



COLLEGE OF ARTS & SCIENCES

organized by department/start time

Creating Inclusive Community: Examining Privilege and Taking Action

College of Arts and Sciences

Panel Discussion - Course Project, 201810 UDI 380 M1

PRESENTERS Brett A Bartlett, Darius Jamal Beckham, Leah Ashton Bell, T.J. John Belsterling, Laura Gabriela Benitez, Dezanee M Bluthenthal, R Darden Bradshaw, McKenna Elizabeth Czekajlo, Andrew Stephen Durkin, Russell Thomas Kientz Elting, Lakesha M Fountain, Brianna Gavin, Veronica Renee Halfacre, Claudia E Jackert, Ambria K Jones, Paul Philip Kramer, Jenna Renee Lakes, Shadayah Kabre Lawrence, Thomas L Morgan, Caroline Rose Nevius, Alure M Powell-Russell, Majd Shisha, Cierra Lynn Waller

ADVISORS Amy E Anderson, Daria Y Graham, Thomas L Morgan

LOCATION, TIME Kennedy Union East Ballroom, 10:30-11:30

This presentation will explore the historical and social implications of diversity and privilege, discussing participants' experiences in examining their own privilege while dialoguing with others about diversity and social justice. Additionally, participants will reflect upon their experiences attending the White Privilege Conference as well as their plans for designing sustainable actions to dismantle injustice in the UD community and beyond.

Facing Dayton: Visualizing Neighborhood Narratives

College of Arts and Sciences: Art and Design

Oral Presentation - Course Project, 201780 VAD 412 01

PRESENTERS Lucy Elizabeth Bratton, Josie Marie Libecap, Nyla C Sauter, Caitlin Joanne Schneider

ADVISORS Jayne Matlack Whitaker

LOCATION, TIME Marianist Hall Learning Space 218, 10:30-10:50

The Facing Project is a nonprofit that connects people through stories to strengthen communities. It is a community story-telling project that intends to bring awareness about human rights issues and assets of a community to inspire social action. Students will present work created in connection with the Fitz Center's Facing Project that were then exhibited at the Human Rights Center's biennial conference, The Social Practice of Human Rights 2017. For the exhibit, senior graphic design students were paired with a community member's story that captures the experience of living in Dayton and the challenges or advantages that go along with it. Following several preparatory activities, students met one-on-one with their storyteller, an experience that furthered their connection to community and inspired them to create impactful book designs intended to bring poetic justice to their subjects and life to their stories. Through awareness outlets such as "Facing Dayton: Visualizing Neighborhood Narratives" communities can come together to discover new solutions to the problems of intolerance and indifference.

You and Me and Everyone Else: Photography Senior Capstone Projects

College of Arts and Sciences: Art and Design

Oral Presentation - Capstone Project

PRESENTERS Sara Elizabeth Frederick, Sylvia Marie Stahl, Brooke Beckman Tinsman

ADVISORS Glenna Marie Jennings

LOCATION, TIME Marianist Hall Learning Space Commons, 10:30-11:30

Join us for "You and Me and Everyone Else," a presentation of Senior Capstone photography projects by three emerging artists and photographers. Living with Type I Diabetes, exploring the world of Color Guard performance and navigating the myths and realities of Midwest American culture are among the topics taken on within the students' research. Sara Frederick, Sylvia Stahl and Brooke Tinsman will discuss their individual works and offer insight into the world of contemporary image-making.

Infographics inspired by Paul Laurence Dunbar

College of Arts and Sciences: Art and Design

Oral Presentation - Course Project, 201810 VAD 415 01

PRESENTERS Brian Gallagher O'Malley, Hadley Caitlin Rodebeck, Isabella Pearl Vonachen, Olivia Derose Wendt, Ben D Woodruff

ADVISORS Jayne Matlack Whitaker

LOCATION, TIME Marianist Hall Learning Space 218, 11:00-11:20

Students will address the graphic significance and creative thinking process of information design, exemplifying how a well-designed infographic can inform, express, clarify and/or transform complex information into a clear concise visual. The content of each infographic was inspired by the life of African-American writer Paul Laurence Dunbar. Students explored a variety of approaches using information gathered from a tour of Dunbar's grave in Woodland Cemetery, attending a Graul Chair Recital celebrating Dunbar's work, and taking a tour of his historic homestead. Through extensive research and data collection, students discovered fascinating connections between Dunbar and his contemporaries that lead to each one creating his or her own unique information design panel inspired by the life and work of Dayton native Paul Laurence Dunbar.

The Facing Dayton Project: Swim-to-Row Poster

College of Arts and Sciences: Art and Design

Visual Arts Exhibition - Course Project, 201780 VAD 345 02

PRESENTERS Jeremy N Rosen

ADVISORS Misty K Thomas-Trout

LOCATION, TIME Marianist Hall Learning Space 218, 11:30-11:50

The Facing Project is a community story-telling project that intends to bring awareness about human rights issues and assets of a community to inspire social action (facingproject.com). I participated in it while a student in Typography Two under Prof. Thomas-Trout. Typography Two deals with the ideas of the poetic, practical and persuasive nature of typography that encourages designers to investigate content from these varying perspectives. We were assigned personal narratives from individuals in the Dayton area, which we then analyzed to uncover inherent and potential meanings that could be translated visually as expressive, typographical posters. The process revealed ways to integrate the poetic, practical and persuasive ideas within the individual posters; typographically, these posters display poetic in the way it conveys the messages within these stories; practical in the sense that it disbursts the information; and persuasive in how it teaches the history of the Dayton communities while raising awareness on current social justice issues. In turn, our work functioned as "visual narratives" for stories about the unique experiences of community locals. Professor Thomas-Trout received the Experiential Learning Innovation Grant in the Fall of 2017 that helped fund an exhibition at the Dayton Metro Library. Students successfully developed this poster exhibition through these five teams: install, deinstall, curatorial, promotional, reception/food and beverage. I worked as head of the curatorial group throughout the process, strategizing with my peers on how to utilize spatial components to our advantage and on the placement of posters so as to invite viewers through the room. This community-based graphic design exhibition, "Facing Dayton: Visualizing Neighborhood Narratives" celebrated community and fellowship through the visual language and promoted the benefit of experiential learning.

A presentation of the Senior Visual Arts Capstone Projects

College of Arts and Sciences: Art and Design

Oral Presentation - Capstone Project

PRESENTERS Intisar Alrasheed, Emily Kelly Griffin, Veronica Renee Halfacre, Alison Marie Hiatt, Allison Teresa Perry, Jesse James Thompson, Melanie Christine Zebrowski

ADVISORS Tim A Wilbers

LOCATION, TIME Marianist Hall Learning Space Commons, 11:40-1:00

Visual Arts majors in the Department of Art and Design will present research and analysis of their individual journey culminating in creative self-directed artistic projects. Each student project is unique and reflects their selected vocations in the visual arts determined by a review of professional practices, standards and activities across related disciplines.

Department of Art and Design, Advanced Photography Student Presentations

College of Arts and Sciences: Art and Design

Porch Project - Course Project, 201810 VAP 410 01

PRESENTERS Annie Ellis Denten, Maura M Parker

ADVISORS Joel A Whitaker

LOCATION, TIME 461 Keifaber Street, 12:30-12:45

Students from the Department of Art and Design, Advanced Photography (a seminar course that examines the aesthetic, cultural, ethical, and pragmatic issues relating to photographic practice), will give presentations on their respective semester long independent photographic research projects.

Fine arts thesis presentations

College of Arts and Sciences: Art and Design

Oral Presentation - Capstone Project

PRESENTERS Marie E Cossins, Mary Elda Rose Cregan, Olivia Nicole Garzona, Mariamelia Miranda, Taylor Christine Orr, Meghan E Sismour

ADVISORS Jeffrey C Jones

LOCATION, TIME Marianist Hall Learning Space Commons, 1:10-2:10

Presentations of fine arts senior research.

With Him

College of Arts and Sciences: Art and Design

Stander Undergraduate Fellowship Awardee

Porch Project - Independent Research

PRESENTERS Jesse James Thompson

ADVISORS Jeffrey C Jones

LOCATION, TIME 514 Lowes Street, 1:45-2:00

For the Stander Undergraduate Fellowship I will be showing an exhibition at 514 Lowes that entails a variety of media. With multi-media pieces, purely photographic pieces, some alternative, and some painting I am showing a series of works that represent my

understanding of sexuality and growth in relationships. The pieces speak to social platforms and sexuality behavior beyond heteronormative culture.

#Aware

College of Arts and Sciences: Art and Design

Stander Undergraduate Fellowship Awardee

Porch Project - Independent Research

PRESENTERS Hadley Caitlin Rodebeck

ADVISORS Jayne Matlack Whitaker

LOCATION, TIME 461 Keifaber Street, 2:15-2:30

#Aware is a presentation created to address today's contradicting views of feminism and demonstrate how blaming 'the patriarchy' is not the answer. A video/installation will be shown followed by discussion concerning the critique of what is lacking in the discussion of female empowerment such as personal responsibility, self-defense, that it is not a gender-specific issue, and how to heal from a traumatic situation is as important as how to prevent a trauma-based situation.

Understanding Place Branding

College of Arts and Sciences: Art and Design

Porch Project - Honors Thesis

PRESENTERS Lucy Elizabeth Bratton

ADVISORS Jayne Matlack Whitaker

LOCATION, TIME 432 Stonemill Road, 2:30-2:45

This Honors Thesis Project explores an emerging area of graphic design known as place branding. Place branding markets the physical, economic, social, and civic qualities of a place to enhance economic and community development. Successful city brands are derived from the histories, qualities, lifestyles, and cultures of their cities to proactively form partnerships between city municipalities, government, and citizens. When created and implemented successfully, place branding has the unique ability to unite and enhance the lives of citizens. By closely examining successful samples of recent place branding, this project presents the creation of a mark and guidelines for the place branding of the city of Dayton, Ohio. This creative research is presented in the design of a physical book.

Arts-Based Research in Art Education

College of Arts and Sciences: Art and Design

Oral Presentation - Capstone Project

PRESENTERS R Darden Bradshaw, Morgan Noel Bukovec, Rose C Defluri, Bridget Anne McCafferty

ADVISORS R Darden Bradshaw

LOCATION, TIME Marianist Hall Learning Space Commons, 2:30-3:30

Senior Art Education students share their individual investigations into arts-based research. Poised to enter the field of art education and tasked with supporting future students in meaningful art making, these preservice teachers explore the various intersections of art, research, and teaching in a fast-paced, visually engaging manner.

Facing Dayton: Visualizing Neighborhood Narratives

College of Arts and Sciences: Art and Design

Visual Arts Exhibition - Course Project, 201780 VAD 345 01

PRESENTERS Intisar Alrasheed, Laila Abdullah Alshuwaikhat, Emily Katherine Brady, Annie Brinkman, Jessica Rose Burnham, Erin Butrica, Jesse Chapman Alexander Chapman, Merani Yvonne Cosme, Claire Allison Cullen, Kristin Elizabeth Davis, Sarah Marie Fieldhammer, Beth Margaret Fuchs, Emily Carroll Gorenc, Meg Elizabeth Gramza, Emma Quill Kaufman, Caitlin Rebecca Marshall, Payton Maureen Oakes, Alyssa Elaine Ramstetter, Steven George Rojc, Jeremy N Rosen, Caitlin Joanne Schneider, Cassie Carol Smith, Taylor Katherine Wilson, Nan Xiang, Zhuo Xu

ADVISORS Misty K Thomas-Trout

LOCATION, TIME Fitz Hall Second Floor, 5:00-7:30

The Facing Project is a community story-telling project that intends to bring awareness about human rights issues and assets of a community to inspire social action (facingproject.com). Kelly Bohrer and Alexa Irwin with the Fitz Center have begun one of these projects titled "Facing Dayton: Neighborhood Narratives". The Department of Art & Design Typography Two class—taught by Professor Thomas-Trout—collaborated with Kelly and Alexa. The students were to visualize these narratives through the form of a typographic poster. Typography Two deals with the ideas of the poetic, practical and persuasive nature of typography that encourages designers to investigate content from these varying perspectives. Students analyzed the text and its inherent and potential meaning(s) and then generated several visual iterations. The process revealed ways to integrate the poetic, practical and persuasive ideas within the individual posters. Twenty-five students were paired with 25 different stories from several Dayton communities. The student designers successfully communicated these narratives through the interconnectedness of the poetic, practical and persuasive—allowing the type to speak as the voice of the storyteller. Typographically these posters display poetic in the way it conveys the messages within these stories; practical in the sense that it disburses the information; and persuasive in how it teaches

the history of the Dayton communities while raising awareness on current social justice issues. Professor Thomas-Trout received the Experiential Learning Innovation Grant in the Fall of 2017 that helped fund an exhibition at the Dayton Metro Library. Students successfully developed this poster exhibition through these five teams: install, deinstall, curatorial, promotional, reception/food and beverage. This community-based graphic design exhibition, "Facing Dayton: Visualizing Neighborhood Narratives" celebrated community and fellowship through the visual language and promoted the benefit of experiential learning.

The Facing Project: Stories of Challenge, Change, and Community | Short Films by Digital Processes II (VAP340) Students

College of Arts and Sciences: Art and Design

Visual Arts Exhibition - Course Project, 201780 VAP 340 01

PRESENTERS Jesse Chapman Alexander Chapman, Annie Ellis Denten, Claudia Grace Ferguson, Sara Elizabeth Frederick, Maura M Parker, Nora Eileen Sullivan

ADVISORS Julie R Jones

LOCATION, TIME Fitz Hall Second Floor, 5:00-7:30

A collaboration between students from The Department of Art & Design, Digital Processes II (VAP 340) course and selected "The Facing Project" storytellers, narratives, and communities. Each student produced a 3-5 minute short film on highlighted Dayton neighborhoods from "The Facing Project," exploring the changes and challenges that each community faces; several students reached out to and collaborated with community members, whose mission is to raise awareness towards and the enrichment of these places they call home. Short films range from traditional documentary investigation to visually poetic interpretations of the narratives and landscape that define each neighborhood. Featured Dayton neighborhoods include: Carillon, Dayton View Triangle, Edgemont, McCook Field, McFarlane, and Westwood. Special thanks to the residents, businesses, and other partners that contributed to this project, including: Dakota Center, Dayton Kroc Center, Marco and Leona Marmolejo, Jonique McNeal, Sharon Mitchell, Omega Baptist Church, Jackie Patterson, Mary Varnado, and the Fitz Center for Leadership in Community.

Revealing when, how, and how often a pigmentation gene network evolved to be sexually dimorphic in a fruit fly subgenus

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Abbey Marie Groszkiewicz, Jesse Taylor Hughes

ADVISORS Tom M Williams

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Since the origin of the 36 recognized animal phyla, evolution can be largely summarized as the diversification of characteristics among these original body plans. As animal characteristics are the products of development, a key challenge for contemporary research is to reveal the ways in which development evolves through changes in the use of genes within a gene regulatory network. One ideal trait for deep mechanistic study is the coloration patterns observed on the abdominal tergites of fruit fly species from the *Sophophora* subgenus. Prior research has supported a scenario where elaborate 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-à-brac* transcription factor genes. My research seeks to confirm or revise this scenario by bringing attention to the distribution of species with elaborate male pigmentation among the diverse *Sophophora* species groups and interrogating the patterns of *bric-à-brac* expression during the development and coloration of abdominal tergites.

Using RNA-interference to Identify the Genetic Toolkit for a Fruit Fly Morphological Trait

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Abbey Marie Groszkiewicz, Jesse Taylor Hughes

ADVISORS Tom M Williams

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Metazoan animal morphological traits result from the combined inputs of hundreds or more genes that comprise gene regulatory networks (GRNs). Each GRN utilizes various genes from the genetic toolkit of transcription factor and signaling pathway genes to control complex patterns of gene expression. However, for few traits, if any, has the full repertoire of toolkit genes been characterized for its GRN. Thus, how traits are built by regulated gene expression remains poorly understood. For my thesis, I am investigating the genetic toolkit that makes a male-specific pigmentation for the fruit fly species *Drosophila melanogaster*. Using RNA-interference, I will reduce the expression of ~190 transcription factor and ~21 signaling pathway genes to find those necessary for this trait by surveying for deviant pigmentation phenotypes. The results will provide a greater understanding of how a GRN is able to direct the formation of a well formed trait.

Molecular Modeling of Organic Matrix Proteins in Oysters

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Anna Kathleen Benton

ADVISORS Karolyn M Hansen

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Three organic matrix proteins, Pearlin, Prismalin, and Shematrin, from the shell of the oyster *Pinctada fucata* have been isolated, characterized, and the sequences reported in the literature. These organic matrix proteins are known to interact with one another and with the mineral layers in assembly of the shell, but how the interaction occurs is unknown. This project focuses on molecular modeling of the proteins to discover how this interaction occurs by using the 3D modeling program Chem3D® (PerkinElmer). The molecular modeling program initially displays each protein in the least sterically-hindered conformation. Next, post-translational modifications were made to model the amino acid crosslinking that must occur between the proteins; the introduced post-translational modification is addition of a hydroxyl group to Tyrosine residues to form L-3,4-dihydroxyphenylalanine (L-Dopa) residues. The modifications of changing the tyrosines to L-Dopa were made to the protein sequence at random to identify any combination of alterations that would be most beneficial for the interaction between the organic matrix proteins and the mineral. After an acceptable conformation was found, the protein was replicated in the modeling program. The proteins were then rearranged to determine the most favorable electrostatic arrangement, one with polar regions of the protein interacting with one another. This modeling approach will be used in the future for proteins isolated and characterized from our experimental organism, *Crassostrea virginica*, the eastern oyster.

Determining the Role of Membrane Fatty Acid Composition in Antibiotic Resistance

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Andrew J Deak

ADVISORS Yvonne Y Sun

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Bacterial infections that can no longer be treated by antibiotics because of bacterial mutations cause many infections and deaths each year. My research conducted aims to study how membrane fatty acid composition can affect bacterial susceptibility to antibiotics. *Listeria monocytogenes*, a gram-positive facultative anaerobe, is the bacterium that I am testing. *Listeria* has 80-90% branched-chain fatty acids (BCFAs) which allow membrane fluidity and sufficient protection against invaders. When *Listeria* is grown in the presence of butyrate, the BCFAs become straight-chain fatty acids (SCFAs) and make the once fluid membrane more rigid. We believe that this allows for easier antibiotic penetration of the phospholipid bilayer which lets the antibiotics affect cellular processes. By changing concentrations of butyrate I can therefore determine the minimum inhibitory concentrations of antibiotics for *Listeria* with different membrane fatty acid compositions. Moreover, as growth is a key factor in bacterial susceptibility to antibiotics. I also measure oxygen consumption rate in response to butyrate. Higher oxygen consumption rate is indicative of higher bacterial activity. Because oxygen consumption is carried out by protein complexes on the membrane, measuring oxygen consumption rate also reveal the effects of butyrate on cell membrane functionality.

Characterization of the Glycosylation of Aquaglyceroporin HC-3 in Erythrocytes from the Freeze Tolerant Anuran, *Dryophytes chrysoscelis*

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Dante Laurenti Pezzutti

ADDITIONAL AUTHORS James Frisbie, David Goldstein (Wright State University)

ADVISORS Carissa M Krane

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Cope's gray treefrog, *Dryophytes chrysoscelis*, is a freeze-tolerant anuran that uses glycerol as a cryoprotectant. In erythrocytes of *D. chrysoscelis*, transmembrane glycerol flux is likely facilitated through the aquaglyceroporin, HC-3. Previous research demonstrated that erythrocytes from cold-acclimated treefrogs up-regulate HC-3 protein expression, membrane localization, and glycosylation. Thus, we hypothesize that anticipatory glycerol accumulation observed in cold-acclimated treefrogs contributes to enhanced post-translational modification of HC-3 via N-linked and O-linked glycosylation, and that HC-3 glycosylation is important in subcellular trafficking of HC-3 to the membrane. Densitometric analyses of immunoblots specific for HC-3 showed a 3.5-fold and 1.9-fold average increase in glycosylated HC-3 from RBCs cultured with the addition of glycerol (CCCM+G) as compared to Freshly Isolated RBCs (FI) and RBCs cultured in CCCM alone, respectively. Western blots of RBC proteins treated with PNGase F resulted in a 1.3-fold average decrease in glycosylated HC-3 compared to control proteins. However, protein treatment with O-Glycosidase and Neuraminidase did not change the abundance of glycosylated HC-3. Additional results were collected using scanning laser confocal microscopy and HC-3 localization was measured in mean fluorescent intensity (arbitrary units) using ImageJ software (N=4-6 cells per experiment). For RBCs cultured in CCCM+G, immunofluorescence intensity of HC-3 in the plasma membrane was 21.7 times greater than HC-3 immunofluorescence in the cytosol ($P < 0.05$). In contrast, immunofluorescence intensity of HC-3 in the cytosol was 3.2 times greater than HC-3 immunofluorescence in the membrane for FI RBCs ($P < 0.01$). Through the use of an in vitro cell culture system, we have recapitulated cold-acclimated in vivo HC-3 expression patterns through the addition of a glycerol-induced hyperosmotic environment to warm-acclimated erythrocyte cell cultures of *D. chrysoscelis*. Thus, in addition to its osmoregulatory role, glycerol may also influence the N-linked glycosylation and membrane trafficking of HC-3.

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

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Emily Elisabeth Wey

ADVISORS Tom M Williams

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

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-à-brac* genes. Three mutations in the dimorphic element were identified that individually alter the level of *bric-à-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.

Drosophila Eye Model to Investigate How Mutations in *OPA1* and *Drp-1* Genes Contribute to Neurodegeneration in Alzheimer's Disease

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Elizabeth Ann Borchers, Neha Gogia, Lydia Christine Payton, Ankita Sarkar

ADVISORS Amit Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Alzheimer's Disease (AD) is a progressive neurodegenerative disorder with no known cure to-date. This disease is caused by the extra-cellular accumulation of amyloid-beta 42 (A β 42) peptides, which ultimately leads to results in neuronal cell death. In our study, we have used *Drosophila melanogaster* (a.k.a fruit fly) as our model organism (as its genome is highly conserved with humans and any insights generated here can be extrapolated to humans), and have developed transgenic fly model of AD where human A β 42 peptides can be misexpressed specifically in differentiating photoreceptor neurons using GAL4/UAS system, without affecting the reproductive ability and life span of flies. One of the hallmarks of AD is generation of Reactive Oxygen Species (ROS) which triggers neuronal cell death. We have found that (1) there is a strong correlation between increased ROS levels and mitochondrial fragmentation and increased levels of ROS and that (2) a fine balance between both mitochondrial fusion, fission events is essential for normal mitochondrial/cellular functions. Any perturbations, in these process results in increased ROS levels which triggers neuronal death. In our study, we have found two dynamin related GTPases (1) *opa1* and (2) *drp1*, which can regulate mitochondrial fusion and fission events respectively. Mutations in *opa1* (an early stop signal), produces small unstable mitochondrial proteins, and increases ROS levels in neurons. Thus, we hypothesize that *opa1* and *drp1* are involved in regulating A β 42 mediated neurodegeneration. To test our hypothesis, we misexpressed *opa1* and *drp1* in A β 42 background (using GAL4/UAS system) and checked for resultant phenotypes in the eye. Our results showed that (1) up-regulating and downregulating *opa1* rescues A β 42 mediated neurodegeneration only in female flies and in male flies eyes respectively, (2) down-regulating *drp1* rescues A β 42 mediated neurodegeneration only in female flies, while (3) up-regulating *drp1* did not result in any eye rescues phenotypes. This study has significant bearings on mitochondria's role in neurodegeneration. Keywords: Alzheimer's Disease, Neurodegeneration, Reactive Oxygen Species, Mitochondrial fragmentation

Unravelling novel calcium-signaling mechanisms implicated in the neurobiology of learning and memory

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Aikaterini Britzolaki, Joey Edward Saurine

ADVISORS Pothitos Pitychoutis

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Calcium ions are potent regulators of cell fate, as they carry essential information from egg fertilization to cell death. Neuronal cells are no exception to this; calcium signals are critical for neuronal cell function and survival. Intrinsic calcium-cycling aberrations have a detrimental effect on neuronal cell fate, long-term potentiation, learning and memory. Subsequently, calcium signaling imbalances

are associated with a wide range of debilitating neuropsychiatric disorders whose pathophysiological mechanisms are elusive. Our group focuses on unravelling the regulatory mechanisms coupled to calcium handling in the central nervous system. Comprehensive studies have revealed that distribution of calcium in the cell is majorly regulated by the endoplasmic reticulum (ER), and hence the latter's critical role in maintaining neuronal calcium homeostasis. We have recently identified a novel calcium-regulating protein expressed in the brain and we demonstrate for the first time, its implication in regulating learning and memory processes in the mouse brain. In the context of this presentation we will demonstrate overwhelming molecular and behavioral data to support the pivotal role of this novel calcium-regulating protein in the neurobiology of learning and memory.

The Role of FNR/CRP Regulators in Listeria Aerobic and Anaerobic Production of Listeriolysin O

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Lexi Diane Brezovec

ADVISORS Yvonne Y Sun

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Listeria is a dangerous human pathogen transmitted through consumption of contaminated food products. During infections, Listeria is exposed to the anaerobic intestinal lumen. However, the mechanisms modulating how Listeria responds to the anaerobic environment are not fully understood. I completed experiments to help understand the role of the FNR/CRP family of transcription factors in Listeria and their response to anaerobic conditions. I did this by comparing wildtype Listeria and mutants deficient in FNR/CRP transcription factors in their ability to produce the toxin, listeriolysin O. If a specific transcription factor is involved, the mutant deficient in that factor would exhibit a different phenotype from the wildtype bacteria. After testing 3 out of the 13 mutants, I found that each mutant, similarly to the WT, produced more listeriolysin O under anaerobic conditions than aerobic conditions. My preliminary results confirm that Listeria can regulate listeriolysin O production in response to anaerobic conditions. I will continue my investigations in the future on the remaining 10 mutants, testing the different responses in aerobic and anaerobic conditions.

Modulation of Listeria monocytogenes carbon metabolism by short chain fatty acids

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Diksha Bedi

ADVISORS Jeremy M Erb, Yvonne Y Sun

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Listeria monocytogenes, a bacterial pathogen, is associated with foodborne infections in humans. Listeria encounters short chain fatty acids (SCFAs) during its transit through the intestine but its metabolic responses to SCFAs are not fully understood. To determine how Listeria metabolism is affected by SCFAs, I performed basic microbiology assays, including monitoring optical density, determining acetoin production, and measuring culture pH levels, to assess Listeria growth in the presence of butyrate, propionate, and acetate. I also performed preliminary ¹³C-NMR assays to provide a more in-depth look into carbon metabolism in SCFA-treated Listeria. I found that propionate-supplemented, but not glucose-supplemented, Listeria produced significantly more acetoin compared to no supplemented controls. Because acetoin is a product of central carbon metabolism, my result suggests that Listeria is capable of changing its carbon metabolism in response to propionate. My preliminary ¹³C-NMR results have not revealed how carbon metabolism is altered by propionate and are under current investigation. Further investigation will provide more knowledge in the metabolic mechanism associated with Listeria responses to SCFAs during intestinal transit.

The medial prefrontal cortex is a sex-specific mediator of ketamine's antidepressant action

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Emily Margaret Flaherty, Joey Edward Saurine, Connor F Thelen

ADDITIONAL AUTHORS Jonathon Sens, Sara Mohamed

ADVISORS Pothitos Pitychoutis

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Diagnosis of Major Depressive Disorder (MDD) has steadily been increasing in recent years and by 2030 this neuropsychiatric disease is projected to be the leading cause of disease burden world-wide. While MDD is more prevalent than ever before, new treatment options are being explored to provide rapid and long-lasting relief. One of the most promising candidates is the non-competitive N-methyl-D-aspartate receptor antagonist ketamine. This drug, in low doses, has been shown to alleviate symptoms of depression within hours in both animal models and treatment-resistant depressed patients. Despite this revolutionary finding, research focusing on the effects of ketamine has been predominantly conducted in males. What's more, recent studies have identified a sex-specific antidepressant response to ketamine making the need for further investigation imperative to ketamine's future role as an effective treatment option for both males and females. In this study, the role of the medial prefrontal cortex (mPFC) in mediating ketamine's antidepressant response was assessed in stress-naïve male and female C57BL/6J mice. It was discovered that ketamine induced male-specific neuromolecular alterations in the mPFC that may underlie the drug's therapeutic effects; these same alterations in protein expression and synaptic spine density were not present in females. Taken together, the data supports that the

mPFC may be more important in regulating the male antidepressant response to ketamine whereas other brain regions may play a greater role in orchestrating ketamine's beneficial effects in females.

The impact of soil micronutrients on the gut microbiome of orthopterans

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Melani Katharine Muratore, Caitlin Joanne Schneider

ADVISORS Kathleen A Kargl, Chelse M Prather, Yvonne Y Sun

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Nutrient limitation and nutrient-related stress can impact animal growth and abundance. An animal's microbiome can also be affected by environmental and population constraints. The aim of our study is to investigate the role of both macronutrients such as nitrogen and phosphorus, and micronutrients, including sodium, calcium, and potassium, in shaping the gut microbiome of grasshoppers and other orthopterans. Grasshopper and katydid species were obtained from a coastal tall grass prairie in Texas, which was part of a multifactorial fertilization experiment manipulating the presence of macronutrients and sodium, calcium and potassium in all possible combinations, and dissected to harvest the gut, from the crop to the hind gut. We then extracted DNA from 75 orthopteran gut samples and submitted the same for high throughput 16s and 18s sequencing with plastid filtration by Zymo Research. The sequencing results indicated a wide range of species diversity both within individuals and between them. Alpha diversity rarefaction calculations confirmed sequencing saturation in all samples. Results show a relative abundance of *Erwinia*, a genus that includes many plant pathogens. Preliminary analysis suggests a relationship specifically between the presence of sodium, coupled with nitrogen and phosphorus and the relative abundance of *Erwinia*, as well as other taxa. There also appear to be microbiome composition differences between species that are strict herbivores and those that are omnivorous. Our results indicate that both macro and micro nutrients affected the composition of the gut microbiome of these orthopterans and highlight the potential role of the orthopterans in the transmission of plant pathogens.

Changes in Herbaceous Plant Diversity in an Old-Growth Ohio Forest Before and After Emerald Ash Borer Invasion

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Taylor Melissa Buskey

ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The herbaceous layer of eastern North American deciduous forests is an important contributor to biodiversity in this region. One of the greatest threats to herbaceous plant diversity is the introduction of invasive species, which can suppress native species and alter local environmental conditions. *Agrilus planipennis* (emerald ash borer) is a non-native insect pest that has caused a mass death of ash trees (*Fraxinus* spp.) in North America since its introduction to the United States. The resultant changes in canopy structure may affect local conditions and thus have indirect impacts on herbaceous layer composition. Drew Woods State Nature Preserve is a 6-ha old-growth forest fragment in Darke County, Ohio that has recently experienced EAB-related ash mortality. Our goal was to understand how herbaceous layer diversity has been changing through time in response to this sitewide canopy disturbance. Annual surveys of herbaceous biodiversity were conducted across 32 1-m² sampling plots from 2012 to 2017. Species richness, total cover, Shannon Diversity, and species evenness were calculated for each plot by year, and beta diversity (Bray-Curtis Dissimilarity) was used to assess community turnover through time. Repeated measures ANOVA was used to test for significant changes over this period, and regression analyses were used to understand relationships between diversity and environmental variables (canopy cover, soil moisture, and distance to forest edge). Species richness and herbaceous cover tended to be higher in more recent sampling years. There was a temporally consistent north-south gradient where diversity tended to be greater toward the southern edge of the stand. These results suggest that EAB-induced ash mortality is increasing light availability via canopy gap formation, which is a driving factor of herbaceous diversity. The full impact of EAB is not yet clear, but will likely extend beyond ash mortality and have important indirect effects on other parts of forest ecosystems.

Possible pharmacologic glioma treatment in *Drosophila* model

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Luke Alan Bressler, Karishma Sanjay Gangwani, Catherine E Martini, Margarita Rosa Mendez, Isha Mishra, Kirti Snigdha, Jordan M Terschluse

ADVISORS Madhuri Kango-Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Glioma is a lethal brain cancer, and current treatment strategies have limited effects by extending life only by a few months. Thus, efforts should be made to discover better inhibitors of glioma growth. Ideally such inhibitors will suppress the progression of glioma by (a) inhibiting the underlying molecular pathways activated in glioma, or (b) prevent rapid proliferation of the glioma and other cells that encompass the glioma tumor. We have developed a glioma model by co-activating PI3K and Ras/MAPK specifically in the

Drosophila CNS glia. The *Drosophila* glioma cause the larval brain to appear enlarged due to rapid increase in the stem cells and their glial and neural progeny. These tumors cause the larvae to enter a prolonged larval phase, and eventually kill the organism. We are conducting a chemical screen using Tyrosine kinase inhibitors (Selleck Biochem.) in which we feed early third instar (72h old) larvae 10 or 300uM chemicals in DMSO and then see effects on glioma growth, and survival in mature third instar stage (120h old). Using these metrics, here we present data from our screen on B1-B11 of the library. Once we identify potential glioma inhibitors in the primary screens, we will validate them in secondary screens.

The role of oxygen in antibiotic resistance in *Listeria monocytogenes* and *Staphylococcus aureus*

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Emilee Kay Zoog

ADVISORS Yvonne Y Sun

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Antibiotic resistance in bacterial pathogens has been a growing concern in recent years as infections that were once easily treated are becoming bigger threats. In agriculture and healthcare, the importance of antibiotic stewardship has been emphasized in an effort to decrease the overuse of antibiotics. Development of novel antibiotics and improvement in current antibiotic testing protocols are two additional avenues being pursued to solve the issue. In this study, I tested the effects of hypoxia on the antibiotic susceptibility in two human pathogens, *Listeria monocytogenes* and five different strains of *Staphylococcus aureus* (USA 300, Romero, COL, Newman, and SH1000), using a standard disc diffusion assay. However, in addition to the standard aerobic incubation, anaerobic incubation was also performed to understand whether hypoxia affects antibiotic susceptibility in these pathogens. My results showed that susceptibility to rifampin, ciprofloxacin, chloramphenicol, and tetracycline increased in an anaerobic environment while susceptibility to erythromycin and bacitracin decreased in an anaerobic environment. *Listeria* was resistant to streptomycin and penicillin in both environments. Similarly, all five strains of *S. aureus* exhibited changes in antibiotic susceptibility during hypoxia. For example, the methicillin-resistant *S. aureus* strain USA300 became more susceptible to rifampin, ciprofloxacin, and penicillin in an anaerobic environment. These results suggest that oxygen levels play a key role in bacteria susceptibility to antibiotics. Therefore, we need to consider the effectiveness of antibiotics under relevant environmental conditions to help antibiotic usage become more efficient.

Understanding the Link between Sugar Diet and Alzheimer's Disease using *Drosophila* Eye Model

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Jordan Clay Dubbs, Neha Gogia, Ankita Sarkar, Ian Joseph Tobal

ADVISORS Amit Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Alzheimer's disease (AD), is a progressive neurodegenerative disorder and is the sixth leading cause of death in the United States (US), with no cure to date. It is caused by abnormal cleavage of amyloid precursor proteins (APP), generating amyloid-beta-42 (A β 42) plaques that trigger neuronal cell death by unknown mechanism(s). Neuroinflammation (body's response to repair, damage and defend against foreign agents) is another characteristic feature of this disease. According to US Department of Agriculture (2017), an average American consumes 94 g of sugar per day which is equivalent to amount of sugar in 2.4 cans of coke. The impact of this high amount of blood sugar can be very significant as breakdown of glucose in high-sugar diet damages the enzymes that regulate inflammation (in immune responses), resulting in mis-regulated neuroinflammation, strokes, and chemical imbalances, and thus may contribute towards AD. In our study, we want to elucidate the effect of both high and low sugar diet on Alzheimer's. To test our hypothesis, we have used *Drosophila melanogaster* (a.k.a. fruit fly), (as genetic machinery is conserved from flies to humans) and developed a fly model of AD, where human A β 42 peptides can be misexpressed in *Drosophila* eye using GAL4/UAS system. We placed flies expressing human A β 42 in eyes (along with the controls) on regular, low, and high sugar diet and checked the phenotypes in eye imaginal discs, adult flies and collected final death count. Wingless and a soy protein, Lunasin (anti-inflammatory in nature) were also studied to understand their role in progression of AD. Our study shows, that a high-sugar diet displays a more aggressive progression of AD as compared to a normal diet or a low-sugar diet. This research has significant bearings in understanding the potential link between AD and diabetes, as both are very prominent diseases in today's world.

The Role of Pyocyanin in the Protection of *Pseudomonas aeruginosa* from Singlet Oxygen

College of Arts and Sciences: Biology

Poster - Course Project, 201810 BIO 421 P1

PRESENTERS Celeste Claire Bergman, Edward T Eshoo, Grace Kathryn Goulet, Stacey Marie Lapurga

ADVISORS Yasuhiko Irie

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Pseudomonas aeruginosa is an opportunistic pathogen that causes both acute and chronic infections in immunocompromised individuals. *P. aeruginosa* is resistant to many antibiotics, and there is a critical need for novel antimicrobial strategies that are viable for clinical use. Photodynamic therapy (PDT) is currently undergoing clinical trials. PDT involves chemicals called photosensitizers that

when exposed to light, produce a highly reactive oxygen species 1O_2 . Singlet oxygen can non-specifically cause damage to all cellular structures of rapidly metabolizing organisms such as bacteria, while slower metabolizing host tissues are less affected. Furthermore, light can be restricted to only afflicted areas, thus limiting the damage to healthy tissues. 1O_2 is naturally produced during photosynthesis, and photosynthetic organisms produce pigmented compounds such as Beta-carotene that can absorb 1O_2 before damaging the cells. *P. aeruginosa* produces a blue pigmented compound pyocyanin when they grow in high density. In previous study, pyocyanin was discovered to be capable of binding 1O_2 . In this project, we hypothesize that *P. aeruginosa* pyocyanin can have a protective role against singlet oxygen. The data from this project can provide an important insight to possible resistant mechanisms against a novel antimicrobial therapy still in development. Understanding the resistance against PDT prior to clinical use can have a significant impact towards shaping how PDT is administered in clinical environments, so that resistant strains do not eliminate PDT as an option the way antibiotics have been eliminated by resistant strains.

Determining what environmental features affect waterbird diversity on the Great Miami River

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Hannah Marie Scharf

ADVISORS Jeffrey L Kavanaugh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The habitat of the Great Miami River is highly disturbed as it enters the city of Dayton, yet it still attracts many species of birds. These include Anseriformes, which are waterfowl, Charadriiformes, which contain shorebirds and gulls, Pelecaniformes, which contain herons, Suliformes which contain cormorants, and Podicipediformes, which are the grebes. This study seeks to determine which segments of the Great Miami River attract the most and the least numbers and species of waterbirds during the fall migration, and what environmental characteristics set these segments apart. To accomplish this, we divided a four mile segment of the Great Miami River into tenth of a mile intervals, spanning from the confluence of the Great Miami River with the Mad River downstream to the Tait Station low dam. For each interval we counted and identified every bird, in addition to recording environmental features of interest. After identifying the two best and the two worst intervals, we evaluated the habitat with the Qualitative Habitat Evaluation Index (QHEI) and plan to further investigate these areas with additional analyses. By identifying and characterizing these areas of the Great Miami River, sections of the river can be better managed to encourage greater species diversity and numbers of waterbirds.

Role of Relish/NFkB Apoptosis Pathway in Amyloid-beta 42 mediated neurodegeneration in Alzheimer's disease

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Steven Gerard Borchers, Neil William Glenn, Neha Gogia

ADVISORS Amit Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Alzheimer's disease (AD) is a neurodegenerative disease, which affects the mental functions of the patients. This disorder progresses with age and does not have a cure to-date. One of the reasons for the manifestation of AD is the accumulation of amyloid-beta-42 ($A\beta_{42}$) proteins. In our study, we have used *Drosophila* as our model organism (as 75% of the genetic machinery is conserved between flies and humans), and have developed a model where when human $A\beta_{42}$ is misexpressed in the differentiating eye, triggers cell death in the retinal neurons. We have also identified a soy-based anti-inflammatory protein, Lunasin, which can block $A\beta_{42}$ mediated cell death by downregulating the NFkB pathway (which lead to translation of apoptotic proteins of Jun-N Terminal Kinase (JNK) pathway). In order to discern the exact mechanism by which Lunasin prevents neuronal cell death (caused by the accumulation of $A\beta_{42}$ proteins), we have developed transgenic flies, which can produce human $A\beta_{42}$ and $A\beta_{42}$ +Lunasin in the *Drosophila* eye. Our hypothesis states that manipulating the Relish protein complex of the Imd-NFkB pathway could lead to activity variation in JNK pathway in $A\beta_{42}$ +Lunasin flies. To test our hypothesis, we used GAL4/UAS system genetic technique and misexpressed relish and relish RNAi in human $A\beta_{42}$, $A\beta_{42}$ +Lunasin background, and checked for the resultant phenotypes in (1) the larval eye imaginal discs and in (2) the adult eyes. Our data showed that downregulating Relish rescues neurodegenerative phenotypes seen in Alzheimer's flies. It suggests that the Imd-NFkB pathway plays a positive role in Lunasin's ability to mitigate the neuronal cell death caused by the accumulation of $A\beta_{42}$ plaques. These studies have significant bearing on the use of NFkB members as biomarkers or druggable targets and generate new insights into the mechanism by which $A\beta_{42}$ mediated neurodegeneration cell death can be blocked in the future.

Changes in a western Ohio old-growth forest community before and after invasion by emerald ash borer

College of Arts and Sciences: Biology

Stander Undergraduate Fellowship Awardee

Poster - Independent Research

PRESENTERS Julia I Chapman, Mitchell John Kukla, Corey Michael Kuminecz

ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The emerald ash borer (EAB; *Agrilus planipennis* fairmaire) is an invasive insect species in North America that has devastated *Fraxinus* (ash) populations in the Great Lakes region and northeastern U.S.. Many forests are losing a significant number of *Fraxinus* trees and the implications of this widespread disturbance is not yet clear. The aim of this study is to understand how EAB-related tree mortality is impacting compositional change in a west central Ohio old-growth forest. A set of 32 nested plots were established in Drew Woods State Nature Preserve in 2011 and used to sample the overstory layer (314 m²; stems \geq 2.5 cm diameter at breast height), sapling layer (10 m²; stems $<$ 2.5 cm dbh and $>$ 50 cm in height), and seedling layer (1 m²; stems $<$ 50 cm in height). These plots were resampled in 2017 to investigate the composition of tree species over seven years during which the majority of *Fraxinus* trees died from EAB infestation. In the overstory, basal area of live *Fraxinus* decreased from 151.4 m² ha⁻¹ in 2011 to 1.68 m² ha⁻¹ in 2017. The basal area of dead *Fraxinus* increased from 33.5 m² ha⁻¹ in 2011 and to 132.3 m² ha⁻¹ in 2017. Further analysis will investigate how the relative abundance and stem density of tree species other than *Fraxinus* have changed during this time period. These findings can provide insight into the future successional trajectory of forests that have been infested with emerald ash borer.

