

## Honors Student Symposium 2018



arts

business



education

engineering



sciences

UNIVERSITY *of*  
DAYTON

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Honors Program

***The thesis component of the Honors Program***

*consists of a three-semester, six-credit-hour project that culminates in a significant research contribution, performance or body of creative work.*

*The Honors thesis project involves a collaboration with one or more faculty members who help direct and focus the student's original thesis topic.*

*The University Honors Program sponsors the Honors Student Symposium as an opportunity for the students to present their theses to the University community, family and friends.*



**University Honors Program**

presents the

***Honors Student Symposium***  
**2018**

**March 9, 2018**  
**1:00 to 5:00 p.m.**  
**Kennedy Union**

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## The Patrick F. Palermo Honors Program Founders Fund

provides support for substantive Honors thesis projects "that involve international research, service and leadership in the community, or which advance the realization of a just society."

### The awardees for 2017-18 are

**Mercedes Ramsey, Jamie Vieson and Ryan Westerbeck**

## The Daniel Arnold Memorial Scholarship

provides a senior-year scholarship for an Honors student from the College of Arts and Sciences who exemplifies Danny Arnold's commitment to research by completing a thesis project.

### The awardee for 2017-18 is

**Olivia Grondalski**

## The Berry Summer Thesis Institute

engages a cohort of mid-career Honors students with records of academic success and an interest in research in a 12-week on-campus program.

Thesis students present their research-in-progress at the Honors Students Symposium during their junior year and their final projects as seniors.

### The members of the 2018 cohort will be announced

**at the Honors Reception on March 9, 2018**

**The Clare Boothe Luce Undergraduate Research Grant Program** supports women in select STEM fields who are undertaking undergraduate research projects. Faculty mentors advise, motivate and prepare recipients to apply for graduate study and pursue careers in academia and/or research during the three years of participation.

### The awardees for 2017-20 are

**Anna Benton, Maggie Jewett, Emily Jones and Sarah Miller**

**1:00 p.m.**

**Andrew J. Deak**

Major: Exercise Physiology

**Determining the Role of Membrane Fatty Acid Composition in Antibiotic Resistance**

*Listeria monocytogenes* is a pathogenic bacterium that is capable of causing the infection listeriosis. Listeriosis has a 20 to 25 percent mortality rate and can cause a variety of symptoms such as fever, diarrhea and other gastrointestinal issues. My research conducted aims to study how *Listeria* growth and metabolic rate is affected in different growing environments with or without butyrate. Many bacterial infections can be treated with antibiotics which attach to the membrane and enter the cell to disrupt the cell's processes. If the composition of the cell membrane can be altered, then it would be more susceptible to antibiotics. In *Listeria*, the membrane is made of mostly branched-chain fatty acids. In the presence of butyrate, the branched-chain fatty acids become straight-chain fatty acids and allow the membrane to be penetrated more easily by antibiotics. Varying the amount of butyrate in the growing environment will allow us to find the minimum concentration of butyrate to stop growth and begin killing the bacteria respectively.

**Jaclyn H. Franz**

Major: Exercise Physiology

**Development of an Evidence-based Strength Training Program for Individuals with Dementia Participating in Adult Day Services**

The purpose of this project was to develop an evidence-based exercise program for reducing fall risk and improving mobility in elderly adults with dementia participating in Goodwill Easter Seals adult day services. Staff members of Goodwill Easter Seals were instructed in providing the program so that the program remained self-sustaining after the conclusion of this project. Additionally, a training manual, an accompanying video and an equipment cart to assist in the implementation of the program was fabricated and then donated to two Goodwill Easter Seals locations.

**Stephen T. McFadden**

Major: Mechanical Engineering

**Determining Recovery Response to Slips on a Slip Trainer**

Common injuries in the elderly population often result from slipping or falling. A slip is a loss of balance which may lead to an injurious fall. To counter these falls, proactive balance training, which focuses on preventing slips from occurring through physical therapy and environmental modifications, has been tried with mixed results. Reactive balance training, which can increase how well an individual can recover once their balance is upset by a disruption, is a novel method to decrease injuries from falls. However, current reactive balance training is conducted in academic environments with highly expensive equipment. While this training has proved productive, a need has arisen for this reactive slip training to be helpful in clinical settings and provided at a reduced cost. This project is centered around work to design, build and test a low-cost slip trainer to measure the recovery response of individuals in terms of a reactive step.

