack R Hanson, Rachel E Hock, Nathan Thomas Jones, Danielle M Kearns, Anthony E Keene, Julie L Kolodziej, Kyle D Kotecki, Jessica Messick, Joseph C Obrien, Peter J Ogonek, Brett P Reese, Jonathan R Rose, Ryan M Schuerman, Maria Christine Schweiss, John Russell Shallahamer, Matthew D Svitak, Hung K Tran, Weidong Zhang, Zichen Zhang | ADVISORS Donald V Chase

LOCATION, TIME Miriam Hall 119, O'Leary Auditorium, 8:30–12:00

Civil Engineering Senior Capstone Design is the culmination of the Civil Engineering student's course of learning in the following fields: Project Management, Structural Design, Geotechnical Design, Transportation Design, Environmental Design, and Site/Civil Design. This year, the senior class, in collaboration with Sinclair Community College's Engineering Technology Department, designed an office park in Miami Township near the Wright

Brothers Airport. The project consisted of a realignment of Austin Pike Blvd., the design of a recreational park, an office park, and a building design for the office park. The presentation will consist of each member of explaining a portion of the work they did to give the audience a more in-depth understanding of the construction plans we created.

Brain Machine Interface

School of Engineering: Electrical and Computer Engineering | Poster - Capstone Project

STUDENTS Victoria Lynn Diculo, Emma L Romstadt, Garrett C Sargent | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex, 10:45–12:00

An electroencephalography (EEG) signal recognition software suite is a popular tool used in a variety of applications dealing with brain activity. The UD Vision Lab has developed a use for

EEG signal recognition software suite in the Brain Machine Interface (BMI) project. By collecting and recognizing EEG data, the suite can map the signals to actions. A non-invasive

approach is taken in order to collect EEG data through the use of an Emotiv EPOC headset. The Emotiv EPOC headset has 16 electrode sensors and 2 reference sensors, which needs to be soaked with a saline solution before optimal performance is achieved. The recognized actions are then performed by a Robai Cyton Veta robotic arm with 7 degrees of freedom (DOF), which simulates a human arm. The arm utilizes commands from a custom C++ program to move the individual joints to perform an overall action. The work of previous students has developed a number of motions that can be recognized and performed with moderate to high success. There is still improvement that can be made for the current working motions, however, they provide a

great building block for future work and can be incorporated into a set of activities. The current goal is to add more actions and activities by developing better encoding processes. By developing better encoding processes, significant advancement can be made in the project and open the doors to helping the disabled in a variety of ways. These ways include moving paralyzed limbs or synthetic limbs, and communicating simply by thinking a desire or action. Needless to say, the possible applications once an excellent encoding process is developed is far reaching. The BMI project provides a great deal of opportunity in the advancement of technology that can improve the lives of the disabled.

Electrical Characterization of Tungsten Oxide Based Memristor for Improved Resistive Switching

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Ayesha Zaman | ADVISORS Guru Subramanyam

LOCATION, TIME RecPlex, 10:45–12:00

Memristor, the forth fundamental circuit element, has opened new phase in the realm of thin film semiconducting device. The non-volatility of memristors, used as Resistive switching RAM, is promising for applications such as DRAM, hard disks etc. The implementation of a memristor device with Tungsten Oxide (WOx) is presented in this work. The presentation addresses fundamental electrical characterization of the memristor devices for their switching performance. Resistive switching in WOx is bipolar in nature. The Pd/WOx/W made memristors become more conductive (resistive) when applied with a positive (negative) bias voltage. The conductance or resistance change is

controlled by the re-distribution of oxygen vacancies (VOx) within the WOx film creating or removing conductive regions between the two electrodes. Here switching is analog type that refers to the incremental modulation of the device conductance. As a result the total change of resistance within the device goes higher which is in the range of 100. With the practical implementation of the suggested work we will be able to fabricate memristor devices with faster switching capability. Such Tungsten oxide based memristor provides better switching, assures non-volatile memory effect and also gives precise analog nature of a memory device for advanced neuromorphic application.

X-Corner Detection for Camera Calibration Using Saddle Points

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Abdulrahman Saleh Alturki | ADVISORS John S Loomis

LOCATION, TIME RecPlex, 10:45–12:00

This paper discusses a corner detection algorithm for camera calibration. Calibration is a necessary step in many computer vision and image processing applications. Robust corner detection for an image of a checkerboard is required to determine intrinsic and extrinsic parameters. In this paper, an algorithm for fully automatic and robust X-corner detection is presented. Checkerboard corner points are automatically found in each image without user interaction or any prior information regarding

the number of rows or columns. The approach represents each X-corner with a quadratic fitting function. Using the fact that the X-corners are saddle points, the coefficients in the fitting function are used to identify each corner location. The automation of this process greatly simplifies calibration. Our method is robust against noise and different camera orientations. Experimental analysis shows the accuracy of our method using actual images acquired at different camera locations and orientations.

Intention Based Upper-limb Exo-skeleton

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Manoj Kumar Sharma | ADVISORS John S Loomis, David H Myszk, Raul E Ordenez

LOCATION, TIME RecPlex, 10:45–12:00

Exoskeletons, a wearable robot that intelligently augments the physical power of a human being. Lately these robots are finding their way towards the military and consumers as well. Our body has a skeleton that helps in maintaining the posture. Often times fatigue becomes an important issue, especially those who regularly carry heavy loads; one solution to this is to attach a structure that can cling to a human body that can bear the load on its own. One of the biggest challenge is to design a struc-

ture that can fits snugly and feels natural during operation. The approach proposed here, focuses on a simple 3DoF upper limb exoskeleton; to actuate the exoskeleton, pilot's intention is read and parsed through a Dynamic Intention Filter (DIF) and then to a feedback loops that eventually controls the torque of the motors. As a result, the final design feels so natural that there is, almost, no learning curve to its operation.

Robust Nonlinear Adaptive Control for Longitudinal Dynamics 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, 10:45–12:00

A hypersonic aircraft vehicle is a highly complex nonlinear system, which includes uncertainties in the dynamics. This paper presents the design of robust nonlinear adaptive control for a hypersonic aircraft vehicle model. The complexity of the dynamic system is considered into the design structure of the control in order to address robustness issues. Design of a robust control system should decouple the longitudinal and lateral dynamics to handle the flight of hypersonic vehicle under certain specific conditions. In this paper, we only consider longitudinal dynamics,

which are divided into aircraft speed subsystem and flight-path angle subsystem. A robust control design is implemented to provide asymptotic tracking regulation of aircraft speed and flight-path angle. In addition, it is employed in this study because the algorithm of control design exhibits better robustness properties. Based on the stability analysis, the adaptive control is derived for a Lyapunov function candidate of feedback closed-loop system. Simulation results of control design illustrate robustness and effectiveness.

Multi-Input Multi-Output Adaptive Control of 9-DOF Hyper-Redundant Robotic Arm

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Xingsheng Xu | ADVISORS Raul E Ordonez

LOCATION, TIME RecPlex, 10:45–12:00

In this paper, multi-input multi-output (MIMO) direct adaptive torque controller is presented that uses conventional fuzzy system to provide asymptotic end-effector tracking of a reference path for a 9-DOF hyper redundant manipulator dynamic model. As a result, MIMO adaptive controller, which inputs torque of each joint to control end-effector dynamic variables, can highly

improve the robotic performance considering both its kinetics and dynamics while executing motion control or tracking a reference in work space. Also, it increases the robustness with respect to disturbance, sensor noise and poorly understood dynamic model. The efficacy of our control algorithm affects the accuracy, stability and robustness of both motion control and path tracking.

Parameter Identification in Structured Discrete-Time Uncertainties without Persistency of Excitation

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Ouboti Djaneye-Boundjou | ADVISORS Raul E Ordonez

LOCATION, TIME RecPlex, 10:45–12:00

Concurrent Learning has been previously used in continuous-time uncertainty estimation problems and adaptive control to solve the parameter identification problem without requiring persistently exciting inputs. Specifically selected past data are jointly combined with current data for adaptation. Here, we extend the parameter identification problem results of Concurrent Learning

for structured uncertainties in the continuous-time domain to the discrete-time domain. Alike the continuous-time case, we show that, in discrete-time, a sufficient, testable on-line and less restrictive condition compared to persistency of excitation guarantees global exponential stability of the parameter error when using Concurrent Learning.

A novel Computer Aided Detection for 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, 10:45–12:00

Lung cancer is the leading cause of cancer 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 publicly available dataset and we explore into new set of features and classifiers. The publicly 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 research, 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 Riverain Database and would be tested later in JRST database.

On-chip Training of Memristor based Deep Neural Networks

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Md Raqibul Hasan | ADVISORS Tarek M Taha

LOCATION, TIME RecPlex, 10:45–12:00

This research develops on-chip training circuits for memristor based deep neural networks utilizing unsupervised and supervised learning methods. As the training and recognition of deep networks are computationally intensive, specialized circuits capable of on-chip training of these networks could have significant advantages in speed and power consumption. Memristor crossbar circuits allow neural algorithms to be implemented very efficiently, but could be prone to device variations and faults. On chip training circuits would allow the training algorithm to account for device variability and faults in these circuits. We have utilized autoencoders for layer-wise pre-training of the deep networks and utilized the back-propagation algorithm for supervised fine

tuning. Our design utilizes two memristors per synapse for higher precision of weights. Techniques to reduce the impact of sneak-paths in a large memristor crossbar and for high speed simulations of large crossbars were proposed. We performed detailed evaluation of the training circuits with some nonlinearly separable datasets which take crossbar wire resistance and sneak-paths into consideration. We also demonstrated successful training of memristor based deep networks for the MNIST digit classification and the KDD intrusion detection datasets. This work would enable the design of high throughput, energy efficient, and compact deep learning systems.