Beyond the Macro: exploring micronutrients in insect communities

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Kaitlin Marie Gawkins, Meg Elizabeth Gramza

ADVISORS Kathleen A Kargl, Chelse M Prather

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Macronutrients are widely considered to be an important limiting factor for insect herbivore populations in grassland ecosystems. However, a potential co-limitation by micronutrients has long been overlooked. We are studying the effect of soil micronutrients on herbivore community composition in coastal tallgrass prairies of Texas with a large-scale multi-nutrient, fertilization experiment manipulating Ca, K, and Na in concert with N and P. Initial results indicated that orthoptera abundance and diversity are co-limited by macronutrients and sodium. To determine if these effects arose through the herbivores feeding more heavily on plants with NP and Na added, we used in-lab choice trials with seven species of orthoptera from three feeding guilds with leaves from four plant species (2 grasses and 2 forbs) that were grown in treatments with either ambient soil nutrients or Na, NP, or Na plus NP added. We then determined how much each individual ate of each treatment leaf at the end of the 48 hour trial. With no preference and a choice of 4 leaves, each leaf should make up on average 25% of each individual's total consumption. We compared each individual's feeding to these expected amounts and used pairwise t-tests to determine whether preferences existed. Pooling across all individuals, orthopterans chose the NP+Na leaves significantly more than any other leaf type. This finding suggests that orthopterans respond directly to leaf chemistry changes arising from our treatments and have important implications for management practices: orthopterans are considered major pests to agricultural systems and are controlled with billions of dollars of pesticides annually. However, because NP and Na in soils are both enhanced with current agricultural practices, our findings suggest that humans could actually be causing these insect herbivores to thrive and become abundant in agricultural systems by adding these limiting nutrients.

Fear no weevil: insect communities as indicators of restoration in an urban prairie network

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Erin Butrica, Amanda N Finke

ADVISORS Kathleen A Kargl, Chelse M Prather

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Tallgrass prairies are one of North America's most threatened ecosystems, having been depleted to 4% of its original range. Because of this, conservationists have been working to protect the remaining prairies, as well as restoring and constructing new ones. However, studies are showing that these restored and constructed prairies may not support the same biodiversity and ecosystem services as natural prairies. Most of the biodiversity within these prairies is composed of arthropods. We determined how insect communities from remnant prairies (n=5) compare to that of constructed prairies (n=5) and old fields (n=4). At each site, we collected 4 samples of arthropods by sweepnetting 25 times each, pooling samples, and identifying all individuals to order. We also sampled plant and soil community characteristics. We saw that habitat type affected the number of Coleoptera (beetles), with more beetles in remnant prairies than restored or constructed prairies. Individuals from this order were identified to family, and we saw higher numbers of Phalacridae (shining flower beetles) and Curculionidae (weevils) in the remnant prairie sites. Because few studies look at organisms other than plants to determine success of restoration efforts, we see these beetles as potential indicator species that may help land managers in determining the success of prairie restorations.

Stimulating anaerobic respiration primes anaerobically grown *Listeria monocytogenes* for intracellular growth

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Nathan C Wallace

ADVISORS Yvonne Y Sun

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Listeria monocytogenes (*Listeria*) is a Gram positive facultative organism whose lifestyle ranges from a saprophyte to an enteric intracellular pathogen. *Listeria* is generally ingested from contaminated food products, and as it transmits through the gastrointestinal tract its environment becomes increasingly anoxic. Currently it is not clear how *Listeria* adaptations to the fluctuating oxygen levels contribute to its pathogenesis. Therefore, we set out to understand what role anaerobic respiration plays in *Listeria* pathogenesis. Previous work in our lab has shown that anaerobically cultured *Listeria* has decreased intracellular growth in a tissue culture infection model using RAW264.7 macrophages. We hypothesized that this may be due to anaerobically cultured *Listeria* taking longer to switch from fermentation to aerobic respiration. This hypothesis was supported by the observation that, compared to an aerobic inoculum, an anaerobic inoculum exhibited an extended lag phase during aerobic growth in vitro. Using a tetrazolium reduction assay, we confirmed that anaerobically cultured *Listeria* have decreased reducing power, indicating decreased electron transport chain (ETC) activity. To determine whether the reduced ETC activity under anaerobic conditions is an important factor in *Listeria* pathogenesis, we supplemented the cultures with fumarate as an alternative electron acceptor to stimulate ETC activity and measured listeriolysin O (LLO) production as well as intracellular growth. When we supplied exogenous fumarate to *Listeria*, we noticed an increase in the reducing power as well as LLO production in anaerobically grown *Listeria*, compared to no fumarate controls. Moreover, fumarate supplementation restored the intracellular growth of anaerobically grown *Listeria* to the same level of aerobically grown *Listeria* inside macrophages. These findings point to the crucial role of anaerobic respiration in *Listeria* anaerobic virulence regulation.

Cracking the Shell: An Investigation of Shell Repair in the Oyster, *Crassostrea virginica*

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Alyssa Ashley Outhwaite

ADVISORS Douglas C Hansen, Karolyn M Hansen

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Mollusc shell formation has been an intriguing phenomenon for decades and current research efforts represent a paradigm shift in how oyster shell formation occurs. The older model of shell formation suggests a lack of cellular components as transport vectors for organic and mineral components. However, current research focuses on the potential role of oyster blood cells, hemocytes, in moving organic and mineral components to the shell formation front. A protein biomarker, the amino acid L-3,4-dihydroxyphenylalanine (L-DOPA), is unique to the proteins involved in insoluble organic matrix formation. Tracking the location and temporal occurrence of L-DOPA-containing proteins reveals the potential role of cells in shell repair. Three notch-repair experiments were conducted: a short term 36-hour notch-repair study, a mid-term 7-day notch-repair study, and a long term 8-week notch-repair study. At discrete time intervals, selected oyster compartments of hemocytes, mantle tissues, hemolymph, and nascent shell were sampled to determine the spatial and temporal distributions of the DOPA biomarker. Preliminary results show an increase in DOPA concentration in hemolymph from 0 to 48 hours. Conversely, hemocytes show a decrease in DOPA over time, with the greatest amount of DOPA present at 0 hours and a subsequent decrease over the course of repair. Additionally, nascent shell was analyzed during the 8-week study through the use of scanning electron microscopy (SEM). Analysis of the shell surface showed haphazard crystal formation under normal mineral deposition with crystals irregular in size, shape, and general placement. Newly formed shell from a notched specimen at 48 and 96 hours after notching; however, is characterized by directional and more uniformly shaped crystals. Together these results suggest that hemocytes are selectively shuttling and releasing protein resources to areas of shell repair and provide additional support for the cellular mediated shell formation model, where hemocytes play an active role in materials transport.

Drosophila Melanogaster Imaginal Disc Model To Identify And Determine The Regeneration Potential Of Novel *Notophthalmus Viridescens* (Red-Spotted Newt) Genes.

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Amr Abdulkarim Alghamdi, Abijeet Singh Mehta

ADDITIONAL AUTHORS Luz-Madriral (Miami University), Panagiotis A. Tsonis

ADVISORS Amit Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Notophthalmus viridescens possess amazing capabilities to regenerate their organs but molecular-genetic mechanism driving regeneration have been hindered due to lack of genetic tools. However, *Drosophila* imaginal discs, the primordia for adult fly structures, exhibit stem cell like potency and serve as powerful genetic tools to address fundamental problems in regeneration. Using this system, we demonstrated the regenerative role of 5 novel newt proteins. These proteins, having new sequence motifs, have no counterparts in public databases, were identified by denovo assembly of newt transcriptome combined with proteomic validation. Using transgenic approach these genes were misexpressed in *Drosophila*, and RNA seq was performed on mRNA sample from third instar larva. Gene ontology terms related to development, apoptosis and cell cycle were highly enriched in the group of differentially regulated *Drosophila* transcripts. To determine their regenerative potential, we misexpressed candidate genes in the early eye mutant background. Surprisingly, these genes exhibit robust potential to replace missing tissues by inducing compensatory proliferation and blocking cell death. Mitotic index fold change being 6 ± 1.5 , and frequency of phenotype rescue was 70%. Using Retinal determination (RD) gene expression we demonstrated that rescued mutant undergo proper differentiation. We found highly conserved

Wingless/Wnt, and Jun-N-terminal kinase (JNK) signaling pathway components were downregulated to promote rescue in the domain where candidate genes were misexpressed. These pathways have been implicated in tissue regeneration in *Drosophila*. We further wanted to test if candidate genes can globally trigger regeneration in all tissues, and to address this question we used an established model for regeneration in wing imaginal disc. Our preliminary data from this model demonstrates that regeneration potential of candidate genes is not confined to the type of tissue or developmental stage. We therefore have identified a novel component of regeneration tool kit in newt that can trigger regeneration response in other organisms by employing highly conserved signaling pathways. In future, these studies can have a significant bearing in the field of tissue repair and maintenance. Keywords: Candidate genes, Newts, *Drosophila*, Regeneration, Imaginal Discs.

Growth Regulatory Pathway collaborates with Axial Patterning Genes to regulate Patterning and Growth in *Drosophila* Eye

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Neha Gogia

ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

In all the multicellular organisms, organogenesis requires axial patterning to determine Antero-Posterior (AP), Dorso-Ventral (DV), Proximo-Distal (PD) axes. Any deviation in these axes during development leads to congenital birth defects. In our model system, *Drosophila melanogaster* (a.k.a fruit fly), Dorso-Ventral (DV) patterning marks first lineage restriction event. We have identified defective proventriculus (*dve*), an ortholog of SATB homeobox 1 (special AT-rich sequence binding protein 1), as a new member of DV patterning genes hierarchy. We have shown that *dve* acts downstream of *pannier* (*pnr*, a GATA-1 transcription factor), and upstream of *wingless* (*wg*) in dorsal gene hierarchy. Loss-of-function (LOF) of *dve* or *pnr* results in dramatic dorsal eye enlargements, whereas Gain-of-function (GOF) of *dve*, *pnr* suppresses eye specific fate. We have demonstrated that *Wingless* (*Wg*), (1) is downstream target of Hippo growth regulatory pathway (highly conserved) in eye, (2) acts downstream of *dve*, (3) exhibits similar eye enlargement and suppression phenotypes (upon LOF, GOF respectively), and has been shown to play a role in growth. Here, we present that, DV patterning genes interacts with Hippo signaling to regulate their common downstream target, *Wg* during developing *Drosophila* eye. Our data (using GOF, LOF) states that (1) These two unrelated pathways are related and interacts antagonistically, (2) Activating Hippo signaling suppresses *dve*, *pnr* expressing cells, downregulates *Wg* and changes head, antennae specific fate to an eye, (3) Blocking cell death activity of *hpo* (using UAS-*p35*, anti-apoptotic) doesn't affect its ability to undergo differentiation, (4) Growth regulatory pathway regulates the expression of DV patterning genes (*dve*, *pnr* acts downstream of Hippo pathway), and that (5) GOF/LOF of *dve*, *pnr* does not affect the expression of Hippo downstream reporters *diap1* and expanded in developing eye of *Drosophila*. These studies present new genetic interaction between two unrelated pathways to regulate growth and patterning of an organ.

Two clone system to determine complex signaling between wild-type and A β 42 expressing neurons in Alzheimer's Disease.

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Sean T Connelly, Garrett Michael Grissim, Sean Andrew Kelly, Ankita Sarkar

ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Alzheimer's Disease (hereafter AD) is an irreversible neurodegenerative disease causing death of millions of elderly people every year. One of the reasons for AD is abnormal cleavage of the Amyloid precursor protein (APP), which forms a 42 amino acid long hydrophobic polypeptide (hereafter A β 42) which form aggregates leading to amyloid plaques. This A β 42 forms plaque that leads to neuronal cell death. We are trying to understand the genetic underpinnings behind the onset of this deadly disease using *Drosophila melanogaster* eye as our model system. We have generated and optimized a two-clone system in our lab to understand the cross-talk between the plaque forming neurons and the adjacent wild type neurons. The onset of AD initiates with a few neurons which start producing amyloid plaques, which then triggers cell death. One of the questions is: Which neuronal population is affected? Our system utilizes the FLP/FRT mediated recombination to produce two types of neuronal cell population where strong GFP reporter marks the A β 42 misexpressing neurons, and the neighboring wild-type neurons are marked by the absence of GFP. Our preliminary data suggests that the A β 42 misexpressing neurons survive at the expense of the neighboring wild type cells. Thus, we believe that there are certain signals, which emanates from these A β 42 plaque producing neurons towards the wild type neurons, which causes them to die. We have identified evolutionarily conserved Jun-N-Terminal Kinase (JNK) Signaling pathway as one of the genetic modifiers of A β 42 mediated neurodegeneration, which induces neuronal death. With the help of our two-clone system, we want to understand which neuronal cells (A β 42 misexpressed vs wild type cells) and how, the JNK signaling triggers cell death. We will test reporters and antibodies against the members of JNK signaling pathway to address our hypothesis. Furthermore, identifying the genetic biomarkers of the Alzheimer's disease with the help of our genetic tool can be utilized in finding therapeutic targets in the future.

Listeriolysin O production is regulated by SCFAs and oxygen in *Listeria monocytogenes*

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Erica Marie Rinehart**ADVISORS** Yvonne Y Sun**LOCATION, TIME** RecPlex Main Gym, 9:00-10:15

Listeria monocytogenes (LM) is foodborne pathogen that secretes listeriolysin O (LLO), a pore-forming toxin to establish its intracellular life cycle inside host cells. However, how the environment in the intestine that has both an oxygen gradient (low oxygen to no oxygen) and is enriched in short chain fatty acids (SCFAs) effects LM virulence regulation and pathogenesis has not been determined. To better understand LLO production in response to relevant environmental conditions found during LM transit through the intestinal lumen, a reporter strain and hemolytic assays were used to examine the effect of SCFAs on the transcription and the activity of LLO, respectively. We characterized the LM membrane fatty acid composition in response to SCFAs using FAME analysis. This allowed us to examine the role of membranes as an intermediate signal in LM response to SCFAs. In total, we found that that transcription and LLO production was significantly affected by SCFAs and that LM response to SCFAs was influenced by oxygen. Significant alterations in membrane fatty acids were also seen in SCFA-treated LM. Therefore, LM has the capability of responding to the SCFA-rich environment, in both virulence gene regulation and fatty acid metabolism, during intestinal transit and that individual variations in SCFA abundance may contribute to susceptibility to LM infections.

The FUN(gi) Kind of Colonization: effects of micronutrients on mycorrhizal association with little blue stem

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Kiersten Paige Angelos, Beth Margaret Fuchs, Kaitlin Marie Gawkins, Shania E Hurst, Emily E Jones, Ryan William Reihart**ADVISORS** Kathleen A Kargl, Chelse M Prather, Megan A Rua (Wright State University)**LOCATION, TIME** RecPlex Main Gym, 9:00-10:15

Arbuscular mycorrhizal (AM) fungi are ubiquitous throughout the plant kingdom, and particularly important in grasslands. AM fungi deliver mineral nutrients such as nitrogen (N) and phosphorus (P) to plants in exchange for carbohydrates. Despite this important role in N and P cycling, their interactions with micronutrients, like calcium, are largely unexplored. Interactions with calcium (Ca) may be particularly important because of its role in the intracellular signaling system that helps hyphal tip growth. We determined how additions of Ca both alone and in conjunction with N and P affect the colonization rates of AM fungi in little blue stem (*Schizachyrium scoparium*). This perennial grass is a dominant graminoid in prairies across the US, including our study site, a coastal tallgrass prairie in Texas. Using a carbon steel soil auger (7.2cm diameter), we sampled *S. scoparium* roots in a large-scale (30m x 30m plots), factorial-designed fertilization experiment that manipulated Ca and N&P (n=8 replicate plots x 4 *S. scoparium* individuals x 4 treatments=128 total root samples). Each sample was washed to isolate root samples and stained with trypan blue, and we determined AM fungal colonization by quantifying the number of arbuscules, hyphae, and vesicles for each individual. We saw that Ca with N&P had significant effects on the overall rate of AM fungal colonization. We also saw independent effects of each nutrient on the degree of hyphal and vesicle colonization in the roots of *S. scoparium*. Taken together, these results suggest that AM fungi may benefit from Ca inputs, but this does not extend to an increased positive effect on the plant. Better understanding its role in belowground and aboveground processes is crucial to maintaining ecosystem functioning. This work represents an important first step to understand more fully the effects of micronutrients on mycorrhizal fungi in terrestrial ecosystems.

Role of M1BP in eye development of *Drosophila melanogaster*

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Hannah Corinne Gordon, Abijeet Singh Mehta, Ankita Sarkar, Kaitlyn E Strickland**ADVISORS** Madhuri Kango-Singh, Amit Singh**LOCATION, TIME** RecPlex Main Gym, 9:00-10:15

Regulation of transcription in multi-cellular organisms is responsible for generating diversity in cell type and final patterning and growth of an organ. The regulation of gene expression can be present at multiple levels like assembling pre-initiation complex at promoters or regulation of gene expression by micro RNA. Recently, a novel transcription factor M1BP (TF; Motif 1 binding protein) has been identified which is required to regulate a large class of paused genes. However, the role of the Motif 1 binding protein is unknown in the eye development. We employed *Drosophila melanogaster* eye model to understand its role in patterning, growth and development. M1BP is highly conserved across the species and encodes a 55kDa protein containing five C2H2 zinc-fingers domains. A battery of highly conserved genes regulates *Drosophila* eye development. In our studies, we examine the effects of Motif 1 Binding Protein (M1BP), and its effects on the control of gene expression during eye development of the *Drosophila melanogaster*. Our preliminary data suggests 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 entire eye gives us a head loss phenotype. We also hypothesize that the loss of function of M1BP leads to the change of the fate of peripodial epithelium cells to disc proper in the eye imaginal disc. The above data will be presented in our poster.

Understanding how the loss of Dronc function affects apoptosis

College of Arts and Sciences: Biology

Poster - Course Project, 201810 BIO 421 P1

PRESENTERS Karishma Sanjay Gangwani, Hannah Marie Scharf, Kirti Snigdha

ADVISORS Madhuri Kango-Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Cancer is caused by mutations in cells that disrupt signals for growth and division. Apoptosis, a system of programmed cell death, is controlled by genes and impacts cell survival, proliferation, and differentiation. Dysregulation of apoptosis is a significant cause of cancer, as mutated tumor cells show uncontrolled growth and elude cell death. Because of this, it is crucial to study how the genes involved in cell growth and death pathways become dysregulated in a way that causes tumor creation, so that cancer biology can be better understood and possible therapeutic measures can be pursued. One pathway commonly dysregulated in human tumors, the Hippo pathway, was identified in *Drosophila melanogaster* and is conserved evolutionarily in humans. Former research in our lab has shown that the Hippo pathway interacts with initiator caspase Dronc, which is the first target gene to be negatively regulated by this pathway, in the regulation of apoptosis. We hypothesize that loss of Dronc function would enable unchecked cell proliferation. To assess this, we are using RNAi to interfere with Dronc expression. We will also use markers like cyclin A, B, and E to evaluate cell proliferation through immunostaining and confocal microscopy. Here we present our findings on the how the loss of Dronc affects cell proliferation.

Post-Freeze Viability of Erythrocytes from *D. chrysoscelis*

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Loren Vanessa Geiss

ADVISORS Carissa M Krane, Clara do Amaral, James Frisbie, David Goldstein

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Cope's gray treefrog, *Dryophytes chrysoscelis*, is a freeze tolerant frog that survives the freezing of extracellular fluids during winter. Throughout the fall months the frogs are exposed to a gradual decrease in temperature, becoming cold-acclimated. Cold-acclimated treefrogs have elevated plasma levels of glycerol and urea, solutes that function as cryoprotectants by reducing the intra- and extracellular flux of water during freezing and thawing. To minimize cell damage, glycerol and urea need to be taken up by erythrocytes through a transmembrane protein, aquaglyceroporin HC-3. It is hypothesized that erythrocytes frozen in solution containing glycerol/urea would have greater post-freeze (PF) viability than cells frozen without glycerol or urea. It is further hypothesized that cells frozen with naturally accumulating, and HC-3 permeating, solutes (glycerol and urea) would have enhanced PF viability compared to cells frozen with solutes that do not accumulate during cold acclimation (glucose, NaCl, sorbitol). In this study, erythrocytes were obtained from warm-acclimated (22°C) or cold-acclimated (4°C) frogs. Cells were suspended in phosphate buffered saline (PBS) ± solute and incubated for 30 minutes at -8°C. Percent hemolysis was calculated as the amount of hemoglobin leaked from erythrocytes over the total amount hemoglobin in the erythrocyte sample. PF viability was 2.6-fold greater in cells from cold-acclimated frogs compared to cells from warm-acclimated frogs. Cells from warm- and cold-acclimated frogs enhanced PF viability when frozen in PBS containing urea (2.8-fold, $p < 0.005$ and 0.6-fold, $p < 0.001$, respectively). PF viability of cells frozen in PBS containing glycerol improved when cells were from cold-acclimated frogs (0.6-fold, $p < 0.005$). Although results support the involvement of glycerol and urea in the cryoprotection of *D. chrysoscelis*, enhanced viability of cells from cold-acclimated frogs, compared to cells from warm-acclimated frogs, suggest that changes other than glycerol and urea accumulation are involved in the freeze tolerance of *D. chrysoscelis*.

Understanding the Repopulation of Glioblastoma in *Drosophila* Model System

College of Arts and Sciences: Biology

Stander Undergraduate Fellowship Awardee

Poster - Honors Thesis

PRESENTERS Leah Dawn Bullock

ADVISORS Madhuri Kango-Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Glioblastoma Multiforme (GBM) is the most common form of malignant brain tumors, accounting for about 52% of primary brain tumors. Patients diagnosed with GBM typically die within a few months after diagnosis. Standard treatment consists of surgery, radiation therapy, and chemotherapy. GBM has an unfavorable diagnosis due to the high rates of tumor recurrence. The cause of the repopulation of the tumor after treatment is currently unknown; therefore, there is a need to study the repopulation of GBM in more detail. We have created a simple glioma model in *Drosophila melanogaster* to study the effects of treatment on tumor size and repopulation of the tumor. We have created the glioma model by suppressing Pten while overexpressing oncogene Ras in glial cells in order to induce a tumor. Flies with genotype UAS^{Pten} RNAi; UAS^{Ras}V12; Repo Gal4 UASGFP developed aggressive brain tumors and failed to survive to the adult stage. 1st instar larvae of this genotype were exposed to different dosages of X-ray radiation to study the radiation sensitivity of glioma larvae. We utilized 3.5 Gy of radiation to carry out further experiments. We found there is a significant reduction in tumor size in the larvae exposed to X-ray compared to the unexposed samples; however, there is still repopulation of the tumor after X-ray exposure. Through the use of immunohistochemistry, we found that there is significant reduction

in Glial cells, neuroblasts, and neurons after X-ray exposure. We plan to further our study by looking into the effects of radiation on the ganglion mother cells and dying cells of the brain. Since the pathways in this study are conserved from flies to mammals, these findings can be utilized in other model systems and in humans. These findings have the potential to lead to possible treatments for glioblastoma tumors in humans.

Investigating Cell-Cell Interactions through Wg and Yki signaling in Drosophila Glioma

College of Arts and Sciences: Biology
Stander Undergraduate Fellowship Awardee
 Poster - Honors Thesis

PRESENTERS Logan Joseph Roebke

ADVISORS Madhuri Kango-Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Glioblastoma multiforme (GBM) is a devastating form of primary brain cancer with poor prognosis. Capitalizing on the mutations found in GBM patients and the similarities between mammalian and Drosophila genes involved in glial cell biology, Drosophila glioblastoma models have been established that show similarities to anaplastic glia from high-grade human glioma. High grade glioma is known to be recurrent and therapy resistant. These aspects of GBM lead us to ask how different genetic signals (JNK, Wg and Yki) contribute to promoting glioma, and if interactions between glioma cells and the neighboring stromal cells play a role in the key aspects of disease presentation- the rapid growth, the therapy resistance, and the recurrent phenotype. So far, we have downregulated Wg and Yki to analyze their effects on glioma growth. Here we present our progress from these studies.

Wingless, a mediator of crosstalk between Amyloid-beta 42 expressing and wild-type neurons in Alzheimer's disease

College of Arts and Sciences: Biology
 Poster - Graduate Research

PRESENTERS Ankita Sarkar

ADDITIONAL AUTHORS Dr. Julia Kofler (University of Pittsburgh Medical Center)

ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Alzheimer's disease (AD), a common form of dementia and an age related progressive neurodegenerative disorder, manifests as memory loss and reduced cognitive ability. One of the hallmarks of AD is formation of the Amyloid-beta 42 (hereafter A β 42) plaques, which triggers oxidative stress due to aberrant signaling and finally results in the death of neurons. However, the exact mechanism causing cell death is still not well understood. We misexpressed high levels of human A β 42 protein in the developing fly retina, which mimics AD like neuropathology. In a forward genetic screen, we identified members of highly conserved Wingless (Wg) signaling pathway as modifiers of the A β 42 mediated neurodegeneration. Misexpression of negative regulator of Wg like Shaggy kinase (sgg) or a dominant negative form of Drosophila T-cell factor (dTCFDN5) or blocking Wg transport specifically by downregulating Porcupine (using porcupineRNAi) rescued A β 42 mediated neurodegeneration by reducing the number of dying cells and restoring the axonal targeting from the retina to the brain. It is also known that Wg induces cell death in the early eye developmental stage of Drosophila. We therefore want to understand by what mechanism and in which cells the Wg signaling is triggering cell death, whether it's the A β 42 misexpressing cells or the neighboring wild type cells. In order to approach this question we have developed a two clone system in our lab to understand the crosstalk between the two cell populations, where we have shown that the wild type neighboring cells are undergoing cell death compared to the A β 42 misexpressed cells.

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

PRESENTERS Neha Gogia, Lydia Christine Payton, Ankita Sarkar

ADVISORS Amit Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Alzheimer's disease (AD) is a progressive neurodegenerative disorder that affects the cognitive function and memory of those affected. It results from plaques formed by the abnormal cleavage of the Amyloid Precursor Protein (APP), which result in the formation of a 42 amino acid polypeptide, also known as amyloid beta 42 (A β 42). Accumulation of these hydrophobic A β 42 plaques triggers neuronal cell death in the central nervous system. However, the reason for this abnormal cell death still remains unknown. A possible explanation involves the role of mitochondrial dysfunction, as mitochondria carry out many vital cellular functions in a cell, including ATP production, reactive oxygen species production, and apoptosis. This study uses Drosophila melanogaster - the fruit fly - as the model organism, as 75% of the genetic machinery is conserved between flies and humans and much of the information generated using this model can be extrapolated to humans. This study uses an AD fly model in which human A β 42 peptides can be misexpressed in the Drosophila eye using the GAL4/UAS system. In our study, we have identified (1) alpha-ketoglutarate dehydrogenase and (2) pyruvate dehydrogenase as potential enzymatic modifiers of the human A β 42 neurodegeneration. To investigate their effect on Alzheimer's, we used the GAL4/UAS system, and misexpressed the GOF/LOF forms of the genes coding these enzymes

along with human A β 42 in the fly eye and checked the resultant phenotypes in both larval eye antennal imaginal discs and in adults. Our results showed partial rescue in the LOF of alpha-ketoglutarate dehydrogenase, which clearly indicates that the enzyme plays a major role in AD progression. In the future, we will test the GOF of both enzymatic modifiers in further experiments. This study has significant bearings on understanding how certain enzymatic mitochondrial machinery and metabolism affects AD progression.

Role of Calcium Signaling Pathway in Rescuing A β 42 Neurodegeneration in *Drosophila*

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Neha Gogia, Chris Y Kang, Dena M Schaeffer

ADVISORS Amit Singh

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Alzheimer's Disease (AD) is a neurodegenerative disease, common in more than five million individuals in the United States (US) alone, making it the sixth leading cause of death in the US. While currently there are no cures for the disease, there are many ongoing studies, which are using the *Drosophila melanogaster* model, to find a way to prevent and slow down AD. We have used *Drosophila* as our model organism; *Drosophila* eye as our model organ (due to highly conserved genetic machinery between flies and humans). We have developed a transgenic fly model of AD where we misexpress high levels of human A β 42 peptides using GAL4/UAS system approach, using this system, misexpression is targeted in the differentiating photoreceptor neurons in the *Drosophila* eye and can be explained to address questions pertaining to whether activating or deactivating certain pathways can rescue A β 42 mediated neurodegeneration. We have found that members of calcium signaling pathway acts as the modifier of A β 42 mediated neurodegeneration. In order to test our hypothesis, we misexpressed the loss-of-function form (using RNAi) of six components of calcium signaling pathway (which are stimRNAi, sercaRNAi, ora1RNAi, inx2RNAi, ip3rRNAi, and plc 21cRNAi) in A β 42 background in the eye, and observed the effects in both eye-antennal imaginal discs and adult eyes. Our results showed 100% eye rescue with all 6 components of calcium signaling pathway at 29C, which clearly states that inactivation of calcium signaling pathway blocks A β 42 mediated neurodegeneration. Previous studies on calcium signaling pathway showed a role in deadly diseases like cancer and other fatal diseases. Our studies show a new role of calcium signaling in neurodegeneration disorder like AD.

Aquatic macroinvertebrate density in headwater streams with varying intensities of riparian Amur honeysuckle (*Lonicera maackii*) invasion

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Jenea Imani Adams, Eric Bradley Borth, Taylor Melissa Buskey, Julia I Chapman, Kevin Custer, Mitchell John Kukla, Corey Michael Kuminecz, Michelle Nicole Little, Sean David Mahoney, Meg Eileen Maloney, Joseph Michael Murphy, Taylor Marie Sparbanie

ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Headwater streams in the midwestern United States are an important ecosystem because they are home to key macroinvertebrate species and serve as the starting point for freshwater river systems. According to the river continuum concept, any terrestrial inputs to headwater streams can influence biotic communities and abiotic conditions downstream. Amur honeysuckle (*Lonicera maackii*) is an invasive shrub species prominent in the midwestern U.S. whose allelopathic properties have proven detrimental to local species biodiversity. We hypothesized that increasing Amur honeysuckle density along headwater streams would alter the diversity of aquatic macroinvertebrate communities. Five sites located in Montgomery and Miami Counties, Ohio were chosen to represent varying *Lonicera maackii* density along the banks of headwater streams: one heavily invaded site, two moderately invaded sites, and two reference sites (little to no invasion). A 30-meter section of stream at each site was divided into five plots that were six-meters long and were used to sample aquatic macroinvertebrates for five consecutive seasons. A dip net was moved across each plot for 60 seconds, and macroinvertebrates were then separated from the collected debris, preserved in alcohol, and brought back to the lab where they were sorted into taxonomic groups. The total number of macroinvertebrates collected did not vary greatly among sites within each season. A preliminary assessment of community composition showed that there was a greater relative abundance of Diptera and Oligochaeta at the heavily-invaded site in fall and winter compared to the moderate and reference sites. The relative abundance of Trichoptera was lower at the heavy site than the moderate and reference sites in fall, spring, and summer. Further analyses are required to understand how community composition varies among the sites and how such differences relate to honey-suckle invasion and macroinvertebrate feeding mechanisms.

Drivers of Post-Fire Regeneration in Larch Forests of Northeastern Siberia

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Eric Bradley Borth

ADVISORS Ryan W McEwan

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The Arctic is warming at an alarming rate, a phenomenon which has been causing more frequent and severe wildfires in boreal forests. The Cajander larch (*Larix cajanderi*) forests of Siberia are particularly important because they cover an immense area of

carbon-rich permafrost soil, one of the largest terrestrial carbon sinks. The fate of this belowground carbon is intimately tied to the structure of these larch forests. Due to the fact that forest structure is largely determined by the establishment of new seedlings after forest fires, we seek to learn more about how these changes in fire regimes may change the factors that drive seedling establishment. We examine 6 Cajander larch stands in northeastern Siberia that have been burned in the past 15 years. We evaluate the importance of microsites that favor larch establishment (deemed "safe sites"), a concept that has been anecdotally recorded, but not rigorously studied. We analyze the strength of seedling preference by comparing the percentage of seedlings that establish on safe sites to the percentage of the land area that is covered by safe sites. This analysis is being carried out in burned sites with varying seed availability to determine whether seed limitation affects safe site preference. Based on our current data, we hypothesize that seed availability will be the most important driver of regeneration, and that safe sites will be more important where there is greater seed limitation. These results will help us understand the patterns of change in larch forests in the face of climate change.

The queen craves calcium: micronutrient effects on litter arthropods in a coastal tallgrass prairie

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Kiersten Paige Angelos, Jesse Chapman Alexander Chapman, Kaitlin Marie Gawkins, Shania E Hurst, Ryan William Reihart

ADVISORS Kathleen A Kargl, Chelse M Prather

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The biogeochemistry of earth is being redistributed through various anthropogenic activities; however, the consequences of these alterations on high trophic levels remains unknown. Along the coast, for example, marine-derived nutrients are being deposited by large tropical storms, which may be increasing in intensity and frequency with climate change. These storms have the potential to deposit large amounts of micronutrients, which are less abundant in living tissue, and could affect the abundance and diversity of litter arthropods. Despite understanding how macronutrients (nitrogen and phosphorus) affect litter arthropods, the effect of micronutrients (calcium, sodium, and potassium) remains unknown. To determine how biogeochemistry affects litter arthropods, we utilized a factorial, fertilization experiment that manipulates macro- and micronutrients (N&P, Ca, K, and Na; all possible combinations: 16 treatments x 8 replicates = 128 plots) in large 30 m x 30 m plots at the University of Houston Coastal Center near Houston, TX. Pitfall traps were installed in May and July 2017 to collect litter arthropods, which were sorted and identified to the lowest possible taxon. Results show that *Nylanderia fulva*, an invasive crazy ant, was the dominant litter arthropod across all treatments, as this ant composed >95% of the entire litter community. Additionally, predatory arthropods were limited by Ca, but were suppressed by the combination of Na and K. Arthropod prey in this ecosystem were most abundant in the combination of macronutrient (N&P) and Na treatments, indicating that prey are co-limited by macronutrients and Na. These results indicate that different trophic levels, predators and prey, can be limited by different nutrients within the same ecosystem, while also giving insight as to what makes an invasive species so successful.

Invasional meltdown on the Texas coast? Positive interactions between an invasive plant, an invasive ant, and a non-native moth on the endangered coastal tallgrass prairie

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Emily E Jones, Emma Quill Kaufman

ADVISORS Kathleen A Kargl, Chelse M Prather

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Positive interactions between invasive species may facilitate and amplify the invasive success of each interacting partner, leading to "invasional meltdowns." Coastal tallgrass prairies, imperiled ecosystems along the Gulf Coast, are currently under threat by non-native species from multiple trophic levels: the Chinese tallow tree (*Triadica sebifera* L.), the omnivorous tawny crazy ant (*Nylanderia fulva* Mayr), and most recently, an adventive, hypermetamorphic, herbivorous moth (*Caloptilia triadicae* Hodges). Previous research demonstrated that invasive Chinese tallow induces extrafloral nectar (EFN) in response to specific, chewing herbivores, and tawny crazy ants have been observed consuming tallow EFN on the prairie. However, the nature of interactions between these three species is currently unknown, and studies of tri-trophic interactions between spatially-associated, non-coevolved invasive species are underrepresented in the ecological literature. We hypothesize that invasive Chinese tallow, when attacked by the non-native moth, confers a nutritive resource to the ecologically dominant invasive ant. To determine the nature of the interactions between these species, we will experimentally manipulate EFN induction in potted Chinese tallow saplings using various levels of *Caloptilia* infestation, conduct complementary laboratory feeding trials with the ants, and measure the effect of ant exclusion on *Caloptilia* parasitism and predation on field-grown tallow trees.

Prairie designers: *Cambarus diogenes* as an ecosystem engineer in a coastal tall grass prairie

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Emily Katherine Brady, Shania E Hurst, Ryan William Reihart

ADVISORS Kathleen A Kargl, Chelse M Prather

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

In a coastal tallgrass prairie, fatclaw crayfish (*Cambarus diogenes*) are an abundant, but little studied species. They burrow from the water table to the surface, carving chambers where groups of crayfish live, and assembling a soil "chimney" that they use to access the prairie. It is unknown how these crayfish that move vast amounts of soil may be affecting prairie ecosystem processes, or if soil nutrients affect where chimneys are found. Little is also known about the diet of the fat claw crayfish or their trophic placement in a prairie food web. We determined how nutrients affect the abundance of chimneys by counting the number of chimneys in a large fertilization experiment that manipulated (N&P, Ca, K, and Na). Conversely, we also determined if crayfish affect soil characteristics by measuring total soil moisture and bulk density, total nutrient concentrations, and nutrient availability from chimneys and soils at an increasing distance away from chimneys. Using our estimates of chimney abundances, we also determined how much soil crayfish move, and how they affected soil nutrient pools and availability. Additionally, we collected crayfish claws and used stable isotopes to determine the placement of this species in the prairie food web. The abundance of crayfish was affected by soil nutrients. Plots containing a combination of N&P and Ca tended to have a higher abundance. Conversely, crayfish chimneys also affected soil characteristics: the soils from chimneys were very high in available sulfur compared to soils away from chimneys. A total of 245.76 g/m² of clayey soil was likely brought up from anaerobic conditions where sulfur-reducing bacteria are present. Available potassium was lower at the base of the chimney, and got progressively higher the further you moved from the chimney. Because *Cambarus diogenes* significantly affected available soil nutrients, they likely play an important role in structuring plant communities and nutrient cycling in these rare prairies. As ecosystem engineers, their presence may be important in coastal prairie restoration and conservation. The cycling of nutrients cause by the crayfish building chimneys could manipulating what plants are able to grow in the ecosystem, and some plants need specific nutrients to be successful. Crayfish could be the key to helping preserve the fading prairie ecosystem.

Inhibition and Prevention of Biofilm Growth: The Effect of a Cationic and Novel Zinc Porphyrin on *Pseudomonas aeruginosa* Biofilm Formation on Different Substrata

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS David Anthony Rivetti

ADVISORS Nehaben Patel, Jayne Robinson, Karolyn Hansen

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

A biofilm is a group of microbes that are found in hydrated matrices of cells and contain polysaccharides, extracellular DNA, and proteins. Bacteria growing in biofilms are often resistant to antimicrobial treatments and are able to go undetected by the immune system of their host if located within a host organism. Microorganisms that form biofilms have the potential to colonize all higher organisms and contaminate biomedical implants, leading to further complications. As a result of their physical and chemical properties, biofilms are difficult to break down and separate from their surfaces. With the increasing problem of antibiotic resistance, there is a need to further consider different treatment options to combat biofilm growth. Cationic porphyrins have the capacity to cause DNA damage in a biofilm by intercalating between the base pairs of a DNA sequence, resulting in the breakage of the strand. Certain porphyrins can be used in the absence of light, while others require photoactivation in order to achieve their optimal effects. In order to further develop a comprehensive treatment method and identify other uses for the porphyrins, additional substrata must be tested in order to determine if porphyrins can be utilized as a viable treatment option. The substrata considered include metal (stainless steel, a biomedical implant material), polyethylene (kidney dialysis tubing material), oyster shell (an easily fouled environmental surface), and glass. TMP, or 5,10,15,20-tetrakis (1-methyl-pyridino)-21H,23H-porphine, tetra-p-tosylate salt, and a novel zinc porphyrin were introduced to the *Pseudomonas aeruginosa* biofilms on the various substrata to test for efficacy in disruption of a formed biofilm as well as inhibition of biofilm growth on the substrata. In both cases, a reduction in biofilm growth was observed following viable plate counts and confocal image analysis.

Investigating the interaction of inflammatory pathways in tumor microenvironment using *Drosophila* cancer models

College of Arts and Sciences: Biology

Oral Presentation - Graduate Research

PRESENTERS Kirti Snigdha

ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME Kennedy Union 211, 10:30-10:50

Tumor microenvironment (TME) consists of the tumor cells and the surrounding normal cells and plays a critical role in tumor survival and progression. Previous studies have shown presence of inflammatory components in the TME but role of these components on tumor progression is not well understood. The core inflammatory pathways that produce these components are conserved in *Drosophila*. Since 90% of tumors are epithelial in origin, we used the wing imaginal disc of *Drosophila melanogaster* to study the interaction of these key inflammatory pathways in the TME. To model the TME, we created FLP-out clones of co-activated oncogenic forms of Yki or RasV12 in polarity deficient cells marked by GFP surrounded by normal cells. These mosaic clones allow us to test changes in intercellular and signaling interactions within the tumor, surrounding its microenvironment and in distant normal cells. This clonal system recapitulates the clonal origins of human cancer and provides a distinct advantage in analyzing intratumoral and

other interactions that affect tumor growth. Using immunohistochemistry, we studied the activity of TLR, TNF and JNK pathway. TLR component, Cactus and activated form of JNK, p-JNK were induced in the tumor cells whereas Drosophila TNF ligand, Eiger was upregulated in the surrounding normal cells. We hypothesized that a crosstalk between these key pathways in the TME promotes tumor survival and progression. So we decided to study the genetic epistasis interaction between JNK and TNF pathways to assess the requirement and roles of these signals in the TME. Our preliminary data suggest specific and significant roles for the TNF and JNK pathways. We are currently testing if TLR, TNF and JNK pathway genetically regulate each other or independently affect the TME and growth of tumors. Our research will help unravel the correlation between inflammatory pathways and tumor progression in an in vivo model.

Increasing taxonomic and functional diversity are linked with temporal stability of aboveground biomass and coarse woody productivity in a subtropical Taiwan forest

College of Arts and Sciences: Biology

Oral Presentation - Graduate Research

PRESENTERS Julia I Chapman

ADDITIONAL AUTHORS Jyh-Min Chiang

ADVISORS Ryan W McEwan

LOCATION, TIME Kennedy Union 211, 11:00-11:20

The ability of an ecosystem to withstand perturbation without a major change in its function, also known as ecosystem stability, is hypothesized to increase with biodiversity. High levels of diversity can buffer an ecosystem against the impacts of species loss because the remaining species can compensate for any loss of function. We examined the relationship between both taxonomic and functional diversity and the stability of forest carbon storage (woody biomass production), which is an important ecosystem function due to its potential role in mitigating anthropogenic climate change. In a subtropical broadleaved forest in Taiwan, all woody stems were tagged, identified to species, and measured (diameter) across 625 quadrats in 2004, 2009, and 2014. Ecosystem stability was calculated as the coefficient of variation in aboveground biomass (CV AGB) and the change in coarse woody productivity (delta CWP). We tested for correlations between these stability metrics and species richness, Shannon diversity, functional richness, and function dispersion. Overall, we found that Shannon diversity and functional dispersion were more strongly correlated with ecosystem stability than richness metrics. The amount of woody biomass and its rate of production were more consistent through time in quadrats with higher Shannon diversity and functional dispersion, which suggests that the evenness, or relative abundance, of species and their functional traits is an important contributor to ecosystem stability along with the sheer number of species or trait types present. We also found that some soil characteristics, such as pH and nutrient availability, were linked with stability in a way that suggests resource-rich environments tend to be less stable in woody biomass production through time. These patterns are consistent with the diversity-stability hypothesis and indicate that soil conditions are an important factor, but further analyses are needed to understand how topography and typhoon disturbance may also interact with ecosystem stability.