**1:00 p.m., Room 311**

Yvonne Sun, Ph.D., Thesis Advisor  
Biology Department

**1:00 p.m., Room 211**

Kurt Jackson, Ph.D., PT, GCS, Thesis Advisor  
Physical Therapy Department

**1:00 p.m., Room 222**

Kimberly E. Bigelow, Ph.D., Thesis Advisor  
Mechanical and Aerospace Engineering Department

**Alexander M. Mingus**

Majors: Human Rights Studies and  
Political Science

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

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.

**Kevin L. Outwater**

Major: Pre-medicine

**Cross-cultural Medical Interpretation: A Proposed Certificate for the University of Dayton**

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 patients. This cross-cultural medical interpretation model will address the primary skills of medical interpreters, addressing languages and culture, in attempt to highlight various meanings, while 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 model to be incorporated at the University of Dayton, becoming a medical interpretation certificate, following the University's "Commitment to Community" through engagement with members of the Dayton area.

**Rose A. Rucoba**

Major: English

**Mortality in the Twenty-first Century: A Cycle of Short Stories about Death and the Afterlife**

This cycle of short stories focuses on the themes of death and the afterlife. The stories are separate from each other and are told from different points of view, following a variety of characters as each struggles with the inevitability of death and the afterlife that follows. This cycle includes both popular religious and non-religious perspectives on death and the afterlife, and also investigates how age and background can affect people's views on mortality. Authors Evans, O'Connor and Vaughn were all inspirations for this collection, and their influences can be seen throughout the work. While each story is different and unique, as a whole, the collection portrays an array of different beliefs and perspectives on one of humanity's biggest mysteries.

**1:00 p.m., Room 312**

Anthony Talbott, Ph.D., Thesis Advisor  
Human Rights Center

**1:00 p.m., Room 207**

Simanti Dasgupta, Ph.D., Thesis Advisor  
Sociology, Anthropology and Social Work Department

**1:00 p.m., Room 331**

Albino Carrillo, M.F.A., Thesis Advisor  
English Department

**Jamie A. Vieson**

Major: Human Rights Studies and Philosophy

***The Stigma of Homelessness as an Identity:  
Homelessness as a Gendered Condition***

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. Oppression is the term used to describe how certain individuals or groups in society are treated unequally or are rejected from society. Finally, exploration of citizenship shows the importance of identities in society and how they allow or prevent equality. More emphasis needs to be put on these terms to articulate the problem of homelessness. 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.

**1:20 p.m.**

**Steven G. Borchers**

Major: Pre-medicine and Biology

***Role of Relish/NFkB Apoptosis Pathway in Amyloid-beta 42 Mediated Neurodegeneration in Alzheimer's Disease***

Alzheimer's disease (hereafter AD) is a progressive neurodegenerative disorder with no cure to date. One cause of AD is the accumulation of amyloid-beta-42 (A $\beta$ 42) plaques. To study this disease, we have developed a *Drosophila* eye model where human A $\beta$ 42 is misexpressed in the differentiating eye which triggers neuronal death in the retinal neurons of the eye. Previous studies from our lab identified that a soy-based protein, Lunasin, can be employed to block A $\beta$ 42 mediated cell death. Lunasin is known to block inflammation through downregulating certain apoptotic pathways. I propose to genetically modulate the levels of the kinase Relish of the Imd pathway and cross this genome with our Lunasin producing *Drosophila* model to determine where Lunasin is involved in regulating A $\beta$ 42 mediated neurodegeneration. We have generated transgenic and mutant flies which can be used for gain and loss-of-function of Relish to observe its effect on the A $\beta$ 42 neurodegenerative phenotype.