Automatic Building Detection in Wide Area Imagery

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Almbrok Essa, Sidike Paheding, Daniel P Prince | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex, 10:45–12:00

Unauthorized construction can cause damage to public and private infrastructure, including utilities, public housing, telecommunication equipment, etc. Current construction analysis is performed by human analysts, who can become fatigued after reviewing large amounts of imagery and are expensive to employ. In order to improve efficiency and reduce cost in monitoring this unauthorized construction, there is a need for automating the detection of regions of interest in imagery. In this work, we focus on the automatic detection of buildings. Sources of aerial and satellite imagery can be used as sources of data in

order to perform these detections. While standard visible imagery with red, green, and blue channels may be used, additional information can be extracted through the use of infrared data. In this research, we have created a building detection algorithm that utilizes texture, shadow, road, and edge information for use in detecting buildings from visible and infrared imagery in rural, suburban, and urban areas. Several examples of real-world satellite imagery are used in order to evaluate our building detection algorithm.

3D scene reconstruction and change detection using RGB-D sensor data

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Ruixu Liu | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex, 10:45–12:00

In the past decade, novel sensor systems that provide both color and dense depth images became readily available. There are great expectations that this new technology will lead to a boost of new applications in the field of 3D scene reconstruction and change detection in unstructured environments and under real-world conditions. The change detection problems are not new; however, 3D change detection is a challenging problem that has developed in recent years. In order to get the high resolution 3D model, we need more voxels in the 3D model, like high reso-

lution 2D pictures need more pixels. We acquire a point cloud model from video captured by a Microsoft Kinect, which provides the required RGB and depth information. Instead of using ICP (Iterative Closest Point) algorithm align the target frame with the reference frame, frame-to-model registration scheme has more resistance to noise and camera distortion, and is sufficiently efficient to allow real-time applications. Then 3D change detection will be completed on the created 3D point cloud models. There are two kinds of voxels model, point model and color model. A

point voxel model defines voxel as surface or free space. The threshold for the voxels which define as the surface is the number of points estimated by computing the nearest neighborhood voxels. A color model defines each voxel that has a color by the Hue value of all points' HSV value in this voxel. Then using TSDF (Truncated Signed Distance Function) to detect surface of

objects, we are able to find which voxels belong to the surface in the staggered voxel model. Combination of the point and color voxels model, and given the surface voxels more bigger weight, the difference between two scenes will presented by points in the voxels which are defined as scene changes.

Automated Oil/Gas Leak Detection System

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Almbrok Essa, Sidike Paheding, Daniel P Prince | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex, 10:45–12:00

Monitoring oil and gas leaks along pipeline right-of-way (ROW) is an important task for locating damages in pipeline infrastructures and protecting our environments from pollution. It also provides essential information for decision making in the monitoring of pipeline ROW, and taking rapid response to damaging events. Data captured by advanced sensors in manned and unmanned aircrafts provide information about oil/gas leaks. However, analyzing the massive amount of data received from these media requires extensive effort if performed by human analysts.

Therefore, we propose a novel technology to detect oil and gas leaks by analyzing aerial infrared (IR) data. It is observed that the presence of oil/gas leaks are more easily detected by analyzing the IR spectrum. It is envisaged that by extracting the oil/gas leak features using advanced computer vision algorithms, the leaks can be detected automatically. The proposed technique can assist human analysts for taking further decision by reducing the search space for locating probable leaks.

Image Interpolation Using Fourier Phase Features

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Evan W Krieger, Sidike Paheding | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex, 10:45–12:00

Image interpolation has been widely used for enhancing spatial resolution of the input images. Generally, the spatial resolution enhancement techniques are categorized into single frame and multiple frame super resolution. Multi-frame super resolution techniques use a set of low resolution frames, while single image super resolution only requires one single input to reconstruct a high resolution image. In real life applications, single image super resolution is preferred when lacking of multiple frames in

the data. In this work, we present a single image interpolation approach for reproducing high frequency missing components of the input low resolution images. The high frequency feature is first extracted in Fourier domain, and then the system is trained to regenerate better pixel values, which contribute to better resolution. We evaluate the method visually and quantitatively using several test images.

Shadow Detection Preprocessing for Computer Vision Technologies

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Thomas C Sharp | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex, 10:45–12:00

In computer vision there are many preprocessing algorithms that can be utilized to enhance an image or video used in wide area surveillance. These enhanced images can be used to improve the results of segmentation algorithms that are used for object detection and object tracking. When a prominent shadow in an image merges with the region of interest, segmentation algo-

gorithms may only be able to extract weak object features. Weak feature extraction can lead to misclassification of the region of interest. Shadow detection preprocessing can improve object detection and tracking results by adding extra information to the object segmentation algorithms. In this study a method for shadow detection and image correction will explored.

Object Detection Through 2D–3D Visible and Hyperspectral Imagery

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Almbrok Essa, Sidike Paheding, Daniel P Prince | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex, 10:45–12:00

In this research, we describe an information fusion system to integrate the classification outcomes in three different processing pipelines viz. a two-dimensional (2D) visible image processing to extract the 2D features and classify them based on similarity measures, a three-dimensional (3D) image reconstruction to

detect the presence of objects above ground, and a hyperspectral image (HSI) processing to exploit finer details in the spectral signatures of targets and natural backgrounds. In 2D data, we develop a robust concatenated object classification technology to simultaneously detect multiple targets. In 3D data analysis, accu-

rate dense representations of the scene is created by using a set of 2D images. Irrespective of lighting, seasonal and view point changes, the detected objects from 2D data can be reconfirmed in the 3D scene through their evaluation information or other

3D features. Finally, the miss detection or false detection can be further analyzed through HSI due to different materials have different spectral profiles or spectral signatures.

Frame Redundancy Elimination Technology for Big Data Analysis

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Almbrok Essa, Sidike Paheding, Daniel P Prince | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex, 10:45–12:00

Rapid advances in the area of sensor technology have enabled the use of video acquisition systems to create large datasets for analysis. However, processing big data requires extensive effort for human analysts. On the other hand, it is observed that many data, such as high-frame rate video, contain redundancy that cause extra work for analysis. Therefore, there is a need to develop an automated frame selection technique to reduce work load. In this research, we develop a method that can extract

the most important and meaningful video frames from a large amount of data, while removing the insignificant ones to ease further analysis. These key frames can be selected based on the statistical analysis such as computing the mean and variance among a set of frames or between subsequent frames. We believe this technology benefits the computational performance of many real-world data processing systems, especially in current big data problems.

An Efficient Brain-like Learning Machine to Mimic Human Perception

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Md. Zahangir Alom, Sidike Paheding | ADVISORS Vijayan K Asari, Tarek M Taha

LOCATION, TIME RecPlex, 10:45–12:00

Human can rapidly process raw data with multiple levels of abstraction in highly interconnected neurons of the brain. To mimic such powerful processing system, a great deal of machine learning systems have been developed. Machine learning technology benefits many fields of our society, such as in biomedical science, agriculture, network security, economics, etc. Although human vision is still superior compared to computer vision in applications, recent studies show significant advancements in

improving the capability of learning system on the basis of neural networks (NNs). Some popular NNs such as deep learning (DL) and extreme learning machine (ELM) have been widely applied in vast real-life applications. We describe an efficient ELM based learning system, which provides stable and non-decreasing recognition characteristics. Experiments on recognition of handwritten digits show very promising results when compared to other state of the art NN methods.

Object Tracking using Statistic-based Feature Fusion Technique

School of Engineering: Electrical and Computer Engineering | Poster - Graduate Research

STUDENTS Evan W Krieger, Sidike Paheding | ADVISORS Vijayan K Asari, Theus H Aspiras

LOCATION, TIME RecPlex, 10:45–12:00

Object tracking in wide area motion imagery (WAMI) is challenging because of many factors including small target sizes, view-point changes, object rotation, occlusions, and shadows. One method to overcome these challenges is to fuse multiple features of different types to obtain a robust understanding of the object. For multi-feature fusion based tracking applications, the weighting of the features will highly affect the outcome. While obtaining a constant weighting scheme based on training sequences is possible, an adaptive method may better utilize the features. An

adaptive weighting scheme should favor the most discerning features in the previous frames. A known way to determine a feature's ability to discern the target from the background is based on statistics analysis. We propose to use the statistics-based fusion method to better utilize rotation invariant based features to track objects. The effectiveness of the fusion method will be compared to a constant weighting scheme on eight sequences in two WAMI datasets.