The impact of the non-native invasive shrub *Lonicera maackii* on sensitive salamander populations in headwater streams

College of Arts and Sciences: Biology

Oral Presentation - Honors Thesis

PRESENTERS Meg Eileen Maloney

ADVISORS Ryan W McEwan

LOCATION, TIME Kennedy Union 311, 11:00-11:20

Lonicera maackii has dramatically shifted ecosystems across much of the Midwestern USA and has been linked to alterations in riparian zones along headwater streams. The foliage from *L.maackii* releases water-soluble photochemicals into the ecosystem that have adverse effects on insects, herbivores, and plants. Previous research has demonstrated that *L.maackii* has negative impact on the growth of several amphibian species; however, little is known about the impact on stream salamanders, which are most common in headwater streams. While qualitative assessments of stream salamanders are a common practice, estimation of population density remains a methodological challenge. Our research goals were to (1) invent a prototype device for quantification of salamander abundance in streams, (2) validate this prototype through field trials across seasons and habitat types, and (3) implement the developed technology to further understanding of salamander presence and abundance along an invasion gradient of *L. maackii*. We developed a new artificial habitat for sampling salamanders that allows for density calculations. Field trials revealed that this method was superior for estimating salamanders than other methods including the standard Visual Encounter Survey (VES) and allows for estimation of population density. This invention was used to assess stream salamander abundance and richness along a gradient of *L.maackii* invasion.

Investigating the synaptogenic effects of the rapid-acting drug ketamine in the female mouse hippocampus

College of Arts and Sciences: Biology

Oral Presentation - Independent Research

PRESENTERS Emily Margaret Flaherty, Joey Edward Saurine, Connor F Thelen

ADVISORS Pothitos Pitychoutis

LOCATION, TIME Kennedy Union 311, 12:30-12:50

Major depressive disorder (MDD) is a debilitating neuropsychiatric disease and affects more than 350 million individuals worldwide. A phenotypic characteristic of MDD, the atrophy of dendritic spines, most often presents itself in brain regions implicated in stress response (e.g. prefrontal cortex and hippocampus). Directly combating these neural deficits, the rapid-acting antidepressant drug ketamine has been shown to induce its therapeutic effects by enhancing synaptogenesis and increases in dendritic spine density in the male rodent brain. Although the antidepressant efficacy of ketamine has been validated, the majority of research has been conducted almost exclusively in males. Published and preliminary data from our group and others suggest that female mice are behaviorally more reactive to the antidepressant-like effects of ketamine; however, the mechanisms responsible for the female sensitivity to ketamine are still not characterized. In the context of a Stander Undergraduate Fellowship a modified Golgi-Cox neurohistological staining technique was used to evaluate the temporal synaptogenic effects of a single dose of ketamine in the cornu ammonis 1 (CA1), CA3 and dentate gyrus (DG) hippocampal subfields of male and female mice. Overall, we found that single dose of ketamine (10 mg/kg) that induces both rapid and sustained antidepressant-like effects in both sexes of mice elicits time and sex-dependent synaptogenic effects in the different hippocampal subfields in male and female mice. These findings further support the premise that ketamine induces its antidepressant-like effects in a sex-specific manner and that the HIPP may play a critical role in mediating the antidepressant effects of ketamine in the female sex.

Growth Regulatory Pathway collaborates with Axial Patterning Genes to regulate Patterning and Growth in Drosophila Eye

College of Arts and Sciences: Biology

Oral Presentation - Graduate Research

PRESENTERS Neha Gogia

ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME Kennedy Union 312, 2:00-2:20

In all the multicellular organisms, organogenesis requires axial patterning to determine Antero-Posterior (AP), Dorso-Ventral (DV), Proximo-Distal (PD) axes. Any deviation in these axes during development leads to congenital birth defects. In our model system, *Drosophila melanogaster* (a.k.a fruit fly), Dorso-Ventral (DV) patterning marks first lineage restriction event. We have identified defective proventriculus (*dve*), an ortholog of SATB homeobox 1 (special AT-rich sequence binding protein 1), as a new member of DV patterning genes hierarchy. We have shown that *dve* acts downstream of *pannier* (*pnr*, a GATA-1 transcription factor), and upstream of *wingless* (*wg*) in dorsal gene hierarchy. Loss-of-function (LOF) of *dve* or *pnr* results in dramatic dorsal eye enlargements, whereas Gain-of-function (GOF) of *dve*, *pnr* suppresses eye specific fate. We have demonstrated that *Wingless* (*Wg*), (1) is downstream target of Hippo growth regulatory pathway (highly conserved) in eye, (2) acts downstream of *dve*, (3) exhibits similar eye enlargement and suppression phenotypes (upon LOF, GOF respectively), and has been shown to play a role in growth. Here, we present that, DV patterning genes interacts with Hippo signaling to regulate their common downstream target, *Wg* during developing *Drosophila* eye. Our data (using GOF, LOF) states that (1) These two unrelated pathways are related and interacts antagonistically, (2) Activating Hippo signaling suppresses *dve*, *pnr* expressing cells, downregulates *Wg* and changes head, antennae specific fate to an eye, (3) Blocking cell death activity of *hpo* (using *UAS-p35*, anti-apoptotic) doesn't affect its ability to undergo differentiation, (4) Growth regulatory pathway regulates the expression of DV patterning genes (*dve*, *pnr* acts downstream of Hippo pathway), and that (5) GOF/LOF of *dve*, *pnr* does not affect the expression of Hippo downstream reporters *diap1* and expanded in developing eye of *Drosophila*. These studies present new genetic interaction between two unrelated pathways to regulate growth and patterning of an organ.

Investigating the role of a novel calcium-handling protein in regulating locomotor and cognitive behavioral processes in mice

College of Arts and Sciences: Biology

Oral Presentation - Independent Research

PRESENTERS Aikaterini Britzolaki, Emily Margaret Flaherty, Joey Edward Saurine, Connor F Thelen

ADVISORS Pothitos Pitychoutis

LOCATION, TIME Marianist Hall Learning Space 218, 2:00-2:20

Attention-deficit/hyperactivity disorder (ADHD) is an extremely prevalent and debilitating neurodevelopmental disorder that affects people of all ages. ADHD symptoms include persistent inattention, impulsivity and/or hyperactivity, accompanied by significant learning and memory deficits. Abnormal function of calcium-handling machinery has been implicated in the pathophysiology of ADHD in humans and in animal models. Exciting preliminary data from our group support that a protein which plays a major role in regulation of calcium homeostasis in the heart, is also expressed in a specific region of the brain that is implicated in the neurobiology of ADHD. Moreover, we have found that genetic ablation of this calcium-handling protein in mice (i.e., knockout, KO) results in the manifestation of a hyperactive ADHD-relevant behavioral phenotype. State-of-the-art mouse behavioral neuroscience techniques were performed to further dissect the hyperactive locomotor phenotype of KO mice, and to assess how loss of the calcium-handling protein's function impacts critical cognitive processes (i.e., object recognition memory, spatial memory and social memory). The results of the proposed studies have shed light on the complex functions of this novel calcium-handling player in the brain suggesting this calcium-handling protein is involved in locomotor and learning and memory processes of the brain.

The Vascular Flora of Bill Yeck Park: Supporting the Conservation of Local Biodiversity

College of Arts and Sciences: Biology

Oral Presentation - Honors Thesis

PRESENTERS Taylor Marie Sparbanie

ADVISORS Ryan W McEwan

LOCATION, TIME Kennedy Union 211, 2:30-2:50

Maintaining and fostering biodiversity is a critical component of natural areas management and conservation because of its known links to ecosystem function and stability. Identifying and documenting species through a floristic inventory is an important strategy for detecting the presence of rare or unique species, as well as invasive species that pose a threat to biodiversity. Bill Yeck Park is a 194-acre nature park maintained by Centerville-Washington Park District and is largely surrounded by residential areas. As urban green spaces like Bill Yeck Park become more and more prevalent and critically important for the provision of ecosystem services in a postmodern, industrialized, and developed world, knowledge of the composition and function of these nature parks become critically important to inform management. Our goal is to generate a list of vascular plant species for the park that can help the park's manager identify critical areas for conservation and better strategize removal of invasive species. Floristic surveys for this project began in March of 2017, and will continue into 2018. Currently, 245 species have been identified and documented across a variety of habitats, including meadows, riparian corridors, and upland forest.

Regulation of dronc by the Hippo pathway

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Karishma Sanjay Gangwani, Kirti Snigdha

ADVISORS Madhuri Kango-Singh, Amit Singh

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The Hippo pathway is an evolutionarily conserved pathway that regulates organ size and tissue homeostasis in *Drosophila* and mammals. The pathway functions by regulating the nuclear availability of transcriptional cofactor Yorkie (Yki), mammalian YAP, which is regulated by the activity of a core kinase cascade comprising the serine threonine kinases Hippo (Hpo) and Warts (Wts) and their accessory proteins. Yki binds with transcription factors like Scalloped (Sd) or Homothorax (Hth) to regulate target genes involved in cell proliferation and survival. Downregulation of the Hpo pathway causes increased cell proliferation and overgrowth, whereas hyperactivation of this pathway leads to cell death due to activation of these caspases. Previous work in our lab identified the initiator caspase Dronc (mammalian Caspase 9) as a transcriptional target of Yki. Caspase proteins are cysteine aspartic proteases which play essential roles in cellular signaling, development and cell death via apoptosis or Programmed Cell Death (PCD). We found that loss of Hippo signaling leads to downregulation of dronc expression suggesting that Yki could act in co-repressor complexes to provide growth and survival cues to cells where Hippo pathway is downregulated. We hypothesize that Yki functions both as an activator and a repressor simultaneously in association with the TEAD family transcriptional factor Sd to control dronc expression. Here, we present our work on the regulation of dronc by the Hippo pathway, and its implications in organ size control, and in disease conditions like cancer.

Monitoring fecal coliform bacteria concentrations for the assessment of recreational safety of kayak chutes in Great Miami River near downtown, Dayton, OH.

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Audrey Allison Hayes, Suzanne L Lowes

ADVISORS Jeffrey L Kavanaugh

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

To determine the potential risks to human health of newly-developed recreational kayak chutes in the downtown Dayton, OH area, surface water samples were collected from sites in the Great Miami River, Mad River, Wolf Creek, and Rubicon Creek. Samples were collected directly from the main river channel adjacent to the kayak chutes and from local stormwater outfalls that empty into rivers and streams near the kayak chutes. Surface water samples were put on ice and taken to the lab where they were cultured in an incubator and counts were made of fecal coliform colonies. Colony concentrations for total fecal coliforms and *E. coli* regularly exceeded the Ohio EPA's class A standards for recreational waters. It was found that concentrations increased as the water level increased due to heavy precipitation. Future directions include determining the source of the *E. coli* contamination in the Rubicon Creek outfall, which may reveal the University of Dayton's impact on coliform bacteria concentrations since this is the campus's main outfall into the Great Miami River. We also plan to collect samples from kayak chutes outside of the Great Miami River.

Sex differences in the antidepressant-like effects of ketamine in an inflammatory mouse model of depression

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Nick Richard Halloy, Benjamin Klocke, Connor F Thelen

ADVISORS Pothitos Pitychoutis

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

A major discovery in the treatment of major depression was the finding that a single sub-anesthetic dose of ketamine induces both acute and sustained antidepressant effects in patients. Although women report major depression at twice the rate of men, the vast majority of research on ketamine's antidepressant effects has been focused on the male sex. By inducing neuroinflammation in rodents using the pro-inflammatory agent lipopolysaccharide (LPS), a sickness syndrome is manifested with many behavioral and physiological manifestations that overlap with the clinical symptoms of major depression. The majority of studies investigating the neurobiological effects of LPS have been conducted in the male sex. The antidepressant-like effects of ketamine have only been documented in male LPS-exposed mice. Of note, female responsiveness to ketamine in this neuroinflammatory model of depression remains elusive. In this study, we are investigating the sex differentiated antidepressant effects of both acute and chronic treatment of ketamine on the LPS-induced neuroinflammatory model of depression. Preliminary data from acute ketamine treatment points to a differentiation in behavior in male and female mice. In addition to this preliminary data, we are currently conducting the chronic ketamine administration phase of the study. Data collected by our lab is promising in the search for novel mechanisms for female ketamine response under the neuroinflammatory model of depression.

Effect of tyrosine kinase inhibitors on *Drosophila* glioma model

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Kaitlyn M Alleman, Oscar Antonio Barnes Valdejuely, Dudley Kiefer Campbell, Claire Marie Feller, Karishma Sanjay Gangwani, Michael Moran Gilbert, Katie Katherine Parker, Kirti Snigdha

ADVISORS Madhuri Kango-Singh

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Glioma are glia-derived primary brain tumors with very poor prognosis. The standard of care is surgery followed by radio- and chemo/immuno-therapy, or combinations thereof, however, all patients with glioma ultimately die. Thus, there is a need to test if recently approved drugs can inhibit the growth and progression of this tumor. We have developed a *Drosophila* glioma model based on the two genetic/ oncogenic pathways known to be most frequently activated in patients viz., the Ras/MAPK pathway and the PI3K pathway. Inhibitors of these two pathways do not help to limit the progression of glioma. Therefore, it is thought that other oncogenic pathways induce glioma growth and progression. We designed a chemical screen involving drugs targeting Tyrosine kinases (Selleck Biochem Chemical library) – key enzymes that are activated by oncogenic pathways. The chemical screen involves feeding glioma containing larvae 10uM and 300uM drugs from the library at early third instar stage, then allow these larvae to grow and mature to the third instar stage (120h of development), and then dissect the brain to study effects on glioma growth and track survival on days 5-7 when other glioma positive larvae die. Here, we present our progress from this screen focusing on chemicals A2-A11.

The Effects of Tsetse Fly Beta 2 Tubulin on the Fruit Fly Axoneme

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Elizabeth Marie Kramer

ADVISORS Mark G Nielsen

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

There are constraints on the evolutionary process. A big question is how nature can generate alternate forms of a protein without interfering with its function. The beta tubulin protein of the fruit fly spermtail is an example of a protein that has not evolved for millions of years. The ultimate goal of this research is to determine how it evolves when it does. To do this, we need to first determine if beta tubulin tolerates change by testing the ability of a related but different beta tubulin to support the fruit fly sperm tail. In this case, the goal is to determine if *Glossina morsitans* (tsetse fly) beta 2, which is 14 amino acids different, can replace *Drosophila* beta 2 and generate motile sperm. Using genetic techniques we have expressed tsetse fly beta 2 in the fruit fly *Drosophila melanogaster*. We now need to selectively mate fruit flies to generate a fly that is a homozygote for both tsetse fly B2 and the null mutation for fruit fly B2. These flies will then be tested for fertility, TEM cross sections will be taken of the testis, and the testis morphology will be analyzed. If the resulting fruit flies are infertile with immotile sperm, then it is likely that the beta protein co-evolved with another component of the sperm tail. Having to wait for a second protein to evolve would slow the evolutionary process and explain why beta 2 has not evolved for 60 million years. But if the resulting fruit flies are fertile, then evolution took a very narrow path that maintained *D. melanogaster* beta 2 function in the face of 14 amino acid changes.

Extracellular biofilm polysaccharides-mediated antibiotic resistance of *Pseudomonas aeruginosa*

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Celeste Claire Bergman

ADVISORS Yasuhiko Irie

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

High density surface-attached growth of bacteria are called biofilms. This bacterial community secrete extracellular matrix materials, of which the major components are polysaccharides. The polysaccharides serve as adhesion molecules as well as a protective barrier against antibiotics and other antimicrobial compounds. *Pseudomonas aeruginosa* is an opportunistic pathogen, and its propensity to grow biofilms in infected sites causes serious medical problems, often untreatable due to their antibiotic resistance properties. The two major biofilm polysaccharides of *P. aeruginosa* are the PEL and PSL polysaccharides. In this project, we show the relationships between antibiotic resistance and PEL/PSL polysaccharides of *P. aeruginosa* biofilms.

The Effects of Short Chain Fatty Acids on the Ability of *Listeria monocytogenes* to Form Biofilm

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Jake Edward Thomas

ADVISORS Yvonne Y Sun

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Introduction. *Listeria monocytogenes* is a common food borne pathogen that can be fatal to those who with compromised immune systems. To combat food borne pathogens, short chain fatty acids are added as food to preservatives. Purpose. The purpose of this experiment was to determine the effects of short chain fatty acids (SCFAs) on the growth of *Listeria monocytogenes*. Specifically, this research looked at the impact of varying amounts of acetate, butyrate, and propionate on the ability of *Listeria* to grow in a biofilm, both aerobically and anaerobically, in polypropylene (PP) and polystyrene (PS) in microwell plates. Results. Under anaerobic, but not aerobic, conditions, *Listeria* planktonic growth increased when SCFAs were added in the culture medium. However, I did not detect consistent results when *Listeria* was growing in the microwell plates. Conclusion. As indicated by these results, *Listeria monocytogenes* planktonic growth can be increased when grown anaerobically with SCFAs. However, future research is necessary to assess the effects of SCFAs on biofilm growth.

Novel Zinc containing Porphyrin exhibits dark toxicity against an opportunistic pathogenic bacterium grown under planktonic and biofilm conditions

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Nehaben Nik Patel

ADVISORS Kristen Krupa Comfort, Jayne B Robinson, Shawn M Swavey

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

One of the greatest threats to human health, and life, is the rise of antibiotic resistant bacterial infections. National summary data from the CDC estimates that at least 2,049,442 million illnesses and 23,000 deaths occur each year as the result of antibiotic resistant bacteria and fungi. Additionally, 250,000 illnesses and 14,000 deaths are caused by the bacterium *Clostridium difficile*, considered to be related to antibiotic resistance and use. We are the co-inventors of two patented novel technologies for the treatment of antibiotic resistant bacteria. Both treatments make use of a novel porphyrin ZnP (US Patent # 9,364,537) that does not require using traditional photo-activation i.e., it exhibits unique dark toxicity. In standard tests against planktonic cells ZnP exhibits broad spectrum activity, for example it is bactericidal towards: *Pseudomonas aeruginosa* (MIC₉₀ at 25µM), MSSA and MRSA strains of *Staphylococcus aureus*, as well as *Listeria monocytogenes* and *Mycobacterium smegmatis*. In toxicity testing using lung alveolar cells no toxicity was detected at concentrations that were 2-fold higher than the MIC. We have demonstrated that *P. aeruginosa* (PAO1) cells take up ZnP rapidly and accumulate it inside the cell. In cells treated with 25 µM ZnP there was a substantial loss of chromosomal DNA after as little as 5h; with an almost total loss at 50 µM. Additionally, we have tested various uptake/transport systems in PAO1 that aid in uptake of ZnP. In biofilm experiments, ZnP was able to disrupt 16h preformed biofilms on Polyethylene (PE) and stainless steel surfaces by 2 logs and, more interestingly, prevent the formation of biofilms when PE surface was pretreated with 25µM ZnP compared to the control.

The role and evolution of the Dopa decarboxylase gene in the origin of a derived dimorphic fruit fly pigmentation trait

College of Arts and Sciences: Biology

Poster - Graduate Research

PRESENTERS Sumant Grover, Becca Jo Kaiser

ADVISORS Melissa E Williams, Tom M Williams

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Understanding the genetic and molecular underpinnings for trait diversity remains a central goal of evo-devo research. Traits arise by the orchestrated expression of numerous genes in a gene regulatory network. Remaining poorly understood is how these networks and their expression patterns are initially assembled and subsequently diversify. Gene expression is controlled by DNA sequences known as cis-regulatory elements (CREs) that possess binding sites for transcription factors whose binding drives a specific pattern of expression. It is anticipated that gene expression evolution often occurs through the formation, modification, and destruction of CREs, presumably by changes that create or destroy binding sites for transcription factors. However, the binding site

level of CRE evolution has been worked out in few cases. The fruit fly species *Drosophila melanogaster* has a male-specific pattern of abdominal pigmentation for which the enzyme encoding genes and several of their expression-regulating transcription factors are known. However, the details of how these regulators interact with CREs remain largely uncharacterized, including the Dopa decarboxylase (*Ddc*) pigmentation enzyme gene. Here we share the results of our efforts to uncover the CRE-basis of this gene's expression pattern, and how this regulation and pattern of expression evolved during the origin of this male-specific trait.

The Survival Rate of *Listeria* in Dairy Products Compared to Pathogenic *E. coli*

College of Arts and Sciences: Biology

Poster - Independent Research

PRESENTERS Megan Ashley Marasco

ADVISORS Yvonne Y Sun

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Listeria monocytogenes is a deadly human pathogen frequently found in dairy products. Its ability to grow and survive in the cold contributes to frequent contaminations despite the presence of food preservatives, such as propionate. In my research, I first studied how effective propionate is against *Listeria* in dairy products, including three types of milk, 2%, fat free, and chocolate, all with and without propionate. Then I compared the survival of *Listeria* to survival of pathogenic *E. coli* in propionate-supplemented milk by monitoring the number of surviving bacteria 1, 2, and 3 days after storage in the refrigerator. I found that propionate is effective against *Listeria* only in 2% milk and is effective against *E. coli* only in fat free milk. Therefore, the efficacy of propionate depends on the types of dairy products as well as the types of foodborne pathogens. When one is developing food preservation methods, it is important to consider the different types of food and foodborne pathogens.

Compartmentalization and Temporal Distribution of L-DOPA-Containing Proteins Involved in Oyster Shell Formation

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Benjamin Nicholas Schmeusser

ADVISORS Douglas C Hansen, Karolyn M Hansen

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Marine molluscs, such as *Crassostrea virginica* (eastern oyster), produce structural proteins that are essential in adhesive strategies and shell biomineralization. The unique properties of these proteins derive from the amino acid composition. L-3,4-dihydroxyphenylalanine (L-dopa), which is a unique key amino acid in the cross-linking of these proteins, can be considered a biomarker for identification and localization of shell formation proteins. The focus of this research was to determine the compartmentalization of L-dopa-containing proteins involved in the process of biomineralization in *C. virginica* at different time points during a shell repair event. Three organismal compartments were identified as possible locations of L-dopa precursor proteins: hemocytes, cell-free hemolymph, and mantle tissue. Hemolymph was harvested from the adductor muscle of notched oysters and hemocytes were subsequently collected via hemolymph centrifugation. Mantle tissue was collected from specific locations. The product of repair, nascent shell deposited in the notch, was collected at discrete time points post-notching. Amino acid composition related to time since notching was determined via anion exchange HPLC with pulsed amperometric detection. Additionally, the Arnow Assay (specific for catechols) was used to stain for L-dopa in the samples. Preliminary data reveal increased L-dopa concentrations in hemocytes and hemolymph at 24-48 hours and 96 hours post notching, respectively, indicating a mobilization of resources for shell repair. These data support the hypothesis that L-dopa-containing proteins are involved in oyster shell formation and that they are distributed at discrete locations within the organism.

Molecular Modeling and Characterization of a Mussel Adhesive Protein (MeFP-5)

College of Arts and Sciences: Biology

Poster - Honors Thesis

PRESENTERS Kathryn Rose Zimlich

ADVISORS Douglas C Hansen, Karolyn M Hansen

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The blue mussel, *Mytilus edulis*, secretes adhesive proteins to facilitate adhesion to a variety of substrates. Several *Mytilus edulis* foot proteins (MeFP) have been isolated and characterized. MeFP-5 is said to be the most adhesive of these proteins, and has a comparatively large molecular percentage of L-Dopa when examined against MeFP proteins 1-4 at over 25% L-Dopa, if full conversion from tyrosine occurs. The catechol functional group of L-Dopa complexes with Fe³⁺ to form organometallic linkages, but how L-Dopa in MeFP-5 is interacting with an iron oxide surface, and if the lysine amino acids adjacent to L-Dopa help to facilitate formation of the epoxy-like barrier on iron oxides, is unknown. This project focuses on evaluating the orientation of the catechol groups in L-Dopa through molecular modeling, generating a 3D model of an iron oxide surface, characterizing regions of MeFP-5 which are most likely to complex with Fe³⁺, and altering the amino acid composition of MeFP-5 to attempt to maximize adhesive properties and explore possibilities for creating a synthetic analog. Modeling is done in the programs ChemDraw® and Chem3D® (PerkinElmer) to analyze protein structure and the catechol positioning of L-Dopa within the protein MeFP-5. To validate and refine the model, experimental data of MeFP-5 adsorbed onto HY80 steel using Raman infrared spectroscopy have been used to

determine what interaction the lysine and L-Dopa functional groups in MeFP-5 have on the steel surface. These data have been incorporated into the 3-dimensional model of the protein-metal interface.

Synthetic aptamers as potential novel efflux pump inhibitors of the TolC channel in E. coli strains.

College of Arts and Sciences: Chemistry

Poster - Graduate Research

PRESENTERS Venicia Alhawach

ADVISORS Matthew E Lopper

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Antibiotic resistance is more than ever one of the most contemporary challenges threatening the health system worldwide. According to World Health Organization, previous cases of bacterial infections - once treatable with antibiotics - can now be lethal due to the uncontrolled misuse of these agents. The emergence of resistance to antibiotics and the dearth of novel drugs currently under development urge the need to search for new effective antibacterials. One of the main triggers of bacterial resistance is the over-expression of multi-drug resistant (MDR) efflux pumps. These pumps allow the bacterium to pump antibiotics out of the cell and therefore desensitizes the cells to the antibacterial inhibitory effect. In this project, we propose to design small chains of nucleic acids called aptamers to bind to and block the outer membrane channel of the efflux pump, which is a protein called TolC, as one effective way to impede antibiotic resistant bacteria from effluxing antibiotics. To generate the DNA aptamers exhibiting a binding specificity to E. coli cells, the method of a whole-cell Systemic Evolution of Ligands by Exponential Enrichment (SELEX) was applied to a random single-stranded DNA library. Whether these aptamers were able to impede the efflux activity of the E. coli pump was then evaluated using an in-vivo efflux assay.

The Impact of the 515nm Effect on Singlet Oxygen Quenching in Photosynthesis: Model System Studies Using Beta –Carotene–Acid Complexes

College of Arts and Sciences: Chemistry

Poster - Honors Thesis

PRESENTERS Lauren Arlene Hoody, Caoqinglong Huang, Ashlee Elizabeth Wertz

ADVISORS Mark B Masthay

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Beta-carotene is an orange biological pigment present in green plants, where it plays a protective role against the potential harmful effects of light. beta-carotene does this by deactivating "singlet oxygen", which is a toxic molecule generated during photosynthesis. During photosynthesis, beta-carotene temporarily converts from its native orange state to a pink state. We hypothesized that pink beta-carotene reacts with singlet oxygen less efficiently than native orange beta-carotene. To test this hypothesis, we chemically modeled beta-carotene's pink state with blue beta-carotene–acid complexes, which are chemically similar to pink beta-carotene, created by reacting beta-carotene with trichloroacetic acid (TCA). beta-carotene's efficiency at deactivating singlet oxygen was characterized by measuring the rate of degradation of 1,3-diphenylisobenzofuran (DPBF), which has a high reactivity towards singlet oxygen and is used to detect the amount of singlet oxygen in a solution. Our DPBF–based results to date indicate that native orange beta-carotene and blue beta-carotene–TCA complexes quench singlet oxygen with roughly equal efficiency. In future studies, we intend to confirm our DPBF–based results by monitoring the impact of beta-carotene and beta-carotene–TCA complexes on the 1270 nm (near–infrared) emission of singlet oxygen using a state–of–the–art, time–resolved near–infrared spectrometer; the UD Chemistry Department hopes to purchase this instrument in the near future. The results from this research could facilitate the development of solar energy devices with greater long-term stability.

The Impact of External Stimuli on the Molecular Trajectory of Micelles Residing at the Stability Boundary

College of Arts and Sciences: Chemistry

Poster - Course Project, 201810 CHM 304L 01

PRESENTERS Joshua Killian, Jiayi Xie

ADVISORS Yoon S Lee

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Self-assembly is the potential key to understanding how we can build useful chemical and biochemical systems from individual molecules up to macro structures. The modification of the makeup of a micellar solution and observation of some of the physical and chemical properties of the solution was the goal and purpose of this research. Specifically, the purpose was to determine the molecular trajectory of the formation of the micelles in solution and to attempt to explain different kinetic and thermodynamic pathways. This research explored the nature of surfactant micellar solutions that contained a headgroup of ammonium with a chloride counter-ion in three different tail-group compositions. The three solutions were cetyltrimethylammonium chloride, tetradecyltrimethylammonium chloride, and dodecyltrimethylammonium chloride. The solutions were modified by the addition of various species, most significantly, decyl alcohol, tetraethylorthosilicate, and benzene. They were subject to heating, cooling, and shaking to form different micelles. The solutions were tested by various methods, including IR runs and particle size analysis, of the clear,

shaken cloudy, and temperature manipulated cloudy states. The results of this research showed that there were two pathways of micellar composition, a kinetic and a thermodynamic pathway. Future research could involve the further modifying the makeup of different micellar solutions by the addition of different types of alcohols, aromatic compounds, or silicate groups to determine if these trends are consistent across different micelle formations.

The Impact of Benzene as a Chaotropic Agent in Surfactant Based Multicomponent Self-Assembling Systems

College of Arts and Sciences: Chemistry

Poster - Course Project, 201810 CHM 304L 01

PRESENTERS Sean Ernest Cedeno, Kasia Maria Solomianko

ADVISORS Yoon S Lee

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Self-assembly is a fascinating field that provides endless possibilities for chemical manipulation. This experiment investigates what effect benzene has during the self-assembly of micelles in various carbon chain solutions. Upon omission of delivering benzene from the solution, the system displayed the formation of an irreversible liquid crystal relatively quickly. IR spectroscopy was performed on one solution with benzene and one solution without benzene to try to understand what kind of role benzene plays within the system. Upon examination of the IR spectra, there was a clear difference in IR peaks. It was theorized that benzene has some sort of interaction with the tetraethyl orthosilicate (TEOS) that allows the system to form micelles that can reverse when left alone. Future experiments may include investigating the effect of water on the system as well as the effect of stirring on the system.

A New Method in Organophosphate Synthesis

College of Arts and Sciences: Chemistry

Poster - Independent Research

PRESENTERS Emily Kathryn Granger, Kasia Maria Solomianko

ADVISORS Jeremy M Erb

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

A variety of nucleophilic and Lewis acid catalysts were examined for use in promoting the synthesis of organophosphate triesters. All 8 organophosphate triesters are new compounds, reported here for the first time. $MgSO_4$ was discovered as an inexpensive catalyst capable of improving the synthesis of a variety of aryl organophosphate triesters from the readily available and low cost precursor phosphorus oxychloride in a three-step, two-pot sequence. Yields for this method improve upon the uncatalyzed method by 8-36%. Although several chiral catalysts were tested, none were able to induce enantioselectivity in the reaction.

The Entropic Tsallis Q Factor as a Measure of Distance from Thermal Equilibrium in Paramagnetic Spin Lattices

College of Arts and Sciences: Chemistry

Oral Presentation - Honors Thesis

PRESENTERS Charles Alan Benton

ADVISORS Mark B Masthay

LOCATION, TIME Kennedy Union 211, 1:30-1:50

The principle objective of the proposed research is to use the Tsallis entropy factor q to specify the proximity of a system to thermal equilibrium. Morespecifically, we will look at how different combinations of energy states affect q in two-level paramagnetic spin lattices (PSLs; regular lattices with spinsites) that are placed in an external magnetic fields. The spins in spin- $1/2$ PSLs align either parallel (the low energy level) or antiparallel (the high energy level) to the external magnetic field, thus making them two-level systems. The overall system under investigation is a collective super-PSL (A+B) comprised of two sub-PSLs (A and B). Two conditions are explored: (1) the canonical case in which a super-PSL at constant temperature exchanges energy with a heat bath; and (2) the microcanonical case in which the super-PSL is energetically isolated, and hence at constant energy.

Efflux Pump Inhibition in Multiple Antibiotic Resistant Bacteria

College of Arts and Sciences: Chemistry

Poster - Honors Thesis

PRESENTERS C.J. Roger Moellering

ADVISORS Matthew E Lopper

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Over the past few decades, bacteria have become resistant to multiple antibiotics due to humans misusing and overusing antibiotics. Over-expression of bacterial efflux pumps has been identified as a key player in bacterial drug resistance. Over-expression of these pumps essentially allows bacteria to transport antibiotics from their intracellular space to their extracellular space before the antibiotics can effectively act on the organisms. To combat multiple drug resistance in bacteria, this research aimed to find natural, plant-derived inhibitors of an efflux pump in *E. coli* called the AcrAB-TolC pump. Cinnamon, cranberry, pumpkin seeds, thyme, black

tea, and oolong tea were chosen for testing for inhibition of this pump. These items were ground, dried, and put in an extractor to isolate polar compounds which were eventually introduced into a bacterial fluorescence assay. Ultimately, the oolong tea was the only extract tested that led to a positive fluorescence reading, reflecting potential inhibition of the AcrAB-TolC pump. Isolation and purification of the active compound within oolong tea still an ongoing area of investigation.

Combating Antibiotic Resistance in Multidrug Resistant Bacterial Cells using Plant Derived Inhibitory Compounds

College of Arts and Sciences: Chemistry

Poster - Independent Research

PRESENTERS Emily Marie Jones

ADVISORS Matthew E Lopper

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Bacteria have steadily developed defenses against antibiotics since the world's first fleet of antibacterial drugs was introduced. One strategy that bacteria can use to become multi-drug resistant involves the use of large, membrane-embedded efflux pumps, such as the AcrAB-TolC pump found in *Escherichia coli* (*E. coli*) and other Gram-negative bacteria cells. The most antibiotic-resistant cells are those which over-express the genes that code for this large efflux pump, and this gives the bacterium the capability of transporting a wide variety of compounds out of the cell, including antibiotics that we use to combat bacterial infections. The overexpression of these bacterial efflux pumps renders our antibiotics ineffective. To combat this antibiotic-resistance strategy, I will be analyzing plant extracts to identify new compounds that can block the activity of bacterial efflux pumps and restore the effectiveness of existing antibiotics. Fourteen roots, shoots, fruits, seeds, and leaves will be tested using a fluorescence-based efflux assay and any extracts that show inhibitory activity will be analyzed so that the active compound can be identified. This research could open up a new avenue in the treatment of multi-drug resistant bacterial infections.

Methods of Blocking Efflux Pump Activity in *Escherichia Coli*

College of Arts and Sciences: Chemistry

Poster - Graduate Research

PRESENTERS Erich Nicholaus Auer

ADVISORS Matthew E Lopper

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Overuse of antibiotics throughout the developed world has contributed significantly to the emergence of antibiotic-resistance in bacteria. Although this helps bacteria it is extremely harmful to humans. As bacteria adapt to the antibiotics, current treatments become ineffective and bacterial infections can become life threatening. One of the mechanisms that bacteria, such as *E. Coli*, use are efflux pumps. Efflux pumps are capable of taking potentially harmful substances, like antibiotics, from inside the bacterial cell and moving them out. This allows the bacterium to escape from the killing effects of the antibiotics. My hypothesis was that a natural product, small molecule compound, or DNA aptamer would be able to bind to some part of the tri-part structure of the efflux pump and block its activity. The results showed that there are some promising compounds but none that were actually capable of blocking activity to a significant degree.

Unrecognized and Underwritten: The History of the Black Press

College of Arts and Sciences: Communication

Poster - Course Project, 201780 CMM 439 01

PRESENTERS Jada Monique Woods

ADVISORS Chad E Painter

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The black press was born out of a need and that need is still pertinent today. Before 1827, black people largely did not exist in the media. There were only two options for the black community stay silent and keep their marginalized voices to themselves or start voicing those opinions and advocating for rights by creating a newspaper. After 1827, black newspapers in the North developed into the main medium of expression and primary community service outlet for black people. The researcher examined the history of black media from the mid-1800s to 2017. Evidence from black newspapers and publications throughout history shows every success against oppression and inequality has come with a price for black press in the United States. In 2017, blacks have more opportunities because of those publishers whose goal was to elevate and educate blacks. Currently, blacks have improved the second-class citizen status in some respects, but clear inequalities still persist. Although mainstream news organizations have made efforts to represent blacks more, there are still large disparities. The black media is still essential for the well-being of the black community. The black press began as an outlet to acknowledge the black community and push for equality and this kind of activism is still needed today.

Public Memory: The Monuments and Memorials of UD

College of Arts and Sciences: Communication

Poster - Course Project, 201810 SSC 200 31

PRESENTERS Jen Mayrena Agudelo, Essa Alhamer, Lillian Margaret Dickman, Andrew Patrick Gross, John Martin Harmon, Brandon

Michael Heath, Leah S Henkel, Seth Christian Hill, Kristen Hisek, Mitchell Christopher Honious, Tyler Andrew Johnson, Trent E Jones, Kelly Ann Katis, Kristine Anne Kearney, Liza Christine Lutz, Taylour W McMullen, Katie Katherine Parker, Matthew John Pins, Ryan Darnell Scott, Cassandra L Secrease, Micheal John Sheridan, Sophia Jane Tokar, Marcel J Tworek, Ying Wang, Adam Steven Wicks, Joseph J Wilson

ADVISORS Cassandra L Secrease

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The Public Memory themed section of SSC200 was tasked with proposing monuments and/or memorials needed on campus at The University of Dayton. Five groups of five students each conducted survey, observational, and archival research to choose subjects connected to the UD culture and deemed worthy of commemoration. Through careful consideration of concerns related to public memory, identity, culture, and materiality, each group created and designed either a monument or memorial fitting the memory of their chosen subject. Groups will be able to explain their designs, rationale, and processes culminating in their final Course Project for SSC200.

Cards Against Incivility: Play the Beta Version of the Game

College of Arts and Sciences: Communication

Panel Discussion - Course Project, 201810 CMM 100 H2

PRESENTERS Ian James Beach, Nathan A Brelage, Rachel Elizabeth Carr, John Currie Dickson, Bridget Anne Fallon, Luke F Flottman, Courtney G Harbert, Indigo Emma Hudepohl, Susanne Jacobsen, Sean Wesley Kapp, Julia Karlsson, Adam Gregory Kaye, Joshua Edward Kinser, Ean Cole Kuska, Bo A Leszcynski, Kylie E Moellering, Paul C Mossing, Jenna Mary Perdue, Katherine A Perille, Cara M Rasmussen, Emily Viktoria Sandstrom, Cassandra L Secrease

ADVISORS Cassandra L Secrease

LOCATION, TIME Kennedy Union Torch Lounge, 10:30-11:30

We have all heard of the popular game with a similar name but Cards Against Incivility (CAI) is the game you play to increase your understanding of civility. Players of CAI choose, explain, and defend, as needed, a variety of responses to common and perhaps some not-so-common communication situations. Has anyone ever gone on a political rant at your Thanksgiving dinner? Have you ever returned to your dorm room only to find your roommate practicing their air-guitar routine? Ever experience speechlessness when someone makes an offense joke? CAI will help you consider possible reactions to such situations and many, many more!

Epicenter: Dayton's Opioid Crisis

College of Arts and Sciences: Communication

Visual Arts Exhibition - Course Project, 201810 CMM 499 01

PRESENTERS Taylor Lee Alexander, John Francis Antonini, Grace E Barry, Patrick James Bernauer, Tom E Cook, Alexandra C Damiani, William E Delaney, Matthew Aidan Hilliard, Gregory R Kennedy, Molly Erin Moesner, Alexander A Moulvi, Florian Andreas Rieger, Cody Mitchell Rose, Maggie Ann Scully, Phoebe Marie Trogolo

ADVISORS Gregory R Kennedy

LOCATION, TIME Science Center 114 - Auditorium, 11:00-11:40

It's no secret that the heroin epidemic is a nationwide problem, but it seems to have impacted Ohio, especially Dayton, disproportionately. Media Production students at the University of Dayton are creating a documentary that educates and enlightens people as to the reality of living in the epicenter. After examining and presenting a scope and history of the problem, we are concentrating specifically on addiction as a disease, not a choice. During the course of our research, we have determined that most addicts do not use drugs to get high - they use them to avoid feeling sick due to their chemical and physical dependency. We have interviewed former addicts, treatment specialists, coroners and law enforcement officers for a comprehensive analysis of a problem that has existed for decades and likely will continue for many more. Presenting several points of view in the hopes of sharing how opioid addiction impacts different people, our documentary examines what different demographics of people believe could be the solution to mitigating an ongoing crisis. Our documentary is a call to action for the community at large, and we want to break the stigma of addiction. Whether you are married to an addict, lost a parent to addiction, or are a politician capable of spurring change, addiction does not discriminate.

Call to action to health communication scholars: Addressing the adolescent STD epidemic through research in developmental triggers for sexual health information seeking behaviors (HISB)

College of Arts and Sciences: Communication

Oral Presentation - Graduate Research

PRESENTERS Laura Combs

ADVISORS Angeline L Sangalang, Teri L Thompson

LOCATION, TIME Kennedy Union 207, 12:00-12:20

2016 marked the highest numbers of sexually transmitted infections ever recorded in the U.S. for chlamydia, gonorrhea and syphilis. Adolescents ages fifteen to twenty-four are diagnosed with half of all new transmissions of STDs and one in four sexually active females in this age range is infected with an STD. The CDC has identified this alarming transmission rate as an "epidemic accelerating

in multiple populations” and one which requires a “renewed commitment from all players [state and local health departments, providers, general population]” (CDC, 2017). Health campaign designers need reliable, theory-based research developed on their target populations to create effective health messages; however research studies don't often recognize that some populations, such as adolescents, have unique needs which may require different communication strategies during different stages of their development. Recent research in HISB have shown that social determinants such as age, gender, race, education, health literacy, and financial status do influence an individual's access and use of information channels as well as her or his interest and capacity for processing that information (Galarce, Ramanadhan, & Viswanath, 2011); however no research specifically studying adolescent HISB has been published by health communication scholars. This project serves as a call to action to health communication scholars to make a more systematic study of adolescent populations and their sexual health HISB patterns. This project starts the conversation by suggesting a theory-based approach for anticipating developmental triggers for sexual health HISB which may change throughout the different development stages of adolescence. Understanding how, where, and at what age young people seek sexual health information can improve the effectiveness of sexual health campaigns aimed at this important age group.

Engaging Millennials & Generation Z in Cybersecurity: How to Train a Cyber-Mindful™ Workforce

College of Arts and Sciences: Communication

Oral Presentation - Independent Research

PRESENTERS James D Robinson, Thomas D Skill, Abby Papenfus

LOCATION, TIME Kennedy Union 312, 12:00-12:20

With their unique values, workplace traits, and technology-use habits, Millennials and “Gen Z'ers” are expected to dramatically impact organizations as they become the most dominant generations in the workforce. As digital natives who are always connected to their devices, these generations pose new challenges for corporate cybersecurity. This presentation will highlight the attitudes and behaviors of Millennials and Generation Z'ers regarding technology, privacy, and cybersecurity. It will also discuss the Center for Cybersecurity & Data Intelligence's preliminary research on generational differences within UD's “Cyber-Mindfulness™” engagement methodology. The researchers constructed an online questionnaire that surveyed a convenience sample of 402 college students and 47 high school seniors. They created four indexes that compared Millennials and Gen Z on cybersecurity issues. This presentation will highlight the survey's results, exploring implications and practical applications of the research.