**Timothy E. Dombrowski**

Major: Mechanical Engineering

***The Application of Neurologically-controlled Robotics to Actuated Feeding Arms***

This project takes the existing technology of controlling motor actuation using mental states and applies it to a new area of application. The project attempts to apply this

**1:00 p.m., Room 310**

Denise James, Ph.D., Thesis Advisor  
Women's and Gender Studies Program

**1:20 p.m., Room 331**

Amit Singh, Ph.D., Thesis Advisor  
Biology Department

**1:20 p.m., Room 207**

Raúl Ordóñez, Ph.D., S.M., Thesis Advisor  
Electrical and Computer Engineering Department  
Temesguen Kebede, Ph.D., Thesis Advisor  
Robotics Laboratory

technology to a robotic arm that is used in the feeding of elderly or physically disabled patients with the goal being to reestablish a sense of independence in the user. By utilizing mental states, one would be able to control the feeding arm with their mind whereas otherwise they would not. This project shows the ability to utilize mental capabilities to address potential gaps in physical abilities, which is one of the more promising applications of this EEG technology.

**Abigail M. Groszkiewicz**

Major: Pre-medicine

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

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.

**Alexander N. Lawriw**

Major: Psychology

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

Studies have estimated that about 90% of adults in America consume caffeine in one form or another every single day with an average daily intake of more than 300 milligrams (Lovett, 2005). Despite the drug's popularity, the full effects that caffeine can have on our bodies remains highly debated. The present study examines one important area in which caffeine may have enhancing or inhibitory effects—spatial working memory. In order to test for any possible effects of caffeine on spatial working memory, two groups of participants, one group given caffeine and the other group given a placebo (a non-active substance), were asked to complete a spatial working memory task. If caffeine had some effect on spatial working memory, those in the experimental group should have performed noticeably different from those in the control group.

**Allyson J. Pacifico**

Major: Applied Mathematical Economics

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

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

**1:20 p.m., Room 211**

Thomas Williams, Ph.D., Thesis Advisor  
Biology Department

**1:20 p.m., Room 312**

Susan Davis, Ph.D., Thesis Advisor  
Psychology Department

**1:20 p.m., Room 311**

Peter Hovey, Ph.D., Thesis Advisor  
Mathematics Department

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.

### **Dante L. Pezzutti**

Major: Pre-medicine

**1:20 p.m., Room 310**

Carissa M. Krane, Ph.D., Thesis Advisor  
Biology Department

### **Characterization of the Glycosylation of Aquaglyceroporin HC-3 in the Freeze-tolerant *Anuran*, *Dryophytes chrysoscelis***

Cope's gray treefrog, *Dryophytes chrysoscelis*, found predominantly in the southeastern and central United States, utilizes a physiological adaptation known as freeze tolerance to survive the freezing and thawing of 65% of its body water in the winter. While frozen, *D. chrysoscelis* experiences fundamental changes in its physiology and biochemistry, including the abandonment of critical functions such as a heartbeat, circulation and breathing. Its red blood cells (RBCs) experience immense osmotic shock as extracellular water rapidly forms ice crystals. To survive freezing and thawing, it is hypothesized that the RBCs of *D. chrysoscelis* utilize the integral membrane protein aquaglyceroporin HC-3 to moderate this shock by allowing for controlled transmembrane flux of both water and a small organic solute, glycerol, which acts as a cryoprotectant. The focus of this thesis is to explore potential regulating factors in HC-3 expression in RBCs of *D. chrysoscelis* using an *in vitro* cell culture system.

### **Lauren M. Rivera**

Major: Mechanical Engineering

**1:20 p.m., Room 222**

Kimberly E. Bigelow, Ph.D., Thesis Advisor  
Mechanical and Aerospace Engineering Department

### **Walker Light for Improved Mobility in Older Adults: Effects and Recommendations**

A direct response to a need in our community, this project seeks to evaluate the effectiveness of a lighting device for older adult walker users. A staff member at St. Leonard Retirement Community in Centerville approached our team about residents having issues with current walker designs. This study seeks to compare how older adults, who regularly use rolling walkers, navigate in darkened environments with and without the walker light. To compare, rolling walker users will be studied as they perform a series of tasks under multiple lighting conditions. Speed and distance measurements will show how well the lighting device improves mobility for each trial. Their confidence after each trial will also be recorded. It is proposed that the light will improve the overall mobility and confidence of the user, leading to enhanced mobility, health and independence.