Design and Fabrication of a Passive Barium Strontium Titanate (BST) Thin-Film Varactor-Based Phase Shifter for Operation within a 5–15 GHz Bandwidth

School of Engineering: Electrical and Computer Engineering | Poster - Honors Thesis

STUDENTS Devin William Spatz | ADVISORS Guru Subramanyam

LOCATION, TIME RecPlex, 10:45–12:00

Enabling next generation radar and telecommunications systems requires increasingly more complex electronic components. In order to enable high performance, these components need to have low power loss, quick switching times between device

states, and high device state accuracy. One essential component, called a phase shifter, allows for the phase angle of an electrical signal to be "shifted" relative to the input, or reference, phase angle. The ability to rapidly shift the phase angle of electrical

signals enables these systems to encode information onto signals as well as to focus, or steer, the electromagnetic waves that they emit. This project developed a phase shifter which utilizes Barium Strontium Titanate (BST) thin films in order to have a tuning

capability that allows for the adjustment of the phase shift angle. Through simulation, fabrication, and testing, this project studies the feasibility of using BST to achieve all of the qualities desired in a phase shifter and improve on existing designs.

A Particle Reflector Accounts for the Electrical Energy Saving

School of Engineering: Electrical and Computer Engineering | Poster - Independent Research

STUDENTS Jun Jun Huan, Chethan Kanth Jalli, Arjun Krishnappa | ADVISORS Fahima Ouchen-Bouchendouka

LOCATION, TIME RecPlex, 10:45–12:00

As a ceiling fan consumes 75 Watts and is used day and night, it is not possible to ignore the power consumption of the fan. With a particle reflector, air flow in a room can be seen even after the fan in the room is turned off. A discrete way of turning the fan ON

after every other 30 minutes saves the power supply of 75 Watts for 30 minutes periodically. Thus the particle reflector helps in reducing the power consumption of the fan.

Depth Perception for Obstacle Avoidance using Robust Artificial Intelligence-based Defense Electro Robot (RAIDER)

School of Engineering: Electrical and Computer Engineering | Poster - Independent Research

STUDENTS Brandon M Hampshire | ADVISORS Vijayan K Asari

LOCATION, TIME RecPlex, 10:45–12:00

All robotic navigation requires an awareness of surrounding environment to avoid potential collisions. To help aid the navigation of the Robust Artificial Intelligence-based Defense Electro Robot (RAIDER), we employ the use of a three-dimensional depth sensor (Xbox Kinect) to detect obstacles present in the path of the robot. The depth map created from the Kinect sensor provides necessary information to the obstacle locations. Navigation

commands are then computed based on these locations to allow the robot to slow when approaching the obstacles and turn away from the obstacles. Communication is established with the robot using a wireless local area network and processing of Kinect is done on an off-board computer. This allows navigation processing requirements to be communicated to the robot remotely for communication and interaction with other robots and sensors.

Rechargeable Battery for Wearable Electronics and Sensors

School of Engineering: Electrical and Computer Engineering | Oral Presentation - Graduate Research

STUDENTS Asha Palanisamy | ADVISORS Jitendra Kumar, Guru Subramanyam

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

Rechargeable Battery for Wearable Electronics and Sensors Asha Palanisamy¹, Jitendra Kumar^{2,*} and Guru Subramanyam¹ Electrical and Computer Engineering (ECE), University of Dayton² Joint appointment with University of Dayton Research Institute (UDRI) and ECE, UD#palanisamy1@udayton.edu; *jkumar1@udayton.edu Abstract - Wearable electronics and sensors are being intensively developed in several forms; such as health monitors, watches, wristbands, eyeglasses, socks and smart clothing. Energy storage devices such as rechargeable battery make wearable devices to become more independent from power outlets or in other word improve device portability. Even the best commercial battery (i.e. lithium-ion battery, LIB) is limited in energy storage (energy density ~200 Wh/kg) and requires frequent battery charging. Also, the high cost of LIB is restricting mass adoption of these devices. Therefore, the energy density and cost of the battery need to be improved for the further development of wearable devices. Lithium sulfur

battery (LSB) (energy density ~600 Wh/kg) is one of the most promising batteries for the future generation power storage, 2–3 times more energy storage in LSB than LIB. Since, sulfur is inexpensive, abundant and environmental friendly, LSB is expected to be more economical, safer and sustainable than LIB. However, performance (cycle life, thermal stability, liquid spillage, safety) of current LSB technology do not meet commercialization standards. Also, liquid electrolyte used in the commercial LIB or the state-of-the-art LSB can result in health hazards due to battery damage and liquid spillage. We present the development of novel materials and methods to improve overall performance of Li-S battery that can meet commercialization standards by combining thermal and dendrite-proof solid ion conducting ceramic based electrolyte (no liquid spillage) along with solid state and flexible S-cathode being developed in Electrochemical Energy Systems Laboratory at UD. Keywords: Wearable lithium sulfur batteries, flexible solid electrolyte, conformable sulfur cathode.

Modified Spiral-shaped Defected Ground Structure with Spurious-free Band Rejection Performance

School of Engineering: Electrical and Computer Engineering | Oral Presentation - Graduate Research

STUDENTS Hailing Yue | ADVISORS Guru Subramanyam

LOCATION, TIME Kennedy Union 311, 1:40–2:00

A modified spiral-shaped Defected Ground Structure (M-DGS) loaded on Coplanar Waveguide (CPW) transmission line is proposed. By removing the inner spiral turns from the conventional spiral-shaped DGS (C-DGS), spurious-free band-stop performance is achieved in a wide passband. The final testing structure cascaded six M-DGS cells to enhance the band-rejection behavior. Repeated measurements show that the notch depth is greater than -50dB at 3.64GHz within an area of 1.5 by 13mm².

Insertion loss is under 3dB with no other harmonics up to 10GHz. For comparison purposes, C-DGS test structures with different numbers of removed spiral turns are also designed to validate the theory that the resonate frequency of a spiral-shaped DGS cell is dominantly controlled by the outermost spiral turn and each inner spiral turn contributes to the harmonics as well as some effect on the resonant frequencies and bandwidths.

Design and Fabrication of Fourier Spectral Filter Array for Multispectral Imaging

School of Engineering: Electro-Optics Graduate Program | Poster - Graduate Research

STUDENTS Chuan Ni | ADVISORS Andrew M Sarangan

LOCATION, TIME RecPlex, 10:45–12:00

Multispectral imaging has the capability to identify the state of objects based on their spectral characteristics. These are features not available with conventional color imaging based on metameric RGB (red, green and blue) colors alone. Current multispectral imaging systems use narrowband filters to capture the spectral content of a scene, which necessitates different filters to be designed and applied for each application. We have demonstrated the concept of Fourier multispectral imaging which uses filters with sinusoidally varying transmittance by time multiplexed switchable filter array in our previous paper [1, 2]. In this paper,

we designed and built a five channel, spatially multiplexed pixel filter array. This enables single-shot images and makes it possible to capture scenes containing moving objects.[1] J. Jia, C. Ni, A. Sarangan, and K. Hirakawa, Fourier multispectral imaging, Optics express, Vol. 23, Issue 17, pp. 22649–22657 (2015).[2] C. Ni, J. Jia, K. Hirakawa, A. Sarangan, Design and fabrication of sinusoidal spectral filters for multispectral imaging, in SPIE Proceedings Vol. 9556: Nanoengineering: Fabrication, Properties, Optics, and Devices XII.

Metal films tapered fibers to enhance environmental sensing capabilities

School of Engineering: Electro-Optics Graduate Program | Poster - Graduate Research

STUDENTS Diego F Garcia Mina | ADVISORS Joseph W Haus

LOCATION, TIME RecPlex, 10:45–12:00

Using a tunable laser we analyze the optical signal transmission through a bi-tapered fiber sensor. The device sensitivity can be increased by depositing a gold metal film a few nanometers in thickness on the surface. By attaching selected molecules to the

surface we can determine the presence of specific biomolecules. Keywords: Refractive index, taper fiber, optical fiber sensor, biomolecule detection.

Berremans Approach to Electromagnetic Wave and Beam Propagation in Anisotropic Metamaterials

School of Engineering: Electro-Optics Graduate Program | Poster - Graduate Research

STUDENTS Rudra Gnawali | ADVISORS Partha P Banerjee

LOCATION, TIME RecPlex, 10:45–12:00

Anisotropic metamaterials are widely acclaimed in the field of optics because of their intriguing electromagnetic properties. Such artificial materials can be constructed, for instance, as a multilayer structure comprising alternating layers of metal and dielectric, and modeled as a bulk anisotropic medium using effective medium theory. The effective medium may have dispersion relations which are elliptic or hyperbolic. Such anisotropic metamaterials display interesting properties, including negative refraction and super-resolution in the near and/or far-field. The objective of this work is to understand the transmission and reflection properties of stratified anisotropic media. In this work, the propagation of electromagnetic waves in anisotropic

media is first resolved numerically for the case of oblique plane wave incidence. The Maxwell's equations for electromagnetic propagation are then represented as a set of coupled differential equations using the Berremans matrix. These coupled equations are then solved analytically and cross checked numerically using MATLAB® for plane wave propagation. Transmission and reflection coefficients are determined for different angles of incidence, incident polarizations and material parameters. The analysis is then extended to Gaussian beam propagation through such anisotropic metamaterials using the angular plane wave spectral approach.