Social Support for LGB College Students

College of Arts and Sciences: Communication

Oral Presentation - Course Project, 201780 COM 562 02

PRESENTERS Irina Enevska, Karen Mikaela Lucashu Ryner

ADVISORS Angeline L Sangalang

LOCATION, TIME Kennedy Union 207, 12:30-12:50

Considering the growing mental and physical health problems faced by lesbian, gay, and bisexual individuals in the United States, universities should implement more methods to help students overcome their difficulties. The paper focuses specifically on Ally Training, a free program offered by the University of Dayton, available to students, staff, and faculty. The training is designed to educate individuals on how to better support lesbian, gay, bisexual, transgender and queer individuals (the LGBTQ+ community).The present paper will discuss the mental and physical health problems associated with lesbian, gay and bisexual individuals' lack of emotional and social support. It examines the Transtheoretical Model, which provides insight on to how to encourage students to attend training. Finally, it discusses the need for creating an effective health campaign and spreading awareness. Keywords: lgbtq+, college students, transtheoretical model, emotional support, social support, mental health

Dental Health Beliefs of Chinese College Student based on the Health Belief Model

College of Arts and Sciences: Communication

Poster - Graduate Research

PRESENTERS Peijun Hou

ADVISORS Angeline L Sangalang

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Dental health problem is a serious and underexplored topic in China. This study used Health Belief Model to investigate the health belief of dental health promotion behavior among Chinese college students at University of Dayton. The results indicated that laziness is the biggest barrier for daily brushing behavior, while most of them also lack knowledge about flossing. The barriers to annual dental check-ups include expensive cost and disregarding the importance of oral health. The study also examined the preference of information seeking and scanning channel about dental health-related information. Most respondents come across information about health-related knowledge through social media and mass media, though they prefer to search such information through dentist and social media. Most participants think their dental health-related knowledge is moderate. One the most interesting findings is about self-efficacy, as most of Chinese students answered they have no idea when they were asked self-efficacy related questions such as “What can improve someone's confidence on flossing daily?”. Consider the concept “self-efficacy” was built under Western culture and society, even though self-efficacy has been shown to be a strong predictor of performance with Western populations,

whether self-efficacy can predict performance with non-Western populations is still not clear.

Ethic Issues in Journalism: Reporting Truth while Respecting Privacy

College of Arts and Sciences: Communication

Poster - Course Project, 201810 CMM 381 01

PRESENTERS Elizabeth Grace Elward, Mari Margaret Fazio

ADVISORS Annette M Taylor

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Mari Fazio looks at how the press covers private individuals who have been thrust into the public limelight through, for example, natural disasters. Fazio addresses how journalists can report the news and still respect people's privacy. Elizabeth Elward considers the long-standing debate in journalism on when, if ever, the press should identify victims of sexual assault. Elward explores the ethical issues involved, especially in light of today's openness, and what might be the best course of action today.

Ethic Issues in Journalism: Maintaining Journalistic Independence

College of Arts and Sciences: Communication

Poster - Course Project, 201810 CMM 381 01

PRESENTERS Christopher James Lareau, Emily M Lawton

ADVISORS Annette M Taylor

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Christopher LaReau examines sports journalism and conflicts that arise when journalists report on hometown and favored sports teams. He identifies how journalists can maintain their objectivity in order to report fully and truthfully. Emily Lawton examines the challenges that arise when news organizations' business interests become news. She identifies how journalists can maintain their journalistic integrity while reporting on their own employers.

Ethic Issues in Journalism: How Much is Too Much to Report?

College of Arts and Sciences: Communication

Poster - Course Project, 201810 CMM 381 01

PRESENTERS Tyler Kent Jones, Kelsey Elizabeth Kramb

ADVISORS Annette M Taylor

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Tyler Jones looks at the public's right to information about government, journalists' duty to serve the public, and government's need to keep secrets in the national interest. Jones examines when, how and to what extent journalists should disclose classified material. Kelsey Kramb looks at the ethical minefields that arise during breaking news events. She examines how the reporters can adhere to journalistic values and ethics in situations where truth is not always immediately apparent. When and how much information should journalists disclose in such cases?

Ethical Issues in Journalism: Minimizing Harm when Reporting on Children

College of Arts and Sciences: Communication

Poster - Course Project, 201810 CMM 381 01

PRESENTERS Meg Elizabeth Gramza, William Lawrence Wharton

ADVISORS Annette M Taylor

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Meg Gramza explores the ethical challenges the press faces when reporting on sex trafficking, especially when victims are children. She recommends how journalists can meet their obligation to report truth and do so thoroughly, while minimizing risks of additional harm to the victims. William Wharton explores the ethics involved in photographing children who have been victims of crime and how photojournalists can avoid adding to children's trauma.

Identifying Stigma Cues in Network Television Content: Implications for Stigma Reduction Strategies

College of Arts and Sciences: Communication

Poster - Course Project, 201810 CMM 390 P3

PRESENTERS Livvie Mae Roberson, Julia D Wenderski, Nicolette Ann Westberg

ADVISORS Angeline L Sangalang

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The present investigation is exploring the presentation of stigmatized health conditions (such as mental illness, HIV/AIDs, etc.) in network television content. The study employs a stratified representative sample of news, entertainment, and commercial programming from four major television networks: ABC, CBS, NBC and Fox. More specifically, we are exploring information and depictions of

predictors/causes, health consequences, social consequences, markers of illness, treatment, and prevention for the health conditions. Our work contributes to the literature in two key ways as past research has: 1) often limited discussions of stigma to a single, specific context, and 2) been limited to a single type of programming. Exploring patterns and consistencies in stigma representation across health issues and across message types can provide guidance for stigma reducing message strategies for an array of health contexts and future contexts that arise.

Ethic Issues in Journalism: Interviewing Victims

College of Arts and Sciences: Communication

Poster - Course Project, 201810 CMM 381 01

PRESENTERS Molly Marie Clayton, Elizabeth C Dolehide, Caitlin Rebecca Marshall

ADVISORS Annette M Taylor

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Molly Clayton, Elizabeth Dolehide and Caitlin Marshall examine ethical challenges that arise when journalists interview people who have been involved in tragic events, children who have been victims of crime, and people who have been sexually assaulted. The interviewing process can be cathartic for the interviewees, but it also can provoke traumatizing memories. Clayton, Dolehide and Marshall look at journalists' interviewing techniques in these specific situations, explore the potential problems, and suggest ways that journalists can be more sensitive in their interviews while still meeting their obligations to report the truth and serve the public.

A Fine-Grained Permission Model for Web-Based Mobile Applications

College of Arts and Sciences: Computer Science

Oral Presentation - Independent Research

PRESENTERS Steven Edward Cap, Anthony Pierce

ADVISORS Phu Huu Phung

LOCATION, TIME Kennedy Union 211, 2:00-2:20

As smartphone technology progresses mobile applications (apps) developers are turning toward hybrid applications which are web language based on using web technologies due to the portability. With the rise of hybrid apps, many frameworks have been developed to make the process of creating these types of apps easier. This makes securing apps more difficult because there are more vulnerabilities in a web-based system versus using a standard native app. To combat these issues we propose a novel fine-grained permission model for hybrid apps that the users can control the behaviors of the apps. In this new model, the users can set a wide range of policies on resource accesses based on location, time period, times of accessing and so on, compared with "all-or-nothing" conventional permission model. We implemented this model by adopting a system called HybridGuard [Phung, et. al., MoST2017]. As our permission model is developed using the web technologies, it can be deployed on different mobile platforms. We evaluate our implementation on the Cordova framework, one of the most common frameworks used by hybrid app developers. We test the policies and their enforcement on various plug-ins, programming libraries to access the phone resources such as location, camera, and so on, from this framework and several related frameworks on Android and iOS mobile platforms.

Autonomous Self-Driving RC Car

College of Arts and Sciences: Computer Science

Poster - Capstone Project

PRESENTERS Kenneth Bester, Garrett M O'Grady

ADVISORS Rusty Olen Baldwin

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

With the age of automation coming to machines, self driving cars will turn from a fantasy to a reality in the next decade. These machines will utilize neural networks to learn from pilot drives to ultimately be able to drive completely autonomously on any road they are put on. This project demonstrates a small fraction of the technology that goes behind a self driving car with an implementation on a 1/16th scale RC car. Using the open source software 'Donkey Car' we were able to turn an RC car into a self driving car that get more intelligent every time it drives. Mounted above the car is a 3D printed roll cage which houses a fisheye lense camera (for image recognition) raspberry PI 3 Model B (for the neural networks) and a Servo Controller(to control the throttle and steering). As a demonstration during the presentation, the car will drive simultaneously around a track avoiding obstacles, following street laws and remaining between the lines of the road.

HeadEx: Real-time Event Extraction and Interlinking from News Headlines

College of Arts and Sciences: Computer Science

Poster - Graduate Research

PRESENTERS Matthew A Weiler

ADVISORS Saverio Perugini, Saeedeh Shekarpour

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

In the world today, there is a lack of useful and quality approaches to structuring and semantically annotating data-sets from real-time news outlets. This research represents an essential pipeline and implementation to such a problem and includes background

data modeling, event and entity annotation, and finally interlinking events from real-time sources such as twitter headline news sources.

Opportunities for Improvement of University of Dayton Resources Regarding Anxiety and Depression

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 373 01

PRESENTERS Emily Cecilia Goecke, Kayla Christine McCarthy, Molly Alison Murray, Rachel Ann Pavlinec

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The problem of anxiety for college students is steadily increasing. And, in recent years, anxiety has passed depression as the number one health issue specifically targeting women. Due to the stress of a changing lifestyle, college students and young adults are most affected by anxiety. If not treated, anxiety can be detrimental to sleep patterns, academic performance, and overall health. The University of Dayton provides a counseling center and some other resources for students to help cope with anxiety. However, after evaluating these resources, we found them in need of improvement. After comparing UD's resources to those available at other college campuses and speaking with fellow UD students, we determined that access to online resources may be more beneficial than traditional mediums to help treat anxiety. Because anxiety affects such a large population of college students, there are several ways to give students access to the help they need. By providing greater awareness, using technology in the form of mobile applications, and giving students 24/7 access to support, the overall mental health of college students at UD could improve. We have also created a document to inform students about the facts and opportunities for persons suffering from anxiety and depression at UD.

Improving Access to Test Anxiety Information at the University of Dayton

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 373 H1

PRESENTERS Molly Kathleen Bush, Maddi Elizabeth Conway, Joseph Cole Emery, Kaylin Ann Kultgen

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Test anxiety is a major health problem on college campuses, affecting nearly 22% of all students, according to the College Student Health Association. The resources that the University of Dayton offers to students about test anxiety were reviewed for the effectiveness of their advertising methods. From these resources, we found that there is room for improvement in access and advertisement of information. Students from freshman through senior as well as adults and professors were interviewed for their opinions and experience with test anxiety. Resources for test anxiety at other universities were compiled and used as inspiration for ideas to improve resources for test anxiety at UD. An improved brochure was created which includes symptoms of test anxiety and tips to overcome it as well as to inform students about resources at Counseling Center and the Office of Learning Resources for students.

Got Sleep: An investigation of the sleep problem on Dayton's campus

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 373 01

PRESENTERS Nathaniel Dale Brown, Lucas William Edwards, Sara M Huber, Katie Rachel Knezevich

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Sleep deprivation has adverse effects on college students impacting their diet, memory, mood, focus, immune system, and overall health. The college lifestyle creates an environment that does not support adequate sleep. We talked with UD students to gauge their knowledge of the importance of sleep in a healthy lifestyle, and found most students are not aware of the effects that poor sleep creates in their lives. We believe the University of Dayton does not have adequate educational information regarding the importance of sleep. After evaluating the resources provided by other universities, we determined more can be done at UD to raise awareness of the pros and cons of sleep as well as other recommendations to get a better nights sleep. Our poster will describe our team's recommendation for raising awareness of this issue. We also created a document to provide a way for students to self-assess how healthy their sleeping patterns are as well as information on health issues related to sleep deprivation.

Improving Resources and Awareness for Sexual Assault at UD

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 373 01

PRESENTERS Bethany Joy Driggers, Danny Patrick Holtz, Sydney Michele Knobel, Jack H Lundy

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

There is a growing epidemic of sexual assault on college campuses across the United States. In light of recent events in the media, it has become clear that time is up on ignoring the signs of sexual abuse. While this time is about empowering the victims, it is also

about recognizing the detrimental effects that sexual assault can have on a college-age individual. Today, the University of Dayton has numerous campaigns in which they inform the community on sexual assault and the resources available. However, after further research and investigation, it has become clear that UD could offer more resources for students to utilize to get help. UD offers students numerous resources, both on and off campus for students to utilize. That being said, only two of these resources are available to students on a 24/7 basis. We then looked beyond UD and researched the various resources available on other college campuses. Some of the resources we found when looking in the area included student legal services, The Women's Place, The Student Advocacy Center, the Sexual Civility and Empowerment Program (SCE), and a 24 hour crisis hotline for students to call in case of an emergency. Due to a lack of information shared and posted across campus, and the lack of resources available to victims on weekends, our group has decided to recommend how UD can become a more proactive and safe place for victims to get help and share their stories.

Strengthening Resources about Sexual Violence at UD

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 373 H1

PRESENTERS Luke Alan Bressler, Elizabeth Ann Edurese, Shalom Shekinah-Arpita Reuben, Leah Ann Schneider

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Sexual violence is prevalent on college campuses across the nation. The University of Dayton has made attempts to combat this issue. The university offers resources such as counseling services, online modules, Green Dot, and advice for dealing with sexual violence on their website. Although UD seems to have an abundance of resources, an issue arises in the school's ability to spread awareness of these resources to the students. This is realized through interviews we conducted with fellow students who were largely unaware of all that the school has to offer. In response to this lack of awareness, we will provide recommendations for future ways to support victims of sexual violence as well as to reduce the number of cases each year. This past year there were 16 reported cases of sexual violence, and for the small size of our campus, this is a concerning frequency. We believe that by providing access to the school's sexual violence resources in high-traffic areas, students will become more aware of the problem and be able to easily access the information when needed. In addition to making recommendations for information more accessible, we created a document with updated information that is more specific to UD's students.

The University of Dayton's Current Amnesty Policy and its Ramifications for Students

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 373 H1

PRESENTERS Samantha Marie Achauer, Samantha Kaye Isidro, Maddie Ann Sauer

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Although universities work to provide the best environment for student health and safety, ultimately it falls on the student to be responsible for alcohol consumption. Some universities have included an amnesty policy in an effort to prioritize the health of the students over the consequences of drinking. An amnesty policy typically states that students who seek medical assistance for themselves or for others will not be subjected to University disciplinary action for violation of alcohol policies. By removing the fear of punishment, students will be more likely to report alcohol-related incidents for themselves or other students. The University of Dayton (UD) has recently changed their amnesty policy to foster a more open dialogue between students and administration regarding alcohol. However, many UD students are unaware of these changes. After interviewing several UD students, it has been established that students' knowledge of UD's policies and practices surrounding alcohol and substance abuse are relatively unknown. UD's website, resources, and transparency were compared with other universities, and we cross-compared this with rates of alcohol write-ups at the different universities. This project hopes to establish a better protocol to make students aware of the resources UD has available, as well as the main mechanism of action surrounding alcohol write-ups. In an effort to educate the campus further, we have created a document highlighting and simplifying the University's amnesty policy and the associated disciplinary and educational process for alcohol-related infractions.

Handling Homesickness: Helping Transitioning First-Year Students at the University of Dayton Recognize and Cope with Homesickness

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 373 H1

PRESENTERS Kennedy Glynn Hale, Wyatt Andrew Kaiser, Ali M Wiethe

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

According to Academia, "Up to 95% of first-year college students report some level of homesickness." The transition to college can be the biggest change many first-year students have ever dealt with. Quickly, they may begin to long for home and become homesick. With this in mind, we researched the issue of homesickness and the resources on the University of Dayton's campus and other college campuses. At the University of Dayton, the issue of homesickness is briefly mentioned on the counseling center's website. There seems to be a lack of resources and attention on our campus to this topic, which affects almost all incoming freshman at one

point in time. To investigate how homesickness affects first-year students, we interviewed current freshmen to evaluate their personal experience with these issues and how they overcame their discomfort. In addition, interviews were conducted with resident assistants on their training for these issues and how they help students become acclimated to college. Through researching other universities across the country and interviewing the community on our campus, we have created multiple suggestions for supporting freshmen during this time of change. Our goal is to provide resources dedicated to help first-year students experiencing homesickness by increasing their overall happiness on campus while also helping them become successful in their future endeavors.

Improvement on Healthy Views of Body Image at UD

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 373 01

PRESENTERS Daniel Joseph Link, Jessie Leigh McLaughlin, Christopher James Turley, Emily Elisabeth Wey

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The National Eating Disorders Collaboration describes body image as “the perception that a person has of his/her physical self... [and] the thoughts and feelings the person experiences as a result of that perception.” Body image can be a lifelong stress and one that is especially heightened in the college years and environment. Unhealthy misperceptions of body image can lead to many dangerous consequences such as eating disorders, depression, and anxiety. Focusing on pressures such as social media and preparing for Dayton to Daytona, we sought to develop resources for UD to support individuals who struggle with an unhealthy body image. We analyzed publications produced by the Health and Counseling Centers and found that there are few resources available to students struggling with poor body images and eating disorders. Furthermore, we have found that many of the available resources are outdated, nonspecific, and poorly advertised. Pamphlets and counselors are the most noticeable resources available to these students. Resources from other Universities were explored to brainstorm ideas in which UD might improve the resources provided to students. Our goal is to improve several aspects of body image at UD, specifically creating awareness and giving resources to students who have issues with body image on campus. We want to uphold UD's values of being an inclusive community for all by creating materials for the university that promote the acceptance of all body types.

The Search for Support: Pregnancy on Campus

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 373 01

PRESENTERS Sara Kathryn Brothers, Maddie Kay Gerdes, Elizabeth Anne Goetz, Chase Alan Sawyer, Diandra A Walker

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

At the University of Dayton, pregnancy is not a prevalent topic of discussion among undergraduate students. Recent research indicates that single mothers are less likely to receive a college degree when compared to women who are single without children or married. In addition, the number of single mothers who are undergraduate students has more than doubled since 2000. Our group investigated how prevalent pregnancy is on college campuses, and found more about the resources provided by UD. Although there are some on-campus resources, like the Women's Center and the Hand in Hand Program, there is a lack of awareness about what types of services these organizations provide. We concluded that the University should make resources more accessible for students who are pregnant or already parents. The goal of this poster is to raise awareness about what resources are available and make recommendations for improving accessibility to information on those resources. Our group will also provide a brochure, which will incorporate relevant and updated information, specifically for UD students. Our hope is that students will become more aware of what is available and feel more comfortable reaching out to utilize these services.

Recommendations for Improving Eating Disorder Services at the University of Dayton

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 373 H1

PRESENTERS Sarah Elizabeth Kane, Maria Pasqualina LaBello, Corteney K Miller, Austin Michael Mueller

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Eating disorders are most common among students 18-21 years of age and are becoming increasingly prevalent on college campuses. When no longer under the eye of family and close friends, a college student can develop an eating disorder without anyone noticing. According to the National Eating Disorder Association, 35% of all college student dieters progress to pathological dieting, and 20-25% of these students subsequently develop a full-blown eating disorder. While the University of Dayton offers health brochures and professional help through the Counseling Center, Health Center, and Campus Ministry, we believe their resources could be improved to better reach the intended population. The University of Dayton does not offer easily accessible information that specifically targets their students, nor extends their resources beyond having a student consult a professional such as a dietician, doctor, counselor, or a campus minister. While these opportunities can be effective, they should be supplemented with other resources; especially considering that many students consult help off campus to cope with eating disorders. More information should particularly be supplied on how roommates, resident advisors, friends, and other peers on campus can recognize the most common eating disorders including, anorexia nervosa, bulimia nervosa, and binge eating/compulsive overeating. Therefore, the purpose of

our research project is to examine the University of Dayton's existing programs, and how other colleges have approached eating disorders on their campuses. As a result, we will use this information to develop a document that effectively addresses possible recommendations on the University of Dayton's campus.

Disparities in Health Literacy Examined Through Diabetes Mellitus Resources

College of Arts and Sciences: English

Poster - Course Project, 201780 ENG 366 01

PRESENTERS Tessa Louise Farthing, Noha Jan, Taylor Nicole Vernot

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

When an individual has a low health literacy level, their ability to successfully access and comprehend healthcare procedures and treatments is impaired. This resulting healthcare disparity is especially prevalent among individuals that speak English as a second language. Our team conducted a Health Literacy Load Test using the multidimensional model and a SMOG test in order to analyze the literacy of an existing Diabetes Mellitus resource published on MedicineNet.com. The goal for our team's project was to revise the website's content in order to accommodate the English health literacy levels of individuals enrolled in the University of Dayton's Intensive English Program (IEP). The original documents were found to be written at approximately a 12.4 grade level. The revised informational brochure that our team created was concluded to be around a 5th grade literacy level.

Electronic communication and social media in organizations

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 372 09

PRESENTERS Shuo Du, Patrick Flynn Duggan, Micaela H Foley, James M Gates, Michael Dean Glaser, Katie Elizabeth Hathaway, Cameron Michael Hendershot, Daniel Patrick Kelly Jennrich, David Philip Kelley, Tillie Jean Kummerer, Carl J Leggett, Xiaoli Li, Kevin James Lynch, Mario Mathew Manta, Heather Elizabeth May, Ashley Elizabeth Mercks, Stephanie Adele Moline, P.J. Anthony Randazzo, Jack William Reilley, Jack D Schafer, Robert Conway Smyjunas, Xuanheng Wang, Conor Patrick Wood

ADVISORS Xiaoli Li

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Students in ENG 372 Business & Professional Writing classes participated in a virtual business professional project that involves almost 600 students in 96 teams from 14 universities in 7 countries. All teams were asked to identify an organization that has a robust online presence, such as a web page, Facebook page, Twitter feed, customer blog, and so on. Then the team analyzed the quality of these mechanisms in terms of building and maintaining the organization's reputation. They identified major conclusions about this company's online presence. Finally they wrote a report that introduces the organization and its online communication tools, provides an analysis of its online presence, and offers recommendations for improvements. They evaluated the company's reputation (built in or bolted on) and provided evidence for their conclusions. The report identified whether the organization is conveying its core values through its social media use and provide recommendations how the company can improve its online presence that address each of the conclusions. This project emphasizes the development of critical-thinking, cross-cultural communication in global contexts, and virtual collaboration and team-building skills.

Corporate Reputation Management and Its Web Presence

College of Arts and Sciences: English

Oral Presentation - Course Project, 201810 ENG 372 07

PRESENTERS Rahaf M H F Al Hamad, Laylah Victoria Funk, Ben Joseph Golab, William Peter Jacobson, John Frederic Kusch, Katherine Mary Leibold, Douglas Lee Lutz, Thomas Williams Martin, Benjamin Michael McDermott, Grace Marie Moriarty, Alvaro Navarro Ilundain, Connor James Schrauth, James Eugene Studer, Conor James Tunney

ADVISORS Xiaoli Li

LOCATION, TIME Humanities 118, 10:30-12:00

Students in ENG 372 Business & Professional Writing classes participated in a 6-week virtual business professional project that involves almost 600 students in 96 teams from 14 universities in 7 countries. All teams were asked to identify an organization that has a robust online presence, such as a web page, Facebook page, Twitter feed, customer blog, and so on. Then the team analyzed the quality of these mechanisms in terms of building and maintaining the organization's reputation, especially whether the organization is conveying its core values through its social media use. Finally they wrote a report that introduces the organization and its online communication tools, provides an analysis of its online presence, and offers recommendations how the company can improve its online presence. They evaluated the company's reputation (built in or bolted on) and provided evidence for their conclusions. This project emphasizes the development of critical-thinking, cross-cultural communication in global contexts, virtual collaboration and team-building skills, as well as project management skills.

The Things He Left Behind

College of Arts and Sciences: English

Oral Presentation - Graduate Research

PRESENTERS Jenna M Gomes

ADVISORS Chris J Burnside, Meredith L Doench, David J Fine

LOCATION, TIME Humanities 110, 11:00-11:20

"The Things He Left Behind" is a short story cycle inspired by the consequences of war and the power of legacy. It follows a young soldier, Felix Rocha, through the eyes of the many people that he impacted throughout his short life. This character is based off of the real-life soldier, Felix Del Greco, who was the first National Guard member to die in Iraq. The incorporation of artifacts into the story is meant to mix fiction and reality; to present to the reader both the real Felix and the fictional Felix. As Tim O'Brien famously said, "story-truth is truer sometimes than happening-truth." This short story cycle is meant to make a lasting impact on the reader, leaving them with the question, "What are the things that I will leave behind?"

A Case Study of Student Perceptions of Transfer from First- and Second-Year Writing to the Disciplines

College of Arts and Sciences: English

Oral Presentation - Graduate Research

PRESENTERS Rebekah Lee Sanders

ADVISORS Patrick W Thomas

LOCATION, TIME LTC Forum, 11:30-12:30

First- and second-year required writing courses, typically housed within English departments and taught by English faculty, are valued by various stakeholders as a means of preparing students for future writing contexts. While these courses are intended to impart students with knowledge and skills to equip them for writing beyond the walls of the English classroom, students are often dubious of the value of these required writing courses to their future careers as students and professionals. As research on transfer becomes an increasingly-prominent area of focus within composition studies, the significance of students' own perceptions of the value of required writing courses has emerged as a key factor in determining how successfully they will transfer what they learn in those classes to writing in the disciplines (WID). This case study draws on insights from over 200 survey responses and six interviews to determine students' attitudes at the University of Dayton toward ENG 100 and 200 and the value of these courses to future writing contexts. Findings indicate that many students have misconceptions and questions about the purposes of these courses, which can contribute to distorted views of how transferable the skills and knowledge gained in these courses will be. In addition to shedding light on students' perceptions of transfer, this research argues for the importance of understanding students' forward-reaching conceptions of the purpose and value of writing instruction in order to ensure that transfer is possible.

The Past is Present: Imagining Medieval Women

College of Arts and Sciences: English

Oral Presentation - Honors Thesis

PRESENTERS Kristen E Daly, Katherine R McCaffery

ADVISORS Miriamne A Krummel

LOCATION, TIME Humanities 118, 12:20-1:00

This Stander Symposium oral presentation will feature Kristen Daly (senior) and Katherine McCaffery (senior) and will focus on the results of their research and studies of women in medieval literature. Kristen will present her research and her resulting essay, "Agency in the Middle Ages," focusing on two stories, Ariana Franklin's "Mistress of the Art of Death" and "Tristan and Iseult." She will also share a short creative piece "The Daughters of the Wife of Bath," based on the torn nature of Geoffrey Chaucer's provocative Wife of Bath. Katherine will discuss the research and writing of her original play, "The Woman Behind the Lais." She will also examine the further research she has done for her Honors Thesis, which regards theories of temporality and women's writing, and specifically focuses on Marie de France's Lais.

How Trustworthy is She?: Perception of International Students Toward International Peer Tutors in Writing Centers

College of Arts and Sciences: English

Oral Presentation - Graduate Research

PRESENTERS Raheem Terrell Rashawn Elmore, Romaisha Rahman

ADVISORS Bryan A Bardine, Jennifer E Haan, Andy Slade

LOCATION, TIME Humanities 110, 12:30-1:10

Working as a writing center graduate peer tutor for almost two years now, I have, at times, faced situations where I had to work hard to establish my credibility with the client. The most surprising, yet funny, thing is that I did not encounter this issue with any native speaker of English but with the people who speak English as their second language-- just as I do. The domestic students have appeared to be more comfortable in working with me than some of the international students. I began to wonder why this was happening, and if I was the only international peer tutor facing such issue. One thing that I have learned from majoring in Linguistics, which I have also embraced with openness, is that the flame of curiosity is what leads to the greatest of discoveries. With that idea in mind, I started to ask around. I also had a conversation with my supervisor about this issue and came to know that previous international student employees have also faced similar situations with students who shared the same native culture as them;

the students who spoke the same native tongue. This strange phenomenon interested me to such a great extent that I decided to research it; soon after, it became the topic of my Master's thesis. I am currently pursuing my Master's degree in English with a concentration in TESOL and have chosen "Perception of International Students Toward International Peer Tutors in Writing Centers" as my thesis topic. Since this biased phenomenon is a recurrent one, my research has tried to answer "why" this event takes place. From the research findings, it can be concluded that this phenomenon occurs due to the presence of native speaker fallacy; also, this native speaker fallacy is exhibited differently by different cohorts of students—giving native speaker fallacy two entirely different definitions.

Reading Street Lit with Incarcerated Juveniles: The Myth of Reformatory Incarceration

College of Arts and Sciences: English

Oral Presentation - Graduate Research

PRESENTERS Jacob Scot Hale

ADVISORS David J Fine, Patrick W Thomas

LOCATION, TIME Humanities 110, 1:20-1:40

Street Literature—a popular, often young adult, genre that seeks to depict the socioeconomic realities of urban communities—has received much attention from educators and scholars of young-adult literacy. Some, such as Stephanie Guerra, advocate for its use with incarcerated youth because of its ability to resonate with their experiences of urban environments. However, the genre remains surprisingly understudied in the fields of literary and cultural studies. In my paper, I argue that Street Literature reinforces false or misleading narratives of the reformatory power of incarceration. Further, these books obscure realities such as the mass incarceration of people of color and the Prison Industrial Complex and suggest that escape from cycles of poverty and recidivism is possible with the help of determination or interpersonal relationships. To evaluate the effect of the problematic narratives on incarcerated juveniles, this paper uses an interdisciplinary approach by combining traditional literary analysis of several Street Lit works with qualitative field research. By conducting a focus group with residents at a juvenile detention center, I seek to understand if Street Lit can affect the residents' acceptance of the proposed reformatory power of incarceration inherent in many works of Street Lit. If those who study adolescent literacy advocate for the reading of Street Lit, then it's important to understand the genre's impact on vulnerable populations. Further, the better literary and cultural researchers understand the prison paradigms represented in popular literature, the better we can work to legitimize other, more constructive narratives which can counteract the existing structures of power. With this paper, I add to the conversation about how literature can contribute to issues regarding the intersection of literature and social justice.

King Arthur as Transcendent Rhetoric of Anxiety: Arthurian Legends as Sociopolitical Paratexts

College of Arts and Sciences: English

Oral Presentation - Capstone Project

PRESENTERS Alexis Faith Ancona

ADVISORS Miriamne A Krummel, Elizabeth A Mackay, Bobbi Sue Sutherland

LOCATION, TIME Marianist Hall Learning Space 218, 1:30-1:50

As a recurring figure representative of the institution of kingship, King Arthur presents a unique rhetorical opportunity to examine sociopolitical anxieties of the Middle Ages. Because of his unique position, I propose Arthur himself is a text to be analyzed. With Arthur established as a text, specifically one of rhetorical significance, I analyze his subsequent iterations (historical and literary) as paratexts. Traditionally, paratextual analysis has involved an investigation of the literal and physical artifacts surrounding a text; however, by examining Arthur the figure as a text, I apply paratextual analysis theoretically. Rather than examining book bindings or author's notes, I argue Arthur's paratexts involved genre/iteration and the sociopolitical rhetoric of his authors. Through this method, I argue that Arthur is a transcendent text onto which sociopolitical anxieties are imposed, making him more than a literary figure but rather a rhetorical device of cultural memory and anxiety. Reading Arthur as such provides not only significant opportunities to recover marginalized narratives of medieval England, but also considering his continuing iterations, insight into present sociopolitical anxieties.

When Feminism Meets Hip-hop

College of Arts and Sciences: English

Oral Presentation - Honors Thesis

PRESENTERS Kylie Anne Thompson

ADVISORS Thomas L Morgan

LOCATION, TIME Humanities 118, 1:30-1:50

My Honors Thesis focuses on hip-hop as a socio-political genre and as a means of advocacy via its ability to mobilize listeners toward social change. While the genre's deeply political critiques traditionally focus on matters of race and class, some female hip-hop artists challenge the sexist culture of the industry and assert a feminist voice. My research specifically engages with the ways this feminism functions in conjunction with the manipulation of gendered language, revealing how feminist strategies confront systemic sexism. Further, certain issues closely connected to the field of feminism spark controversy among feminists over what constitutes challenging the patriarchal system. In this paper, I draw on feminist thinkers as well as hip-hop scholars in order to posit a radical

feminist interpretation of contemporary female hip-hop artists, and I provide a critical analysis of their lyrics in support.

Considering the student perspective: An autoethnography of a graduate grant-writing internship at a local nonprofit organization

College of Arts and Sciences: English

Oral Presentation - Capstone Project

PRESENTERS Katherine Jenness DeVantier

ADVISORS Nicky F Adams, Jennifer E Haan, Patrick W Thomas

LOCATION, TIME Humanities 110, 1:50-2:10

This project is an autoethnographic case study exploring the experiences of a graduate student completing a grant-writing internship with a nonprofit organization in Dayton, Ohio. Whereas previous scholarship has supported its findings with student experiences conveyed through the secondary lens of an academic professional, this project seeks to examine a professional writing internship from the student's perspective. It finds that while many of the author's experiences paralleled those outlined by other interns in established research, her internship experience overall was marked by a more consistent and lingering sense of concern not assuaged by the end of the internship. This occurrence affected the holistic view of the internship and the work she was doing. Given these results, this project outlines implications for three involved parties: the student interns, the academic institutions from which the students come, and the industry mentors as representatives of the sites at which internships take place. For students, it is important to select internship writing tasks that build from already-established content knowledge; students must also be vocal about their efforts during the internship and seek out help when necessary. For academic institutions and industry mentors, it is crucial to maintain open lines of communication and establish consistent feedback opportunities, often in more formal class settings in regards to the former. As internships continue to play a large role in preparing students for work after graduation, it is crucial that students, schools, and organizations continue to communicate about expectations and consult the primary individual undergoing the most development and growth: the student intern.

Murky Water, Fluid, and the Borderlands of Language: An Exploration of Toni Morrison's Beloved

College of Arts and Sciences: English

Oral Presentation - Honors Thesis

PRESENTERS Julia Kristin Hall

ADVISORS Rebecca C Potter

LOCATION, TIME Humanities 118, 2:00-2:20

Centered on Toni Morrison's *Beloved* and her process of writing the novel, this thesis links the crossing of a river, the birthing of a child, and the creation of a text. By drawing upon theories of composition, feminism, and genre theory, the exploration of *Beloved* balances discussion of writing process, language, and textual analysis. Buttressed by a complimentary text, Gloria Anzaldúa's *Borderlands/La Frontera: The New Mestiza*, the connection between creation of language, identity, and body is underscored in Morrison's own process. Since this thesis analyzes *Beloved* from multiple theoretical perspectives, it is the correlations between the composition and literary approaches that provide the substance. Amongst the findings of such analysis include: the weird both in the simultaneous creation of individual and collective identity, the looping of the birthing process, the creative and destructive power of birthing, and the regulation of bodies—ideas that will be elaborated upon in the presentation.

Evidence in Online Political Discourse: How Everyday Citizens Argue about Politics on Social Media

College of Arts and Sciences: English

Oral Presentation - Honors Thesis

PRESENTERS Diane Joy Leverich

ADVISORS Patrick W Thomas

LOCATION, TIME Humanities 118, 2:30-2:50

This study is an examination of how everyday people use evidence to engage in political discussions on the social network Reddit. com. Evidence use is especially important in online political conversations because the reporting of political events and issues can vary depending on the source and is often subject to intense deliberation. This thesis explores use of evidence in a political subreddit to examine what patterns, if any, emerge from how individuals employ evidence in constructing arguments and counterarguments in public political forums. In doing so, I am to show how ordinary citizens (i.e., those lacking political power or influence) shape their own forms of political discourse online.

Partnering with IEP Students to Improve Nutrition Label Education and Literacy

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 366 01

PRESENTERS Olivia Louise Bittner, Brian Douglas Davidson, Natalia Marie Iannarino, Caroline Marie Symons

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Many health care documents are written at too high a reading level for a majority of the U.S. population to comprehend. In an effort to address this problem, we revised a previous existing document on how to read a nutrition label. The original document was intended for children, but through testing it was determined to be written at approximately a ninth grade reading level. We visited a classroom of ten, level two Intensive English Program (IEP) students who wanted to learn more about understanding American nutrition labels to determine what information they are interested in. Within this visit we learned that the students understood the components associated with an American nutrition label, but wished to learn more about what foods are important to include in a healthy diet compatible with their cultural and dietary preferences. In order to cater to the IEP students, we revised the original document to approximately a fourth grade level and paid specific attention to formatting to prevent distraction from key information. We utilized culturally appropriate images and words so that these students could better understand the presented information. After revision, we presented our improved document to the IEP students to receive feedback on the readability and comprehension. With their feedback, we further revised our document so that it would more effectively communicate this information.

Adapting an existing health document to increase awareness about dietary supplements for the Intensive English Program

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 366 01

PRESENTERS Ibrahim Khaleel Alsulaimani, Maris O'Malley Ebeling, Emily Margaret Flaherty, Catherine Victoria Matheny

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Health literacy can be defined as an individual's ability to understand health information and integrate the information to make informed decisions in order to reduce health risks and enhance overall quality of life. We partnered with the Intensive English Program (IEP) to revise an existing health document about dietary supplements for students in this program. First, we met with level two IEP students to assess their initial knowledge of dietary supplements and to determine how the document should be tailored to meet their health literacy needs. The initial document had a readability level of 12.0 according to the Microsoft Flesch-Kincaid readability tool and the Simplified Measure of Gobbledygook (SMOG) tool had a reading level of 13.5. Our goal was to adapt the existing health document to a 3.0 to 4.0 reading level for IEP students. This was accomplished by reducing sentence structure complexity and eliminating complex terminology. This project brought to light the need for developing and adapting existing healthcare documents for marginalized audiences with low health literacy.

Creating a More Effective Explanation of Concussions for Intensive English Program Students

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 366 01

PRESENTERS Taylor Morgan Balk, Mark D Bugada, Caroline A Lynch, Olivia Marie Stanforth

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Low health literacy is a huge obstacle in communicating medical conditions and information to patients. An additional obstacle is created when physicians are communicating with international patients whose primary language is not English. The purpose of this project was to present written information on concussions to international students in the Level 2 Intensive English Program (IEP) at the University of Dayton in a format that they could read comfortably. For our methods, we went into the IEP classroom to assess the students' knowledge of concussions. We then used the information the students provided along with an original fact sheet produced by the Center for Disease Control to create a brochure that would help the IEP students better understand concussions. We altered the original document's wording, format, and content in order to display the information to the students so that they could better understand the material. Our document focused specifically on what a concussion is, its symptoms, and recovery tips. This final brochure corresponded with the IEP students' reading level and allowed them to comprehend the information more clearly.

Improving Health Resources on Snoring to Increase Intensive English Program Students' Understanding

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 366 01

PRESENTERS Andrew J Deak, Adriana Beatrice Figueroa Santiago, Carrie Anne Siekierski

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Health literacy is defined as the wide range of skills that people develop over their lifetime to comprehend and use health information to make informed choices, reduce health risks, and increase quality of life. In an effort to address the problem of health literacy, we worked with students in level two of the University of Dayton's Intensive English Program (IEP) to develop a helpful health resource about snoring. After learning from the students what they wanted to know about snoring, we were able to choose an existing health text that required a high level of literacy in order to achieve understanding. Using that text, we created a new fact sheet

with important information about snoring and delivered that information in a way that made it understandable for the IEP students. After field testing our document with the IEP students, we were able to use their feedback to make improvements and ensure the material was easy to understand. As a result of this work, after performing several analysis tests, we determined original document had an average readability level of 9.7 and rewrote it to require an average reading level of 3.9, cutting the literacy level required down by more than half. This project worked to demonstrated how to reduce the readability challenges of a health document for people of lower literacy levels in order for them to understand important health information.

Understanding the Intricacies of Obesity

College of Arts and Sciences: English

Poster - Course Project, 201810 ENG 366 01

PRESENTERS Maddy Rae Dutton, Joseph Cole Emery, Dana Lynn Pflugradt, Collin Robert Rook

ADVISORS Ann E Biswas

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Health literacy refers to one's understanding of healthcare information and the ability to make informed decisions when it comes to health benefits and risks. Obesity is a major health epidemic, so we analyzed and revised a health document from the Obesity Action Coalition website to enhance the understanding and readability of the document for the University of Dayton's level two Intensive English Program (IEP) students. The original document required a college-age reading level. The IEP students read at a 3rd or 4th grade level, so this document was not appropriate for this audience. We visited with the IEP students to gather information about what they already knew about obesity, what they wanted to know more about, and if they had any questions pertaining to obesity. We were then able to create a new brochure for them, making sure to address the information that was of interest. During our field test with the IEP students, we presented our draft in order to receive comments and questions. After the field testing and running SMOG and Flesch-Kincaid readability tests on the original and drafted documents, the final brochure was created and the IEP students reading level was attained. The document our group created allowed the IEP students to better understand important information about obesity, which was lost in the original document. This revision process shows how important it is to assess the readability of health documents and to make them appropriate for a specific audience.

Semester of Service at Aullwood Audubon: Ewe, Me, and Energy

College of Arts and Sciences: Fitz Center for Leadership in Community

Poster - Course Project, 201810 UDI 393 01

PRESENTERS Thomas Brewster Tappel

ADVISORS Craig James Attenweiler, Castel V Sweet

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

This semester, my last semester, I worked full-time at Aullwood Audubon as their (in way over my head) energy engineer. During my time at Aullwood, I coordinated projects aimed at reducing the amount energy used at the Nature Center as well as developing plans for renewable energy generation and energy education. I also participated in some of Aullwood's programs and events exploring the trails throughout the 200-acre nature sanctuary, experiencing how to make maple syrup, and learning more than I could ever imagine about birds.

Semester of Service - Volunteers of America Residential Re-Entry

College of Arts and Sciences: Fitz Center for Leadership in Community

Poster - Independent Research

PRESENTERS Nathan Joseph Roman

ADVISORS Castel V Sweet

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Through UD's Semester of Service program, I spent my last semester working full-time at the Volunteers of (VOA) America Residential Re-Entry facility in Dayton. This facility houses 130 clients who are transitioning from the criminal justice system back into society, and offers a number of programs to make this transition easier. At VOA, I assisted with employment readiness services (creating resumes and preparing for interviews), structured activities (life skills and recreational time), and also helped to connect clients to appropriate resources in the community.

Semester of Service at Daybreak

College of Arts and Sciences: Fitz Center for Leadership in Community

Poster - Course Project, 201810 UDI 393 01

PRESENTERS Emma O'Neill Bertrand

ADVISORS Castel V Sweet

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

I have dedicated this semester to service for the Dayton community. Specifically, I am working with Daybreak youth homeless shelter. As a communication major, I have a gift for telling stories both written and visually. I will use these skills throughout the course of the semester to tell the stories of the people at Daybreak and to bring about awareness of the agency and all of the good that it does.