**1:40 p.m.**

### **Madalyn A. Beban**

Major: Mechanical Engineering

**1:40 p.m., Room 222**

Kevin Hallinan, Ph.D., Thesis Advisor  
Mechanical and Aerospace Engineering Department

### **Out of Site, Out of Mind: An Assessment of State-level Siting Policies for Wind Power Generation Facilities**

With interest in clean, or low-carbon, energy generation worldwide growing, so too have attempts to harvest power from wind energy. Large projects or "wind farms" can produce staggering amounts of electricity when placed in sufficiently windy areas. Placing turbines in locations with enough of that resource while keeping them within a reasonable from consumers becomes a challenge when projects near populated areas. In the United States in particular, backlash against social and environmental impacts of wind project siting has developed into a much-contested matter at the local level. Exploring state and local policies on wind turbine siting to determine the current policy environment is a necessary first step in recommending policies that may better balance the needs of electric decarbonization with the desires of everyday citizens.

### **Taylor M. Buskey**

Major: Biology

**1:40 p.m., Room 310**

Ryan W. McEwan, Ph.D., Thesis Advisor  
Biology Department

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

The Emerald Ash Borer (EAB), a non-native insect pest, has altered the overstory of temperate deciduous forests in North America by causing a mass death of ash trees. Drew Woods State Nature Preserve (DWSNP) is an old-growth forest fragment located in Darke County, Ohio, whose overstory contains many ash trees, but has not been studied since the Emerald Ash Borer invaded the area. Plant biodiversity was assessed annually in all 32 one-meter-squared plots during the first week of May since 2012. Species richness, plot cover, Shannon Diversity and species evenness were calculated for each plot by year. Using canopy images from both 2012 and 2017, leaf area index was used to determine the level of ash tree loss due to EAB. This study found the extent of change among non-woody plant species in DWSNP and identified increased light availability due to EAB-induced ash tree mortality is a driving factor of change in herbaceous diversity.

### **David D. Gross**

Major: Electrical Engineering

**1:40 p.m., Room 207**

Guru Subramanyam, Ph.D., Thesis Advisor  
Electrical and Computer Engineering Department

Kevin Yost, M.S., Thesis Advisor  
Air Force Research Laboratory, Wright-Patterson Air Force Base

### **Aircraft Generator Design and Analysis**

Aircraft electrical power demands have been rapidly growing due to an increased amount of electrical load onboard aircraft. This increased load has come about as electrical sources for various aircraft subsystems, such as pumps, compressors and flight controls, replace mechanical sources. The main source of electrical power on an aircraft is a generator. The power demand on an aircraft is not constant, but rather

dynamic, and the nature of these power demands causes increased temperatures and complex/dynamic loads, for which many contemporary generators are not designed. Because of the need for high amounts of reliable electrical power among future aircraft, future generators should be designed for reliability, stability, power density and long-term durability. The objective of this thesis project is to determine if generator sizing techniques (e.g. equations, assumptions, rule-of-thumb metrics) can be calculated to a reasonable accuracy for preliminary machine design optimization and analysis.

### **William E. Landers**

Major: English and Political Science

**1:40 p.m., Room 331**

Thomas Morgan, Ph.D., Thesis Advisor  
English Department

#### ***Examining Racial Persona and American Passing Narrative in Danzy Senna's *Caucasia****

Racial persona reinforces in-groups and out-groups in the United States, complicating the role identity. Passing narratives typically follow the experiences of a racially ambiguous character, who must learn to navigate different racial perceptions as an outsider and insider. The passer's uncertain appearance may help or hinder by eliciting particular assumptions in observers. My thesis project explores the ways that meaning is socially encoded in racialized interactions, particularly in the way that racial assumptions are imposed on individuals.

### **Lora C. Vonderhaar**

Major: International Studies and Spanish

**1:40 p.m., Room 312**

Natalie Hudson, Ph.D., Thesis Advisor  
Political Science Department

#### ***When Necessary Is Not Enough: A Study in the Effectiveness of U.S. Military Force to Combat Terrorism in the Middle East***

Terrorism affects all of us, either directly or indirectly. The U.S. government has initiated multiple military operations abroad with the purpose of ending terrorism for good. However, more than 16 years after September 11th, terrorism still persists. This thesis seeks to answer the question, does military intervention indeed effectively combat terrorism, as it intends to do, or is the American military presence abroad hindering this goal by sparking instances of anti-Americanism. It also investigates other viable means for combatting terrorism, such as through diplomacy, auxiliary forces and education. This research seeks to propose possible solutions to the constant threat posed by terrorism when the actions taken by the U.S. are necessary, but not enough.