DYNAMIC HOLOGRAPHY USING PHOTOREFRACTIVE MATERIALS: APPLICATIONS TO 3D VISUALIZATION AND IMAGE PROCESSING

School of Engineering: Electro-Optics Graduate Program | Poster - Graduate Research

STUDENTS Akash Kota | ADVISORS Partha P Banerjee

LOCATION, TIME RecPlex, 10:45–12:00

Digital holography (DH) has many applications in science and engineering, especially in the recreation and display of 3D images of objects. DH is able to reconstruct the three-dimensional surface by processing holographic data recorded on a charge coupled device (CCD). Holographic data can also be recorded in a photorefractive (PR) material. In fact, dynamic real-time holographic interferometry (RHI) can be implemented by using PR materials. To implement RHI using PR materials, two beams, one called a pump and one called the object beam are introduced onto a PR material to write the hologram of the object. During the hologram writing process, these beams can couple in intensity and/or phase which thereafter are responsible for self-diffraction of these incident beams, and can also give rise to Bragg and non-Bragg orders. In this work, the exact solutions to

the interaction equations of Bragg and non-Bragg orders in a PR material for the case of interacting angular spectra are obtained by numerically solving them in MATLAB®. An iron doped lithium niobate crystal is used as an example of a PR material and an incident wavelength of 514 nm is assumed. Experimentally, it has been observed that when the angle between the two incident beams is small, typically a few degrees, multiple non-Bragg orders are generated. For numerical simulations, only the interactions between the spectra of two incident optical beams (Bragg orders) and two non-Bragg orders are considered. Different beam profiles such as Gaussian and flat-tops are considered as incident beams and the spatial evolution of both Bragg and non-Bragg orders as well as their relative phase shifts are numerically obtained.

Design, Fabrication and Testing Multi-Layered Metal Wire Grids Polarizer and Its Application in Polarization Imaging System

School of Engineering: Electro-Optics Graduate Program | Oral Presentation - Graduate Research

STUDENTS Pengfei Guo | ADVISORS Andrew M Sarangan

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

Sub-wavelength wire grids have a potential to be used in micro-polarizers since they could provide information about the state of polarization of an image in a compact format. At the same time, the fabrication process for wiregrids is compatible with semiconductor technology. In this project, theoretical analysis, computation simulations will be conducted to investigate the influence of the design parameters on the performance of polarizers manufactured using a deep UV interference lithography. Simulations were also performed to determine if acceptable performance could be achieved using a CMOS back-end-of-

line metallization process. In this process, multiple layers of the metallization could be used separated by dielectric films. In the experimental process, we will demonstrate the pixelated polarizers with 0, 45, 90, 135 degree polarization orientations as a “super pixel” which repeat over entire array and integrate it with a photo-detector array. The transmission, extinction ratio, spectral and angular bandwidth will be measured to evaluate the polarization imaging system and compare to the single layer polarization imaging system.

Quantum Tunneling in Metal-Insulator-Metal Nanoantennas

School of Engineering: Electro-Optics Graduate Program | Oral Presentation - Graduate Research

STUDENTS Mallik Mohd Raihan Hussain | ADVISORS Imad Agha, Joseph W Haus, Andrew M Sarangan

LOCATION, TIME Kennedy Union 311, 2:40–3:00

The goal of this research is to experimentally examine the optical properties of nanometer-sized metal-insulator-metal (MIM) structures. A set of experiments are designed to measure the second and third-harmonic waves scattered from the nanostructured MIM antenna when illuminated with different lasers and, also, to quantify the current/voltage characteristics of carefully fabricated MIMs. The MIM sample geometry is designed so that there is a nanometer-sized gap between two metals that is filled with an insulator (dielectric) material. The prediction of higher-order optical harmonics generation related to the MIM geometry is predicated on the photon-assisted, electronic quantum tunneling

process. The quantum tunneling process calculates a set of conductivities that is used in our numerical simulations to describe the electromagnetic properties of the MIM. The initial results from numerical simulations were compared to other numerically intensive methods available in the literature to validate them. For this research, we extend the validation process by performing more numerical simulations to compare with data from our optical experiments. Our research is guided by numerical calculations to find the optimal conditions for generating the optical harmonic waves.

U.S. Aviation Accidents and Incidents, 2013

School of Engineering: Engineering Technology | Oral Presentation - Independent Research

STUDENTS Megan R Aponte, Emily K Strobach | ADVISORS Philip Appiah-Kubi

LOCATION, TIME Kennedy Union 310, 1:20–1:40

Since its establishment in 1958, the Federal Aviation Administration (FAA) and the National Transportation Safety Board (NTSB), have helped to improve aviation safety in the United States. The FAA has introduced several regulations, which have positively contributed in making air transportation the safest in terms of fatalities per mile. However, “the only acceptable safety goal of zero accident,” proposed by former Secretary of Transportation (Federico Pena) is yet to be achieved. In 2013 alone, there were about 1,222 civil aviation accidents in the U.S. which, is one of the highest in recent years. This paper, therefore, reviews the

aviation accidents and incidents in 2013. Using data from the NTSB database, factors such as flight phase, weather conditions, pilots in command's flight hours, etc. were analyzed to identify trends, and provide recommendations on how aviation safety can further be enhanced. Preliminary results indicate that human error and mechanical failure contribute the most to these accidents and incidents. However, it is sometimes difficult to attribute the root cause of an accident or incident to a particular source since they are not always mutually exclusive.

Toward Achieving Renewable Energy Targets in Saudi Arabia

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Saud Abdullah Alalawi, Mustafa A Almashari, Devin Alexander Mallett, Zack Valigosky | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex, 10:45–12:00

According to the Energy Information Administration, electricity consumption in the Kingdom of Saudi Arabia (KSA) has increased 53% from 2000 to 2012. During this same period, KSA's Gross Domestic Product (GDP) has nearly quadrupled. Internal estimates of growth indicate a doubling in demand for electricity by 2032. In response to this, the KSA proposed meeting the demand for electricity through renewable energy and established the King Abdullah City for Atomic and Renewable Energy (K.A. CARE) in April of 2010 to form this sustainable future for Saudi Arabia. The energy portfolio proposes that in 2032, 50% of all electricity generated shall come from renewable energy, consisting of: solar, nuclear, wind, waste-to-energy, and geothermal. The goal of this study is to analyze the environmental, social, and economic impacts and benefits of the K.A.

CARE's proposed portfolio on the KSA. Environmental impact will be measured through a summation of CO₂ emissions in production, operation, and maintenance of specific renewable technologies. Economic impacts will be measured through cost-benefit analyses specific to Kingdom of Saudi Arabia. Social benefits are examined through human capital improvements: income, health, and education. Different technology scenarios will be proposed and examined based on environmental, social, and economic impacts and benefits. Some parameters for this analysis include: (a) productivity of future power sources with the combination of energy source, (b) innovating preexisting, large scale energy models and (c) taking a look at updating the total energy system, using an economic benefit analysis.

Creating a Sustainable Process for Recycling Lithium Ion Car Batteries

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Jabrel Abraham, Tarik S Alkharusi, Justin T Dickman, Saehan Lenzen | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex, 10:45–12:00

In the near future, lithium ion batteries will be in 70% of electrical vehicles, which make up 7% of the world's transportation market. It's important to focus on a way to recycle Lithium Ion batteries in order to prevent them from being thrown away and to create a sustainable process similar to what exists for lead-acid batteries. Since electric cars are a newer technology, raising awareness for recycling Lithium-Ion batteries will help the average consumer be aware of their environmental footprint specifically related to their specific car choice. Recycled lithium costs five times more than lithium produced from the least costly brine based process. We aim to develop a framework for companies to recycle Lithium-ion

batteries in a cost-effective manner will set a benchmark for the importance of recycling batteries used by electric cars worldwide. The organization of this paper will be split into four sections. We will first explore the advantages of lithium ion batteries over lead-acid batteries. Second, will be to delve into the current difficulties in recycling lithium ion batteries. Third, compare the current recycling process of lead-acid batteries with the recycling processes we can find for lithium ion batteries. Fourth, will focus on our proposal of a process through which companies can recycle lithium-ion batteries profitably.

Tired of rubber landfills: From environmental hazard to sustainable use potential of discarded tire materials

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Keith Brian Abankwah, Abdulelah Bajbair Bajbair, Feras A Melibari, Bjoern Oliver Winter | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex, 10:45–12:00

How do you dispose of your used car tires? Although answering this on an individual level doesn't seem to be hard, the sheer amounts of old tires disposed of as a byproduct of a growing car market in the United States have grown to make a significant

impact on the environment. Each year, over 350 million tires are consumed and only about 70% of the accruing waste is properly recycled at their end of life. The storage of tires in landfills, or improper methods of disposal, such as burning and waterbody

displacement causes hazardous emissions and health problems. For instance, the improper storage of tire stockpiles can lead to potential breeding grounds for mosquitoes and other disease-carrying insects and rodents as stockpiled tires are often holding water for long periods of time. Burning tires can negatively affect air, water and soil and produce toxic chemicals, such as benzene and polycyclic aromatic hydrocarbons (PAH). Tire stockpiles set on fire, whether by chance or on purpose, produce enormous amounts of heat and are so hard to extinguish that some fires have been continuing to burn for extended periods. A prominent example was a fire in Rhinhart, Winchester,

Virginia that continued to burn for nine months on end. Against this background, an assessment of the magnitude of tire disposal related impacts in the near future is performed within different scenarios while providing insight into current practices of tire disposal. In contrast to this, alternative processes that process tires into fuel and activated carbon are looked upon. In a subsequent life-cycle analysis, the production of fuel and carbon from tires is compared to the fabrication of the same products from natural resources in order to show environmental advantages of recycling tires in these processes.