Semester of Service at Adventure Central

College of Arts and Sciences: Fitz Center for Leadership in Community

Poster - Course Project, 201810 UDI 393 01

PRESENTERS Caroline Marie Shepherd

ADVISORS Castel V Sweet

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Adventure Central is an after school program that encourages environmental education and appreciation. Through the Semester of Service program at UD, two group leaders were hired to work full time at Adventure Central. Semester of Service participants are acquiring experience in lesson planning and educating elementary aged school children. Adventure Central is located in West Dayton and caters to Dayton City School students. There is no where else in the country that rivals Adventure Central's success in after school programming. Adventure Central is possible through partnerships with Five Rivers Metroparks, The Ohio State University and 4-H. Semester of Service participants have their own classroom to maintain and plan for. Students at Adventure Central range from six to 18 years old. Adventure Central promotes positive youth development in the West Dayton community.

Semester of Service - Adventure Central

College of Arts and Sciences: Fitz Center for Leadership in Community

Poster - Course Project, 201810 UDI 393 01

PRESENTERS Ellie Marie Ryan

ADVISORS Castel V Sweet

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Adventure Central is an after-school program that focuses on positive youth development, health and wellness, and interaction with science and nature. Adventure Central assists students with any homework or school assistance needed as well as provides structured activities for after school hours. Adventure Central is a partnership between The Ohio State University, 4-H Youth Development, and 5 Rivers Metroparks of Dayton. It is located in the West Dayton community and continues to improve the lives of the students and the families it serves. This semester, as part of the Semester of Service Program, I am working at Adventure Central as a Group Leader. I am working on lesson and activity planning for a small group of students. By working in the West Dayton area, I am allowed the opportunity to immerse myself in the community.

Semester of Service at the Brunner Literacy Center

College of Arts and Sciences: Fitz Center for Leadership in Community

Poster - Course Project, 201810 UDI 393 01

PRESENTERS Fiona Marie Madden

ADVISORS Castel V Sweet

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Through UD's Semester of Service program, I worked at the Brunner Literacy Center. The center began serving illiterate and low-literate adults in the Dayton area in 2006, and has since expanded its services to include GED prep and English as a Second Language (ESL) tutoring. I worked to further the BLC's mission of providing a safe, welcoming place for adults to learn by acting as a program assistant and tutoring students from Dayton, Sudan, and the Dominican Republic.

Semester of Service at Homefull: Housing First and Homelessness in Dayton

College of Arts and Sciences: Fitz Center for Leadership in Community

Poster - Course Project, 201810 UDI 393 01

PRESENTERS Alexandra M Altomare

ADVISORS Castel V Sweet

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Homefull is a non-profit agency that provides case management services to the homeless population in Dayton to help individuals escape homelessness hopefully into a stable and long-lasting independent living situation. With a housing first philosophy, Homefull casemanagement is focused on getting clients out of shelter as a top priority, with all other services to follow. As a case manager this semester, I assist clients in getting linked with services to manage their mental health conditions, stabilize alcohol and drug abuse, and find income to prepare clients for the housing opportunities Homefull is able to assist them with. The role of the case manager ranges from advocate to potential landlords, sympathetic ear to a hard day, or stern motivator to encourage clients to seek help for themselves. But no matter the task that day, the end goal is always to find a reconciliation between the poverty and lack of affordable housing in Dayton to break the cycle of neglect towards this vulnerable population.

Semester of Service at Homefull

College of Arts and Sciences: Fitz Center for Leadership in Community

Poster - Course Project, 201810 UDI 393 01

PRESENTERS Krishna Sai Phaneendar Mullanpudi

ADVISORS Castel V Sweet

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Homefull, formerly The Other Place, was founded in 1988 in Dayton, Ohio and has grown to meet the challenging needs of the community in service to homeless persons. Through UD's Semester of Service Program, this semester I have volunteered to work for Homefull as an IT intern. During my time at Homefull, I have assisted the employees with their every day tech needs and troubleshooting their issues with computers. As a Computer Science major, I have dedicated my time here shadowing different employees and made suggestions to make their work easier. I am also working on building an interface to quickly and efficiently search through different organizations such as food Pantries that will help our clients. I have had a chance to travel across different sites that Homefull serves and learn more about American society by meeting different people. It has been only one year for me in the USA and I am thankful to SOS that I was able to learn many things through this program, that my four walls classroom would have never taught me.

Dayton Civic Scholars 2018 Cohort Presentation

College of Arts and Sciences: Fitz Center for Leadership in Community

Oral Presentation - Capstone Project

PRESENTERS Julia Christine Carroccio, Logan M Cobbs, Nicholas Alexander Dalton, Austin Edward Hillman, Lauren Arlene Hoody, Andrew M Kramer, Katherine Rachel Liming, John P Marron, Meghan Rose Marth, Kayla Jane McLaughlin, Maia A McLin, Kasey Anne Mulligan, Bradley Gunnar Petrella, Carlos Martin Rodriguez, Eva Justine Schuller, Emma Kathleen Welsh, Eden Kay Williams

ADVISORS Hunter Phillips Goodman, Gianna Marie Hartwig, Donald A Vermillion

LOCATION, TIME Kennedy Union Torch Lounge, 12:00-12:40

The 2018 Dayton Civic Scholars will be presenting their cumulative capstone. 17 students were chosen their sophomore year to join the Civic Scholars and plan a Capstone Project in partnership with a local neighborhood to benefit the Dayton area. The 2018 Cohort chose to plant a community garden in the Edgemont neighborhood, adjacent to Mount Olive Church. During this presentation, the students will share their experiences, challenges, and ultimate success.

Community Engagement in the Linden Heights Neighborhood: Bringing a Community Together with Nature Play

College of Arts and Sciences: Fitz Center for Leadership in Community

Oral Presentation - Capstone Project

PRESENTERS Luke Mark Bachmann, Madalyn Ann Beban, Cameron Allen Cerbus, Alexandra Margaret D'Angelo, Jason Demeter, Sarah Marie Fieldhammer, Julia Kristin Hall, Abigail Anne Kowalczyk, Corey Michael Kuminecz, Meg Eileen Maloney, Emily Patricia McAleese, Christian Michael Medina, Ana Donnatella Ritz, Tia Alissa Ritz, Cody Samuel Ruffing, Megdalene B Stirn, Aaron John Svidunovich, Lori R Zagar

ADVISORS Leslie W King

LOCATION, TIME Kennedy Union 310, 1:10-1:30

River Stewards, a multidisciplinary leadership program through the University of Dayton's Fitz Center, focuses on civic engagement, protection of the Great Miami River Watershed, and service. As part of the 3-year commitment to the program, each River Stewards cohort designs and implements a Capstone Project. The 2018 cohort has composed a plan, scheduled to be carried out in March of 2018, to create an outdoor playground composed of natural materials called a "Nature Play." Located in the Linden Heights neighborhood, the Nature Play is intended to provide a space for kids, and the general populous of the neighborhood, to connect with nature in a way they might not have been able to otherwise.

Water: More Than Just a Life Source for Ethiopian Women and Children

College of Arts and Sciences: Geology

Poster - Course Project, 201810 GEO 208 01

PRESENTERS Alyssa Marie Miller

ADVISORS Zelalem K Bedaso

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Water is a basic human right that we, as Americans, tend to take for granted. Many of us do not know the full extent of how water is unequally distributed in some areas of the world, specifically in developing countries. The objective of my research is to examine the effect of the lack of clean water in sub-Saharan Africa in general and Ethiopia, specifically on women and children. Ironically, Ethiopia is considered as a water tower of Africa and a source of the Blue Nile River, but 32% of the population do not have access to clean water. Studies indicate that the unprecedented effect of climate change on hydrologic cycle will significantly affect the availability of water in the region. Per the Huffington Post, Ethiopian women and children in some rural areas walk up to four hours a day to

fetch even non-sanitized water, which cause waterborne diseases that claim the lives of 500,000 children. This lack of access to clean drinking water has placed a burden on females and children and risk their safety by embarking on this long journey, which also loses their opportunity to attain an education. Here, I will gather data on distribution of water resources, population, socio-economic and public health from different sources (i.e, publisher articles and United Nation reports), and analyze the severity of the problem. Further, I will consider the potential effect of the country's plans to build the "Grand Ethiopian Renaissance Dam" to improve the livelihood of women and children. Finally, I will observe if there are any policies considered being passed to improve water accessibility, which would impact women and children's well-being and could lead to an education to better develop the nation.

Wetland Dynamics and Potential Applications within the Great Miami River Watershed to Address Elevated Levels of Agriculturally-Derived Nitrates

College of Arts and Sciences: Geology

Poster - Course Project, 201810 GEO 208 01

PRESENTERS Matt Stephen Jones, Alex Robert Paschal

ADVISORS Zelalem K Bedaso

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Changes in agricultural practices in the Mississippi River Basin, especially high-density row crop farming and increased fertilizer usage, affect the overall total of loose, agriculturally-derived nitrates that flow through defined watersheds. Wetlands, on this note, function as filters for such water-soluble compounds like nitrates through physical mechanisms (sorption, sedimentation, and volatilization), chemical mechanisms (transformation and precipitation), and the biological mechanism of plant uptake. Thus, wetland subsections serve a vital role in watershed dynamics by removing nitrates from the macroscopic fluid-flow through the system. However, in numerous watershed-scale studies, expected empirical effects of wetlands have not been numerically realized. This is potentially due to the destructive interference between the nitrate removal effects of wetlands and the nitrate additive effects of increased crop coverage in studied regions. Thus, a study was designed and executed to isolate the effects of each of these mechanisms and compare the effectiveness of wetlands with other nitrate removal techniques; resulting from this study, it was shown that, per unit area, wetlands are five times more efficient at reducing water-soluble nitrate concentrations than the most effective land-based nitrogen removal strategies. A similar study in the Great Miami River Watershed, where more than 40% of streams do not meet Ohio's water quality standards, is vital to improve water quality and nutrient management and. Here we will use water quality data, land use and drainage maps to suggest potential wetland locations in the Great Miami River watershed that would alleviate the problem of elevated levels of agriculturally-derived nitrates within the region.

GLOF Modeling of Hongu Glacier Lake in the Nepal Himalayas: A GIS-based Approach

College of Arts and Sciences: Geology

Poster - Capstone Project

PRESENTERS Katherine A Strattman

ADVISORS Shuang-Ye Wu

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The objective of this project is to model a glacial lake outburst flood (GLOF) of Hongu Glacier Lake, located in the Mount Everest region of Nepal, using a physically-based GIS model. Due to recent climate change many glaciers in the Himalayas have experienced rapid retreat, resulting in the development and growth of proglacial lakes. Often dammed by terminal moraines composed of unstable and unconsolidated material, trigger events such as excessive rainfall or avalanches can cause the dam to be breached, releasing massive amounts of water over a short period. Large volumes of water combined with the steep and complex terrain of the Himalayas causes serious threat to downstream populations and infrastructure. Assessing and monitoring proglacial lakes using remotely sensed images has become a widely established practice as many glaciers, including Hongu, are in unreachable, remote area. Additionally, GIS-based flood models allow for spatial analysis of risk assessment. Using digital elevation models (DEMs) derived from remotely sensed images, land cover data, and soil data as base maps, the freely available WetSpa model is applied to Hongu Glacier Lake for flood prediction. WetSpa, or Water and Energy Transfer between Soil, Plants and Atmosphere, is a physically based GIS model that simulates hydrologic processes continuously over time and space on the catchment scale. DEMs from 2015 imagery are obtained freely through NASA's Earth Explorer program, and soil and land use data are obtained from the International Centre for Integrated Mountain Development (ICIMOD). Outputs in the form of hydrographs from the WetSpa model are imported into ArcMap for analysis. Information on extent and intensity of the modeled GLOF can be used for risk assessment or future planning of infrastructure.

A stable isotope approach to nitrate contaminant tracing in the Great Miami River Watershed

College of Arts and Sciences: Geology

Poster - Independent Research

PRESENTERS Rachel Kristine Buzeta

ADVISORS Zelalem K Bedaso

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The global population has been increasing exponentially and has caused several challenges surrounding sustainability, including the need for greater food production. To meet these demands and boost agricultural productivity, mechanized, more efficient agricultural practices and chemical fertilizers are used. These chemicals have resulted in water pollution and water quality degradation. Much of the Great Miami River Watershed's streams and aquifers are impacted by excessive amounts of nutrients such as nitrate originating from anthropogenic sources including use of fertilizers for agriculture, human wastes (domestic, industrial, and municipal wastes), and urbanization. High nitrate concentrations can cause ecological disturbances and affect organisms across all trophic levels. It also poses a danger to human health (nitrate levels greater than 10 mg/l) if the contaminant reaches drinking water sources. Although a network of water quality monitoring stations report nitrate concentrations in surface and groundwater, contaminant source tracing has not been done. Here we used isotope fingerprinting techniques to trace sources of nitrates. Isotopes of nitrogen (^{15}N) and oxygen (^{18}O) are used to identify unique nitrate isotopic signature from different sources. Our results show distinct ^{15}N and ^{18}O isotopic signatures from different land use and sources such as agriculture, septic systems, and animal waste. Further analysis of boron isotopes (^{11}B) is used to distinguish anthropogenic sources (synthetic fertilizer, wastewater) from natural sources (organic fertilizer). Preliminary data has shown that different nitrate sources have different ranges of ^{15}N , ^{18}O , and ^{11}B values. The collective data from our first-round of sampling suggests that the isotopic composition of these sources can be used to quantify contaminants in groundwater that comes from those sources. The outcome of this research could provide a regional baseline for nitrate contaminant tracing and help to inform state and local water quality management and public health policies related to nitrate resources.

Revising the Geological Time Scale: A Multi-Clade CONOP₉ Composite from the Middle Ordovician Rocks of Newfoundland

College of Arts and Sciences: Geology

Poster - Honors Thesis

PRESENTERS Katherine Gayle Michel

ADVISORS Daniel Goldman

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The Geological Time Scale is a fundamental tool for geoscientists that is revised and republished every eight years. It is a representation of the geologic record - a system composed of radioisotope dates interpolated into fossil successions that can be used to correlate rocks, used a standard to which local successions can be compared, and as a framework for the rate calculations needed in geologic and evolutionary studies. The current Geologic Time Scale for the Ordovician Period (GTS 2012) is composed of a sequence of species ranges from a group of fossils called graptolites with interpolated radiometric dates. Building a global geologic time scale requires correlating between different biofacies. These correlations are difficult because the fossil organisms used to demonstrate time equivalency may live in non-overlapping environments, as well as other biases inherent in the fossil record. In this thesis I will attempt to combine stratigraphic range data from different kinds of Ordovician fossils in order to improve the precision and usefulness of the Ordovician time scale. I will integrate the range data from graptolites (deep water biofacies), chitinozoans and conodonts (shallow water biofacies) in the Middle Ordovician rocks of Newfoundland. I will conduct field studies to make new, detailed fossil collections and use these in conjunction with already published literature. In particular I will look for unusual co-occurrences of both types of fossils on single bedding planes, which have been reported in the geologic literature from Newfoundland. I plan to use the computer-assisted graphic correlation program CONOP₉ to create composite taxon ranges from many localities based on the first and last appearance data for each species and then construct a more precise correlation network between sections that represent disparate biofacies. This correlation network can be used in the revision of the Ordovician Time Scale for 2020.

Contrasting Patterns of Small and Large Glacial Lake Evolution in the Nepal Himalayas

College of Arts and Sciences: Geology

Poster - Capstone Project

PRESENTERS Katherine A Strattman

ADVISORS Umesh K Haritashya

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The objective of this research is to assess annual ice velocities of three Himalayan glaciers in the Mount Everest region of Nepal. Glaciers worldwide are important indicators of climate change due to their tendencies of attaining equilibrium under changing climatic conditions. Imja, Lower Barun, and Hongu glaciers and their respective proglacial lakes have responded by retreat and growth, but at varying rates. Imja and Lower Barun Lakes have grown rapidly, but Hongu Glacier Lake has shown relatively slower growth. Despite the little accelerating growth of Hongu Glacier Lake, the moraine is composed of unconsolidated and unstable material, and poses the threat of an outburst flood due to less freeboard area. Therefore, it is important to monitor the development of all three lakes, as well as consider fluctuations of surface velocity. Using Landsat satellite imagery, I assessed the annual changes in surface ice velocity from 1992 to 2017. The yearly images were used as inputs to COSI-Corr, a co-registration and sub-pixel correlation software, to track changes on the glaciers surface. My results indicate short-term variations, despite all three glaciers' location within the Mount Everest region, as well as similar long-term trends. Specifically, Imja, Lower Barun, and Hongu glaciers have shown long term trends of decreasing surface velocity, with varying rates of flow within each yearly pair. The three proglacial lakes have all grown at different rates as well, with Imja showing very rapid growth since the 1960s, Lower Barun showing deaccelerating growth, and Hongu showing very little growth. Understanding the dynamic nature of surface velocity can provide insight on overall glacier health, and may reveal how glaciers respond under rapid lake growth.

Exploring the impact of El Niño and La Niña on δD and $\delta^{18}O$ patterns in global precipitation using ArcGIS software

College of Arts and Sciences: Geology
Poster - Capstone Project

PRESENTERS Amber Johnson

ADVISORS Shuang-Ye Wu

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

This study aims to determine the impact of El Niño Southern Oscillation (ENSO) events on the environmental factors (including temperature, latitude, elevation and precipitation amount) controlling stable isotopes in precipitation utilizing regression models in the ArcGIS software. Stable isotope ratios (δD and $\delta^{18}O$) of precipitation have been documented to be directly dependent on changes in temperature and precipitation amount in temperate and tropical regions of the world, respectively (Dansgaard, 1964). During El Niño and La Niña Southern Oscillation events, many regions of the world experience changes to temperature and precipitation amount, with some regions becoming cooler and wetter, others becoming warmer and drier, and many others experiencing patterns in between (Trenberth, 1997). Using ArcGIS, global maps will be created showing the variation in $\delta^{18}O$, temperature, latitude, elevation and precipitation amount for six selected years corresponding to strong El Niño, strong La Niña, and normal climatic conditions. Regression models will be performed by climate zone of the world (temperate, tropical, polar) to determine the relationship between environmental factors and $\delta^{18}O$. For normal years, the relationship between temperature and $\delta^{18}O$ in temperate regions should be approximately linear ($R^2 \sim 1$) and a positive trend, while the relationship between precipitation amount and $\delta^{18}O$ in tropical regions should show a negative trend. The $\delta^{18}O$ ratios in regions of the world that become cooler and wetter during ENSO events could be more depleted than during normal years, while regions that become warmer and drier will have more enriched ratios than during normal years. This project has immense significance in its potential to predict future patterns of $\delta^{18}O$ globally during ENSO events, impact groundwater mass balance models, influence resource allocation in regions heavily impacted by ENSO events, and produce more accurate isotope-based paleoclimatic reconstruction models.

Assessing Inundation Risk and Possible Race and Income Correlations

College of Arts and Sciences: Geology

Poster - Capstone Project

PRESENTERS Ryan M Matzuk

ADVISORS Shuang-Ye Wu

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

This project has two objectives: (1) map areas vulnerable to inundation and (2) determine whether or not there is a racial or income disparity between the citizens of Harris County, TX at risk of inundation compared to those not at risk. Harris County is a relatively flat, near-coastal, highly urbanized, and low elevation area. This makes it highly susceptible to inundation issues from both sea level rise and high-precipitation storms such as hurricanes. Risk areas will be determined by utilizing Hurricane Harvey precipitation data to mimic a large, high-precipitation storm as well as by utilizing sea level rise projection data for the year 2100 to reveal inundation and land-loss from rising sea levels. This analysis will be performed using multiple digital elevation models (DEMs) from 2008 to precisely measure land-surface elevation of the study area. Hurricane Harvey precipitation data will be used in order to replicate precipitation conditions of large storms. The precipitation data will be used to create a map layer in order to visualize the areas at high risk of inundation. A similar map will also be created using sea level rise predictions for the year 2100. Census block data will be applied to the study area and analyzed in order to determine racial and mean income statistics for areas inside and outside of the high-risk floodplains. This study can provide critical information needed for future planning to address climate change as well as environmental justice issues.

Wildfire-induced mass movement susceptibility of the coastal region of northern California

College of Arts and Sciences: Geology

Poster - Capstone Project

PRESENTERS Amaris Rodgers

ADVISORS Shuang-Ye Wu

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The objective of this study is to identify areas susceptible to landslides caused by wildfire damage. Wildfires and mass movement are linked by a number of factors. Wildfires not only clear areas of trees and other vegetation, but the roots can be decomposed by the lack of certain nutrients that are practical for vegetation growth that were burned away. The soil also loses its strength and exposes readily erodible materials. The potential for erosion of the areas increases with these factors impaired. Data and other studies have shown that the physical and chemical changes to an area that has experienced a wildfire is at a higher risk for landslides even with average rainfall. The risk is greater in a watershed where large amount of precipitation drained into multiple outlets. The precipitation can greatly agitate the damaged land that is now looser and easier to saturate, causing it to flow. The last five summers California has experienced record-low rainfall and record-high temperature, with longer and more frequent wildfire, making it more susceptible to landslides. The goal of this project is to assess such landslide risk in Trinity Watershed in California because of its recent wildfires and its average to above average rainfall. The significance for this work is to have a better risk assessment to predict

the occurrences and damages of this particular natural disaster.

Assessing Connecticut's flood risk using multi-criterion analysis and its implication to environmental justice

College of Arts and Sciences: Geology

Poster - Capstone Project

PRESENTERS Julie Hays

ADVISORS Shuang-Ye Wu

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

This project aims to achieve two objectives: 1) develop a flood risk map for the state of Connecticut using a multi-criterion approach based on geographic information system (GIS) techniques and compare the result with Connecticut's Flood Insurance Rate Map (FIRM) and 2) investigate the issues of environmental injustice related to the direct financial impact caused by flood insurance policies. The flood risk map is generated using publicly available data and GIS tools. To account for the many elements which are involved with flooding, the Analytical Hierarchy Process method is used to assign a weighted numerical value to the parameters which contribute to flood vulnerability. The flood risk parameters chosen to be included in the study follow the FIGUSED method: flow accumulation (F), rainfall intensity (I), geology (G), land use (U), slope (S), elevation (E), and distance from drainage network (D). The net vulnerability of an area due to these parameters is referred to as the Flood Hazard Index value (FHI). Census data is then used to determine if socio-economically disadvantaged groups are at disproportionate risk. The variables that characterize such groups include race, level of income, and level of educational attainment. The significance of this study is to identify the possibility of minority communities being disproportionately affected by a federal policy regarding flood insurance, providing information for the equitable implementation of its policies.

Understanding Surface and Ground Water Interaction, and Water Quality using Stable Isotopes and Major Ions

College of Arts and Sciences: Geology

Poster - Capstone Project

PRESENTERS Caroline Johnstone

ADVISORS Zelalem K Bedaso

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Stable isotopes of oxygen and hydrogen are conservative dual tracers and provide key information about movement of water in the hydrologic cycle. Surface and groundwater are important components in the water cycle that variably interact depending on geology, topography and rainfall seasonality. Understanding the degree of this interaction is critical to determine both the quality and quantity of water. Here, we use stable isotopes of oxygen and hydrogen, and geochemical analysis of water to quantify the degree of interaction between surface and groundwater. This approach solely depends on the water chemistry and unique isotopic composition of seasonal rainfall, surface and groundwater. Water isotope data in the region is very limited to monthly precipitation isotope data in Coshocton, OH monitored by the Global Networks of Isotopes in Precipitation. To fully use this powerful tracing technique in hydrology, water resources and climate studies, establishing the seasonal variability of water isotopes in the surface and groundwater is a critical first step. Here we present a weekly water isotope data collected at four locations, Still Water River, Mad River and two locations at the Great Miami River. River and groundwater sample collection for isotopic and geochemical data analysis will continue the rest of the year to obtain seasonal isotope end members. However, our preliminary data collected for fall 2018 shows that the average isotopic composition of the river is 6.82‰ for $\delta^{18}\text{O}$ and 43.24‰ for $\delta^2\text{D}$, and groundwater average 7.08‰ for $\delta^{18}\text{O}$ and 44.46‰ for $\delta^2\text{D}$. Using this data, we employed an isotope mass balance to determine the degree of surface and groundwater interaction. Preliminary results suggest that the Miami River could contribute up to 90% recharge to the buried aquifer. The overall outcome of this research will help to quantify seasonal groundwater recharge and determine the fate of contaminants to the local aquifer.

Climatic controls on the stable isotopic composition of precipitation in Ethiopia

College of Arts and Sciences: Geology

Poster - Capstone Project

PRESENTERS Colin McTighe

ADVISORS Shuang-Ye Wu

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

This project aims to determine what major climatic factors control the variation of the stable isotopic composition of precipitation in Ethiopia. In the past, the variations of stable isotopes of precipitation have been linked to the North-South migration of the Intertropical convergence zone (ITCZ). However, recent studies suggested that the link between the ITCZ and the arrival of rainy seasons in Ethiopia do not provide enough explanation for the precipitation isotope values. In this study we examine the stable isotope values of precipitation for four stations throughout Ethiopia from August 2012 – August 2013, and determine how they are affected by a variety of climate factors including: local temperature and precipitation amount, sources of moisture (established through HYSPLIT modeling), convective intensity of moisture source region (estimated by the Outgoing Longwave Radiation (OLR)), wind circulation patterns, and moisture flux and transport. Our results will provide more insight to the control of precipitation isotopes in the tropical region, which is important for accurate interpretation of climate proxy data.

Utilizing GIS and Multi Variable Analysis to determine optimal wind farm site locations in Ohio

College of Arts and Sciences: Geology
Poster - Capstone Project

PRESENTERS Kyle Hrabak

ADVISORS Shuang-Ye Wu

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

This project aims to determine the most optimal locations for the implementation of utility scale wind farms within the state of Ohio. The use of fossil fuels for electrical energy production is one of the world's largest contributors to the growing atmospheric concentration of carbon dioxide, known for having long term impacts on climate. Developments and growth in the clean energy sector have offered alternatives to current dominant methods of energy production, with specific focus into wind powered electrical generators. Wind turbines are a carbon free source of energy, but are limited in use due to restrictions of needed wind energy. This form of energy is widely available in enough quantities across the Midwest region to be a viable source of electrical generation. As such this project aims to look at all variables that need to be taken into account to determine optimal sites for wind farms in the state of Ohio. Factors of consideration include wind energy, land cover, soil type, roughness of terrain, elevation, slope, orography, road access and environmental impacts. Data regarding all of these factors is collected and processed using a geographical information system, ESRI ArcGIS, creating a spatial representation of suitable areas for development. Within the GIS system, an analysis technique known as multi-variable analysis is conducted assigning weights to various factors and calculating an overall suitability score to be ranked and investigated as optimal sites. The finding of this report are to provide a starting point for clean energy implementation in the state of Ohio for which currently only has renewables accounting for 3% of the state's energy production.

Analysis of Environmental Effects of Chemical Deicers in the Southwestern Ohio

College of Arts and Sciences: Geology
Poster - Course Project

PRESENTERS Christopher Alexander Barrett

ADVISORS Zelalem K Bedaso

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

In the modern age, virtually every sphere of society uses various manufactured chemicals. Factories use various lubricants to improve machine up time, sanitation crews use disinfectants to annihilate bacteria, and farmers use specialized fertilizer to improve crop growth. The use of these chemicals can be extremely helpful, and in some cases necessary to keep the wheels of modern society rolling. However, while these chemicals help, in some cases they can be very hazardous to individuals or the environment if not handled properly. This is the case with excessive use of chemical deicers that can runoff from roads into water and negatively affect freshwater wildlife. This project uses deicers as an example for the potential health and ecological effects that can be caused from the use of environmentally harmful chemicals, and attempts to highlight practices that minimize these risks.

Niagara Falls in Ohio? – geomorphological and geological expression of the Niagara Escarpment in the vicinity of Dayton, Ohio.

College of Arts and Sciences: Geology
Poster - Course Project, 201810 GEO 495 01

PRESENTERS Thomas Daniel Bashore, Deja Juanita Branch, Frances Coletta Jelinek

ADVISORS Michael R Sandy

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The Niagara Escarpment is a significant landform that runs for hundreds of miles in the northern United States and Canada; from eastern Wisconsin through Ontario to central New York State. The most famous part of this feature is no doubt the Niagara Falls and the Niagara Gorge on the Niagara River, between New York State and Ontario. The geology underlying the Niagara Escarpment comprises Paleozoic Era sediments: Silurian carbonate rocks that are more resistant to erosion overlying more easily eroded sediments from the Ordovician Period; conditions necessary for a waterfall to form. This pattern can be traced along the length of the Niagara Escarpment. What is perhaps less well-known is that in the Dayton area the same age rocks outcrop in a similar relationship along the rim of the Cincinnati Arch expressed at a number of local scenic sites (parks and reserves): for example, Glen Helen, Clifton Gorge, Charleston Falls, Patty Falls (Englewood Metro Park); many with waterfall features clearly not as high as at Niagara Falls but with the same basic geological framework as the latter. The local expression of the Niagara Escarpment is due to an isolated geological inlier, where older rocks (Ordovician age) are overlain by Silurian rocks. We have investigated the geology and geomorphology of some sites in the Dayton area along SW Ohio's Niagara Escarpment. It is possible to document variation in the geology of the escarpment depending on location along the Cincinnati Arch and depth of erosion. Geomorphological features associated with karst landscapes (limestone solution) of the Silurian sediments have also been investigated. In addition the potential to develop educational materials on this local resource is being explored.

Colonization to Globalization: French-Algerian Integration Analysis from Historical, Societal,

and Economic Perspectives

College of Arts and Sciences: Global Languages and Cultures

Oral Presentation - Honors Thesis

PRESENTERS Stephanie Soledad Rodriguez

ADVISORS Nicola C Work

LOCATION, TIME Kennedy Union 311, 1:00-1:20

This cross-disciplinary research on French-Algerian relations is designed to expose the influence of historical, societal, and economic perspectives on the present and future of cultural and economic integration. Using a multi-disciplinary approach to analyze French-Algerian integration, this research comprehensively leverages seemingly unrelated factors that have impacted the transition of France-Algeria from European colonization to African globalization. In this work, their colonial history and statistics on population, immigration, and employment are used to introduce the development of French-Algerian relations. Using demographic data on French and Arabic language usage and Islamic religious affiliation, as well as surveys on immigrant national identity, this research considers French and Algerian government policies that shaped the development of their economic relations. As Algeria currently seeks economic diversification in a time of declining oil prices and current French politicians recognize the need to ameliorate France's relationship with Algeria, this work describes cooperation opportunities for both France and Algeria that could result in long-term societal cooperation and economic stability.

Autobiographical Memory Recall in Spanish-English and English-Spanish Bilinguals

College of Arts and Sciences: Global Languages and Cultures

Oral Presentation - Honors Thesis

PRESENTERS Hannah N Klein

ADVISORS Jorge Aguilar-Sanchez

LOCATION, TIME Kennedy Union 312, 1:00-1:20

Research in bilingualism continues to morph over time in distinctive manners, especially in conjunction to the area of memory and its relationship to language. Various studies have been conducted in accordance with developments in autobiographical memory research and foreshadow the possible connections that language has to personal memory. This study seeks to further understand how these two human characteristics interact, specifically in Spanish-English and English-Spanish bilinguals. It focuses on whether a particular language aids in the recall of memories. To achieve this, I study how participants relay autobiographical memories in oral interviews. Participants are cued to recall particular moments in their past. Interviews are transcribed and memory recalls are coded. Data are analyzed to find any correlation between the language used to recount and the event type. It is expected that the recollection of these events will be different and that the dominant language of the individual will not only affect recall, but also the way in which events are communicated.

Exploring Medieval Social History

College of Arts and Sciences: History

Panel Discussion - Course Project, 201810 HST 486 01

PRESENTERS Emily Grace Janowski, Joe Sutcliffe Milton, Ciaran A Minch, Cong Shao

ADVISORS Bobbi Sue Sutherland

LOCATION, TIME Kennedy Union East Ballroom, 11:45-12:45

This panel will include four papers from HST 486, each of which will address an aspect of medieval or early modern social history. Cong Shao's paper, *Children's Lives in the Middle Ages*, will consider the nature of childhood - from play to education - in the Middle Ages. Joe Milton will discuss student life in the Middle Ages in his paper entitled *Student Life at the Medieval University*. Ciara Minch's paper, "The Truth Behind Mary Queen of Scots", will consider the historical reality behind this heroine of Catholic and Scottish history, villain of Protestants. Emily Janowski will talk about the way that the medieval law surrounding raptus changed, actually resulting in women having less control over their own bodies. Her paper is entitled "Lost in Legal Reformation: How Women Were Affected by Medieval Rape Laws."

International Studies Capstone: Human Rights and Security in East AsiaPart 1: Security and BordersPart 2: Social Inequality and Political ActivismPart 3: Political Violence: State and Non-State ActorsPart 4: Expression not Suppression

College of Arts and Sciences: History

Oral Presentation - Capstone Project

PRESENTERS Brittany Cheyenne Archie, Kaitlynrose Emilie Bicek, Alexis D Bovell, Devon Amelia Dubiel, Mia Elizabeth Karam, Abigail Anne Kowalczyk, Emily Clare Monczynski, Karen Najwa Naim, Bradley Gunnar Petrella, Jade Alicia Poa, Mercedes Cecelia Ramsey, Joseph Robert Schneider, Lauren Potter Stamatel, Lora Christine Vonderhaar, Cierra Lynn Waller, Emma Kathleen Welsh, Alia Francesca Whitney, Eden Kay Williams, Erin Mary Winchester, Victoria Lynn Young

ADVISORS Christopher S Agnew

LOCATION, TIME Kennedy Union 331, 12:00-2:40

The International Studies capstone asks students to use the knowledge and skills they have developed at the University of Dayton to produce a task force report on a critical topic of contemporary global concern. Students will collaborate as a class to develop a research plan in response to the task force prompt, analyze the relevant historical and political contexts, and provide a set of clear and specific policy proposals. This year's task force topic is "Human Rights and Security in East Asia." Each student has been assigned a country, analyzed a problem of critical human rights or security concern, and formulated a set of policy solutions.

Three Strikes Against Her-She was Black, a Woman, and a Pentecostal: Ida Bell Robinson and the Mount Sinai Holy Church of America, Inc. (1924-1946)

College of Arts and Sciences: History
Oral Presentation - Graduate Research

PRESENTERS Dara S J Delgado

ADVISORS William V Trollinger

LOCATION, TIME Humanities 122, 1:00-1:20

Ida Bell Robinson is a relatively unknown twentieth-century American Pentecostal pioneer. Essential to this story is the recognition that Robinson was a Black woman brazenly asserting herself into a role typically reserved for men, within a religious tradition socially rejected and deemed as scandalizing and unseemly. In this, Robinson had three strikes against her: she was Black, she was a woman, and she was a Pentecostal. Despite all of that, Robinson eschewed social constructs of womanhood—even the insufficient form that was available to her as a black woman during this era—as well as the traditional roles set aside for black women. As such, "Bishop Robinson" took to the road overseeing churches affiliated with her ministry and planting new churches to draw more disciples. Moreover, when she was not acting in the role of "bishop," Robinson was mentoring other women to be leaders, managing a radio program, publishing a denominational newsletter, and acquiring properties. Her work also included a social awareness that sometimes took its form in her sermons. Specifically, through the art of preaching Robinson addressed lynching, economic and racial injustice, and the war—which landed her on the FBI list. Therefore, with careful consideration to how Robinson, seemingly unbothered by the very real social and religious glass ceilings of her day, established the MSHC which she led until her death in 1946, this paper will explore how she, as a Black woman in the early twentieth-century, created a religious denomination with the purpose of empowering women to lead mixed-gendered congregations and to occupy the highest positions of ecclesial authority and government. Moreover, I will argue that Robinson's story has much to say about Black Holiness-Pentecostal history, Black history, and American women's and religious history.

The Irish Question: Woodrow Wilson, the Irish, and Irish-American Diplomacy

College of Arts and Sciences: History
Poster - Honors Thesis

PRESENTERS Ryan Joseph Westerbeck

ADVISORS William V Trollinger

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The Irish Question was the title often given to nationalist and independence movements in Ireland in the early 20th century. Several attempts were made to secure Ireland's independence in the early 1900's, the most famous of which is the Easter Rising in 1916. This thesis concerns the period immediately following those events, from 1916 through 1920. The end of the Great War caused many nations to look for independence and international recognition at the Paris Peace Conference, often due to President Wilson's own words. During this period, several prominent Irishmen and Irish Americans attempted to reach out to President Wilson to support the Irish independence movement. These attempts were unsuccessful. The following thesis will explain how the representatives of the Irish cause attempted to convince Wilson and the reasons why they failed in securing the support of the United States government.

My Semester of Service at the Brunner Literacy Center

College of Arts and Sciences: History
Poster - Course Project, 201810 UDI 393 01

PRESENTERS Fiona Marie Madden

ADVISORS Christopher S Agnew

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The Brunner Literacy Center serves the considerable but largely unrecognized segment of the adult population with low literacy skills. By working with individuals to improve their reading skills, earn their GED, or learn English as a second language, we empower them to improve their lives and their communities. Adult education programs have proven positive impacts on families and communities, including reducing crime and recidivism rates, high school dropout rates, and life expectancies.

Fault Lines: Geopolitical Rivalry in the East China Sea

College of Arts and Sciences: History
Poster - Honors Thesis

PRESENTERS Nicholas Alexander Dalton

ADVISORS Christopher S Agnew

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The Senkaku Islands dispute in the East China Sea stands as a major territorial dispute between the People's Republic of China (PRC) and Japan. This dispute has periodically reemerged in the interactions between these two states between 1895, when the Senkaku Islands were definitively administered by Japan, and the present day. The dispute has undergone significant changes in its emphasis by both the PRC and Japan, as well as what the dispute is about. At its early stages, the Senkaku Islands dispute was largely ignored by both China and Japan. Even between 1971 and 1978, when the Senkaku Islands dispute entered its modern form, the dispute was deemphasized to promote normalization of relations between the PRC and Japan. However, after the 1980s, with a rising PRC and somewhat economically and militarily weaker Japan, the dispute emerged with new intensity. In turning to the focus of the Senkaku Islands dispute, this has involved both economic interests, such as the resources in and around the adjacent seabed, as well as elements of popular nationalism. The Senkaku Islands dispute has created significant tensions and military development between Japan and the PRC. This paper examines how the Senkaku Islands dispute has driven militarization between the PRC and Japan.

Evaluating the Effectiveness of U.S. Anti-slavery Legislation through the Lens of Supply Chain Management

College of Arts and Sciences: Human Rights Center

Oral Presentation - Honors Thesis

PRESENTERS Alexander M Mingus

ADVISORS Tony Neil Talbott

LOCATION, TIME Kennedy Union 311, 12:00-12:20

Whether knowingly or unknowingly, business supply chains are often tainted with slavery and forced labor practices. In an effort to address this reality, the California Transparency in Supply Chains Act of 2010 requires companies in California to publish a disclosure statement describing companies' efforts to prevent this potential abuse. This study evaluates the effectiveness of the California legislation by observing media trends and conducting expert interviews with business leaders, academics and legislators. This data reveals strengths and weaknesses in the California legislation, which informs future attempts to create anti-slavery legislation addressing corporate supply chain abuses.

Chaminade Scholars Journey Through Laudato Si

College of Arts and Sciences: Institute Pastoral Initiative

Interactive Display - Course Project, 201810 ASI 357 H1

PRESENTERS Kelsey Marie Albertino, Caroline Mary Compton, Jonathan W Conrad, Kelly F Fuller, Kaitlin Marie Gawkins, Elizabeth Anne Goetz, Luke Christopher Horner, Matt Patrick Leverick, Nathan George Mansour, Jean Yvan Munyankindi, Ellie Elise Rizzo, Joshua Wayne Romo, Taylor Kate Tovey, Corinne Mallory Woodruff, Yu Zhao

ADVISORS Maria Ollier Burkett, Angela Ann Zukowski

LOCATION, TIME Alumni Hall Basement, 11:30-2:30

An interactive journey experience through Laudato Si, Pope Francis' Encyclical, in order to engage with the dual reality of a throw-away culture and the beauty of our world. With a focus on community, world, and God, individuals are able to reflect on relationships as opportunities for promotion of positive change in the spirit of caring for all of creation.

The comparison of FD and RBFs collocation methods for the solution of the heat equation

College of Arts and Sciences: Mathematics

Poster - Graduate Research

PRESENTERS Lijun Lin

ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The heat equation is widely used in various fields such as in industry and medicine for thermal treatment of the tumor. In this work, we are going to use two different numerical methods to solve the heat equation. It is known that Finite Difference (FD) and Radial Basis Functions (RBFs) collocation methods are both trustworthy for solving heat equation. To show the difference between the two methods, we would like to display the comparison by the final results, the error between approximate solution and exact solution, and other parameters in those methods.

Finding the probability of being selected an NBA All-Star

College of Arts and Sciences: Mathematics

Poster - Capstone Project

PRESENTERS Matthew Paul Forte

ADVISORS Peter W Hovey

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Halfway through the National Basketball Association, there is an All-Star break where the 24 best players are selected to participate in an All-Star game. Being selected as an all-star has many implications for the player and his organization, including salary bonuses and legacy concerns. This project aims to identify the probability that players in the National Basketball Association will be selected as an all-star. The model uses a number of statistical indicators including points per game, assists per game, rebounds per game, efficiency ratings, and more.

Minimal perimeters of triangles with fixed area and foot

College of Arts and Sciences: Mathematics

Poster - Capstone Project

PRESENTERS Hang Luo

ADVISORS Jonathan H Brown

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Triangle with the same area can have different perimeters. In this project we are exploring the question of when those perimeters are as small as possible. With no further conditions, the answer to this question is known: the minimal perimeter is obtained by an equilateral triangle. We can explore the question under the condition that location of the height is fixed. In this case the minimal perimeter can be obtained by variety of different triangle types. We want to know which type of a triangle has minimal perimeter based on the location of the height.

A Business Application of Markov Chains

College of Arts and Sciences: Mathematics

Poster - Capstone Project

PRESENTERS Emily Lynn Seals

ADVISORS Muhammad N Islam

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The purpose of this project is to look at the economic applications of Markov Chains and stochastic matrices in a real-world problem. For this project, I studied a specific case for a rental car company which has a fleet of vehicles for rent in a number of locations. It is very important for the company to know the number of vehicles that will be available on a typical day at each location. This project will show that, on a typical day, the number of available vehicles at the various locations can be known by calculating what is called the steady-state vector of the stochastic matrix associated with the problem. This will help the company to better manage the customer demands. It can then be used to meet any increased demand at a particular location which can occur due to various reasons.

Unique Approaches to the Finite Difference Method

College of Arts and Sciences: Mathematics

Poster - Honors Thesis

PRESENTERS William Thomas Shovelton

ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The oldest and most useful technique to approximate the solution of differential equations is the finite difference method (FDM). This technique allows for derivatives to be replaced by the finite difference discrete approximation, hence we get a finite difference equation (FDE). As with all numerical solutions, this method is only an approximation and there will be errors due to rounding and discretization. Over the years, new approaches to the FDM have been derived to improve the stability of the numerical solutions. These unique approaches are referred to as nonstandard finite difference methods (NFDM). The focus of this project will be to determine the effectiveness of two different NFDM proposed for an autonomous dynamical system and a class of reaction-diffusion equations. Effectiveness will be based on the accuracy to the exact solution and stability.