### **Emily E. Wey**

Major: Biochemistry

**1:40 p.m., Room 211**

Thomas M. Williams, Ph.D., Thesis Advisor  
Biology Department

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

Each human genome possesses around a million mutations that are genetic baggage from DNA replication mistakes, and each mutation either improves, reduces or has no effect on an individual's health. Moreover, the effects of mutations can depend on the presence or absence of other mutations, so-called epistatic interactions. Predicting the effects of mutations and epistatic interactions is difficult without knowing the function

of the DNA sequence they reside in. This challenge is heightened for cis-regulatory element sequences that act as switches to control gene transcription. My research uses fruit flies 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. The results provide a sorely needed example where an understanding of molecular mechanisms bridges the gap between a DNA sequence and its *in vivo* function.

**2:00 p.m.**

### **Andrew M. Kramer**

Major: Exercise Physiology

**2:00 p.m., Room 312**

Joshua Ambrosius, Ph.D., Thesis Advisor  
Political Science Department

#### ***Health Policy Responses and Infrastructure Re-use in Host Cities' Mega-sporting Events in Non-traditional Host Countries***

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

### **Margaret E. Maloney**

Major: Environmental Biology

**2:00 p.m., Room 310**

Ryan W. McEwan, Ph.D., Thesis Advisor  
Biology Department

#### ***The Impact of the Non-native Invasive Shrub *Lonicera maackii* on Sensitive Salamander Populations in Headwater Streams***

*Lonicera maackii* (Bush Honeysuckle) has dramatically impacted ecosystems across much of the Midwestern USA and has been linked to negatively impacting streams. The foliage from *L. maackii* releases chemicals 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 streams. While visual 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 counting 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 device was used to understand the impact of *L. maackii* along the stream.



**Lauren T. Olson**

Major: Psychology

**2:00 p.m., Room 311**

Julie Walsh-Messinger, Ph.D., Thesis Advisor  
Psychology Department

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

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, and hedonic ratings. Additionally, experimental research has shown that anxiety induction can produce a deficit in odor detection sensitivity, suggesting a causal effect of the neural feedback loop of heightened anxiety on odor perception. To address the lack of conclusive findings, the present study will utilize a within- and between-subjects experimental design to investigate the effects of anxiety induction on olfactory threshold, identification accuracy and hedonic ratings. The experimental procedure will test several hypotheses regarding changes in measures from baseline to post-induction: (1) participants in the induction group will exhibit a significant decrease in post-induction odor detection sensitivity, (2) participants in the induction group will exhibit an increase in their post-induction accuracy of odor identification, and (3) participants in the induction group will exhibit an increase in post-induction unpleasantness ratings for odors initially rated neutral at baseline in the identification task. It is also hypothesized that the baseline and post-induction measures of the control group will remain relatively constant. In order to test these hypotheses, 50 undergraduate students from the University of Dayton will complete measures of anxiety and olfactory function before and after an anxiety induction or control task. Participants will be randomly assigned to one of two experimental groups (control or induction), and group membership will determine which experimental task each participant completes. Understanding the specific effects of anxiety on olfactory perception as examined in this study is critical in expanding the understanding of reactive emotional processes and may help future researchers who wish to study anxiety and emotional dysfunction.

**Ryan E. Restrepo**

Major: Biology

**2:00 p.m., Room 222**

Yvonne Sun, Ph.D., Thesis Advisor  
Biology Department

***The Effect of Alcohol on Immune Health***

Excessive alcohol consumption has long been an issue at the University of Dayton, compromising students' safety, well-being and academic performance. I have carried out research over the past year in order to examine the effects of alcohol on human immunity to pathogens. I used the foodborne bacteria *Listeria monocytogenes* as a model pathogen, observing the effect of alcohol on the immune capabilities of CaCo-2 Colonic Epithelial Cells and High Alcohol Preferring Mice. I hypothesize that increased alcohol consumption can lead to increased susceptibility to infectious disease due to the weakening of immune cells and barriers of the small intestine.