Investigating Pathways Towards Energy Efficient Glass Recycling

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Mohammed Alqahtani, Ahmad Y Baba, Kyle P Gruss, Janna K Jenan | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex, 10:45–12:00

An investigation of various scenarios of glass recycling reveals that end product characteristics drive the critical factors in evaluating the many alternatives. When recycling glass, many issues must be investigated, however the focus here will be investigating energy consumption and the goal is to make a decision on which process is most energy efficient when dealing with glass recycling. To reduce energy consumption we identify the best combination of scenarios of glass recycling. Critical factors of glass recycling include methods of recycling process and the use of different furnaces to reduce the energy consumption, geographic

locations / transportation by taking into account multiple aspects of different locations, the use of glass recycling to reduce energy use of new raw materials to produce new glass. After analyzing these critical factors of energy investigation, significant factors will be combined to make an ideal hypothetical energy efficient glass recycling plant, by considering the process, geographic location, transportation, and materials. The best combination of these factors will have the most favorable impact on the environment because of its ability to be energy efficient.

Building Recycling: The Reconstruction from Deconstruction

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 472 01

STUDENTS Mohammed A Alharbi, Zhening Cui, Ryan William Schwenke, Daniel P Wiese | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex, 10:45–12:00

Abstract Buildings, both large and small, are getting constructed and demolished every day. A lot of the time after getting demolished, the different materials that were used in the structure still have potential to be reused or recycled, but the material is instead thrown away into a landfill. This not only wastes resources that still have value but also adds to a growing waste problem. The topic for this research paper consists of analyzing different methods and solutions of recycling and reusing old building material. The four goals of this paper is to analyze: 1) the different types of recyclable materials used in construction; 2) the process of recycling concrete; 3) the process of recycling metal; and 4) the benefits of deconstruction versus demolition of a building. This work aims to identify current usage of different

metals and materials, such as copper, steel, glass and concrete, in the construction of multiple buildings. In addition, it will analyze what percentage of these metals and materials can be recycled for future use. The economic impact will be compared between recycling and wasting building material either by sending it to a waste land or letting the building stand unoccupied. The emissions for mining material, processing new materials, demolition of buildings, recycling processes for new material will be analyze to see which path produces the most emissions and how it can be reduced to have a more positive impact. Our result shows that recycling building material will save money, resources, and help reduce harmful emissions into the land and atmosphere.

VectorWorks for Light Design

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, MEE 499 01

STUDENTS Mary F Lamperis | ADVISORS Margaret F Pinnell

LOCATION, TIME RecPlex, 10:45–12:00

VectorWorks is a 3-dimensional modeling program like Autodesk or SolidWorks, yet unlike these, it excels when dealing with light design. Integration of Autodesk files into VectorWorks is currently possible, yet not adaptable when working with the further light design tools that VectorWorks has to offer. Being adept in this program while working in theatrical lighting design will be a tremendous advantage. One of these main tools lets you

output a data chart necessary when implementing the lighting layout in the theatre itself. Normally transferring the data from an Autodesk file to a usable chart takes several hours and includes multiple human errors. With these advantages in mind, I created a layout of Boll Theatre that not only gives me experience, but also provides a updated model to aid future light designers.

RE (CELL) LCD: A Feasibility Study on Recycling Cell Phone LCD

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, RCL 572 01

STUDENTS Abdulaziz Alotaibi, Christopher C Beaschler, Siddharth N Rathod, Matt S Shea | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex, 10:45–12:00

Liquid Crystal Displays (LCD) are used in a magnitude of devices and have now become the norm in products that require a screen, such as, cell phones, computers, televisions, tablets, and more. However, many of these technologies are becoming outdated leading towards the issue of exponential growth of waste with a lack of technology set in place for proper recycling. Most of research literatures on LCD recycling are of electronic products and e-waste in general rather than cell phones in particular. Few studies on recycling of cell phone LCD have been accomplished. Since everyday around 300,000 mobile phones are sent to trash in United States alone, the recycling of LCD of cell phones is still a challenge for recyclers. In this paper four main topics will be discussed: Establishing need of recycling of LCD due to its environmental impacts, increasing number of LCD usage with time,

current EoL (End of Life) process and challenges associated with it in terms of environment, economy and social aspects. By our findings, we are aiming to examine the sustainable feasibility of recycling LCD of cell phones comparing with other LCD products. Our approach for obtaining data for LCD of cell phones is to simulate details from other LCD products (LCD Monitor, LCD PC, LCD TV) such as main elements, recovery of substances, energy required to produce, etc. Finally, we will conclude with the observations with important considerations for a holistic approach to make LCD recycling of cell phones feasible. The results aim to enable recyclers to add confidence in LCD recycling of cell phones and also for researchers to extend this work with innovative ways and cost-effective approach in future.

Toward Sustainable Carpet Recycling in the United States

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, RCL 572 01

STUDENTS Ahmad H Alkankouni, Brett C Bass, Robert D Stachler, Robert A Wehrli | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex, 10:45–12:00

Carpet has been used in everyday life since our ancestors. It is virtually utilized in any building, residential and commercial, and has various colors, designs, and style among its traditional uses. The carpet industry is a \$12 billion industry, with approximately 45% of production rates from the United States alone (Wang, 2006). A large industry of carpet with roughly 5 billion pounds of post-consumer waste per year and recycle ratio of 14% warrants consideration of end use, recycling potential, and sustainable design from the beginning of the product life (CARE, 2014). These considerations can remedy shortages in nylon among recovering energy potential from materials in the carpet in general. Current methods and strategies for carpet recycling will be explored in a life cycle analysis including pre and post-life and environmental impact. Economic impact of carpet with respect

to the recoverable material in the product will be investigated as it will provide insight to the economic viability of carpet recycling and lay the foundation for any legislation that would be necessary to make the processes economically viable. Strategies for reverse logistics between the carpet manufacturers and recyclers will be discussed given the economic impact. Research of current public awareness on current carpet recycling and the effectiveness of the programs is included in this preliminary investigation on carpet recycling. This work will provide insight to the life cycle of carpet, economic viability of carpet recycling and reverse logistics, while creating a foundation for how manufacturers and recyclers can work in unison towards sustainable design for the future.

Can Airplane Recycling Take off?

School of Engineering: Mechanical and Aerospace Engineering | Poster - Course Project, RCL 572 01

STUDENTS Mariana E Aboujaoude, Tyler D Knoblauch, Christian Alexander Lohmeier, Zhuochen Shi | ADVISORS Jun-Ki Choi

LOCATION, TIME RecPlex, 10:45–12:00

As of 2015, the worldwide air transportation industry is expected to contain an estimated 10,000 aircraft ready for retirement. In order to offset the introduction of waste from aircraft disposal into landfills, as well as to cope with the depletion of natural resources, the recycling of airplanes is becoming more prevalent. Aircraft Recycling is a process of highly variable economic revenues. Often, the difference between having a loss and a profit is with the resale of aircraft parts, namely the engines. Recycling companies often have to charge the owner of an aircraft for the recycling process in order to make up for their labor costs, and at the same time, not all that could be recycled is actually recycled

in practice. This study introduces the current processes associated with aircraft recycling and disposal. This study identifies current estimated costs and revenues behind the recycling and disposal of an aircraft and formulates a baseline. This study then introduces suggested improvements in specific waste streams (metals, parts, hazardous materials, insulation and aircraft lining, textiles, etc.) and the economics associated with these improvements. A cost-benefit analysis will determine economic feasibility of suggested improvements.

The Relationship Between the Wingtip Vortex, the Free Shear Layer and Aerodynamic Efficiency

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Sidaard Gunasekaran | ADVISORS Aaron Altman

LOCATION, TIME RecPlex, 10:45–12:00

The interaction between the free shear layer, the wingtip vortex and the aerodynamic efficiency was quantified based on previous experimental Particle Image Velocimetry (PIV) results of the wingtip vortex and the free shear layer. These preliminary results showed signs of interaction between the free shear layer and the wingtip vortex. This analysis was extended to more completely understand the interaction of the free shear layer in the wingtip vortex evolution process and the correlation of this interaction to the aerodynamic efficiency of the wing. The streamwise, cross-

stream and spanwise plane oriented PIV of the wingtip vortex showed clear signs of free shear layer interaction with the wingtip vortex at lower angles of attack. This interaction was reflected in the normalized azimuthal velocity profile of the wingtip vortex as well. The composite of velocity profiles from multiple different planes showed a transfer of momentum from the free shear layer to the wingtip vortex in the vicinity of the maximum (L/D) lift condition. This result was correlated with the variation of the parasite and the induced drag of the wing.

Wingtip Vortex Behavior in the Vicinity of the Maximum Lift to Drag Ratio Lift Condition

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Muhammad Omar Memon | ADVISORS Aaron Altman

LOCATION, TIME RecPlex, 10:45–12:00

Adverse effects of lift induced drag on the aerodynamic efficiency of aircraft are well known. Lift induced drag is generated as a byproduct of downwash from the wingtip vortices. The flow physics associated with wingtip vortex core axial flow transformation from wake-like (velocity less-than the freestream) to jet-like (velocity greater-than the freestream) behavior in the vicinity of the maximum lift to drag ratio (L/D) lift condition is explored. Particle Image Velocimetry (PIV) experiments were performed in the UD Low Speed Wind Tunnel in the near wake of an AR 6 wing with a Clark-Y airfoil to investigate the characteristics of the wingtip vortex at angles of attack ranging from 2 and 8 degrees.