STEM Stories After-School Program

College of Arts and Sciences: Mathematics

Oral Presentation - Independent Research

PRESENTERS Caelin Marie Micks, Lisa Jane Musselman, Haley N Rusnak

ADVISORS Shannon Olivia Schirack Driskell, Marie Margaret Pinnell, Mary Catherine Sableski, Todd B Smith

LOCATION, TIME Kennedy Union 207, 10:30-10:50

The STEM Stories afterschool program is held at Kiser PreK-6 School, a Dayton Public School where 93% of the students live in poverty and are from various ethnic backgrounds, including black American, white American, Turkish, Hispanic, African, and others. We are providing instruction to approximately 20 second-, third-, and fourth-grade students. These students are not on track to pass the Ohio Third Grade Reading Guarantee, which mandates schools to identify at-risk readers through diagnostic assessments and to provide specific interventions, such as intensive reading instruction and afterschool programs (Ohio Department of Education, 2016). We are making a difference and influencing these students' lives through innovative, engaging, fun, and highly integrated literacy and STEM activities that reflect research-based best practices for improving literacy and attracting underrepresented

populations to STEM. We are supporting these students' academic and social needs and engaging with the Dayton community, while developing critical and innovative teaching skills. The relationship we have developed with the teachers at Kiser PreK-6 School—and with the children in the Literacy and STEM program—is unique. As undergraduate students, we accepted leadership of the delivery of the lesson plans in the afterschool setting. We work in collaboration with the inservice teachers and the university faculty to develop and deliver innovative lessons. The benefits to these relationships are evident at many levels, including to the Kiser students, teachers, UD faculty, and our own professional development. During this session, we will share our responsibilities to this afterschool program, what we have learned, samples of the activities we are teaching, and samples of students' work.

Uniqueness and existence of solutions of boundary value problems at resonance for ordinary differential equations.

College of Arts and Sciences: Mathematics

Oral Presentation - Graduate Research

PRESENTERS Jabr Ateeg Allah Aljedani

ADVISORS Paul W Eloe

LOCATION, TIME Kennedy Union 207, 11:00-11:20

A quasilinearization algorithm is developed for a specific boundary value problem at resonance. To do so, a standard monotonicity condition is assumed to obtain uniqueness of solutions for the boundary value problem at resonance. Then the method of upper and lower solutions and a shift method is applied to obtain the existence of solutions. A quasilinearization algorithm is developed and sequences of approximate solutions are constructed that converge monotonically and quadratically to the unique solution of the boundary value problem at resonance.

Prospect Theory: An Analysis of Decision Under Risk

College of Arts and Sciences: Mathematics

Oral Presentation - Capstone Project

PRESENTERS Wyatt Michael Ohm

ADVISORS Dan Ren

LOCATION, TIME Kennedy Union 312, 11:00-11:20

Prospect Theory, developed in 1979 by Daniel Kahneman and Amos Tversky, attempts to describe how individuals make choices between probabilistic alternatives where risk is involved and the probabilities of different outcomes are unknown. Choices among risky prospects exhibit many different effects that are inconsistent with the expected utility theory. I will explain examples of studies that touch upon the certainty effect, isolation effect, and reflection effect. Based on these examples and findings, two functions will be introduced and explored: the value function and the weighting function. The value function is defined as concave for gains and convex for losses; and the weighting function, is usually higher (lower) than the corresponding probabilities when probabilities are low (high).

Evaluation of Iodine Concentrations and its Effect on Neurodevelopment

College of Arts and Sciences: Mathematics

Oral Presentation - Independent Research

PRESENTERS Marina Mancuso Li Mancuso

ADDITIONAL AUTHORS Daniel Finklestein (Georgia Institute of Technology), Dominique Forbes (Coastal Carolina University), Heidi Whiteside (Winston-Salem University)

ADVISORS Muhammad Usman, Alan A Veliz-Cuba, Andrew Wright (North Carolina State University)

LOCATION, TIME Kennedy Union 211, 11:30-11:50

Iodine plays an essential role in developing thyroid hormones, thyroxine (T_4) and triiodothyronine (T_3). These hormones are secreted by the hypothalamic-pituitary-thyroid (HPT) axis and are suggested to impact fetal neurodevelopment. A novel biologically based dose-response model developed by the students of the Modeling Applied and Industrial Mathematics REU at North Carolina State University analyzes the dynamics of iodine and thyroid hormone concentrations interacting between a pregnant rat and fetus. Parameter optimization and sensitivity analysis contributed to further understanding of the factors that influence the development of T_3 and T_4 due to iodine deficiencies.

Probabilistic Modeling of Student Interaction during a Passing Period at the University of Dayton

College of Arts and Sciences: Mathematics

Oral Presentation - Honors Thesis

PRESENTERS Allyson J Pacifico

ADVISORS Ying-Ju Chen, Peter W Hovey

LOCATION, TIME Kennedy Union 312, 12:30-12:50

The University of Dayton is composed of five colleges and schools: College of Arts and Sciences, School of Law, School of Business

Administration, School of Education and Health Sciences and School of Engineering. The University of Dayton is composed of about 11,000 students on campus who all have distinct class schedules and paths they take between their classes. In this study, I wanted to know the probability of meeting my friends with a different class schedule as I walk between classes. The data consisted of one to two students from each college, except for the School of Law, who documented their paths on a modified campus map for a week. Using R, the simulation randomly selects two paths from the data, generates a random time between each node and compares the time of the identical nodes to see if the students were to have met.

16th Annual Integration Bee, Mathematics

College of Arts and Sciences: Mathematics

Interactive Competition - Independent Research

PRESENTERS Vicki L Withrow

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.

Construct Finite Fields with a Finite Elements

College of Arts and Sciences: Mathematics

Porch Project - Capstone Project

PRESENTERS Junyu Lin

ADVISORS Andres Larrain-Hubach

LOCATION, TIME 461 Keifaber Street, 1:15-1:30

A field is a set with two commutative operations called sum and product, such that every nonzero element has a multiplicative inverse. For example, the rational numbers form a field but the integers do not. In this talk, I will show how to construct fields with a finite number of elements. If there is enough time, I will show some results concerning polynomials on these "finite fields".

The Riemann Hypothesis

College of Arts and Sciences: Mathematics

Oral Presentation - Course Project, 201810 MTH 404 H1

PRESENTERS Amelia Isabella Pompilio

ADVISORS Andres Larrain-Hubach

LOCATION, TIME Kennedy Union 207, 2:00-2:20

Bernhard Riemann only wrote one number theoretic paper in his career as a mathematician. However, within this single paper is one of the most important topics in number theory: the Riemann Hypothesis. The Riemann Hypothesis remains a hypothesis, not a theorem, to this day. The statement of the hypothesis is important to the distribution of prime numbers. Mathematicians so far have good estimates for locating prime numbers within the number line, but they are still only estimates. The Riemann Hypothesis would provide the clearest picture of how the prime numbers behave, if it could be proven true. If the Riemann Hypothesis were proven, the implications of its truth would reach much further than just the prime numbers. Many other areas of mathematics and physics depend on the unproven Riemann Hypothesis in some way. This talk will outline the statement of the Riemann Hypothesis and why it matters.

Transformations in Hyperbolic Geometries

College of Arts and Sciences: Mathematics

Oral Presentation - Capstone Project

PRESENTERS Jennifer Lynn Brustoski

ADVISORS Jonathan H Brown

LOCATION, TIME Kennedy Union 312, 2:30-2:50

We can rotate, reflect, translate a shape without changing it. These are called the transformations of Euclidean Geometry. We can define Euclidean Geometry using these transformations. In this talk, we will explore how to move shapes without changing them in hyperbolic geometry. We will include a series of activities to introduce high school students to hyperbolic transformations.

Determination of Stock Prices and Interest Rate's Behavioral Movement By Utilizing the Brownian Motion

College of Arts and Sciences: Mathematics

Poster - Capstone Project

PRESENTERS Matthew Scott Hooper

ADVISORS Dan Ren

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Below is a look into the Brownian Motion, and how it is able to portray the erratic movement over time of stock prices and interest rates. Further, is a look into how different financial models such as the Ho-Lee Model and Vasicek Model are able to utilize this brownian motion in order to describe the movement of short term interest rates and thus can be used to carry out various financial valuations, such as bond option pricing and evaluating interest rate futures.

Forecasting Rain Using Logistic Regression

College of Arts and Sciences: Mathematics

Poster - Independent Research

PRESENTERS Alsomali Ibrahim Y Alsomali

ADVISORS Maher B Qumsiyeh

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Prediction and forecasting using logistic regression have exploded during recent years. Logistic regression modeling now used in almost all kind of knowledge. Rainfall is an important event in the climate system. Whether it rains or not has a big impact on several life areas such as nature, agriculture and animal life. Thus, we need to be able to predict rainfall. In this paper, we show how to use logistic regression for predicting rainfall. Ten years of daily rainfall data used to build the model. Two extra years of observed daily rainfall data used as a validation of the model. Our finding shows that logistic regression model can predict the rainfall very efficiently.

Runge-Kutta Methods to Explore Numerical Solutions of Reactor Point Kinetic Equations

College of Arts and Sciences: Mathematics

Poster - Capstone Project

PRESENTERS Elizabeth N Boeke

ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

This work is the study of Reactor Point Kinetic equations. This is a system of seven coupled ordinary differential equations, one for neutron density and six for delayed neutron precursors. The application of Runge-Kutta methods is used to study the system numerically. Solutions were then compared for different values of reactivity using MATLAB built-in functions ode23 and ode45. There are graphs and tables presented to compare these methods; theoretically ode45 is of higher-order than ode23.

Interpolation Methods

College of Arts and Sciences: Mathematics

Poster - Independent Research

PRESENTERS Mohamed Khalifa I Aburakhis, Mohammed Mutlaq Almatrafi

ADVISORS Muhammad Usman

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

In this work, the interpolation methods, Polynomial interpolation, Cubic Splines interpolation, Akima cubic spline interpolation, Sinc function interpolation, and Radial Basis Function interpolation are implemented using MATLAB. The derivation and mathematical equations are presented. Finally, all methods are applied to one example for the sake of comparison. There is not enough literature on the comparison of interpolations methods, this work is an attempt to provide a survey of above methods.

Group Songwriting as a Self-Care Practice Among College Students

College of Arts and Sciences: Music

Stander Undergraduate Fellowship Awardee

Poster - Independent Research

PRESENTERS Victoria Clare Obermeier, Emily Rose Robinson

ADVISORS Susan C Gardstrom

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The present study explores how group songwriting may positively contribute to self-care in the University of Dayton student community, as well as among the music therapy community. College is a time of intense stress and anxiety; thus, self-care is essential in order to maintain both physical and mental health, as well as overall functioning. Our research shows that university mental health services are highly underutilized. Some of the aims of this study are to increase visibility of self-care practices and to provide students with the additional self-care tool of songwriting, all in efforts to de-stigmatize mental illness.

Thy Kingdom Come: Catholicism and the Nueva Canción, 1966-1982

College of Arts and Sciences: Music

Oral Presentation - Honors Thesis

PRESENTERS Elizabeth Mary Turnwald

ADVISORS Samuel Noah Dorf

LOCATION, TIME Kennedy Union 311, 10:30-10:50

Within Latin America's tumultuous political atmosphere during the 1960s through the 1980s, a grassroots musical genre called the nueva canción emerged. Meaning "new song," it sought to unify the poor and marginalized through a combination of folk influences, indigenous musical styles, and politically-charged lyrics. Although they achieved similar commercial success to U.S. contemporaries such as Pete Seeger, Woody Guthrie, and Joan Baez, the folkloristas [folksingers] of the nueva canción often incorporated references to and elements of Catholic liturgical practice. Considering the reforms of the Second Vatican Council and the advent of a Latin American Liberation Theology, the time was ripe for cultural revolution by the poor, for the poor. While military dictatorships and civil wars ravaged many Central and South American countries, many of those who were suffering sought refuge in Christian Base Communities. These small groups of lay Catholics would meet regularly to discuss the week's Scripture, to sing and pray together, and most importantly, to heal. The unorthodox, yet explicitly religious, nature of these groups offered opportunities for non-liturgical and popular music to enter a paraliturgical setting. In this project, I seek to contextualize the nueva canción within this distinct intersection of the sacred, the secular, and the genre's specific mission of social justice. Considering the ubiquitous Catholic culture of Latin America, by studying the surrounding social and political context and by examining the lyrics and performance practices of the nueva canción from a theological perspective, I will interpret how Catholic theologies and liturgical practices affected the reception of this unique genre.

Chamber Music Recital

College of Arts and Sciences: Music

Performance - Course Project, 201810 MUS 390 10

PRESENTERS Caleb Joseph Baron, Andrew Robert Buser, Kara Manteufel Camfield, Elizabeth M Craft, Ian C Denney, Adam Michael Essling, Margaret E Feder, Anna Louise Herrmann, Kaity Marie Jones, John R Kennard, Mariya Josephine Miles-Flynn, Bridget Rose Oleksy, Katlyn E Poulsen, Alexander James Rice, Emily Rose Robinson, Timothy Daniel Schroeder, Shelbi J Wagner

ADVISORS Kara Manteufel Camfield, James R McCutcheon, Shelbi J Wagner

LOCATION, TIME Sears Recital Hall, 10:00-11:00

Student musicians will present a program of chamber music that they have worked on through the course of the semester. All students in the various ensembles have been coached by the Department of Music Faculty in the preparation of their program.

Art Song Revival: Performances and synthesis of original music by Caleb Baron

College of Arts and Sciences: Music

Performance - Independent Research

PRESENTERS Caleb Joseph Baron, Jack Bartholomew Destephano, Mary Catherine Donovan, Anna Margaret Ford, Alaina Louise Saliba

ADVISORS Tobias William Rush

LOCATION, TIME Sears Recital Hall, 11:00-11:40

Student musicians will perform original music for Voice and Piano by student composer Caleb Baron. The performance will include a presentation by the composer about the processes (such as style, techniques, and influences) used within each piece, cultivating an educational and exciting discussion of modern music in a classical style.

A Celebration of American Female Composers of the 20th and 21st Centuries

College of Arts and Sciences: Music

Performance - Course Project, 201810 MUS 202 01

PRESENTERS Mariah Joanna Berryman, Mary Catherine Donovan, Connor Patrick Fuhrmann, Megan G Green, Megan Rose Green, Ryu-Kyung Kim, Gabriella Michelle Klotz, Jillian Marie Mitchell, Nathan M Rhodes, Alaina Louise Saliba

ADVISORS Ryu-Kyung Kim

LOCATION, TIME Sears Recital Hall, 12:00-1:00

The University of Dayton Music Performance (MUP) Majors present "A Celebration of American Female Composers of the 20th and 21st Centuries." The presentation will include musical performance of selected works by women composers such as Jeanine Tesori, Libby Larsen, Undine Smith Moore and Lindsey Stirling, and discussion on their impact and legacy in the history of American musical composition. While highlighting significant leaps and bounds across genres, the MUP majors will showcase compositions that have been weaved into common repertoire in musical theatre, classical song literature, instrumental works, and more, giving insight into each composer's personal narrative.

Department of Music Honors Recital Auditions

College of Arts and Sciences: Music

Performance - Honors Thesis

PRESENTERS Anna Margaret Ford, Connor Patrick Fuhrmann, Graham Mitchell Hardert, Aubrie Nicole Hattendorf, Gabriella Michelle Klotz, John Dylan Newcomb, Christine Elizabeth O'Keefe, Alaina Louise Saliba, Timothy Daniel Schroeder, Elizabeth Mary Turnwald, Caleb George Vanden Eynden, Sarah Christine Whitehouse

ADVISORS Tobias William Rush

LOCATION, TIME Sears Recital Hall, 1:00-3:00

Each student majoring in music at the University of Dayton performs once every semester at weekly department recitals, where they share their hard work and talent with their faculty and peers. Faculty are invited to score these performances. The twelve highest-scoring student performers are invited to audition for the UD Honors Recital on April 27, 2018. These auditions take place as part of the University's Stander Symposium and are free and open to the public.

Student Songwriter Concert: Guitar Students of Jim McCutcheon

College of Arts and Sciences: Music

Performance - Independent Research

PRESENTERS Caleb Joseph Baron, Jessica L Bullock, Drew Michael Gaboury, Wyatt Michael Nagel, Timothy Daniel Schroeder

ADVISORS James R McCutcheon

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

Guitar students of UD Music Department Artist-in-Residence Jim McCutcheon perform their original songs in this juried event.

The Stigma of Homelessness as an Identity - Homelessness as a Gendered Condition

College of Arts and Sciences: Philosophy

Poster - Honors Thesis

PRESENTERS Jamie Anne Vieson

ADVISORS Denise D James

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The main goal of my thesis is to articulate the problem of homelessness. In order to do this, I examine philosopher Eva Kittay's work on disability and equality. Throughout her work, Kittay uses the terms human interconnectedness, oppression and citizenship. These three terms serve as the major concepts I explore. Human interconnectedness highlights the links that humans share with one another as interdependent beings. Sharing these connections provides grounding for why care needs to be available for individuals and groups. Oppression is the term used to describe how certain individuals or groups in society are treated unequally or are rejected from society. I argue that individuals experiencing homelessness should be classified as a group because they do experience structural oppression in the form of marginalization. Finally, exploration of citizenship shows the importance of identities in society and how they allow or prevent equality. Rethinking citizenship combats oppression of the homeless. More emphasis needs to be put on these terms to articulate the problem of homelessness. Within each of these terms, I look more closely at notions of dependency, vulnerability, connection-based equality, self-perceptions, and moral responsibilities. These considerations use gender as a lens for an inclusive examination of homelessness. This lens reveals how women experiencing homelessness are particularly disadvantaged by stigmas.

An Analysis of Authentic Existence Online

College of Arts and Sciences: Philosophy

Oral Presentation - Honors Thesis

PRESENTERS Alia Francesca Whitney

ADVISORS Steve Bein

LOCATION, TIME Kennedy Union 331, 11:00-11:20

When taken as a whole, one's authentic existence would necessarily include considerations of one's "being" online. In *Being and Time*, Martin Heidegger explores what it means to have embodied presence at the phenomenological level, concluding that one's existence is an activity of being-there performed by every human being through circumspect interaction with the world and society that surrounds it. Although he did discuss the impact of technology on a human being, Heidegger lived before the advent of the internet and was therefore unable to include its implications in his work. I discuss the implications the internet has for digital being using Heidegger's ideas, taking it a step further by discussing the digital world's impact on co-presence by drawing on Watsuji Tetsuro's responses to Heidegger in *Rinrigaku*. Watsuji zeros in on one's relationship to society, arguing that one simultaneously exists in union and separation with others and pushes on Heidegger's conceptualizations of the individual's existential process. With both Watsuji and Heidegger's arguments in mind, I argue that one fools oneself into a false sense of authenticity in being online. While authentic existence online is not impossible, it is easy to create an online presence that is composed of inauthentic being. I discuss this idea, relating the implications that follow to embodied presence.

Implementation of Passive Solar Energy and Reclaimed Heat from Manure Decomposition for Livestock Water-heating Applications

College of Arts and Sciences: Physics

Poster - Honors Thesis

PRESENTERS Naomi Elizabeth Schalle

ADVISORS Robert J Brecha, Annie Warmke (Blue Rock Station, LLC)

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Manure is an abundant and renewable resource for livestock farmers that often goes unused. As manure breaks down, heat is released into the environment. When looking at this heat dissipation through the lens of sustainability, there is an opportunity to save energy by capturing the heat in manure decomposition and using it where it is needed. This research capitalizes on that opportunity to develop a way to heat water for livestock in the winter. Using a combination of passive solar energy and the natural heat produced through the decomposition of manure, a system has been designed and implemented to offer a low-cost, sustainable solution that combines mechanical engineering with an agricultural application. Further research and development will be completed for partial- to full-automation of the system.

Temperature dependent refractive index measurements for gallium nitride with implications for phase matched and quasi-phase matched optical frequency conversion devices

College of Arts and Sciences: Physics

Poster - Independent Research

PRESENTERS Jack David Kunkel

ADVISORS Said Elhamri, D. Zelmon (WPAFB Research Laboratory)

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Gallium nitride is a valuable material for optical and electronic applications due to its wide band gap and high thermal conductivity. Gallium nitride has the potential for being a valuable material in frequency conversion devices such as frequency doublers and optical parametric oscillators. Optical and mechanical characterization of gallium nitride, including the dependence of the refractive index on wavelength and temperature, is important for predicting the performance of devices using this material. The method of minimum deviation was used to measure the refractive index for wavelengths ranging from 0.400 to 5.20 microns and in temperatures ranging from 20 to 225°C. Results of this characterization will be presented along with calculations relating to phase matching and quasi-phase matching in optical parametric oscillators.

Epitaxial titanium nitride on sapphire: Effects of substrate temperature on microstructure and optical properties

College of Arts and Sciences: Physics

Poster - Independent Research

PRESENTERS Hadley Anna Smith

ADDITIONAL AUTHORS K.G.Eyink, L.Grazulis, M.J.Hill, A.M.Urbas, B.M.Howe, A.N.Reed (WPAFB Research Laboratory)

ADVISORS Said Elhamri

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Titanium Nitride (TiN) is a mechanically-robust, high-temperature stable, metallic material receiving considerable attention for resilient plasmonics. In this work, we fabricated six hetero-epitaxial TiN films on sapphire using controllably unbalanced reactive magnetron sputtering. We examined the effect of substrate growth temperature on the plasmonic and crystalline quality of the film. Optical properties of all films were obtained from spectroscopic ellipsometry; plasmonic quality factors were determined from the real and imaginary parts of the dielectric function. We determined crystallinity using X-ray diffraction and surface morphology using atomic force microscopy. X-ray diffraction showed (111) TiN peaks with Pendellösung fringes indicating consistent hetero-epitaxy. Atomic force microscopy showed smooth surfaces with RMS surface roughness ranging from 0.2-2.6 nm. Based on this characterization, we determined that the substrate deposition temperature of 550°C yielded (111)-oriented hetero-epitaxial TiN with minimal surface roughness. We found that 550°C also gave highest plasmonic quality factors for all wavelengths, approaching the values of today's best plasmonic materials (such as Au and Ag). Further, the Q-factors at wavelength 1550 nm inversely correlated with calculated lattice constants indicating stoichiometric tuning of plasmonic properties. Our results indicate that the plasmonic response of TiN is directly linked with structural quality and stoichiometry of the film.

Piezo-optic coefficient of gallium nitride

College of Arts and Sciences: Physics

Poster - Independent Research

PRESENTERS William Bradley Poston

ADVISORS Said Elhamri, D. Zelmon (WPAFB Research Laboratory)

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Gallium nitride is a material of interest for a range of optical and optoelectronic applications, including its use in blue light LEDs, efficient solar cells, and high power optoelectronic devices for communications, radar, and power amplifiers. During high power operation, these devices develop temperature gradients which cause changes in the local refractive index due in part to the piezo optic effect, resulting in distortion of the output beam. Therefore, measurement of the piezo-optic coefficients is required to predict the performance of high power optoelectronic devices. Uniaxial mechanical stress was applied to a sample of gallium nitride, which

induced a birefringence in the sample. The magnitude of the induced birefringence was determined by shining polarized light from a HeNe laser through the sample at pressures between .5 and 10 MPa, passing the output beam through a rotating polarizer and measuring the intensity as a function of relative polarizer position. From the induced birefringence, the piezo-optic coefficient of gallium nitride was determined.

The Self-healing of Distorted Bessel Beams

College of Arts and Sciences: Physics

Poster - Capstone Project

PRESENTERS Marie Solange Tumusange

ADVISORS Andy Chinyu Chong

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

An optical beam is said to be self-healing when, distorted by an obstacle, the beam corrects itself upon propagation. A Bessel beam is known for its self-healing property. A Bessel beam is a non-diffracting light beam whose amplitude is described by a Bessel function. To demonstrate the self-healing of the Bessel beam, the beam is distorted and beam profiles are measured as the distorted beam propagates.

Crystallinity and Surface Morphology of Reactively Magnetron Sputtered Aluminum Scandium Nitride

College of Arts and Sciences: Physics

Poster - Independent Research

PRESENTERS Rachel L Adams

ADDITIONAL AUTHORS Z.J.Biegler, K.G.Eyink, L.Grazulis, M.J.Hill, B.M.Howe, A.N. Reed (WPAFB Research Laboratory); H.A.Smith (University of Dayton, Physics)

ADVISORS Said Elhamri

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Aluminum nitride (AlN) is a low-loss piezoelectric that is commonly used in surface acoustic wave (SAW) and bulk acoustic wave (BAW) based filters for RF communication applications. It has previously been demonstrated that alloying AlN with scandium nitride (ScN) results in an increase of the piezoelectric coefficient up to five times greater than that of pure AlN without significantly increasing losses. This result could have significant impact on next-generation RF-filters. In order for this material to be incorporated into devices, a more thorough understanding of its growth, structural, electrical, and piezoelectric properties is needed. In this work, we investigate the role of deposition parameters during controllable-unbalanced reactive magnetron sputtering on the crystallinity, surface morphology, and composition of aluminum scandium nitride ($\text{Al}_x\text{Sc}_{1-x}\text{N}$) on (0001)-oriented sapphire substrates. The conditions considered in this study include the sputter power, the nitrogen gas fraction, the gas ion flux to metal neutral flux ratio (i_i/i_{Me}) controlled by the coil current on an external electro-magnet, the substrate temperature, and the sputtering target Al-to-Sc ratio. X-ray photoelectron spectroscopy was used to determine the Al, Sc, and N concentrations in the films. X-ray diffraction of the films showed that the crystallinity was dependent upon i_i/i_{Me} and substrate temperature. The surface morphology, determined using atomic force microscopy, showed a similar dependence.

Fabricate nanogap-rich plasmonic nanostructures through an optothermal surface bubble in a nanoliter droplet

College of Arts and Sciences: Physics

Oral Presentation - Graduate Research

PRESENTERS Farzia Karim

ADVISORS Chenglong Zhao

LOCATION, TIME Fitz Hall 580, 1:00-1:20

This project focuses on the development of a rapid and cost-effective method for the fabrication of nanogap-rich plasmonic nanostructures. Novel metal plasmonic nanostructures have been studied extensively due to a wide range of practical applications especially in biology and medicine. Strong coupling between the free electrons in plasmonic nanostructures and incoming light; the so-called plasmonic resonance provides a large electromagnetic field enhancement. Further field enhancement can be carried out through the combination of individual plasmonic nanostructures. This will increase the electromagnetic coupling in the gaps of nanostructures and form a nanogap rich plasmonic nanostructure. However, most of these nanostructures are fabricated through time-consuming top-down nanofabrication or bottom-up synthesis process which cannot provide the requirement for a cost-effective and rapid preparation of nanogap-rich plasmonic nanostructures. Moreover, a special absorptive layer is required to form these structures, which restrict the substrates type. In this project, an affordable nano-manufacturing method has been executed to rapidly prepare nano-gap rich plasmonic nanostructures at any desired location on a substrate. This method works based on laser-induced heating of gold nanoparticles (GNPs) and uses Marangoni convective flow around an optothermal surface bubble inside a nanoliter droplet. GNPs act here as efficient nano-heating source and used as the building blocks for the rapid fabrication of closely-packed GNPs under ambient conditions. So, no special absorptive layer is required which overcomes the limitation on the type of substrate. Moreover, GNPs are confined in a droplet of nano-liter size that can significantly reduce the consumption as well as contamination of sample and confines the liquid flow. This method will enable a broad range of applications such as bio-sensing,

surface-enhanced Raman spectroscopy (SERS), environmental analysis, and nonlinear optics.

Nondestructive Approach for Additive Nanomanufacturing of Metallic Nanostructures in the Air

College of Arts and Sciences: Physics

Oral Presentation - Graduate Research

PRESENTERS Md Shah Alam

ADVISORS Chenglong Zhao

LOCATION, TIME Fitz Hall 580, 2:30-2:50

In this project, a mechanism for quick release and transfer of gold nanoparticles (GNPs) from a soft substrate to another substrate under laser illumination is investigated. The heating of GNPs on a soft substrate with a continuous-wave laser causes a rapid thermal expansion of the substrate, which can be used to selectively release and place GNPs onto another surface. In-plane and out-of-plane nanostructures are successfully fabricated using this method. This rapid release-and-place process can be used for additive nonmanufacturing of metallic nanostructures under ambient conditions, which paves a way for affordable nanomanufacturing and enables a wide variety of applications in nanophotonics, ultrasensitive sensing, and nonlinear plasmonics.

Generation of Octave Spanning Spectra directly from a Fiber Oscillator with Self-Similar Pulse Evolution

College of Arts and Sciences: Physics

Poster - Graduate Research, Chunyang Ma (Visiting scholar at UD from Jilin University, Jilin Province, China)

PRESENTERS Ankita Nayankumar Khanolkar

ADVISORS Andy Chinyu Chong

LOCATION, TIME Fitz Hall 580, 2:50-3:10

The shortest light pulse that can be generated by a mode-locked laser will always be of fundamental interest to the field of ultrafast science. Mode-locked lasers that produce octave-spanning spectra and few-cycle pulses are very attractive for applications such as frequency comb, high-harmonic generation, and ultrafast spectroscopy. Ti: sapphire lasers still dominate the few cycle regimes with generation of 5 fs pulses and octave spanning spectra directly from laser cavity. Performance of the fiber lasers is improved over the years, but they still lag in terms of high energy and few cycle pulses compared to solid state lasers. We have simulated a mode-locked fiber laser design based on the double clad ytterbium doped fiber with the addition of a dispersive delay line (DDL) before photonic crystal fiber (PCF) and it produced octave spanning spectra extending from 750 nm to 1600 nm (660 nm at -20 dB level). It is scientifically important to realize and stabilize a mode-locked fiber laser with such an extreme perturbation even numerically. To our best knowledge, this is the first numerical evidence demonstrating generation of very broad spectra directly out of a mode-locked fiber laser. Further experimental investigation of this mode-locked fiber laser is currently underway.

Studying Political Behavior: How the Internet has Expanded Activism for College Students

College of Arts and Sciences: Political Science

Oral Presentation - Course Project, 201780 POL 311 01

PRESENTERS Katherine Rachel Liming, Naimeh Osama Saleh

ADVISORS Christopher J Devine

LOCATION, TIME Kennedy Union 312, 10:30-10:50

During the aftermath of Election 2016, researchers gained an interest in how social media influenced candidate popularity and how activists were using these tools to organize and mobilize potential voters. In this presentation, we will utilize the tools of surveys and in-depth interviews to study public opinion and political behavior amongst University of Dayton college students. Our objective is to explain how students are using their social media platforms to engage with other people's opinions and develop their knowledge of political issues. Do college students use online tools to take political action instead of in-person action? Do social media feeds influence more online action amongst students? As candidates increasingly turn towards social media to garner votes, college students may be the key to understanding the relationship between social media and American politics today.

Rights and Security – Implications of Changing Power Relations

College of Arts and Sciences: Political Science

Panel Discussion - Course Project, 201810 POL 336 01

PRESENTERS Caitlin M Acevedo, Zachary T Brasch, Andrew Thomas Caldwell, Matthew Patrick Clifford, Christian Anton Matico

ADVISORS Susan M Weaver

LOCATION, TIME Marianist Hall Learning Space 217, 11:00-12:00

Through the discussion of five case studies, this panel will address the role of the United Nations in mitigating the human rights and security implications of changing power relations at the national and international level.

The International Committee of the Red Cross: Managing the Principles of Impartiality and Neutrality in an Increasingly Public, Media-hungry, World

College of Arts and Sciences: Political Science

Oral Presentation - Honors Thesis

PRESENTERS Mercedes Cecelia Ramsey

ADVISORS Joel Richard Pruce

LOCATION, TIME Kennedy Union 311, 11:30-11:50

One of the oldest humanitarian non-governmental organizations (NGOs), the International Committee of the Red Cross (ICRC) has long been a cornerstone around which all other humanitarian NGOs are built. The ICRC conforms to strict principles regarding their behavior and practices so that they can provide aid to those who need it around the globe. As NGOs began using both traditional and social media to their advantage to promote certain causes, the media and public began to push back, pressuring humanitarian NGOs to adopt some causes or speak out on others. Through studying the ICRC missions during the Nigerian Civil War in the late 1960's and the early 1970's as well as the current war in Syria, this research project intends to answer the following question: How has the ICRC's response to media pressures shifted the perception of humanitarian impartiality and neutrality for both NGOs and the public?

Rights in Jeopardy – Responses to Security Concerns

College of Arts and Sciences: Political Science

Panel Discussion - Course Project, 201810 POL 336 01

PRESENTERS Tania Malaika Boh, Anna Julia Cribbin, Joshua Thomas Dalidowicz, Justin Kyle Dejesus, Trent E Jones

ADVISORS Susan M Weaver

LOCATION, TIME Marianist Hall Learning Space 217, 12:00-1:00

This panel will address the role of the United Nations in resolving national and international crises, through the discussion of five case studies of crises wherein human rights are in jeopardy.

Environmental Crises – Impact on Human Rights and Security

College of Arts and Sciences: Political Science

Panel Discussion - Course Project, 201810 POL 336 01

PRESENTERS Connor Wray Boyle, Joanna Waltraud Gisel, Clare M Manion, Betsy R Mazza, Austin Wishart Jordan Wishart

ADVISORS Susan M Weaver

LOCATION, TIME Marianist Hall Learning Space 217, 1:00-2:00

Through the discussion of five case studies, this panel will confer on the role of the United Nations in addressing environmental concerns and crises, and the resulting impact of these predicaments on human rights and security.

Locating Human Rights in Dayton, Ohio: Stories of Global Ideas in Local Context

College of Arts and Sciences: Political Science

Visual Arts Exhibition - Course Project, 201810 POL 431 P4

PRESENTERS Taylor Lee Alexander, Mayra Arlet Baeza, Jessica Nicole Bien, Tania Malaika Boh, Jessica Rose Burnham, Allison Charlotte Burns, Rachel Elizabeth Carr, Emma E Coning, Alex Luck Curtin, Annie Ellis Denten, Rose Eileen Dyar, Claudia Grace Ferguson, Hannah B Gahimer, Maia Ann George, Isabel Cristina Gerardino, Maria Rosario Gordon, Alexandria Erin Graig-Tiso, Emily Kelly Griffin, Veronica Renee Halfacre, Julianne Elizabeth Kalec, Kayla Elizabeth Kingston, Maddie Rose Kurlandski, Chloe Elizabeth Massie-Costales, Mary E McLoughlin, Elyse Marie McMahon, Joe B Mondri, Anna M Mumma, Kerri Nicholson, Taylor Christine Orr, Maura M Parker, Corrie A Pfeiffer, Jade Alicia Poa, Joel Richard Pruce, Brittany Nicole Resar, Rose Quinn Reynolds, Claire Michelle Rotter, Shannon K Roy, Josh Aron Segalewitz, Cong Shao, Thomas William Singel, Jennifer Ann Sobnosky, Sylvia Stahl Marie Stahl, Elizabeth G Strati, Taylor Kate Tovey, Destiny Watson, Zach Shawn Weigel

ADVISORS Natalie F Hudson, Glenna Marie Jennings, Joel Richard Pruce

LOCATION, TIME Roesch Library Collab Space, 1:00-3:00

"Human rights" is a global vocabulary used to describe the experience of marginalization and suffering. Communities facing violence or discrimination utilize human rights discourse to articulate claims for accountability, as a way to ask for help or demand a remedy. Because of the way in which human rights are documented in international law, "human rights" is endowed with a degree of authority and legitimacy that makes it an appealing framework for those seeking recognition. But, what does "human rights" mean in Dayton, Ohio? Does it inform social justice work in this context? Has the language trickled down from the global to the local? Does human rights have roots or origins that are actually closer to home? Does it resonate with individuals engaged in efforts to protect human dignity in our own backyard? If so, why? If not, why not? What can we learn about the power, as well as the limits, of human rights by investigating how it takes form in the practices of those committed to promote equal respect for all people? The purpose of this project is to examine the existence and meaning of human rights in local advocacy. To initiate this investigation, student teams identified individuals and/or organizations active in the city of Dayton working in a field or on an issue that addresses human welfare. Team members conducted interviews and took photographs of their subjects, and created a multimedia presentation,

illuminating the backstory and the work of those individuals seeking to make a difference in the lives of people in Dayton. The question of human rights animates the project by providing a context within which to analyze and understand the work of local actors.

Political Science Senior Capstone: Battleground States and Presidential Elections

College of Arts and Sciences: Political Science

Oral Presentation - Course Project, 201810 POL 499 01

PRESENTERS Brian P Callahan, Hayley Jean Clark, Nicholas Scott Hagenkord, Chase Sterling Hite, James Russell Lee, Matthew Madden, Laura Elizabeth Martine, Nancy A Miller, Haley Erin Naughton, Will Joseph O'Shea, Leo James Schenk, Claire Elizabeth Schmig, Sydney Skidmore

ADVISORS Daniel R Birdsong, Christopher J Devine, Nancy A Miller

LOCATION, TIME Kennedy Union 311, 1:30-3:00

Students in POL 499 assisted Dr. Daniel Birdsong and Dr. Christopher Devine with their research on presidential campaign battleground states. As part of the political science capstone requirements, the students, in groups, identified their own research question about battleground states and presidential campaigns. They collected relevant data and analyzed that data to address their questions. The results are presented in this session.

Promotion of Human Rights – Women, Education, and Persons with Disabilities

College of Arts and Sciences: Political Science

Panel Discussion - Course Project, 201810 POL 336 01

PRESENTERS Darius Jamal Beckham, Thomas Cyrus Goffas, Charlie Michael Homan, Sabrina Assunta Rita Jemail, Carlos Martin Rodriguez, Erin Mary Winchester

ADVISORS Susan M Weaver

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

This panel will address the role of the United Nations in promoting human rights, with focus on the rights of women, the right to education, and the rights of persons with disabilities, through the discussion of six case studies.

The Enhancement of Saudi Soft Power Under the Vision 2030

College of Arts and Sciences: Political Science

Poster - Capstone Project

PRESENTERS Amal M Alrasheed

ADVISORS Jaro M Bilocerkowycz

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The Kingdom of Saudi Arabia is undertaking a revolutionary political and socio-economic transformation. Saudi Arabia adopted the vision 2030 program in 2016, and these reforms are receiving a great deal of attention from analysts and international experts, given the scope and depth of the transformation and its impact on the Saudi economy and society. Many scholars have focused on the economic aspects of the vision, but have left out the political and social aspects. This research focuses on how the reforms are going to impact the Saudi Arabia's Soft power? Moreover, the research covers diverse questions about the emergence of the vision, how is it going to be implemented, and what are the domestic and international perspectives on this vision of the future of Saudi Arabia?

Health Policy Responses and Infrastructure Re-Use in Host Cities of Mega-Sporting Events in Non-Traditional Host Countries

College of Arts and Sciences: Political Science

Poster - Honors Thesis

PRESENTERS Andrew M Kramer

ADVISORS Joshua D Ambrosius

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Many people and event organizers have lobbied for the allocation of Olympic sites tonon-traditional sites by marketing them as a transformational event for the country'seconomy and infrastructure. We study the efforts of three case studies: the 2016Summer Olympics in Rio de Janeiro, the 2014 Winter Olympics in Sochi, Russia,and the 2010 World Cup in Johannesburg, South Africa. By inspecting health policyresponses and urban infrastructure re-use projects, this thesis research contributes tothe understanding of the impact of hosting mega-sporting events for communities inhost cities. We specifically connect the impact of hosting a sporting event for the bestathletes in the world—often models of health for audiences—has on the health of itscommunity members.

Do Normative and Pathological Personality Traits Overlap? A Conjoint Confirmatory Factor Analysis of the NEO-PI-3 and PID-5

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Lisa Eileen Stone

ADVISORS Julie Walsh Messinger

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Historically, personality disorders have been conceptualized as qualitatively distinct clinical syndromes, based on operational criteria. Consistent with this model, ten distinct set personality disorder criteria are outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (American Psychiatric Association, 2013). However, debate persists about the clinical utility of this categorical model, with many (Krueger, et al.) researchers supporting a dimensional model that focuses on pathological levels of normative personality traits. A recent exploratory factor analysis (De Fruyt et al., 2013) of the NEO Personality Inventory-3 (NEO-PI-3; Costa & McCrae, 2010) and The Personality Inventory for DSM-5 (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012), suggests that normative and pathological personality traits may fall under the same common set of domains: negative affectivity-neuroticism, extraversion-detachment, openness-psychoticism, antagonism-agreeableness, and conscientious-disinhibition. However, a confirmatory factor analysis (CFA) of this model has yet to be conducted. The purpose of this study is to further explore the relationship between normative and pathological personality traits and to test the De Fruyt et al. model by conducting a conjoint CFA of the NEO-PI-3 and PID-5. It is hypothesized that the PID-5 and NEO-PI-3 share the same underlying factor structure. Using mPlus, the model will be tested in separate samples of 300 undergraduate students at a private Midwestern university and 200 adults (> 18 years of age) from the surrounding Dayton community. Understanding the relationship between these two measures is important, as they are consistently used to diagnose and aid in treatment of individuals with personality disorders.

The Effects of Adolescent Housing Condition and Voluntary Exercise on Alcohol Intake and Stress Response in Male Long-Evans Rats

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Caroline A Lynch

ADVISORS Tracy R Butler

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Can regular exercise during adolescence, combined with living in a social environment, decrease both the negative effects of chronic stress and alcohol intake later in life? The aim of this research is to answer this question using a rat model that introduces a novel behavioral intervention in the form of regular voluntary exercise in order to counteract the negative effects of chronic stress caused by socially-isolated housing during adolescence. Chronic stress has been linked to the development of alcohol use disorders (AUDs) in humans, and this study attempts to both model and hamper this phenomenon in rats using voluntary exercise. Gaining an understanding of how housing conditions and exercise can play a role in subsequent alcohol intake and stress hormone levels may be useful for the advent of new pharmacotherapies for individuals with an AUD.

Perceptions of Violence

College of Arts and Sciences: Psychology

Poster - Capstone Project

PRESENTERS Abigail Pauline McIntyre

ADVISORS Dario Norman Rodriguez

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

System justification theory suggests that people tend to view authority figures as credible and dependable (Jost, Tyler, & Van der Toorn 2011). Individuals also tend to hold those who commit unsanctioned violence or exhibit criminal behavior in disdain. This study was designed to examine how these tendencies relate to people's perceptions of situations involving authority figures, vigilantism and violence. Two hypotheses were tested: that the victim of such an interrogation will be viewed less favorably and the attacker more favorably in cases where a low status victim is interrogated by an off-duty police officer, and that the victim will be viewed more favorably and the attacker less favorably in cases where a high status victim is interrogated by a vigilante. Participants' evaluations of characteristics of aggression, credibility, criminality and guilt were measured as they applied to police officers, vigilantes and suspected criminals.