**Kylie A. Thompson**

Major: English

**2:00 p.m., Room 331**

Thomas Morgan, Ph.D., Thesis Advisor  
English Department

***When Feminism Meets Hip-Hop***

My 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.

**Emma R. Venetis**

Major: Sociology and Communication

**2:00 p.m., Room 207**

Jamie Small, Ph.D., Thesis Advisor  
Sociology, Anthropology and Social Work Department

***Sexuality Education in the Digital Age:  
Understanding the Pedagogy of YouTube Citizens***

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 "laciigreen," 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 do impact the information that is presented. This analysis is significant as it shows that the abstinence-only approach to sexuality education is no longer relevant, and that education that takes into account the information that students interact with online may be needed.

**Andrea L. Wisniewski**

Major: Pre-physical Therapy

**2:00 p.m., Room 211**

Jon Linderman, Ph.D., Thesis Advisor  
Health and Sport Science Department

***Effects of Sports Drinks on Dehydration***

Using three commercially available sports drinks, I tested how the different types of carbohydrate in each affected dehydration. CeraSport, with rice sugar; Gatorade, with glucose; and Ultima, control with no carbohydrate—were given to 13 adult males. They each performed a series of endurance and strength activities, while urine and weight were measured.

**2:20 p.m.**

**Julia C. Carroccio**

Major: Psychology

**2:20 p.m., Room 312**

Lee Dixon, Ph.D., Thesis Advisor  
Psychology Department

Jacob Burmeister, Ph.D., Thesis Advisor  
Psychology Department, University of Findlay

***Physiological and Psychological Effects of Being Weighed  
in Female Participants***

Stressful experiences such as constantly thinking about one's weight lead to harmful long-term physiological and psychological effects on the body. 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 = 50) attitudes about their bodies, anxiety and blood pressure were affected by being weighed. Results 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.

**Logan L. Goff**

Major: Exercise Physiology

**2:20 p.m., Room 222**

Simanti Dasgupta, Ph.D., Thesis Advisor  
Sociology, Anthropology and Social Work Department

***Suffering in Somalia: An Investigation of the Climatic Impact  
on Drought and Famine in Somalia***

Water scarcity is becoming a critical issue around the globe as countries like Somalia are lacking access to consumable water. Somalia has been constantly battling threats of drought, famine, and internal, political conflict for decades. With the uneasy equation of both governmental and climatic instability, the people of Somalia are at constant risk of starvation, disease, and ultimately, death. When evaluating the situation in Somalia, it is clear that drought is the backbone to disaster in this African country. What is more critical is the cause of these life-threatening, climatic conditions by privileged countries that neither suffer from the climatic impact themselves, nor are held accountable for the actions they take in making these conditions worse.

**Julia K. Hall**

Major: English

**2:20 p.m., Room 331**

Rebecca Potter, Ph.D., Thesis Advisor  
English Department

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

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, creative and destructive power of birthing and the regulation of bodies—ideas that will be elaborated upon in the presentation.

**Aidan P. Koch**

Major: Pre-medicine

**2:20 p.m., Room 311**

Erin O'Mara, Ph.D., Thesis Advisor  
Psychology Department

***How Academic and Extracurricular Workload Affects Stress Levels  
and Consequently Mental and Physical Health of College Students***

The present research aimed to understand the association between physiological stress, academic workload and extracurricular involvement in the college student life, and how those factors affect student physical and mental health over time. Students completed two assessments during the semester in which they provided information about their academic and extracurricular responsibility, whether or not these responsibilities were enjoyable, and answered questions to assess their mental and physical health. Additionally, at the first assessment, students also completed an acute stress task in order to assess their physiological stress response.