Results showed changes in the velocity distributions in the vortex inner and outer cores. Vorticity and exergy distributions indicated the existence of the wake-like to jet-like transformation in the range of 4° to 6° angle of attack. This range corresponds with the maximum L/D angle of attack of the Clark-Y tested. A relationship between the vortex core axial velocity profile changeover and the angle of attack at maximum L/D was identified. Improved understanding of this relationship could be extended not only to improve aircraft performance through the reduction of lift induced drag, but also to air vehicle performance in off-design cruise conditions.

Spatial Mechanism Analysis and Synthesis by Dual Special Unitary Matrices

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Saleh M Almestiri | ADVISORS Andrew P Murray, David H Myszka

LOCATION, TIME RecPlex, 10:45–12:00

Numerical algebraic geometry is the field that studies the computation and manipulation of the solution sets of systems of polynomial equations. The goal of this work is to formulate spatial mechanism analysis and design problems via a method suited to employ the tools of numerical algebraic geometry. Specifically, equations are developed using dual special unitary matrices that naturally use complex numbers to express physical and joint parameters in a mechanical system. Unknown parameters

expressed as complex numbers readily admit solution by the methods of numerical algebraic geometry. This work illustrates their use by analyzing the spatial RCCC and RRRCC linkages. The specialization to pure rotations using special unitary matrices is also presented and used in the analysis of the spherical four-bar and Watt I linkages. The motion curves generated in this work are validated by comparison to other published work.

Integrated Systems Plus Principles Approach to Industrial Energy Efficiency

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Michael Ralph Ising, Kathleen Rose Sturtevant | ADVISORS J Kelly Kissock

LOCATION, TIME RecPlex, 10:45–12:00

In today's global economy, fierce competition, volatile energy costs and a shared motivation to reduce the environmental impacts of energy use drive improvements in manufacturing energy efficiency. This poster presents a systematic approach

for improving industrial energy efficiency that breaks complicated manufacturing processes down into distinct energy systems that can be addressed using seven fundamental principles of energy efficiency. This "Integrated Systems plus Principles Approach"

(ISPA), based on the experience of 950 industrial energy audits, focuses on the electrical distribution, motor drive, lighting, fluid flow, compressed air, process heating, process cooling and space conditioning systems that make up virtually all manufacturing processes. Targeting these systems, rather than individual manufacturing processes, makes it possible to develop expertise in a finite group of energy systems rather than a nearly infinite number of manufacturing processes. In addition, seven principles of energy efficiency have been identified that apply across all systems and provide a unified way of understanding and approaching energy saving opportunities. The seven principles of energy

efficiency are “think inside out”, “maximize control efficiency”, “employ counter-flow”, “avoid mixing”, “match source energy to end use”, “benchmark against the theoretical minimum energy use”, and “consider whole systems over whole time frames”. This poster explains ISPA, discusses the use of ISPA for conducting energy assessments and teaching energy efficiency. Finally, it presents a public-domain, open source, spreadsheet-based “Energy Efficiency Guidebook” based on ISPA that combines the principles of energy efficiency, system best practices and energy saving examples with spreadsheet calculators and energy simulation software to quantify savings.

Creating Value through Sustainable Manufacturing

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Ryan S Schuessler, Zack Valigosky | ADVISORS Jun-Ki Choi, J Kelly Kissock

LOCATION, TIME RecPlex, 10:45–12:00

To support movement toward a more sustainable worldview, increasing manufacturing efficiency or productivity to improve business profitability and return to shareholders alone is no longer sufficient. Today, leading manufacturers employ business practices that generate sustainable value—that is, creating economic, environmental, and societal value for all stakehold-

ers. Progressive company culture, environmental and energy management systems, carbon neutrality, and becoming landfill free are all valuable outcomes of sustainable manufacturing. This poster outlines the value of these outcomes as well as methods to achieve sustainable manufacturing.

Enhancing Industrial Sustainability by Improving Material Efficiency

School of Engineering: Mechanical and Aerospace Engineering | Poster - Graduate Research

STUDENTS Daniel J. Kelley | ADVISORS Jun-Ki Choi, Robert B Gilbert, J Kelly Kissock

LOCATION, TIME RecPlex, 10:45–12:00

The rising costs of energy and materials along with stringent environmental regulations, force industries to improve their energy and material efficiency. This poster presents a roadmap to improve material efficiency in manufacturing industries. We developed a publicly available computational tool with a systemized methodology called the “Material Efficiency Guidebook (MEG).” The MEG provides an Integrated Materials plus Principle Approach (IMPA) methodology that integrates six types of materials: raw material, water, chemical agents, process scrap,

packaging waste, and equipment, along with seven principles of material efficiency to guide manufacturers to become more materially efficient. The purpose of the MEG is not only to assist industries in becoming more materially efficient but also to provide the reader with real world examples and computational resources. In addition to real industry examples and savings calculations, the MEG includes industry’s best practices and a streamlined life cycle analysis tool to quantify the environmental impact of material savings.

Objective Function Choice Influences Muscle Force Predictions During Human Walking

School of Engineering: Mechanical and Aerospace Engineering | Poster - Honors Thesis

STUDENTS Elijah C Kuska | ADVISORS Allison Kinney

LOCATION, TIME RecPlex, 10:45–12:00

The knowledge of forces in muscles and joints inside the human body may help to improve rehabilitation for individual patients. However, the human body is complex and these forces are unmeasurable. Through the use of motion capture technology, 3D modeling, and computational methods in the field of biomechanics we are able to simulate motion by predicting these forces. One challenge to biomechanical simulation is that we do not understand the strategy humans use to coordinate their muscles to walk. The purpose of this study was to examine muscle

coordination strategies used to simulate walking. Different muscle coordination strategies are attained in a simulation by altering a quantity called the objective function. Simulation output data can be compared between strategies and to experimental data to determine the strategy that best represents human muscle coordination. In the future this knowledge may be applied to rehabilitation techniques: changing them from generalized to patient-specific.

Nonlinear Analysis of Balance Data in the Easter Seals Adult Day Services Population

School of Engineering: Mechanical and Aerospace Engineering | Poster - Honors Thesis

STUDENTS Taylor Marie Schemmel | ADVISORS Kimberly E Bigelow

LOCATION, TIME RecPlex, 10:45–12:00

81.1 million adults are expected to be affected by dementia in 2040. Individuals with dementia are twice as likely to fall as healthy individuals and three times as likely to sustain an injury during a fall. Unfortunately, current fall prevention techniques in place for the cognitively healthy elderly are not as effective for those with dementia. The objective of this study was to examine balance differences between individuals of varying cognitive ability utilizing Easter Seals Adult Day Services. All individuals utilizing Easter Seals Adult Day Services were invited to participate in this study. All study participants completed the Montreal Cognitive Assessment (MoCA), which provides a quick clinical assessment of cognitive ability. Clinical assessments were done in conjunction with static posturography data collection on a balance plate. Four different quiet standing test conditions were used to assess the three sensory systems contributing to

postural control. Of the 19 individuals that decided to participate, 11 were able to complete all balance testing conditions. Nonlinear techniques were used to analyze the balance data for this study because of its heightened sensitivity to subtle differences in postural control that traditional measures of analysis don't always express. The nonlinear techniques look past the amount of sway given by traditional measures to provide insight to physiological patterns of postural control. Due to multiple confounding variables, it was difficult to identify a specific correlation between MoCA scores and balance parameters. When clinical and balance assessments were compared with age-matched norms, noticeable deficits were observed. It is hoped that this study can contribute to a better understanding of balance limitations in the adult day services population and inform future interventions.

Research Experience for Teacher (RET) program: Inspire the Next Generation in Advanced Manufacturing and Materials

School of Engineering: Mechanical and Aerospace Engineering | Poster - Independent Research

STUDENTS Caroline Margaret Boeckman, Emma A Cipriani | ADVISORS Margaret F Pinnell

LOCATION, TIME RecPlex, 10:45–12:00

This research was conducted at the University of Dayton through a research program for teachers. The goal of this program was to have pre-service and experienced teachers gain more knowledge about engineering concepts so that they could incorporate them into their classroom. The objective of this research was to perform tensile testing of Fused Deposition Modeling materials to determine variability due to orientation and print machine. The Ultem samples tested were produced on six different printers. Within these samples, there were three different orientations tested; ZXY, YZX, and YXZ. We tested the tensile strength using an Intron 4486. Each member of the group was involved in the

testing process, which included sample testing, recording data, placing extensometer, analyzing data, and running the Bluehill program. During the analysis of our data, we calculated the Ultimate Tensile Strength (UTS), Stress at Failure, Strain at Failure, and Elastic Modulus. After testing multiple samples of each orientation and the different printers, we found that YZX has the highest ultimate tensile strength (UTS) and strain of all orientations tested. ZXY had the weakest UTS and strain. Statistically, each orientation from the various printers has similar tensile properties.