Physiological and Psychological Effects of Being Weighed in Female Participants

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Julia Christine Carroccio

ADVISORS Jacob M Burmeister, Lee J Dixon

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Stressful experiences such as constantly thinking about one's weight lead to harmful long-term physiological and psychological effects on the body. Many studies have examined the presence of weight stigma in society at large, but fewer studies have sought to determine the physical and psychological outcomes of that stigma. In the short-term, even momentary stressors could have an impact on factors such as blood pressure, for example when patients are stressed due to weighing before blood pressure is measured. This study tested whether female participants' (N = 55) attitudes about their bodies, anxiety levels, and blood pressures were

affected by being weighed. The participants were 55 female undergraduate students from the University of Dayton who were enrolled in introductory psychology courses, or some other course that required research participation. It was hypothesized that being weighed would produce negative outcomes on measures of blood pressure, body satisfaction, self-esteem, and anxiety. Results of a one-way ANOVA indicated that these factors did not differ for participants who were weighed just prior to measurement compared to those who were weighed after. Thus there may be some limits to "white coat syndrome," which is the phenomenon of a patient having higher blood pressure readings when in the presence of a physician or other medical staff. Factors such as the setting and demographic of the person obtaining the measures could be relevant.

Alcohol Deprivation Effect: An Investigation of a Model of Alcohol Dependence and Relapse Behaviors in Male and Female Long Evans Rats

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Hanna Jane Peterson

ADVISORS Tracy R Butler

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Humans that become addicted to alcohol and other drugs often relapse even long after becoming abstinent especially when they encounter stressors in life. Stress that a healthy person handles with coping mechanisms like exercise or talking to a friend, an addict may handle by resuming use of their drug of choice. People may also relapse if they re-enter an environment where they used the drug because of a learned association between that environment and the good feeling of the drug. In order to understand relapse behavior, a pre-clinical rodent model of relapse is used which models the important aspects of the human addiction and relapse condition. While a rodent model does not replicate every aspect of the human condition, it can model the aspects that are most important in addiction and relapse overall. The model used in this study is the alcohol deprivation effect (ADE) model. It has been found to model alcohol addiction and relapse in rats and can therefore allow for further understanding of relapse behavior as well as allow for testing of the effects of various variables like stress or therapeutic drugs on relapse behavior. However, before these further tests can be done, it must be clear that the model works in the Long Evans rats that are used in the lab. I am also interested in whether the ADE model yields similar results in male and female rats. This project will investigate the usefulness of the ADE model in Long Evans male and female rats by replicating a similar study done previously by Sinclair and Tiihonen (1988).

Chronic administration of probiotic *L. rhamnosus* increases anxiety-like behavior in group-housed male Long Evans rats

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Parker Maddison Griff

ADVISORS Tracy R Butler, Yvonne Y Sun

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Early life stress is a risk factor for later development of alcohol use disorders and anxiety disorders in humans. Using rodent experimental models, we know that rats experiencing social isolation as early-life stress exhibit greater anxiety-like behavior and alcohol consumption than rats housed in groups. Examining potential preventive strategies, we investigated the effects of probiotics, which have previously been shown to decrease rodent anxiety-like behavior, on the relationship between early-life stress and anxiety-like behavior in rats. We hypothesized that probiotics consumption would decrease anxiety-like behavior in socially isolated rats, as well as in rats housed in groups. To our surprise, we found that the probiotics had no significant effect on anxiety-like behavior for socially isolated rats but significantly increased anxiety-like behavior in rats housed in groups. Our results suggest probiotics do not have a positive benefit to alleviate consequences of early life stress and raise caution for their therapeutic use.

Olfaction and Disgust as predictors of Elevated Perfectionism

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Maia A McLin

ADVISORS Julie Walsh Messenger

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Olfaction aided in survival by providing a means to assess if foods were safe to consume. This assessment may have increased chance of survival by decreasing the likelihood of consuming contaminated foods leading to an evolutionary advantage (Rozin & Fallon, 1987). Disgust and olfaction are not key in survival today because of current regulations that prevent the distribution of spoiled and contaminated foods. It is possible that disgust sensitivity and the perception of normally perceived pleasant odors as unpleasant act as a disadvantage in those diagnosed with obsessive-compulsive disorder and obsessive-compulsive personality disorder. This study will examine associations between rigid perfectionism, odor detection sensitivity, perceived pleasantness of odors and disgust sensitivity. Approximately 80 undergraduate students from the University of Dayton will be assessed for odor detection sensitivity, odor identification accuracy, and complete three self-report questionnaires assessing personality traits and disgust sensitivity. Odor sensitivity will be tested with Sniffin Sticks Odor Detection Threshold test (Burghart Instruments; Hummel, Sekinger, Wolf, Pauli, & Kobal, 1997), perceived odor pleasantness with Sticks odor identification test (Burghart Instruments; Hummel et al.,

1997). The three self-report measures used are the NEO Personality Inventory-3 (NEO-PI-3; McCrae, Costa & Martin, 2005), the Personality Inventory for DSM-5 (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012), and the Disgust Scale-Revised (Haidt, Mccauley & Rozin, 1994). It is predicted that elevated perfectionism will be associated with lower odor detection sensitivity, lower pleasantness, higher disgust scores, and higher neuroticism. This study may provide further understanding of relationships between perfectionism, disgust and olfaction, and may also help identify possible target areas for Obsessive Compulsive Personality Disorder treatment by changing odor perceptions.

How Academic and Extracurricular Workload affects Stress Levels, and Consequently Mental and Physical Health of College Students

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Aidan Paul Koch

ADVISORS Erin Marie O'Mara

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Academic workload and extracurricular involvement can be sources of stress for college students. Academic workload is characterized as the student's major, course work and future graduate school and/or career path plans. Extracurricular involvement can pertain from anything to intramural sports to being the President of a student organization. The current research seeks to investigate changes in mental and physical health over a semester by examining physiological stress levels in college students, in conjunction with academic workload and extracurricular involvement. Previous research finds an association between stress and physical health (Peer, Hillman, Van Hoet 2015). Studies have shown sympathetic nervous system activation due to stressors in people's lives (Conley & Lehman, 2012). Mental Health has also been shown to decrease when stress is overwhelming in the lives of college students (Murff, 2005). The goal of the present work is to examine academic workload, extracurricular involvement, physiological stress, and mental and physical health over the course of the semester to better understand how they are associated. Using a longitudinal design, participants will complete measures of mental and physical health, as well as academic workload and extracurricular involvement at the beginning and end of the fall semester. Physiological stress will be assessed at each time point by collecting a saliva sample from participants in order to measure the hormone cortisol.

Personality Types and Self-Reported Eating Habits

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Tom Richard Lawler

ADVISORS Jacob M Burmeister, Lee J Dixon

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

People with different personality types lead very different lifestyles; these personality types also affect the eating habits of an individual. Poor eating habits can lead to a myriad of health problems, including obesity and diabetes, while healthy eating habits can promote longevity. An associated problem is inaccurate reporting of eating habits by research participants and medical patients. While many studies have been conducted to examine the relationship between eating disorders and personality types, very few, if any, have examined the effects of personality types on actual eating habits as well as perceived eating habits. The proposed study will test for associations between personality traits and eating habits and inaccuracy in self-reported eating habits. Using the five factor personality model, participants will be given a questionnaire to assess the personality traits of openness, conscientiousness, extraversion, agreeableness, and neuroticism. Participants will then be given two more questionnaires to determine their actual eating habits and their perceived eating habits. The actual eating habits will be determined using the Self Reported Habit Index, a rigorous eating habit assessment that can accurately determine the habits of an individual. Participants' perceived eating habits will be assessed using a questionnaire designed specifically for this study that will assess their general view of the healthiness of their own eating habits. Participants will be gathered via Amazon's Mechanical Turk. Through analysis of this data, conclusions will be drawn about the susceptibility of various personality traits to detrimental eating habits. Additionally, the discord between perceived and actual eating habits will be determined to provide insight into the attitudes of individuals regarding their own eating habits. This information will equip medical professionals and dieticians with knowledge about how to best accommodate patients with poor eating habits and provide them with top-notch treatment.

Urban Gardening Initiative for the Enhancement of Wellness and Environmental Attitudes of Service-Learning Research Assistants: A Participatory Community Action Research Project within Local Homeless Shelters

College of Arts and Sciences: Psychology

Poster - Graduate Research

PRESENTERS Alicia Michelle Selvey

ADVISORS Charles Allan Hunt, Roger N Reeb

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Homelessness is a complex and pervasive community problem that affects all levels of society. This collaborative Participatory

Community Action Research Project between Dr. Roger N. Reeb (Roesch Endowed Chair in the Social Sciences, Professor of Psychology, University of Dayton) and administrators at St. Vincent de Paul (Dayton, Ohio) implements Behavioral Activation at local homeless shelters as a way to address this pervasive problem within our community. Behavioral Activation, a form of operant conditioning, refers to a therapeutic strategy that attempts to increase overt behaviors by bringing a person into contact with positive response-contingent reinforcement. This enhances positive thinking, mood, quality of life, and the pursuit of personal potential. The project, which began in August of 2013, is implemented at both the Men's Shelter and Women's Shelter and has recruited well over 1,500 residents and served countless more. The project utilizes service-learning pedagogy; community members, faculty, and graduate and undergraduate students contribute to the project in various ways. Based on quantitative findings, shelter residents perceive Behavioral Activation sessions as meaningful, worthy of repeating, and enjoyable. Furthermore, quantitative findings indicate that, as shelter residents participate in the project over time, they perceive Behavioral Activation as contributing to key psycho-social factors as follows: hope, capability and motivation for education or work, purpose or meaning in life, and social/emotional support. Additionally, the project has contributed to creating a healthier social climate within the shelter, as evident by qualitative analyses; the data has revealed important emergent themes (e.g., importance of student-resident relationships in supporting psycho-social improvements). This proposed research involves the establishment of an urban garden within the context of the Behavioral Activation project. In addition to enhancing nutrition for shelter residents, this research will examine pre-to- post semester outcomes (wellbeing, environmental attitudes and behavior) for service-learning students who implement the urban gardening initiative.

The Other Woman: Women's Tendencies to and Perceptions of Mate Poaching Across the Menstrual Cycle

College of Arts and Sciences: Psychology

Stander Undergraduate Fellowship Awardee

Poster - Honors Thesis

PRESENTERS Margaret Marie Jaeger

ADVISORS Erin Marie O'Mara

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Mate poaching, or romantically pursuing an individual already in a committed romantic relationship, is a potentially hazardous mating tactic for women, as it opens them up to retaliation from scorned women. Because of this danger, from an evolutionary perspective, mate poaching would be most valuable to a woman when she would benefit most from the poached partner in the form of offspring, or when a woman's conception risk is at its highest. Research in the field strongly suggests that women who are partnered to genetically desirable men are wary of ovulating women because of their tendency to mate-poach. The present work examines this relationship more closely. The first experiment examined if women were in fact more likely to mate poach when they are ovulating as opposed to when they are not. The second experiment examined how women perceive other, ovulating women that they imagine are interacting with their significant other.

An Investigation into Bullying and Cyberbullying: The Effects of Anonymity and Form of Bullying on Severity of Victim Impact

College of Arts and Sciences: Psychology

Poster - Graduate Research

PRESENTERS Ashley Marie Harrison

ADVISORS Jackson A Goodnight

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Bullying has been a problem for many years, but due to the development of electronic communication, cyberbullying in particular has recently become a widespread problem (Boulton, Hardcastle, Down, Fowles, & Simmonds, 2014). Research suggests that cyberbullying may have a greater negative impact for victims than traditional bullying (Gilroy, 2013; Walker, Sockman, & Koehen, 2011). Previous research suggests that cyberbullying may cause impaired mental health and psychological distress and may increase risk factors for suicide among college students (Zalaquett & Chatters, 2014). Research also suggests that when the victims do not know the identity of a perpetrator, it decreases the perceived control the victim has over the bullying situation (Sticca & Parren, 2013). It was hypothesized that cyberbullying victimization would be associated with greater depression and anxiety than traditional bullying victimization alone, and that higher levels of perpetrator anonymity, reduced control, and increased frequency of victimization would explain, or mediate, this difference. Mediation analyses indicated that a reduction in perceived control significantly mediated the association ($b = .09$, 95% CI = .006 to .246) between cyberbullying and depression. Mediation analyses also revealed frequency of bullying to significantly mediate the association ($b = -.08$, 95% CI = -.204 to -.005) between cyberbullying and anxiety. These findings indicate that students who experience cyberbullying in addition to traditional bullying, compared to those only experiencing traditional bullying, experienced higher levels of anxiety and depression owing to a reduction in perceived control and an increase in frequency of victimization. These findings suggest that negative consequences of bullying in college may be mitigated by promoting awareness among students to increase their perceived control. Findings also suggest that risk for depression and anxiety in college may be mitigated by promoting bullying prevention programs to reduce frequency of cyberbullying victimization.

Urban Gardening in a Participatory Community Action Research Project at Homeless

Shelters: Enhancement of Wellness and Vocational Readiness for Shelter Residents

College of Arts and Sciences: Psychology

Poster - Graduate Research

PRESENTERS Katey M Gibbins

ADVISORS Charles Allan Hunt, Roger N Reeb

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Homelessness is a ubiquitous community problem that exists at the local, national, and international levels. This Participatory Community Action Research Project represents a collaboration between Dr. Roger N. Reeb (Roesch Endowed Chair in the Social Sciences, Professor of Psychology, University of Dayton) and administrators at St. Vincent De Paul (Dayton, OH). This project, which began in August of 2013, implements Behavioral Activation sessions at local men's and women's homeless shelters and well over 1,500 shelter residents have participated in the Behavioral Activation project thus far. Behavioral Activation is based on operant conditioning, refers to a therapeutic strategy that attempts to increase overt prosocial behaviors that bring a person into contact with reinforcing environmental opportunities, and thereby enhances thoughts, mood, quality of life, and actualization of inherent potentialities. This project also utilizes service-learning pedagogy, with faculty, community partners, graduate students, and undergraduate students working together to implement Behavioral Activation sessions within the shelters. Quantitative findings, which have been presented at numerous conferences, indicate that shelter residents perceive individual Behavioral Activation sessions as meaningful, worthy of repeating, and enjoyable. Over time, quantitative findings also indicate that participants perceive the Behavioral Activation Project as contributing to their sense of hope, capability and motivation for education/work, purpose or meaning in life, well-being, quality of life, social/emotional support, and improved social climate. Qualitative data support these quantitative findings and also reveal important themes (e.g., importance of student-resident relationships in supporting psychosocial improvements). This proposed research involves the establishment of an urban garden within the context of this project. In addition to yielding produce to enhance nutrition for shelter residents, this research will examine pre-to-post improvements in wellbeing in shelter residents who participate in the farming initiative.

Smelling How to Feel: Does Ambient Odor Affect How We Evaluate and Recall Emotional Stimuli?

College of Arts and Sciences: Psychology

Poster - Graduate Research

PRESENTERS Michael Alexander Lee

ADVISORS Julie Walsh Messinger

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Olfaction, or the sense of smell, is a ubiquitous element of the human experience. Odors are all around us and can arouse a wide range of feelings or even stir vivid memories. While studies have found that odor can influence people's evaluation of various types of stimuli, no study has shown how odor can influence how people rate the emotional content of visual stimuli, nor has it been shown how it might affect our ability to recall such stimuli. Odor's ability to affect how we evaluate and recall emotionally-charged stimuli could carry deep implications for how olfaction impacts our daily lives. This study seeks to examine how odors that carry different hedonic values affect how participants rate and recall emotionally-charged visual stimuli. Prior to the study, participants will complete an online survey where they rate the emotional valence of a collection of images from the International Affective Picture System (IAPS), which will be evenly divided between positive, negative, and neutral valence. The initial portion of experimental session will take place in a room in which either a pleasant odor, an unpleasant odor, or no odor will be present. Participants will be presented with a subset of images from the survey and asked to rate them again for valence and arousal. Immediately afterwards, participants will complete a recognition task where they will be presented with a larger collection of images and asked if they recall seeing each image earlier in the session. Finally, participants will be moved to another room without odor, complete roughly 30 minutes of distraction tasks, then complete a delayed recognition task. This task will follow the same procedure as the earlier recognition task, with the additional component of rating each image for arousal and valence. This project is expected to be completed in spring of next year.

Personality and Health Risk Information Avoidance

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Kelsey Michelle Julian

ADVISORS Erin Marie O'Mara

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

When it comes to personal health risks, some people will choose to avoid information that may be threatening to their beliefs, behaviors, or overall self-image. While many studies have been performed to discover methods that may help to reduce information avoidance, there has been little research regarding the personality characteristics of people who are more likely to engage in information avoidance. The present study will utilize a conceptually similar paradigm from previous research in which participants are led to believe that they will be able to find out whether they are at risk for an illness during their lab experience. Participants will complete personality questionnaires and then will be asked to provide a saliva sample in order to be tested for ostensibly real

predisposition to alcoholism detectable in saliva. Participants will then decide if they would like to get their test results back or not. In addition to examining whether certain personality characteristics are associated with information avoidance, the saliva will be assayed for the stress hormone, cortisol, to examine whether physiological stress is associated with personality and information avoidance.

The Influence of Self-Esteem and Stress on Academic Performance in College Students

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Angel Joshua Pagan

ADVISORS Erin Marie O'Mara

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The proposed research seeks to examine the association self-esteem, how one perceives their abilities and worthiness in society, on the human stress hormone, cortisol. According to Lazarus & Folkman (1984), stress occurs when perceived environmental demands exceed one's ability to cope with them. The majority of research available pertains to elevated levels of the hormone due to physical, external and internal stressors, but lack in the dimension of investigating self-esteem. The proposed research seeks to expand the body of work regarding the causes of stress and self-esteem on academic performance. Current research states if an individual does not believe he or she is competent, significant or worthy, heightened appraised stress can be expected to occur (Eisenbarth, 2012); therefore, it is hypothesized that an individual who has a perceived low self worth (low self-esteem) will have increased levels of cortisol, leading to lower academic performance. In contrast, individuals with high-perceived self worth (high self-esteem) will have lower levels of cortisol, which will contribute to higher academic performance. The proposed two-part study will use the data collected to find the association between self-esteem and stress, via the steroid hormone cortisol, on the participant's actual academic performance. These findings will be compared to illustrate the correlation between the variables to add to the body of work pertaining to factors that influence academic performance.

Sex Differences in Concussion-Related Attitudes Among College Students

College of Arts and Sciences: Psychology

Poster - Independent Research

PRESENTERS Pat William Dwyer

ADVISORS Joshua M Ricker, Mark Gordon McCoy (Bowling Green State University)

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Every year there are 300,000 – 3.8 million concussions sustained in the United States. Due to the prevalence of this injury and an increased understanding of it that has developed over the past decade, concussions have become a topic of much concern and conversation. Previous research has shown that factors such as having children, socioeconomic status, a person's own concussion history, and amount of time available for education, among many others can influence attitudes and knowledge about concussion. The current study sought out to understand the influence of the sex an individual and college education on multiple concussion-related attitudes. We developed a survey to assess the attitudes of college students on a range of topics surrounding concussions. 200 students at the University of Dayton were surveyed, and from our pre-test data we found significant differences in attitudes on a few questions between sexes. Males were more likely to report a higher opinion of the way professional sports leagues have handled the concussions in general. Also, males were more likely to report that they felt the monetary benefits to playing sports outweighed the risks associated with sustaining a concussion. Finally, females felt more strongly that there should be laws created and enforced in relation to concussion management for youth sports. Our results indicate that sex differences emerge in various areas of concussion-related attitudes.

Influence of positive illusions and stress on weight gain in college students

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Olivia Grace Grondalski

ADVISORS Erin Marie O'Mara

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

With majority of overweight or obese children growing up to be overweight or obese adults, understanding different influences on eating and exercise at an integral transition period into adulthood is paramount. There are several different influences on physical health from genetics to environmental factors, however, the relationship between self-enhancement and weight gain is largely unstudied. The purpose of this proposed longitudinal study is to understand the influences of positive illusions, in the form of self-enhancement, on changes in weight of college students and the role stress plays in this relationship over time. At the beginning of the semester, students will participate in Time 1, and have their height and weight recorded. Body Mass Index will be calculated using the standard equation of weight in kilograms divided by height-squared in centimeters. Then participants will complete a series of questionnaires on the computer that are relevant to the current proposal. These questionnaires include the body dissatisfaction scale to assess perceived body mass index, and self-reported stress. The Body Dissatisfaction Scale (Mutale, Dumm, Stiller, & Larkin, 2016) will be used to assess how the participant perceives their body. Participants are presented with body size images that vary in size. For each body size presented, the weight and BMI have been calculated. The difference between the participant's actual BMI

and their perceived BMI will be calculated. Self-reported stress will be assessed using the Perceived Stress Scale (Cohen, Kamarck, and Mermelstein, 1983). Actual stress will be measured in the form of cortisol. Cortisol is a steroid hormone secreted by the adrenal glands. It is hypothesized that students with high self-enhancement, and physiological stress will influence weight gain throughout the semester.

Caffeine Rush! Examining the Effects of Caffeine on Spatial Working Memory.

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Alexander N Lawriw

ADVISORS Susan T Davis

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Caffeine is well-known for its ability to make a person feel more attentive, more alert, and less fatigued, but could this popular stimulant also help improve a person's memory, as well? Prior research suggests that caffeine might be a cognitive enhancer with participants showing improved performance on short-term memory tasks such as the recall of word lists (Arnold et al., 1987; Barraclough & Foreman, 1994; Rogers & DERNONCOURT, 1998; Ryan et al., 2002; Schmitt, 2001a, b). However, conflicting results using similar tasks have called these findings into question. On top of this, the overall body of research concerning caffeine and memory has tended to focus solely on relatively simple assessments of newly established episodic memory, leaving a glaring gap in the literature when it comes to other types of memory (e.g., semantic memory). The present research aims to fill this gap by studying caffeine's potential effects on spatial working memory, the temporary storage, maintenance, and manipulation of spatial information. In the experiment, participants were asked to complete levels of varying difficulty within a computerized version of the popular puzzle game, Rush Hour, after consuming either a 200 mg caffeine pill or a placebo. Rush Hour requires the player to move a designated red 'target' car to the exit of a 6 x 6 grid. Blocking the exit are other cars that can only be moved horizontally or vertically depending on the direction they are facing. Participants must use the spatial information of the grid layout in order to complete the levels as efficiently as possible. We hypothesize that those participants given caffeine will complete these levels quicker and with fewer errors than those given a placebo. However, this increase in performance may be limited on more difficult levels due to increased workload and ensuing stress.

Does self-enhancement affect spending behavior? An experimental analysis

College of Arts and Sciences: Psychology

Poster - Graduate Research

PRESENTERS Mark A Matthews

ADVISORS Erin Marie O'Mara

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

This project aims to examine the extent to which self-enhancing, bolstering one's views of oneself, uniquely affects spending behavior. Self-enhancement is associated with both improving self-esteem (Hepper, et al., 2010), well-being (O'Mara et al., 2012), and positive affect (Bonanno et al., 2005), all variables that affect spending well-being (Babin & Attaway, 2000; Yurchisin et al., 2008). Therefore, it is likely that self-enhancing will affect one's spending while shopping, as well as their overall well-being after shopping. Participants will complete measures of their current mood and self-esteem. Participants will then be randomly assigned to one of three conditions. In the self-enhancement condition, participants will think about their most important trait and write about how this trait is more characteristic of them than other college students. In the affect condition, participants will think about recent positive event that occurred in their life and will reconstruct how that event came to be. In the control condition, participants will not perform any task. All participants will then complete measures of mood and self-esteem again, followed by a shopping simulation in which they will be asked to shop for items from the UD bookstore. Last, participants will complete measures of their overall well-being, including measures of mood, stress, anxiety, depression, and satisfaction with life. It is hypothesized that participants in the self-enhancement and the positive affect condition will spend more money and experience higher well-being than participants in the control condition. It is also hypothesized that participants in the self-enhancement condition will spend less money than participants in the affect condition.

Participatory Community Action Research in Homeless Shelters: Applications of Behavioral Activation and Service-Learning Pedagogy

College of Arts and Sciences: Psychology

Panel Discussion - Course Project, 201810 SSC 200 01

PRESENTERS Megan Marie Barry, Natalie Jane Bayer, Barbara Holland Bobal, Karla Leigh Borgerding, Ben Scott Breh, Jessica L Bullock, Julia Christine Carroccio, Benton A Carter, Mara Adrian Coffey, Lauren Julia Declark, Anika Shea Desloge, Katherine Ann DiGiandomenico, Justin Willem Dorr, Hannah Payton Dunne, Nathan L Epprecht, Will Fehribach, Marie Hermine Feyche, Katheryn Elizabeth Gerling, Katey M Gibbins, Kathryn Anne Godfrey, Ashley Marie Grassan, Michael Robert Gross, Cassandra L Hartman, Stephanie J Herbst, Lauren Arlene Hoody, Jill Marie Hubert, Amanda Rose Imbrogno, Kelsey Michelle Julian, Becca Frances LeBouef, Mingqing Luo, Jack Jeremiah McCormick, Gabriela Ana Milos, Garrett Stephan Neu, Dylan Anthony Penna-Powell, Isabella Perez, Dana Lynn Pflugrad, Alexander Bonne Posma, Alex Jordan Reynolds, Lucas Charles Sadenwater, Anna Grace Schlegel, Mallory Hope Schrier, Megan Elizabeth Schuman, Tom Gregory Schweikert, Alicia Michelle Selvey, Landis Yuri Soto, Katie Barbara Stumpf, Emma

Rutledge Venetis, Qi Wang, JD Dennis Webb, Joe Reed Weeks, Sara Elizabeth Wetter, Megan Elizabeth White, Tori C White, Lindsey Grace Whittemore, Asher Jacob Williamson, Mallory Rose Zalla, Le Zhang, Bin Zhou, Jennifer Leigh Zicka

ADVISORS Greg C Elvers, Charles Allan Hunt, Roger N Reeb

LOCATION, TIME Kennedy Union East Ballroom, 1:00-3:00

This transdisciplinary project, guided by the Psycho-Ecological Systems Model (PESM; Reeb & Folger, 2013), implements behavioral activation at homeless shelters, sponsored by St. Vincent de Paul (Dayton, Ohio), for men and women. Utilizing a participatory community-action research strategy with a service-learning pedagogy the project attempts to integrate the undergraduate student population within the greater Dayton community. Rooted in Skinners operant conditioning, behavioral activation is 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 are designed to (1) enhance the shelter guests’ empowerment, (2) strengthen their coping skills/capacity, and (3) improve the social climate of the shelters. Results indicate that guests find behavioral activation sessions to be important, meaningful, worthy of repeating, and enjoyable. Findings also suggest that guests perceive behavioral activation sessions as contributing to their overall levels of hope, mood, empowerment, social support, positive social climate perceptions, purpose/meaning in life, and quality of life. In addition to presenting quantitative and preliminary qualitative results from research on the project, we will discuss a number of extensions of the project to different settings, such as the newly developed Urban Gardening Initiative and continued collaborative partnership with the Montgomery County Office of Reentry. Lastly, student research assistants will be serving as panelists to present and discuss their experiences while working on the project within the greater Dayton area homeless shelters. Specifically, they will be addressing their perceived ability to act as an agent of change within the community, the changes in perception of homelessness and homeless individuals, and their perception of the stigma, oppression, and discrimination faced by homeless individuals.

Wives’ Perceptions of Husbands’ Housework and Parenting Contributions

College of Arts and Sciences: Psychology

Oral Presentation - Honors Thesis

PRESENTERS Reilly Kate Kincaid

ADVISORS Catherine Lutz Zois

LOCATION, TIME Kennedy Union 312, 1:30-1:50

Compared to the nuclear family in previous decades, today’s typical family is less likely to have only the father working for pay and the mother possessing sole responsibility for the housework and childcare. As women continue to strive toward more equal participation in the paid workforce, many studies have pointed to trends of dual-income families’ redistribution of household labor between spouses. Although husbands may be increasing their housework and childcare contributions, the type of contributions they make tend to be that of a “helpmate,” leaving the responsibility for the organization and management of such labor to their wives. Using a qualitative method, Gordon and Whelan-Berry (2005) found that the majority of husbands spent more time “doing” rather than “managing” in the household. The present study uses a sample of female faculty and staff at the University of Dayton, who are in dual-income marriages and have children, to examine wives’ perceptions of how much their husbands “do” and how much their husbands “manage” in terms of housework and childcare. Participants completed questionnaires to measure their perceptions of how frequently their husbands “do” and “manage” various household and childcare tasks, their initial expectations regarding their husbands’ contributions, and their satisfaction with life and marriage. Results provide quantitative support for Gordon and Whelan-Berry’s high-doing, low-managing husband norm and shed light on the different implications that husbands’ various contributions have for wives’ life and marital satisfaction. Husbands’ ‘doing’ behavior emerges above their ‘managing’ behavior in terms of its importance in predicting satisfaction, suggesting that the “helpmate husband” arrangement is not only tolerated, but perhaps even preferred among some women. The variety of factors perpetuating this trend, and the doing-managing dichotomy more generally, remain unclear and constitute an important area for gender and family research to focus on in future studies.

The Effects of State Anxiety on Olfactory Function in Healthy Young Adults

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Lauren Taylor Olson

ADVISORS Julie Walsh Messinger

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The specificity of the interaction between the olfactory and emotional systems in the human brain remains unclear due to contradictory research findings. Prior studies have found both positive and negative associations between levels of anxiety and odor detection sensitivity, identification ability, and hedonic ratings. To address this lack of conclusive findings, the present study utilized a within- and between-subjects experimental design to investigate the effects of anxiety induction on olfactory threshold, identification accuracy, and hedonic ratings among 40 undergraduate University of Dayton students. The experimental procedure tested several hypotheses regarding changes in measures from baseline to post-induction: Participants in the anxiety induction group will exhibit a significant decrease in post-induction odor threshold scores, compared to baseline scores, while odor threshold scores will remain stable in the control group. Participants in the anxiety induction group will exhibit a significant increase in their post-induction odor identification accuracy scores, compared to baseline scores, while odor identification accuracy will remain stable in the control group. Participants in the anxiety induction group will rate post-induction neutral odors as significantly more unpleasant

compared to control ratings. Understanding the specific effects of anxiety on olfactory perception is critical in expanding the understanding of reactive emotional processes and may help future researchers who wish to study anxiety and emotional dysfunction in relation to perceptual processes.

The Persistence of Neotenus Behaviors in *Felis catus*

College of Arts and Sciences: Psychology

Poster - Independent Research

PRESENTERS Karina H Palermo

ADVISORS Greg C Elvers

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

It is hypothesized that as a cat owner's nurturing behavior increases, the cat's neotenus (juvenile) behaviors will increase. Bradshaw, Casey, and Brown (2012) reports the persistence of juvenile behaviors to be one of the three effects that domestication has on *Felis catus*. Though physiological changes are more easy to observe, behavioral changes are more challenging to measure, as they vary cat-by-cat. Moreover, Price (1999) notes that changes in animal behavior are often due to changes in the animals' social environment. The changes from wild to domestic, or even outdoor to indoor living have a large impact on cat behavior. Locke and Prinz (2002) explain that when it comes to parenting, nurturance can be shown through emotional expressions, such as a hug, and instrumental acts, like playing a game together. Participants' behavior towards their cats are measured using these categories. The topic under question is finding correlates of persistent neotenus behaviors in *Felis catus*. Nurturance questionnaires, neotenus behavior checklists, as well as emotional expressions and instrumental acts checklists adapted for the cat and owner relationship have been distributed to patrons of the Gem City Catfé in Dayton, OH. The café receives a \$1 donation for their partnering cat rescue for each completed packet that is returned. The data will be analyzed using multiple regression to predict neotenus behaviors from nurturance, instrumental acts, and emotional expressions.

Personality Risk and Protective Factors Moderate Associations of Relationship-Contingent Self-Esteem with Mental Health and Relationship Outcomes

College of Arts and Sciences: Psychology

Poster - Graduate Research

PRESENTERS Frane Francis Santic

ADVISORS Lee J Dixon

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Contingent self-esteem occurs when an individual's self-esteem is affected by a specific outcome or situation. This form of self-esteem can occur within different domains, with one specific domain being relationships. Relationship-Contingent Self-Esteem (RCSE) "involves having one's self-regard hooked on the nature, process, and outcome of one's relationship" (Knee, Canevello, Bush, & Cook, 2008). RCSE is said to occur from a thwarting of basic psychological needs, including competence, relatedness, and autonomy. When these needs are not fulfilled, issues such as feelings of incompetence, a lack of feeling of control, and issues with connecting with other individuals can occur. Further, those high in RCSE can have lower relationship satisfaction and experience higher levels of negative emotion felt. The objective of the study is to examine how certain personality risk and protective factors that are correlates of the basic psychological needs influence the relationship between RCSE and relationship and the experience of negative emotion (i.e., depression). The study draws from a large sample of married alumni from a private Midwestern US university. Participants were asked to complete a survey containing a range of measures for basic psychological needs, relationship satisfaction, depression, RCSE, authenticity, anxious attachment, and self-compassion. The study examines how individuals with RCSE are impacted by attachment style, feelings of self-compassion, and other personality factors, as well as what level of depression and satisfaction they currently feel in their lives. If one's basic psychological needs are being met then it's possible that the negative impact of RCSE on relationship satisfaction and depression could be reduced, or possibly eliminated. Understanding what constructs act as risk or protective factors can inform either the creation of or mending of current interventions that are meant to specifically target these constructs. These interventions could in turn, diminish the negative impact of RCSE.

Beyond the Picture: Elaboration more than Description Enhances Memory and Appreciation for Paintings

College of Arts and Sciences: Psychology

Poster - Independent Research

PRESENTERS Jacob Severino Avendano, Abigail T Flower, Tessa Nicole Jatczak, Brad Charles Wolfred, Yu Zhao

ADVISORS Susan T Davis, Mark A Matthews

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Aesthetic preferences involve many factors that determine how people respond to art. For example, the context surrounding photographic art (e.g., titles) influence its aesthetic appeal (Millis, 2001). The present study examines the effect of titles on aesthetic preferences for paintings. We hypothesize that (a) participants will show greater preference for paintings with elaborative titles compared to descriptive titles, and (b) participants will have better memory for paintings with elaborative titles compared to descriptive titles. Participants evaluated images of lesser-known Van Gogh paintings. Prior to the experiment, a sample of students

was presented with these paintings along with elaborative and descriptive titles to verify that the titles were valid. In the experiment, all participants were exposed first to paintings without titles. Next, participants were exposed to the same paintings in a randomized order with titles. Titles were either elaborative (evoking a deeper thought process, such as “Water Sustains Life” for a painting of a bridge over a stream) or descriptive (naming objects in the painting, such as “Bridge over Water” for the same painting). Participants were asked questions assessing preferences: if they liked the painting, if they would buy the painting, and if they would hang the painting in their home. A control group also assessed the paintings twice, but without the titles present either time. All participants then completed tasks unrelated to the experiment to distract them from reviewing the paintings. Finally, participants viewed the original paintings intermingled with new Van Gogh paintings to test their memory for the original paintings. Preliminary results show that participants prefer and recall more of the paintings with elaborative titles compared to descriptive or no titles. These results support our hypotheses, suggesting that elaboration enhances one’s experience when viewing paintings, and elaboration also make the paintings more memorable.

Sleeping on it: Examining the Effects of Sleep Consolidation when Encoding is Interrupted.

College of Arts and Sciences: Psychology

Poster - Independent Research

PRESENTERS Taylor Nicole Chambers, Alexander N Lawriw, Gabby Louise Silone

ADVISORS Susan T Davis

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Research indicates that memories are strengthened by consolidation, defined as their incorporation during sleep into a previously established memory network (Rasch & Born, 2008; Rasch & Born, 2013). Data indicate that memories are initially unstable after encoding and that sleep consolidation increases resistance to interference (Robertson, 2011). On the first day of a two-day experiment designed to examine whether interrupting the encoding of a memory would affect later memory consolidation, participants in the present research memorized pictures of common objects (e.g., owl, motorcycle) presented in a slideshow. At the midpoint of the slideshow, there was a simulated computer crash. While the experimenter pretended to amend the fake situation, participants completed an unrelated task to prevent rehearsal of the pictures. Shortly after, the slideshow resumed, presenting the remaining pictures. Participants were assigned to either complete an immediate recognition test of the pictures, return to lab the following day to complete a delayed recognition test, or complete both an immediate and a delayed recognition test. We tested three hypotheses; first, pictures that appeared near the beginning and the end of encoding, and those that appeared after the resumption of the interrupted slideshow would be better remembered than those pictures that appeared just before the interruption, due to primacy and recency memory effects. Second, pictures tested for memory only on the second day would be remembered better, due to sleep consolidation, than when tested for memory only on the first day. Third, participants tested on the first and second day would be more confident in their memory of the pictures, and, due to sleep consolidation and repetition, would recognize more pictures on the second than on the first day of testing.

The mediating role of idealization in the association between couples’ geographical separation and infidelity

College of Arts and Sciences: Psychology

Poster - Independent Research

PRESENTERS Ellen Frances Krueger, Angel Luis, Emily Nicole Panella, Hind Salih, Alicia Michelle Selvey, Gabriella M Vargas

ADVISORS Lee J Dixon

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Although romantic partners are typically characterized as being closer in proximity, long-distance relationships (LDR) are becoming more common. LDRs are more common for various reasons, including educational degree attainment, military deployment, and emigration. Couples use Relational Maintenance Behaviors to continue and enhance the relationship. One such behavior is categorized as idealization, which occurs when a partner focuses on the positive aspects of the relationship and ignores disagreements or areas of contention. LDR couples have a tendency to idealize each other more due to geographical distance and lack of proximity. Previous research suggest that maintenance behaviors negatively correlate with infidelity; it is possible that LDR couples who engage in maintenance behaviors are less likely to cheat on their partners. There are many facets to emotional infidelity, such as sexuality, emotional satisfaction, attitudes-norms, and revenge-hostility. The relationship between maintenance behaviors and idealization has been documented by previous research, but infidelity in relation to both has yet to be explored. Based on previous research, we hypothesize that idealization will mediate the relationship between geographic proximity and infidelity. Specifically, we predict that those who are in long-distance relationships will idealize their partners more than those who are in geographically close relationships, and that higher levels of idealization will, in turn, predict lower levels of infidelity. Mediation will be tested using a bootstrapping technique. Results will be presented.

An Exploration of Children’s Executive Functioning and Maternal Emotion Regulation Skills: A Proposed Study

College of Arts and Sciences: Psychology

Poster - Graduate Research

PRESENTERS Kirsten Lee Anderson

ADVISORS Mary Fuhs

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Executive functioning (EF) skills, that is, skills involved in planning and problem solving, are imperative for children's school readiness. According to a nationally representative survey of kindergarten teachers, EF skills are more important for success in kindergarten than purely "academic" skills such as knowing how to count to twenty, recite the alphabet, or recognize colors and shapes (Heaviside & Farris, 1993). Therefore, it is important to understand which factors relate to children's early development of EF skills, especially for children growing up in poverty who are at risk for academic difficulties. Some research has suggested that there is intergenerational transmission of EF skills, specifically linking maternal EF and child EF, but this association has been limited to EF tasks measuring "cool" EF skills or those not involving emotion regulation (Kim, Shimomaeda, Giulano, & Skowron, 2018). The purpose of the proposed study is to examine if mothers' self-reported "hot" EF, or emotion regulation skills, are significantly correlated with their child's performance on their everyday EF skills behavior in both "cool" and "hot" EF skills domains. This study will examine data from 42 mother-child dyads enrolled in a parent education program across sites located in two high-poverty neighborhoods. At the time of enrollment, parents completed a self-report questionnaire of emotional regulation (Wong & Law, 2002) and reported on their child's "hot" and "cool" EF skills as assessed by the Childhood Executive Functioning Inventory for Parents and Teachers (CHEXI; Thorell & Nyberg, 2008). Aggregate scores will be calculated for parent emotion regulation and the CHEXI for "hot" and "cool" items, and simple linear regression will be utilized to examine if there is a significant association between mothers' reported emotion regulation skills and their children's EF skills, controlling for covariates.

Depression, Suicidality, and Sleep Disturbances: A Literature Review

College of Arts and Sciences: Psychology

Poster - Independent Research

PRESENTERS Karla Leigh Borgerding

ADVISORS Julie Walsh Messinger

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Past research has shown that it is common for people with depression to report sleep disturbances. However, the relationship between sleep disturbances and suicide is not as well known. The current literature review looks at several articles relating to depression, suicidality, and sleep disturbances. Specifically, how sleep disturbances increase mood dysregulation which may lead to an increased amount of suicidal thoughts (Cukrowicz et al., 2006). Specific types of dreams (e.g. a nightmare) seem to be a prominent symptom of sleep disturbance that may result in greater mood dysregulation, and consequently, more severe and frequent suicidal ideation (A?arg?n et al, 1998). In one study, women tended to report more frequent nightmares than men and were more likely to report suicidal ideation (A?arg?n et al, 1998). From these articles, it is concluded that sleep disturbances are a possible risk factor for suicide among depressed populations. This could imply that therapists should incorporate sleep monitoring into their treatments for depressed and suicidal patients.

Differences in the Development of Internalizing and Externalizing Behaviors in Children of Depressed Mothers

College of Arts and Sciences: Psychology

Poster - Honors Thesis

PRESENTERS Hannah Simone Jackson

ADVISORS Jackson A Goodnight

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

This research project explores variables that may impact the outcomes of children with clinically-depressed mothers, with a focus on 14- to 17-year-old adolescents. We are interested in learning why some children with depressed mothers develop anxious thoughts or behaviors while others develop aggressive thoughts or behaviors. To do so, we are analyzing relevant variables that have potential to impact or explain the differences in development, such as relational separation and family instability, mother/child relationship, and parenting practices. Statistical analyses have demonstrated that some of these variables of interest are significant mediators between maternal depression and specific child outcomes, but not all of them. This project also uses sibling- and cousin-comparison models in order to ensure that genetics are similar and that environmental factors are the main focus. This research is important as it will give insight on what may be affecting the mental health of adolescents and teenagers, hopefully leading to better education for families and beneficial resources that allow children in these circumstances to thrive.

Examining the Stability of the Purrsonality of Felis catus, the Domestic House Cat.

College of Arts and Sciences: Psychology

Poster - Independent Research

PRESENTERS Taylor Nicole Chambers, Alexander N Lawriw

ADVISORS Greg C Elvers

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

People have a tendency to believe that their beloved furry felines have their own unique personalities. However, according to the traditional definition of personality, a set of characteristics that are stable across both time and different circumstances, this may

not entirely be true. Previous research into this area has resulted in dimensional groupings of cat personality traits similar to those found within the well-known human equivalent, the Big Five (Feaver, Mendl & Bateson, 1986; Karsh & Turner, 1988; Bennett, Rutter, Woodhead & Howell, 2017; Ha & Ha, 2017). While the number of labels and dimensions discovered typically differs, these studies have all come to the conclusion that cat personality traits do exist, and that they vary from individual to individual. Yet, none of these studies have intentionally examined the stability of these traits, a key component of overall personality. The current study addresses this issue by asking primary caregivers of cats to rate, on a scale from one to five, how well 29 adjectives (taken from Bennett et al, 2017) describe their cat in three different situations and at two periods of time. The 29 adjectives rated by the participants were scored on the six dimensions of cat personality (playfulness, nervousness, amiability, dominance, demandingness, and gullibility) following the method of Bennett et al. (2017). Separate repeated measure ANOVAs were conducted with either situation or time as the independent variable. A Bonferroni adjusted α level of $.05 / 6 = .00833$ was used. Significant effects of situation were found for playfulness, nervousness, amiability, dominance and demandingness. Gullibility was not statistically significant. Significant effects of time were found for amiability, dominance, and demandingness. Playfulness, nervousness, and gullibility were not statistically significant at the Bonferroni corrected α level. In conclusion, while certain personality traits were found to be stable either across time or across situations, others were not; therefore, overall personality was not stable.