**Katherine G. Michel**

Major: Biology

**2:20 p.m., Room 310**

Daniel Goldman, Ph.D., Thesis Advisor  
Geology Department

***Revising the Geologic Time Scale: A Multi-clade CONOP9 Composite  
from the Middle Ordovician Rocks of Newfoundland***

The Earth has changed continuously throughout time and much of what we understand about these changes comes from the geologic record. The Geological Time Scale is a representation of this rock record—a scale composed of chronological dates interpolated into fossil successions, which can be used to correlate rock strata and provide a framework for rate calculations needed in geologic and evolutionary studies. The Geologic Time Scale is revised and recalibrated every eight years. The current time scale for the Ordovician Period (488 to 433 mya) is composed of a succession of species ranges from a group of fossils called graptolites with interpolated radiometric dates. Graptolites are a group of extinct zooplankton that flourished in Early Paleozoic seas (488 to 407 mya). In this thesis I will attempt to combine range data from different kinds of Ordovician fossils, and hence improve the precision and usefulness of the Ordovician time scale. I plan to integrate the range data from graptolites (deep water fossils) and conodonts (shallow water fossils) in the Middle Ordovician rocks of Newfoundland. There are three primary reasons why an integrated multi-fossil group time scale can be constructed from the Ordovician rocks of Newfoundland. The region has long, fossiliferous sequences of strata, which allow for detailed work across a large part of the Ordovician System, a well-studied platform to slope transect with many outcrops and recently revised taxonomic studies of constituent fossil faunas. I will use the computer program CONOP9 to create composite taxon ranges from many localities based on the first and last appearance data for each species. CONOP9 also generates a correlation model for the localities from which the species occurrence data is gathered, and this model will be used in the revised geologic time scale for 2020.

**Hanna J. Peterson**

Major: Pre-medicine

**2:20 p.m., Room 207**

Tracy R. Butler, Ph.D., Thesis Advisor  
Psychology Department

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

This research project investigated the Alcohol Deprivation Effect (ADE) Model, an existing pre-clinical rodent model for alcohol dependence and relapse. In this model, rodents are given repeating cycles of alcohol access and alcohol deprivation to mimic the human condition of alcohol dependence and relapse so it can be studied. Eight adolescent male, eight adult male and eight adult female Long-Evans rats were used to test the efficiency of the model and to compare and contrast addiction and relapse behaviors between the different groups of rats. The goals of the study were to try to find new information about the ADE model to make it more efficient for researchers to use in future studies and find new information about drug dependence that can be applicable to helping humans who struggle with the disease.

**Naomi E. Schalle**

Major: Mechanical Engineering

**2:20 p.m., Room 211**

Robert Brecha, Ph.D., Thesis Advisor  
Physics Department

Annie Warmke, Thesis Advisor  
Blue Rock Station LLC

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

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 warm 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.

**2:40 p.m.**

**Leah D. Bullock**

Major: Biology

**2:40 p.m., Room 211**

Madhuri Kango-Singh, Ph.D., Thesis Advisor  
Biology Department

***Understanding the Repopulation of Glioblastoma in Drosophila Model System***

Glioblastoma Multiforme (GBM) is the most common form of malignant brain tumors, accounting for about 70 percent of all primary brain tumors. Currently, GBM is treated by surgery, radiation therapy, and chemotherapy. After treatment, the tumor is typically completely destroyed; however, it always comes back in an even more aggressive state than before, killing 100 percent of the patients. We have created a glioma model in *Drosophila melanogaster* (fruit fly) in order to study the recurrence of GBM after treatment. As treatment, we irradiated normal and glioma-induced larvae with X-Ray radiation and identified the amount of radiation that affects tumor size without killing the larvae. We then studied how X-Ray affects the tumor size and evaluated the repopulation of the tumor after treatment. We have compared images of glioma-induced brains with and without X-ray exposure. We expect to understand how these treatments affect tumor size and repopulation of glioma tumors.

**Nicholas A. Dalton**

Major: International Studies

**2:40 p.m., Room 331**

Christopher Agnew, Ph.D., Thesis Advisor  
History Department

***Fault Lines: Geopolitical Rivalry in the East China Sea***

In recent decades, tensions between China, Japan and the United States have risen significantly. The tensions between these three countries have emerged in relation to territorial disputes in the East China Sea. Additionally, the growth in China's power coupled with her actions to expand its influence and reach have also contributed to regional tensions between itself and China and Japan. These tensions have created impact of certain areas in the multilateral relationship between these three countries. These areas include economics, domestic issues and military concerns.