Design and Prototyping of a Variable Geometry Extrusion Die to Exhibit Significant Alteration in Shape

School of Engineering: Mechanical and Aerospace Engineering | Oral Presentation - Honors Thesis

STUDENTS David C Bell | ADVISORS Andrew P Murray, David H Myszka

LOCATION, TIME LTC Team Space, 1:00–1:20

Extruded parts are conventionally made by forcing melted plastic through a steel die having a fixed opening that matches the shape of the part. Plastic parts made by extrusion include weather stripping, PVC pipe, and composite lumber. Variable geometry dies can change their opening shape during the extrusion process. Developing shape-changing dies technology offers the possibility of making parts with varying cross-sections that currently need to be made through injection molding. This is

desirable as, compared to molding, extrusion tends to be faster and less expensive. Variable geometry extrusion dies have been designed and prototyped by the University of Dayton research team that confirms the validity of the concept. This research explores the limits of this new technology by creating a die that has substantial movement of components that form the die opening.

A Study of Surrogate, Conventional, and Alternative Fuel Emissions Using a Well-Stirred Reactor

School of Engineering: Mechanical and Aerospace Engineering | Oral Presentation - Independent Research

STUDENTS Robert D Stachler | ADVISORS Joshua Heyne, Scott D Stouffer

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

In response to United States and European Union legislative orders, industrial and government organizations are actively pursuing strategies to reduce pollutant emissions and promote alternative energy fuels in gas turbine combustors to combat climate change and mitigate market volatility. Current goals for the US government include carbon neutral growth for US commercial aviation by 2020, with a 9-34 megatons reduction in CO₂ due to alternative fuels alone. This pursuit requires novel technologies to cultivate renewable fuels, certify fuel safety and operability, and optimize future use in gas turbine engines. Here we examine the pollutant emissions of fuel mixtures and identify performance characteristics such as lean blow off and combustion efficiency

using the Well-Stirred Reactor (WSR) facility operated by UDRI and AFRL. The WSR illuminates the controlling kinetics of the combustion process at temperatures of 1350–1600 K and near 1 atm for various surrogate, conventional, and alternative fuels. n-Dodecane based blends with m-xylene, iso-octane, methylcyclohexane, and n-heptane are compared and contrasted with conventional and alternative fuels while approaching leaner conditions for the use of simulating kinetics experiments, predicting emissions, and studying hazardous air pollutants (HAPs). This data provides preliminary framework for n-dodecane based fuel mixtures and alternative fuels applicable to full scale combustor testing.

Reduced Order Experimental Configuration Studies of Wood Combustion

School of Engineering: Mechanical and Aerospace Engineering | Oral Presentation - Independent Research

STUDENTS Sari Mira, Robert D Stachler | ADVISORS Joshua Heyne

LOCATION, TIME Kennedy Union 207, 4:20–4:40

Wood is one of the largest biomass energy resources used today. Yet, the combustion process of wood is still largely unoptimized. While theoretically wood is a renewable source of energy, it is not necessarily a clean source as the process of wood combustion is inherently multidimensional and multi-phase, and the formation of emissions such as CO, NO_x, and other particulates are results of both deficient and copious mixing. Thus, standard experiments characterizing the emissions/speciation and performance of wood combustion using various fundamental and applied experimental configurations can contribute in part to the reduction of emissions and increases in efficiency. Previous studies towards this aim have focused on experimental configurations similar to so-called stove combustion (i.e. multiphase, multidimensional). This model has been developed to reduce the computational and experimental complexity and cost of simulating and validating wood combustion apparatus designs. Here, we discuss an exper-

imental configuration in which the initial/boundary conditions are both well characterized and entirely gaseous, and the geometry can be modeled as zero or one dimensional. Thus, a preliminary study of gas-phase wood specific species was conducted in order to design and speculate the potential benefits of these reduced order experimental configurations. The study consists of two parts: the first part is building a model capable of producing results for one of these configurations, a counterflow diffusion flame experiment, validated by existing and established experimental results using non-biomass-based fuels, such as propane, hydrogen/oxygen, etc. The second part is using that model to produce results for dry hardwood following the work Ranzi et al. (Ranzi, Couci, Faravelli, et al., 2008). A future continuation of the work will be building the established experimental counterflow diffusion flame apparatus to validate the dry hardwood model and to build more comprehensive biomass kinetic mechanisms.

Applications of Model Predictive Control in Hybrid Power Systems

School of Engineering: UD Research Institute | Poster - Graduate Research

STUDENTS Seyed Ataollah Raziei | ADVISORS Zhenhua Jiang

LOCATION, TIME RecPlex, 10:45–12:00

As the design of Electric Hybrid Systems (EHS) become more and more complicated, more advanced control theories is needed in order to control and optimize the performance of them. Model Predictive Control (MPC) is one of the promising meth-

ods to achieve optimal control of EHS. In this research design steps of applying MPC to the electric hybrid systems have been discussed. Furthermore, the effect of each design parameters on the system's behavior has been evaluated.

Characterizing the Interaction of Mytilus edulis Foot Protein-5 with HY80 Steel

School of Engineering: UD Research Institute and Chemical and Materials Engineering

Poster - Graduate Research

STUDENTS Brooke N Bennett | ADVISORS Douglas C Hansen

LOCATION, TIME RecPlex, 10:45–12:00

Mytilus edulis foot protein-5 (Mefp-5) is an adhesive protein found in the adhesive plaque of the byssal thread of the common blue mussel, Mytilus edulis (L). While to date there have been eight proteins isolated from the byssal structure, this protein contains the greatest amount (27 mol %) of a unique amino acid, L-3,4-dihydroxyphenylalanine (L-Dopa), which is a posttransla-

tional modification of the amino acid L-tyrosine. This protein has been shown to confer significant corrosion inhibition to a high strength, low alloy steel (HY80) when adsorbed onto the metal surface and the steel subsequently exposed to accelerated corrosion environments. To characterize how Mefp-5 interacts with the HY80 steel and thus provide corrosion inhibition, a variety

of analytical techniques were implemented. Energy dispersive spectroscopy (EDS) was performed using a scanning electron microscope (SEM) on HY80 steel with three different treatments of Mefp-5 dissolved in deionized water, 0.05 M potassium phosphate buffer with a pH of 5.5, and the same buffer containing mushroom tyrosinase to facilitate the oxidation of the L-Dopa and subsequent intramolecular cross-linking. Fourier transform infrared spectroscopy (FT-IR) and Nanoscale infrared spectroscopy (Nano-IR) were performed on both a HY80 steel coupon and a glass slide containing Mefp-5 dissolved in deionized water. The results indicate that the amino acid L-Dopa in the Mefp-5 protein

is intimately involved in the adsorption of the protein onto the two substrates tested. The SEM-EDS data indicate that the Mefp-5 adheres mostly through auto-oxidation and cross-linking, but when dissolved in buffer or buffer with enzyme, the protein interacts with the HY80 surface via a mixture of enzyme and metal mediated cross-linking and complexation, respectively. FT-IR and Nano-IR data for Mefp-5 adsorbed onto HY80 and glass steel exhibits similar results suggesting that the Mefp-5 adsorbed on the HY80 involves metal ion complexation by L-Dopa at the protein-metal interface.



OTHER UNITS

CHANGE: Performance and Installation Premiere

Academic Affairs and Learning Initiatives: ArtStreet | Performance - Course Project, UDI 372 M1

STUDENTS Kenneth Bester, Deidre Simone Cathey, Elizabeth A Clement, Veronica Lynn Colborn, Alexandra C Damiani, Christopher J Delanis, Garrett W Devore, William George Duritsch, Tara M Erhart, Joseph B Ferber, Sydney Rose Flora, Benjamin R Foppe, Lewis E Forman, Christopher S Garcia, Matthew Ryan Geraci, Angela N Giaquinto, Michael M Gilbert, Sarah M Gray, Conner M Haenszel, Elizabeth Anne Hertz, Catherine J Holt, Marissa Christine Jama, Colin H Joern, Mara M Kalinoski, Samantha Lynne Kasmer, Michael P Keller, Brittany R Kieffer, John G Lavins, Temira M Lewis, Christopher Stephen Lippiello, Grant A Lyons, Jennifer L Manka, Samantha N Mayne, Elizabeth M McCabe, Mollie C McDaniel, Jacob Thomas Michalakes, Katherine G Michel, Elizabeth A Moeller, Michelle L Naporano, John P Neenan, Josephine Cynthia O'Connell, Erin L Patterson, Scott D Peterson, Alissa Leigh Plenzler, James C Reckers, Kiersten S Remster, Elinor Louise Schuck, Jacob Ira Shea, Caroline Hope Speer, Gillian Claire Taylor, Madeline F Thomas, Quinton P Thomas, Allison R Vassanelli, Norbert Donald Wessels, Christa M White, Daniel A Williams, Elia E Wilson, Aaron O Winfrey, Lauren K Wolford, Eleanor V Worth, Jacqueline Christine Zondlo

ADVISORS Michael J Bashaw, Brian LaDuca, Karlos L Marshall

LOCATION, TIME ArtStreet White Box Gallery, 7:00–8:00

What happens when 70 students from diverse majors come together to think about the challenges embedded in nurturing a sustainable world? It's CHANGE. With guidance from Michael Bashaw, UD's Visiting Artist for Sustainability Initiatives, students

in the IAN II course will creatively apply innovative "solutions" to the collaborative and critical perspectives developed from the themes of the entire 2015–16 IAN Installation Series.