The Role of High-Quality Preschool Experiences in School Readiness Skills Gains

College of Arts and Sciences: Psychology

Poster - Course Project, 201810 PSY 493 28

PRESENTERS Maddy Leigh Weimer

ADVISORS Mary Fuhs

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Recent research suggests that young children from low-income homes benefit most from participating in high-quality early childhood environments (Geoffroy et al., 2010). It has been further suggested that a high-quality preschool experience can mitigate the link between poverty and difficulties with school readiness (Ladd, 2017). In order to investigate this further, we will test the effects of interactions between classroom quality and maternal education levels and family income on children's school readiness skills in a comprehensive battery of assessments, including assessments of self-regulation skills, academic skills in math and literacy, and social and emotional skills. We predict that children living in homes with parents with lower educational levels and lower income will benefit the most in their school readiness skills gains across the preschool year if they attend preschool at a high-quality early childhood classroom.

Asking the right questions: An indirect strategy for improving lie detection

College of Arts and Sciences: Psychology

Poster - Independent Research

PRESENTERS Elliot Duke Buccieri, Adriana Francesca Degenova, Lauren E Murphy, Margaret Frances Weingarz, Scott Anthony Wonderly

ADVISORS Susan T Davis, Mark A Matthews

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Despite our ability, innate and learned, to perform many tasks, we are, on average, only 54% accurate at detecting lies; this rate of performance is only marginally better than a lucky guess (Bond & DePaulo, 2006). However, research by ten Brinke et al. (2016) suggests that people may be able to detect deception indirectly. Our team, used suggestions of future research from ten Brinke et al. (2016) to study indirect detection of deception by participants watching the video interview of a person suspected of lying. The first hypothesis for this research was that better deception detection would result from questions that primed implicit associations of dishonesty from an observer than from direct questioning of the observer about the dishonesty of a person in a video. A second hypothesis was that the type of question asked of an observer would produce more correct identifications of dishonesty when the questions (a) evoked biases about the person in the video (e.g., stereotypes that individuals in some professions are more or less honest than others), (b) expectations of behavior of the person in the video (e.g., would the person in the video cheat), and (c) probed about nonverbal characteristics indicating the dishonesty of the person in the video (e.g., fidgeting and looking around instead of at the interviewer). A control group of observers was directly questioned about whether the person in the video was lying. Data collection is in progress and our expectation is that indirect questioning will lead to more accurate deception detection than will direct questioning. We also expect that of the three types of indirect questions, those that evoke biases and expected behaviors will produce better deception detection than will questions about the personal characteristics of the person in the video.

Vatican II and a major shift in Catholic schools

College of Arts and Sciences: Religious Studies

Oral Presentation - Capstone Project

PRESENTERS Joe Simon Pieper

ADVISORS William H Johnston

LOCATION, TIME Humanities 122, 10:30-10:50

Catholic education has long been held as a foundational and important piece of the Catholic experience. Thousands of students attend Catholic primary and secondary school every year. Vatican II brought about major changes to the Catholic Church as an

institution. Many changes were also brought to Catholic education after the conclusion of Vatican II. The occurrences of Vatican II provided Catholic education with much needed updating to the pedagogy which they used to teach students. This post Vatican II offered teachers ways in which to better prepare their students for a faith life in a more secular and modern society. This paper will look at how changes at Vatican II to education gave teachers better tools to empower their students, while also giving schools better reach to non-Catholics. In other words Catholic schools were not only better equipped to defend and strengthen the faith, but to also work as evangelizers for the Catholic faith.

Understanding Salvation in the Modern Age: Post Vatican II Perspectives

College of Arts and Sciences: Religious Studies

Oral Presentation - Capstone Project

PRESENTERS Taylor Kate Tovey

ADVISORS William H Johnston

LOCATION, TIME Humanities 122, 11:00-11:20

Prior to the Second Vatican Council the official teaching on salvation in relation to other religions is summarized in the phrase, “No salvation outside of the Church.” Vatican II is a major turning point in developing the Catholic Church’s approach to salvation. In the aftermath of Vatican II theologians have debated the proper interpretations of council documents including *Lumen Gentium*, “On the Church” which describes the Catholic Church’s role in the world and in salvation. *Lumen Gentium* 16 affirms the possibility of salvation for non-Christians but the actuality of how and by whom salvation is achieved is largely contested.

Vatican II and the Development of Religious Liberty

College of Arts and Sciences: Religious Studies

Oral Presentation - Capstone Project

PRESENTERS William Joseph Gross

ADVISORS William H Johnston

LOCATION, TIME Humanities 122, 11:30-11:50

Prior to the Second Vatican Council, Catholicism was given a special place of status, protection, and primacy in many nations. This was considered desirable by the Church since Catholicism was encouraged over other religions or competing ideologies. In this way true faith in God was better protected and encouraged for all people in a given nation. At Vatican II, the Declaration on Religious Liberty, *Dignitatis Humanae*, instead described religious liberty as a constitutional necessity in all places. What prompted this change in approach to the relationship between the Church and state regarding religious liberty? How are these changes reflected in the Church today, particularly in the United States? This research looks at the historical development of the relationship between the Church and state before, at, and after Vatican II into the present. In addition to *Dignitatis Humanae*, other texts from the council reveal that conscience contributed largely to the new formulation of religious liberty.

Nostra Aetate Today: The Importance of Living out Nostra Aetate in Today’s World

College of Arts and Sciences: Religious Studies

Oral Presentation - Capstone Project

PRESENTERS Rachel Ann Nartker

ADVISORS William H Johnston

LOCATION, TIME Humanities 122, 12:00-12:20

Nostra Aetate is one of the more significant documents that came out of the Vatican II council. Though the council released it many years ago, it still is of great importance today. Nostra Aetate discusses how Catholics should view and interact with non-Catholic religions. This document was not only important in its time, but is still very important today in a world that still faces religion-based clashes. The guidelines this document offers, especially the call for dialogue, if practically followed, could be very useful in today’s world, especially to the youth.

Chant to Contemporary Music in the Catholic Mass

College of Arts and Sciences: Religious Studies

Oral Presentation - Capstone Project

PRESENTERS Kathleen Adeline Zahn

ADVISORS William H Johnston

LOCATION, TIME Humanities 122, 12:30-12:50

This talk will cover a brief history of Gregorian chant and its use in the mass, including an overview of the chapter on liturgical music in Vatican II’s “Sacrosanctum Concilium” (1963) and key passages in the U.S. Catholic Bishops’ document “Sing to the Lord” (2007). It will then discuss the contemporary music that is currently used in mass today by the worship team at the University of Dayton Chapel. Finally it will discuss if we have lost the culture of chant in mass and then discuss how we can move forward in reincorporating chant into mass while still allowing contemporary music in the mass.

What Happened to Active Participation?

College of Arts and Sciences: Religious Studies
Oral Presentation - Capstone Project

PRESENTERS Martin Palmasani

ADVISORS William H Johnston

LOCATION, TIME Humanities 122, 1:30-1:50

In the First half of this presentation, I will paint the background image of the Church's liturgy before Vatican II. In those days the people were physically present but as simple spectators, not active participants. The pre-conciliar efforts to improve this led to the creation of the council's liturgy document which highlighted liturgical reform having active participation as its main goal. I will show how this led to key changes, like Mass in the Vernacular for example. In the second half of this presentation I hope to make an argument for the need of another revitalization for active participation. Using the study titled Going, Going, Gone that shows reasons why people have left the Catholic faith, I will show that there is a decline in faithful participants in the coming generation that may continue to decline for years to come. One of the major reasons to this is the lack of education about the faith. This lack of education creates a chain reaction of those people not understanding the mass, thus not opening themselves to God, thus resulting in the abandonment of the faith. The graces of the liturgy are present, but the congregation is not actively participating. Many examples in Going, Going, Gone involved men and women leaving for reasons of "no longer being forced to attend", "Not believing in everything the Church says", or finding Church practices and doctrines to be "ridiculous" to name a few examples. These issues are changing the way the faith is understood and many of them are brought out of misinterpretation that can easily be rectified with greater education.

Taking College Students on the Silent Journey: Reclaiming Silence in a Culture of Noise

College of Arts and Sciences: Religious Studies
Oral Presentation - Course Project, 201810 UDI 163 01

PRESENTERS Joe James Oliveri

ADVISORS James Schimelpfening, Sandra A Yocum

LOCATION, TIME Kennedy Union 310, 1:40-2:00

We live in a culture of noise, a world of busyness. On a college campus, it is even harder to find time for silence, for prayer, for simply - being. As I minister to students in their daily lives of classes, extra-curricular activities, social media, music, relationships, it seems especially hard for them (much like myself) to reserve time for silence and recognize God's presence always and everywhere. In my mini-course, I took eight students on "The Silent Journey" in hopes to not just find more silence but to silence (discipline) their words, actions, thoughts, feelings, and imagination through Marianist spirituality and Catholic Christian contemplative traditions. Students met for two hours once a week to pray, listen to one another, and learn more about ways to practice silence amidst the noise in their lives. The hope was that these students would see that silence is not only the absence of something but the presence and way of life of something greater. It is my belief that only then will prayer impact our faith and lives deeply so we can make a positive change in this noisy, busy world we all share as one.

An Evaluation of Contrasting Views of University Campus Concealed Carry

College of Arts and Sciences: Sociology, Anthropology, and Social Work
Poster - Capstone Project

PRESENTERS Kyle H Dobies

ADVISORS Martha Henderson Hurley

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

Today a majority of states have laws that prohibit guns from being carried on university campuses. However there are a few that have enacted laws that protect the rights of individuals who choose to carry a firearm. In select other states the decision is ultimately placed upon the university or college to prohibit or allow students and staff to carry weapons on their campus, even though it may be legal by state law. With recent cases of violence on college campuses, many states have completely prohibited firearms while a few others have legalized it. The purpose of this research is to examine state gun legislation and perceptions of concealed carry on campus from the individuals that it directly affects: university staff and students. Additionally, how concealed carry has changed and progressed over recent decades involving times of war, terrorist threats, school shootings, and other fears will also be analyzed.

How poverty affects the management of a water contamination crisis in the city of Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work
Poster - Course Project, 201810 SOC 339 01

PRESENTERS Alyssa Marie Miller

ADVISORS Danielle C Rhubarb

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The city of Dayton prides itself on the quality of its water. However, contamination at the Behr Plant, which is the former site of Chrysler and now a Superfund site, in Northern Dayton threatens the health of residents in that area. This presentation explores the demographic and socioeconomic characteristics of those who live around the site and whether those characteristics help us

to understand the level of power and privilege local residents had in the various stages of site contamination. To do this, I draw on sociological literature, Facing Project Narratives (a program from the University of Dayton), and local Dayton news articles. Additionally, I will compare past and present northeastern Dayton neighborhoods affected by the contamination and I will observe if any policies have been passed to avoid such catastrophes in the future.

Cross-Cultural Medical Interpretation: A Proposed Certificate for the University of Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Honors Thesis

PRESENTERS Kevin Laurence Outwater

ADVISORS Simanti Dasgupta

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

The medical profession today is anchored with English as the primary language. Therefore, some individuals may struggle to communicate, causing the usage of interpreters to lower the burden for these patients. This interpretation model is going to address not only the primary skills of medical interpreters, but will also address languages and culture, in attempt to highlight meanings, and integrating other cultural notions. Since the demographics in the United States is changing, it is necessary to adapt these language and cultural changes to the medical field. Through this, I propose this interpretation model to be incorporated at the University of Dayton, becoming a medical interpretation certificate. This would follow the University's belief in "Commitment to Community" by engaging with members of the Dayton area.

Media Portrayal on the Legalization of Marijuana in Colorado and Ohio

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Capstone Project

PRESENTERS Quinn Marie Carlson

ADVISORS Martha Henderson Hurley

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

In order to have a better understanding on the legislation of the legalization of marijuana in Colorado and Ohio, I will be conducting a content analysis on media portrayal. The study will be done through news articles that discuss the legalization of marijuana throughout Ohio and Colorado. The media that I will be using will come from national news sources, from all spectrums of the political scale. The reason for this is so that I have diverse articles, with varying opinions and ideologies behind the writers of the media. I will have a set of guidelines of questions to ask when determining which media to use. Some of these questions will include, "For what audience was it produced?" "Is an opinion shown or given in this article?" and "When was it produced?" These will help me organize and filter through various media that I am exposed to and to create a systematic way to analyze the media. The overall purpose of this research will be to examine the media portrayal of the legalization of marijuana in both Colorado and Ohio. More specifically, if the way that news articles from a national level are portrayed has any bearing on whether or not marijuana legislation passed in the two previously listed states.

21st Century Policing in Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Capstone Project

PRESENTERS Max Hunter Boorsma

ADVISORS Martha Henderson Hurley

LOCATION, TIME RecPlex Main Gym, 9:00-10:15

In light of the 2015 Presidential Task Force on 21st Century Policing (Task Force), police departments across the country have been adapting with the ever-changing culture of the United States. The Task Force highlights six pillars essential to effective modern policing that are discussed throughout this research, with an emphasis on pillar one, Building Trust and Legitimacy and pillar four, Community Policing and Crime Reduction. This research attempts to answer the questions of how the Dayton Police Department (DPD) is engaging with the findings of the Task Force and how the public perceives the Dayton Police Department. Exploring the first research question, this research analyzes DPD programs in relation to the Task Force pillars. Discussion of the DECA Taft Seminar highlights the focus on Problem Oriented Policing (POP) and Community Oriented Policing (COP) in relation to pillars one and four. A content analysis of twitter is used to explore the public perception of the DPD. This is an analysis of all 2017 public tweets from twitter users in the Dayton area, which include the key word 'police'. Discussion of DPD programs in relation to the Task Force pillars allows for analysis and recommendations based on relevant literature. The objective of this paper is to highlight connections between the DPD and the Task Force and to gauge the success of DPD programs based on public perception.

How is human trafficking depicted online?

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Mara Nerlinger Joelle Nerlinger

ADVISORS Leslie H Picca, Danielle C Rhubart

LOCATION, TIME Kennedy Union 222, 10:30-11:03

Human trafficking is a current and relevant social issue. While human trafficking has gained some attention in the media and in the academic literature, the details about human trafficking remain elusive. Using content analysis, this study examines 10 human trafficking websites to examine common themes in how human trafficking is depicted online. The findings show common themes related to gender, specifically the relationship between gender and visual images, sex trafficking and labor trafficking, and language. This content analysis explores the variability between what is discussed in the academic literature and how this compares to online depictions of human trafficking.

Let's Get It On: An Analysis of LGBTQ+ Hookup Culture at The University of Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Elizabeth Clara Kyle

ADVISORS Leslie H Picca, Danielle C Rhubarb

LOCATION, TIME Kennedy Union 222, 10:30-11:30

Hookup culture is a phenomena that has changed modern dating culture through altering attitudes about sexual interactions, especially on college campuses. Previous research on college campus hookup cultures tends to focus white, middle class, heterosexual relationships and attitudes. This study examines perspectives of hookup culture within the LGBTQ+ community on the University of Dayton's campus, a group often not acknowledged in research. Through one-on-one interviews, respondents expressed their views on hookup culture and how it potentially differs and relates to heterosexual, college campus hookup culture. A deeper look into themes from respondents will be further examined in my presentation.

Perception of Bystander Intervention amongst Students at the University of Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Caleb Negrón

ADVISORS Leslie H Picca, Danielle C Rhubarb

LOCATION, TIME Kennedy Union 222, 10:30-11:30

Sexual violence is a prominent issue on college campuses with the majority of survivors consisting of women. Bystander intervention is heavily promoted as an effective method to combat the issue especially in the context of a college campus due to higher risk of individuals experiencing sexual violence. In this study, we are looking at an alternative programming of promoting bystander intervention through the use of peer-to-peer dialogue as well as how gender influences the likelihood of someone intervening. The peer-to-peer programming that will be utilized in this study is called PAVE Chats. Pre- and post-surveys are used to examine key factors associated with changes in students likelihood to intervene in a situation. These findings help identify other methods of bystander intervention programming and how gender influences the students likelihood of intervening.

“Sleep, eat, hydrate, masturbate!”: Sexuality education, digital media, and creator identity implications

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Emma Rutledge Venetis

ADVISORS Leslie H Picca, Danielle C Rhubarb

LOCATION, TIME Kennedy Union 222, 10:30-11:30

With the rise of digital technology, authority figures are no longer able to regulate what information young people have access to. Yet, the curriculum in sexuality health classrooms continues to be debated while little research has been done examining the easily-accessible information that lives on the Internet. This thesis analyzes two popular sexuality education-based channels on YouTube, sexplanations and lacigreen, with subscriber counts ranging from nearly half a million to over 1.5 million. Data were collected through content analysis of approximately 27.5 hours of video. Findings indicate that sexuality education on YouTube takes a comprehensive, “sex positive” approach, covering a range of topics including anatomy, sexual orientation, consent, contraception, and sexual instruction. Video creators' values and identities, as well as the structure of YouTube itself, impact the information that is presented. This analysis is significant as indicates that formally regulated sexuality education programs may no longer be relevant and user-generated digital education is introducing new perspectives on sex and sexuality to young people.

How do you prefer your coffee? An outlook on interracial relationships

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Cheranee L Baker

ADVISORS Leslie H Picca, Danielle C Rhubarb

LOCATION, TIME Kennedy Union 222, 10:30-11:30

This project examines the experiences of those in an interracial relationship and how that has affected their relationships with family and friends. The goal is to examine if and how interracial relationships have evolved, since they have become legalized. This research uses data gathered from interviews with interracial couples. The findings point to improvements over time in acceptance and approval from families, friends, and the church. Other related factors, such as religion are also discussed.

The Experiences of African American Female Student Athletes at a Predominately White institution

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Javonna La'Mae Layfield

ADVISORS Leslie H Picca, Danielle C Rhubarb

LOCATION, TIME Kennedy Union 222, 11:30-12:30

African Americans make up the largest portion of students on collegiate athletic scholarships. While much has been written about the experiences of African American male athletes, less has been written about the experiences of African American female athletes. This study examines how African American female student-athletes on the University of Dayton campus view their own experiences as being similar or different from their white athletic peers. Data are gathered using interviews with a convenient sample of African American women athletes. The participants share how their positionality of being a woman of color athlete impacts their experiences on campus academically, socially, and emotionally. The findings of this study suggest that women of color athletes occupy a unique role on campus; using an intersectional approach, their experiences cannot be reduced to “only race” or “only gender.”

Big Man on Campus: How does social construction of gender impact male college athletes?

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Masashi Greg Sakamoto

ADVISORS Leslie H Picca, Danielle C Rhubarb

LOCATION, TIME Kennedy Union 222, 11:30-12:30

Male athletes are often glorified in the media as “the big men on campus,” as they enjoy elevated status on their college campus. Similarly, much has been written about toxic masculinity, and the expectations for men to value dominance, power, and control; this is especially prevalent among “toxic jock” identities which is associated with greater health risks. This study further explores the social construction of gender among male college athletes. Data are gathered using interviews with a convenient sample of male college baseball players who have experience competing at Division 1-level universities across the U.S. The findings from this study suggest that male college baseball players have an elevated status through their peers on campus and their idea of masculinity varies based on the size of their university.

Baby boomers and college students: Understanding the changing interactions between female baby boomers and students

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS MaryPat Globig Marx Globig

ADVISORS Leslie H Picca, Danielle C Rhubarb

LOCATION, TIME Kennedy Union 222, 11:30-12:30

Faculty and staff members who have worked at a university for twenty or more years are in a unique position to be able to discuss how interactions between faculty/staff and students have changed over time. This study answers the question “How do baby-boomer faculty and staff members see a change in how students interact with them throughout their twenty or more years working in a university setting?” Data was collected using interviews with female faculty and staff who have worked in a university setting for more than two decades. Results indicate that female faculty and staff typically notice a shift in how students interact with them over the years; this shift is often attributed to different generational and cultural values as well as assumptions related to ageism and sexism.

Farm to Liberation: Towards Feminist Food Justice

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Elisabeth Clegg Spector

ADVISORS Leslie H Picca, Danielle C Rhubarb

LOCATION, TIME Kennedy Union 222, 11:30-12:30

Women are one of the many vulnerable populations experiencing the detrimental effects of human-induced climate change, and our current system of food production is one of the largest contributors to this global problem. Not only do modern methods of food production contribute significantly to climate change, but they devalue women's knowledge and strip away their opportunities. A

number of communities and individuals have begun to work against this system and work towards food justice through small-scale farming and growing their own food. Through the use of ecofeminist scholarship and original interviews, this project examines the problems with our current food system and suggests steps and solutions for moving forward. So long as women are being fed by the very same systems that subordinate them, they will never be truly liberated, making it necessary for feminist food justice.

Global Injustice: El Salvador, Human Rights, and Liberation

College of Arts and Sciences: Sociology, Anthropology, and Social Work
 Oral Presentation - Course Project, 201780 ANT 325 01

PRESENTERS Therese Christine Golonka, Emily Clare Monczynski, Ellie Elise Rizzo, Emily Rose Wellmann, Corinne Mallory Woodruff

ADVISORS Miranda C Hallett

LOCATION, TIME Kennedy Union 310, 11:30-12:30

What are the ethical obligations facing human beings in a highly unequal world? What does working for social justice and human rights mean in the Americas today? How does Catholic social teaching apply to contemporary issues of armed civil conflict, refugees and immigration, economic inequality, and more? What are the ethical dilemmas at the heart of today's headlines, and how can we be responsible global citizens in an era of nationalism? In this panel, we'll share the learning and insights we've gained through intensive study and immersion in the recent history and contemporary challenges of a small Central American nation, El Salvador. We will describe our thrilling and challenging adventure in El Salvador in January 2018. In recounting how we encountered conditions of cultural, social and political existence that moved us beyond our comfort zones, we'll also reflect on the ways these experiences might shape our future ethical commitments and social action. We will also talk about the broader insights we can gain from the local realities faced by the country, insights that touch on struggles over troubling contemporary issues such as immigrants' rights, state violence, and environmental crisis. Panelists will also share how they learned to think anthropologically through the course, and how anthropological perspectives can contribute to human rights efforts. This fall semester, another anthropology seminar focusing on human rights will be offered, this time connected to a public education project centered on immigrants' rights. Students will also have the option to cap their course experience with a trip to El Salvador during January 2019 intersession. Panelists will field questions about the course, and what it takes to prepare for a trip like this.

College Students' Perceptions of Urban Crime

College of Arts and Sciences: Sociology, Anthropology, and Social Work
 Oral Presentation - Capstone Project

PRESENTERS Jennifer Marie Sloan

ADVISORS Martha Henderson Hurley

LOCATION, TIME Marianist Hall Learning Space 218, 1:00-1:20

Students' safety on college campuses has been a concern in research for many years. Students at urban, rural, and community colleges have different perceived levels of safety based on a number of personal and contextual factors. Previous literature on this subject typically focuses on students' level of fear of risk of victimization on college campuses. However, this does not explain students' fear of the community in which their university is located. The purpose of this project is to examine these perceptions of crime in the community, based on a study of students at the University of Dayton. By examining their perceptions of crime at the university and surrounding Dayton community we can recognize existing stereotypes of urban populations and understand the extent to which a student's education, background, and family demographics influence their perceptions of urban crime and safety.

Grow Up, Not Old: The Perspectives of Caregivers in an Anti-Aging Society

College of Arts and Sciences: Sociology, Anthropology, and Social Work
 Oral Presentation - Capstone Project

PRESENTERS Mary Lucy Hoffman

ADVISORS Leslie H Picca, Danielle C Rhubarb

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

From 2012 until 2050, the United States is projected to experience significant changes in its age structure, which will render the population of citizens age 65+ the leading age demographic within society (Ortman, 2014). In response to a rapidly aging nation, this study aims to examine individual perspectives towards the social and psychological effects of the anti-aging construct (i.e. the construction of a social movement which rejects the process of aging and devalues the lives of elderly individuals) and its prevalence (i.e. the scope and magnitude of the anti-aging construct) within eldercare environments and for caregivers employed within the eldercare industry. To do this, a series of interviews have been conducted with multiple individuals that occupy a formal caregiving role. The results of this research will be discussed in the context of qualitative analysis, drawn from specific interview content. Additionally, the societal implications of these research findings will be discussed.

The Expression of Depression: The Role of Depression Forums in the Representation of Depression

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Mary Angeline Macrae

ADVISORS Leslie H Picca, Danielle C Rhubart

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

There is a growing body of research examining the relationship between social media and mental health. Multiple studies suggest a link that increases in social media consumption is associated with declines in mood, sense of well-being, and overall life satisfaction. This research examines the mental health problems of depression and how that relates to social media usage. Using a content analysis of popular online depression forums, this study investigates depression, social media, and online expression. The findings from this research can help provide clarity on depression and social media, which can be used to inform future prevention and intervention forums and programs.

Why Do You Drink? Drinking to Cope as a Result of Anxiety and Depression Among College Students

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Megan Marie McDowell

ADVISORS Leslie H Picca, Danielle C Rhubart

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

Alcohol is often seen as a social and inevitable aspect of the college experience. However, there are students who use alcohol as a way to cope with feelings of both anxiety and depression. The purpose of this study is to determine whether there is a connection between drinking to cope, and anxiety and depression among college students at the University of Dayton. To gather the information necessary for this study, University of Dayton seniors were asked to complete an online anonymous survey about both their drinking habits and any possible feelings or signs of depression and anxiety within the last year. This study looks at gender differences, social anxiety, reasons for drinking as much as they do, and consequences that could occur as a result of such drinking habits. This study can help college students understand and be aware of drinking to cope signs within their own lives or in the lives of others.

Social Influences of Substance Abuse Relapse

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Gabriela Ana Milos

ADVISORS Leslie H Picca, Danielle C Rhubart

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

Substance use is a major problem in the United States, emphasized even more recently by the opioid epidemic. Even after entering treatment, it is common for people who are addicts to relapse. Many professionals contend that relapse is a natural part of the recovery process. There are, of course, factors pertaining to individual traits that contribute to relapse. This project examines the perspectives of social work professionals in the field of substance abuse recovery and what they view are the social influences of relapse. Findings from this research will connect to factors, such as family attachment and support, work commitment, respect for authority, social interest, social bonding, religious commitment, and conventional beliefs.

And How Does That Make You Feel?: Emotional Wellness of Resettled Refugees in the U.S.

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS BreAnn Mahannah Hill

ADVISORS Leslie H Picca, Danielle C Rhubart

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

From July 2015 through July 2016 the United States welcomed 84,995 refugees from around the world; many of these refugees escaped trauma and violence from their native country. Leaving one's home country has the potential to be a traumatic experience which can have a lifelong impact on mental health. The purpose of this study is to further understand the support systems in place for how refugees in the United States take care of themselves mentally and emotionally after they have been resettled. This study examines interviews with experts on refugee resettlement in Dayton, Ohio, including those who work at social service agencies that provide aid to refugees. The interviews are analyzed for both content and themes that reflect coping strategies used by refugees. The findings highlight the importance of understanding trauma informed care and why this approach can be beneficial to resettlement agencies in order to address emotional wellness of resettled refugees.

The Internet Made Me Do It: How the Internet Effects the Image of Presidential Candidates

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Colleen Anne Dwyer

ADVISORS Leslie H Picca, Danielle C Rhubart

LOCATION, TIME Kennedy Union 222, 2:00-3:00

The internet is a unique and relatively new source for spreading news. It can instantaneously share information worldwide with a click of a button and can usually be accessed for free. More traditional news platforms like television and print are still big competitors in the news industry but operate differently. A presidential election in the United States is one of the most crucial times for news coverage and a time when many Americans prioritize learning about candidates. This project aims to determine whether someone who gets their presidential campaign news solely from the internet will view a candidate as more or less knowledgeable compared to someone who got none of their news information from the internet. To examine this topic, I use the Supplementary Empirical Teaching Units in Political Science (SETUPS) data from the American National Election (ANES) 2016 Time Series Study, which were retrieved from the Inter-university Consortium for Political and Social. The analysis of the data will control for sex, age, race, region where respondent grew up and if they voted in the 2016 election. This research uncovers the variation in perceptions of presidential candidates between those who do and do not use the internet for news.

Is preschool helping students?: The relationship between preschool enrollment rates and third grade test scores.

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Pamela Dawn Venard

ADVISORS Leslie H Picca, Danielle C Rhubart

LOCATION, TIME Kennedy Union 222, 2:00-3:00

Pre-school is becoming more commonly used to help children start their academic careers. However, research is mixed on how well preschool impacts student achievement. In this study, I use data from the Ohio Department of Education and the U.S. Census to examine third grades test scores for each school district in Ohio from the 2016/17 school year and their relationship to preschool enrollment rates in 2012/13 school year. I will be controlling for population and percent poverty. Findings from this research will present the relationship between preschool enrollment and the third grade test scores and whether that relationship varies across school district level poverty.

Early Childhood Education: an Analysis of the Correlation in Daily Reading Habits and Family Income

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Carrie Anne Matthews

ADVISORS Leslie H Picca, Danielle C Rhubart

LOCATION, TIME Kennedy Union 222, 2:00-3:00

Children's educational development is associated with early childhood experiences, such as being read to on a regular basis. However, such experiences may be influenced by factors related to family income level. This research examines the relationship between a family's poverty level and whether or not a child is read to everyday. To address this research topic, data from The Massachusetts Early Care Education and School Readiness Study are used, which contain variables related to family poverty status and how many days per week the child was read to in the home. Findings will provide an initial understanding of how daily reading habits vary across family poverty status.

Does education explain perceptions of immigrants? A closer look at the General Social Survey

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Emily Patricia McAleese

ADVISORS Leslie H Picca, Danielle C Rhubart

LOCATION, TIME Kennedy Union 222, 2:00-3:00

The United States is one of the top destinations for immigrants with over 44 million currently living in the U.S. The overall perceptions of immigrants varies greatly across the country. This study provides an in-depth analysis of whether Americans think immigrants are good for the overall country and whether education attainment relates helps explain variation in perceptions. The data for this study is from the General Social Survey, which is a nationally representative sample of adults in the U.S. The results of this study help uncover the characteristics that could influence one's view on immigrants. With debates around immigration reform are receiving national attention, understanding how perceptions of immigrants vary by socioeconomic factors may be helpful to policy makers.

What can poverty affect? The effects that poverty has on education

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Oral Presentation - Capstone Project

PRESENTERS Sidney Alexandra Leroy

ADVISORS Leslie H Picca, Danielle C Rhubart

LOCATION, TIME Kennedy Union 222, 2:00-3:00

Previous research has shown that poverty has a negative effect on student success in school. I am performing quantitative analysis on existing data sets to learn how poverty affects student dropout rates. I will be using data from the American Community Survey 2012-2016, collected by the United States Census Bureau. My research will present the relationship between dropout rates and poverty rates across school districts in the state of Texas.

Economic Restructuring in Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS William David Rice

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Dayton Ohio use to be a huge and growing blue-collar community. In the past 30 years, several large factories have moved away, leaving former employees struggling to find new jobs. Drawing on Facing Project Narratives in Dayton and social science literature, this project will examine the causes and effects of economic restructuring that occurred between 1980 and the 2000s. In addition, this poster will provide an overview of efforts to overcome the unintended consequences of economic restructuring in Dayton.

Police Brutality in the Dayton Community

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Shelby S Goble

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Police brutality can be defined as the use of excessive or unnecessary force by police when dealing with civilians. It has been in issue in the Dayton community for years and with the recent shift in focus in the media, this problem has received more attention locally, as well as nationally. This topic brings to light issues within the criminal justice system as well as community issues, such as racism, poverty, and other social inequalities. The goal of this poster presentation is to highlight the community level issues that perpetuate criminal behavior and encourage police brutality. Drawing on social inequality literature and Facing Project Narratives from Dayton, this poster will discuss concentrated poverty and racism and their role in promoting criminal behavior. The presentation will also cover possible solutions to the issue of police brutality such as more community involvement from younger generations or more attention from the city. A problem as serious as police brutality deserves more attention, action and change.

Institutional Racism in Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Kenni Jean Graham

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Institutional racism refers to institutional beliefs or vocabulary that denigrates minority racial groups and that perpetuates systematic racial inequalities in society. This project examines forms and consequences of institutional racism in the history of Dayton. Drawing on Facing Project Narratives along with social inequality literature, this poster will identify historical forms of institutional racism that reflect and produce racial inequality in society today. In addition, this poster will discuss how social change has occurred around institutional racism and provide community-level recommendations to help ameliorate the persistent repercussions of these policies on the city of Dayton.

History of White Flight in Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Emma Nicole Bohaboy

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

This presentation will examine the causes and consequences of white flight in Dayton during and following the Civil Rights Era. Drawing on Facing Project Narratives from residents of the Dayton area and social science literature, this poster will highlight the history of the white flight movement in Dayton, Ohio. The poster will help viewers understand the effects of white flight and other forms of discrimination and segregation on the city of Dayton at the time the events were taking place (throughout the 1900's) and the issues that remain today. I will present information on the social impact of white flight and discriminatory practices on the

Dayton community and will explain some of the ways that the city is attempting to address these problems.

Struggles in Single Parent Households

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS James Gerald Hatstrup

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Single parent households in the Dayton area face greater hardships than families that consist of two parents. Research suggests that single parent families are presented with bigger problems, such as financial constraints and lower educational achievement among their children. Drawing on Facing Project Narratives and social science literature, this poster will highlight how single parent families face more challenges providing for their children and themselves. The subsequent challenges children of these families face will also be discussed. Finally, I will identify current programs designed to assist single parents as well as how other programs might also be effective.

Dayton and the Opioid Epidemic: A Tragedy in the Making

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Courtney Rose Kemna

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Dayton has one of the highest drug overdose rates in the United States. This opioid epidemic can be linked to a number of broader socioeconomic challenges facing the area, including unemployment, the decline of manufacturing, and location. This poster will highlight information on this epidemic and its causes in the Dayton area. To do this, I will draw on social science concepts and theory as well as informal interviews with professionals who are engaged in the epidemic. In addition, I will provide an overview of current efforts in Dayton to address this issue (e.g. Community Overdose Action Team, Miracle Makers, and East End Community Services) and argue that long term solutions will require addressing the root causes of the epidemic.

Open Minds to Open Doors: How Dayton is Becoming More Inclusive

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Haley Marie Sandifer

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The city of Dayton, OH is a small-scale example of a problem facing our nation: the lack of understanding between different groups of people living in the same area, leading to a sense of separation and often exclusion. Frequently ostracized groups include immigrants or minorities and people living in impoverished conditions or in low-income areas. I will use class literature, historical documents, excerpts from the Facing Project Narratives in Dayton, and direct communication with community members to show the negative effects of these harsh divides between groups in Dayton. The goal of my poster is to increase awareness about this issue and to show that strides are being taken in our city to break down these barriers, foster unity, and enact social change. Programs such as The Longest Table, Welcome Dayton, and Peace Dayton will be discussed.

Social Change in Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Sarah A Critchfield

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Volunteer programs that help people residing in low-income communities get involved with the rehabilitation of their neighborhoods can be a valuable tool in facilitating social change. The Mission of Mary Farms co-op demonstrates how social change can occur through community engagement and open discussion. Mission of Mary Farms provides experiential learning, fresh produce, and volunteering opportunities. This presentation will explore how communal involvement and conversations about the future can lead to the restoration of Dayton. I will examine how Mission of Mary navigates the line between rebuilding a community and gentrifying it. I will also investigate how this co-op has affected its community and if it can expand to reach more of the Dayton area.

Community Shift Towards Individualism

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Hannah Katherine Donovan

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Public Social Capital is the network of relationships of people that a person knows and the resources they provide for them; as defined by McNamee (2014), "the social capital grapevine is only available in and through relationships and the groups which these relationships occur," (79). The resource base for higher socioeconomic groups is far wider and deeper than that of those lower socioeconomic origins which creates a gap in information and influence between economic groups. Drawing on social inequality literature and the Facing Project Narratives related to public social capital, this poster will discuss the impact of changing neighborhoods and public social capital in the Dayton area. Understanding how social capital functions to either aid or limit in number of opportunities, resources, and connections in society. Currently and looking into the future, I hope to examine the resources available to connect people and grow in their associational life.

Social Inequality is not Healthy

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Heather Christine Essman

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Social inequality has led to poor health in people experiencing poverty. People facing social marginalization and isolation lack access to the same health care as those who are wealthier. Drawing on Facing Project narratives and social science literature, this poster will provide an analysis of the impact of social inequality on health. It will discuss the history, causes, and elements of social change that the future may hold. Finally, social insurance and public assistance programs such as Medicare and Medicaid will be discussed as well as their relevance to addressing such health disparities.

Complications of Housing Arrangements in Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Dylan Anthony Penna-Powell

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

American homeowners accumulate material wealth as they gain equity on their homes. A sociological look at how people are distributed around the city of Dayton according to their socioeconomic backgrounds reveals more than geographical details of social and economic inequality. This presentation explores the effects that disparities in housing arrangements have on closely related areas of interest such as education, access to affordable and nutritious foods, and individuals' likelihood of economic mobility. In addition, opportunities for reform through public education funding via local property tax dollars will be discussed. Reformation of a system in which the value of one's home is tightly linked to the quality of nearby public schools would provide greater opportunity for social and economic mobility to those in low-income communities.

The Impacts of White Flight in Urban Neighborhoods of Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Aaron Joseph Pirc

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The challenges that face Dayton's public schools are the product of a number of historical events, including segregation, block busting, and white flight. Drawing on the Facing Project Narratives, news articles from the city of Dayton, and social science literature, I describe these challenges. This poster presentation raises awareness on the issues students face. In addition, programs that have attempted to improve educational outcomes in Dayton (such as Dayton Early College Academy) will be discussed.

Dayton and the Great Recession

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Nick Steven Lafrance

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Today, the city of Dayton, Ohio is still currently experiencing the side effects of the housing plummet in 2008, also known as the Great Recession. This poster will examine how, what, and why the Great Recession of 2008 happened. Meanwhile, keeping in mind that this is not the first time our country has experienced an economic fall. Drawing on social inequality literature, Facing Project

Narratives, and national and local data, this poster will follow the effects the Great Recession has had on our local economy and more specifically the city of Dayton.

Poverty and Inequality in Dayton and the Surrounding Areas

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Eric Wallace Handorf

ADVISORS Danielle C Rhubarb

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Today, there are severe disparities in economic well-being between the city of Dayton and the surrounding areas. This project examines the historical causes and current consequences of severe economic inequality in Dayton and its surrounding areas, as well as how social change has occurred around this topic. To do this, I draw on the Facing Project Narratives, social inequality literature, historical documents, and current work being done to help the problem. The project will conclude with recommendations as well as an overview of current efforts that specifically address poverty and inequality.

Feeding the City: Food Access and Grocery Stores

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Tiffany Erin Hendricks

ADVISORS Danielle C Rhubarb

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Several areas of Dayton are considered "food deserts," meaning that fresh fruit and vegetables, along with other healthful whole foods, are largely unavailable in these areas. Drawing on Facing Project Narratives in Dayton as well as social science literature, the purpose of this research poster is to investigate food access in the City of Dayton. More specifically, this poster will highlight the causes, conditions, and effects of food deserts and how the presence of a food desert can be representative of the inequalities present in Dayton citizens' lives. Additionally, connection between poverty and food access is discussed as well as current and potential efforts to combat this issue such as the Urban Renewal Farm, government-subsidized grocery stores, food cooperatives, and increasing the size and resources available for urban growing.

Redlining: Lasting Scars in the City of Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Jillian Marie Malone

ADVISORS Danielle C Rhubarb

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Redlining, a practice of systematic discrimination against African Americans in the distribution of home loans, left scars on the city of Dayton that can still be seen in housing patterns today. These patterns have a ripple effect not only on housing, but also on issues such as inequality in education and wealth. Utilizing narratives from the Facing Project, historical maps, and sociological literature, this poster seeks to shed light on the effects of redlining in Dayton by providing a historical context and theoretical framework. This poster will also explore current efforts in the city that aim to address and ameliorate the lingering effects of redlining.

Race Represents Nothing and Everything

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Faith Ann Senkbeil

ADVISORS Danielle C Rhubarb

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

While many of the institutionally racist practices in American history have been eliminated, other forms of racism persist. For example, personal racism occurs when individuals or social groups, governed by behavioral norms, support racist thinking and increase active racism. This type of racism affects an individual's ability for social mobility as well as their equality in schools, neighborhoods and society as a whole. Drawing on examples of personal racism from social science literature and the narratives of the Facing Project in Dayton, I will show how personal racism limits social mobility as well as how acts of resistance are used to overcome it. While addressing institutional racism is a first step to creating a more equal society, addressing personal racism must also be part of the solution.

The Roads that Divide: Examining the effects of road systems in Dayton

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Nathaniel L Quam

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The highway system of Dayton was meant to facilitate higher productivity and movement of people. The highway system of I-75, 35, I-70 and the other lesser major highways in the area did make for faster travel, but this had unintended consequences. They came in the form of the white flight movement and the creation of suburban areas around Dayton. Drawing on Facing Projects Narratives, I will use this presentation to highlight the demographic and socioeconomic shifts in Dayton neighborhoods that led to the mass exodus of capital and amenities in these areas. This poster explains why this change occurred, the consequences of those changes, as well as potential changes that could occur to desegregate the population from wealthy suburban and poorer urban populations.

Teen Pregnancy: An ongoing trending the Dayton area

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Sami Marie Rossiter

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

Teenage pregnancy can lead to a number of negative consequences related to child health and well-being. Teenage pregnancy in the Dayton area is a continuing issue from year to year. It is just one effect of social inequality that stems from people living in poverty with limited access to adequate education and opportunities. The goal of my poster is to identify the past and current trends of teenage pregnancy in Dayton, as well as give sight to what could be done in the future to improve what needs to be adjusted. There are multiple approaches that I will explore that could be used to ameliorate teenage pregnancy. To start, we must fully understand the extent of the issue and what the root causes of teenage pregnancy are.

Challenging the American Dream in Dayton, OH

College of Arts and Sciences: Sociology, Anthropology, and Social Work

Poster - Course Project, 201810 SOC 339 01

PRESENTERS Abby Anne Pech

ADVISORS Danielle C Rhubart

LOCATION, TIME RecPlex Main Gym, 3:00-4:15

The ideology of the American Dream has a negative impact on those who are low income by creating a false perception of what it takes for residents to reach their full potential. The American Dream emphasizes that everyone has the freedom and ability to succeed, economically and socially, through hard work and dedication, but fails to address the underlying barriers that stand in the way of this achievement. Drawing on narratives from the Facing Project in Dayton and social science literature, it is clear that non-merit factors such as social capital, cultural capital, and inheritance hinder the poor from achieving the American Dream. The goal of this poster is to highlight the historical impact of the American Dream on people in the Dayton area and emphasize how the upper class has an unfair advantage over the lower class. It will delve into the functional and conflict explanations of poverty and examine the issues surrounding the four ingredients needed to obtain the American Dream, which include talent, the right attitude, hard work, and moral character. In order to level the playing field in the Dayton area, I recommend a number of measures that could begin to foster equal opportunity to the American Dream.