Solo Singers

Academic Affairs and Learning Initiatives: Intensive English Program | Poster - Independent Research

STUDENTS Rowaida Hamad S Al Habis, Abrar Saeed Alahmari, Ghadah M Alsaikhan, Khlood E Alshammari, Aml A Altwayjri, Arasseri Nanda Neetha

ADVISORS Cheryl Hils, Nichole Lucas, Janice Showers, Nicholas Taggart, Jeri Taylor

LOCATION, TIME RecPlex Main Gym, 9:00–10:45

The presenters are students from the Intensive English Program. The posters they have created are representative of an end of term project for the level 3 Oral Communication and Listening/Note-taking course; an intermediate class for English language

learning students at the intermediate proficiency level. The goal of this assignment is to give students an introduction to research and an opportunity to improve their speaking and presentation skills.

“We Want More than Just Small Talk”: Engaging in Intercultural Communication Through the iLEAD Program

Academic Affairs and Learning Initiatives: Intensive English Program | Panel Discussion - Independent Research

STUDENTS Modhe Abdullatif Almeebed, Sungmin Jeon, Sharon R Tjaden-Glass, Catherine G Thibault, Danielle P Tout

ADVISORS Sharon R Tjaden-Glass

LOCATION, TIME Kennedy Union 331, 3:00–4:00

Building a welcoming community for international students at the University of Dayton supports the characteristics of a Marianist education, especially the goal of educating in family spirit and educating for adaptation and change. With this spirit in mind, the Intensive English Program and the Department of Teacher Education collaborated to reimagine one of the IEP's staple programs, Conversation Groups. From 2012–2015, IEP's Conversation Groups provided a relaxed space for international and domestic students to speak informally about cultural topics. Although Teacher Education and IEP students enjoyed the relaxed environment of Conversation Groups, students also desired to have more meaningful, in-depth interactions that went beyond “small talk.” To meet this need, the IEP piloted a more structured and committed version of Conversation Groups, called

iLEAD (International Language Exchange and Dialogue). In this program, Teacher Education and IEP students met for one hour each week for an entire semester with a small group of students. iLEAD sessions were planned by a teacher-facilitator but implemented in small student-run groups. iLEAD sessions moved participants through several stages for improving intercultural competence: exploring cultural identities, exploring cultural values, and navigating difficult cross-cultural conversations. In this panel presentation, several iLEAD participants will share the benefits and challenges of participating in their iLEAD groups. Session attendees will gain an understanding of how they can improve their intercultural competence as well as the obstacles that continue to impede cross-cultural understanding at the University of Dayton.

International Study Abroad Experiences

Academic Affairs and Learning Initiatives: University Honors Program | Oral Presentation - Independent Research

STUDENTS Thomas E Cook, Reine-Marie Hammonds, Kelli Renee Marquardt, Karen N Noonan, Julia Kristine Russell

ADVISORS Laura Cotten, Heather Schieman

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

Are you interested in studying abroad but don't know your options? Come learn about international opportunities for UD students from other UD students who have been there and done that! Students will present on their time abroad through breakout experiences in Nicaragua, Belize and Mexico in addition to the

summer in Guatemala program! In addition, Center for International Programs Study Abroad Coordinator Heather Schieman will be on hand to answer your questions about studying abroad. Associate Director Laura Cotten will also be available to discuss financing your time abroad.

Encounter and Kinship: Lessons from the Marianist Universities LA Immersion

Campus Ministry: Campus Ministry | Panel Discussion - Independent Research

STUDENTS Elizabeth A Abrams, Timothy K Fasano, Brandon Paluch, Kristine T Perez | ADVISORS Brandon Paluch

LOCATION, TIME LTC Forum, 3:00–3:40

Students from all three Marianist Universities (Chaminade in Honolulu, St. Mary's in San Antonio and the University of Dayton) lived together in community for a week in Los Angeles, learning about its cultural richness as well as issues of poverty, homelessness, immigration and criminal justice. They served

on Skid Row, at a domestic violence shelter and urban Catholic schools, praying and reflecting on how to be leaders advancing social justice in the Marianist spirit. Hear what lessons they learned about encounter and kinship.

Avoiding the Guillotine: The Need for Balance and Purpose in Determining Fundamental Rights under the Fourteenth Amendment

Law Library: Law Library | Oral Presentation - Graduate Research

STUDENTS Timothy A Campbell | ADVISORS Susan N Elliott

LOCATION, TIME Kennedy Union 207, 1:40–2:20

This paper argues the need for a balanced approach between traditionalism (including history) and rationalism to determine fundamental rights under the Fourteenth Amendment of the U.S. Constitution. The issue of how to determine fundamental rights has intrigued the Supreme Court of the United States since 1798. The Supreme Court has desired an "objective" approach to determine what rights are "fundamental." However, the Supreme Court has had difficulty finding an objective approach. This is because, as E.O. Wilson and Joshua Greene observed, rights are naturally subjective creations of an individual's values. Thus, any test to determine fundamental rights will be subjective rather than objective. The debate over how to determine fundamental rights is also shaped by the rationalist and traditionalist schools

of thought. Rationalists argue that fundamental rights should be determined by objective reasons, rather than history. The latter, on the other hand, argue that history still has value, and is a required component of legal analysis. Both sides of the debate bring out valid points in favor of their claims. However, neither side alone can provide a solution to the debate. As a result, what is needed is a balanced test between rationalism and traditionalism. Specifically, the test examines four factors: specificity of the right, purpose of the right, legal precedent, and history. In order for a proposed right to be fundamental, the sum of the specificity and the purpose must be greater or equal to the sum of legal precedent and history.

The Controversy about St. Gregory Palamas and Mary's Immaculate Conception

Marian Library: Roesch Library | Oral Presentation - Course Project, MRI 627 01

STUDENTS Emmanuel L Fale | ADVISORS Gloria Dodd

LOCATION, TIME LTC Team Space, 2:40–3:00

St. Gregory Palamas (1296 – 1359), perhaps "the most influential theologian and mystic of the Orthodox Church of the Middle Ages," considers the divine maternity as Mary's greatest prerogative because "she made God the Son of man, and makes men the sons of God." She gained other privileges only in view of her divine maternity. Accordingly, she was clothed with a likeness to her Son. Martin Jugie claimed St. Gregory as supporting the

doctrine of the Immaculate Conception, but Hilda Graef and John Meyendorff disagreed. Later, Pope Saint John Paul II cited Palamas as one of the Eastern theologians that expounded the truth of the Immaculate Conception. This presentation will examine what St. Gregory Palamas actually held about Mary's Conception in comparison with the Catholic understanding of the Immaculate Conception.

Suarez's Use of the Fathers of the Church in His Exposition of Mary's Virginity While Giving Birth

Marian Library: Roesch Library | *Oral Presentation - Course Project, MRI 627 01*

STUDENTS Christopher G Roberts | ADVISORS Gloria Dodd

LOCATION, TIME LTC Team Space, 3:00–3:20

This project will examine the manner in which the Baroque Jesuit theologian, Francis Suarez, used the Fathers of the Church to interpret the Bible in his discussion of Mary's virginity while giving birth to Jesus (virginitas in partu). While Scripture was an important norm for Suarez, the Fathers of the Church provided a singular testimony to the rule of faith for biblical passages that were difficult to interpret. Rather than merely appealing to

their authority as witnesses to the antiquity of a belief, Suarez evaluated the strength of their arguments. He recognized that some Fathers effectively employed semantic analysis, recourse to apocryphal sources and intertestamental typology to support their arguments. The manner in which Suarez used the Fathers to interpret the Bible provides a methodological standard for appeals to the Fathers of the Church in doctrinal controversies.

The Virgin Mary kissed by the mouth of God, Song of Songs 1:2a

Marian Library: Roesch Library | *Oral Presentation - Independent Research*

STUDENTS Maria Enriqueta Garcia | ADVISORS Gloria Dodd

LOCATION, TIME LTC Team Space, 3:20–3:40

The Blessed Virgin Mary is often associated with the bride of the Song of Songs. In this holy poem, the bride asks to be kissed by her beloved. Through spiritual interpretations, the Song of Songs expresses the love between Israel and God, between the Church and Christ. In the Virgin Mary, this love becomes concrete in

her womb. The kiss is the beginning of the intimacy between husband and wife, when they start to become one. This presentation will explain the importance of understanding a kiss from the mouth of God in the biblical context, and its implications in the Mystery of Incarnation.

Sexual Violence Prevention Programming for International Students With a Focus on Saudi Arabia

Student Development: Sexual Violence Prevention Educ. | *Oral Presentation - Independent Research*

STUDENTS Mary Margaret Whitney | ADVISORS Kristen Keen

LOCATION, TIME Kennedy Union 207, 3:40–4:00

Colleges around the country, including the University of Dayton, have made major strides in the area of sexual violence prevention education (SVPE). One area that can still use improvement is SVPE for international students. This project will focus specifically on students from Saudi Arabia. By analyzing the current work being done at UD and taking into consideration cultural

practices and norms of international students, a more comprehensive SVPE program can be formulated. Once this standard has been set, this work can be adapted for international students from other regions. In doing so, the UD community can be made safer and healthier.