**Thomas R. Lawler**

Major: Pre-medicine

**2:40 p.m., Room 312**

Lee Dixon, Ph.D., Thesis Advisor  
Psychology Department

Jacob Burmeister, Ph.D., Thesis Advisor  
Psychology Department, University of Findlay

***Personality Types and Self-reported Eating Habits***

The western world's unhealthy diet has become the norm for many Americans. Although not harmful in small doses, habitual eating of unhealthy food can lead to a myriad of health problems, including diabetes and high blood pressure. An individual's perception of their own eating habits can influence the choices that they make, and in some cases perpetuate unhealthy eating. Personality types are also relevant, as they affect the dispositions and demeanors of an individual, possibly making them more susceptible to unhealthy eating behavior. Understanding the relationships between personality type, actual eating habits, and perceived eating habits could provide clinicians and researchers with a more accurate picture of how to help, as well as prevent, unfavorable health outcomes associated with unhealthy eating. This project

tested whether there is a correlation between certain personality types and eating habits as well as test whether personality types are associated with discord between actual and perceived eating habits

### **Caroline A. Lynch**

Major: Pre-medicine

**2:40 p.m., Room 207**

Tracy R. Butler, Ph.D., Thesis Advisor  
Psychology Department

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

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.

### **Angel J. Pagan**

Major: Pre-medicine

**2:40 p.m., Room 311**

Erin O'Mara, Ph.D., Thesis Advisor  
Psychology Department

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

The proposed research aims to seek if the way one views oneself, measured by a computer questionnaire evaluating self-esteem, affects stress levels. Levels of stress are being tested by the hormone cortisol in each participant's saliva. Beginning the experiment the participants give a baseline sample, then another following an acute stress-inducing test. Additionally, academic performance is being evaluated by examining grade point average. 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 who demonstrate high levels of self-worth (high self-esteem) will have lower levels of cortisol, which will contribute to higher academic performance

### **Joseph E. Saurine**

Major: Biochemistry and Biology

**2:40 p.m., Room 310**

Pothitos Pitychoutis, Ph.D., Thesis Advisor  
Biology Department

#### ***Investigating the Role of a Novel Calcium-handling Protein in Regulating Locomotor and Cognitive Behavioral Processes in Mice***

Attention-deficit/hyperactivity disorder (ADHD) is an extremely prevalent and debilitating neurodevelopmental disorder that affects many people of all ages. Our group has recently identified a novel calcium-handling protein expressed in the mouse brain; intriguingly, global deletion of this gene induces cognitive deficits and a hyperactive/novelty seeker phenotype in mice. In the context of this thesis, I will assess how conditional deletion of this calcium-handling protein in specific regions of the mouse brain affects the expression of ADHD-relevant phenotypes.

### **Benjamin N. Schmeusser**

Major: Pre-medicine

**2:40 p.m., Room 222**

Karolyn M. Hansen, Ph.D., Thesis Advisor  
Biology Department

Douglas C. Hansen, Ph.D., Thesis Advisor  
UD Research Institute

#### ***Compartmentalization and Temporal Distribution of L-dopa-containing Proteins Involved in Oyster Shell Formation***

Marine molluscs, such as the eastern oyster, produce structural proteins that are essential in biomineralization. The unique properties of these proteins derive from the amino acid composition. L-dopa is a unique key amino acid in the cross-linking of these proteins and can be a biomarker for identification and localization of shell formation proteins. This research aims to determine the compartmentalization of L-dopa-containing proteins involved in the shell formation process 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. Their relative amino acid concentrations were determined. Additionally, the Arnow Assay was used to stain for L-dopa in the samples.

**3:00 p.m.**

### **Parker M. Griff**

Major: Pre-medicine and Psychology

**3:00 p.m., Room 207**

Tracy R. Butler, Ph.D., Thesis Advisor  
Psychology Department

Yvonne Sun, Ph.D., Thesis Advisor  
Biology Department

#### ***Chronic Administration of Probiotic L. rhamnosus Increases Anxiety-like Behavior in Group-housed Male Long-Evans Rats***

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.

## **Kelsey M. Julian**

Major: Psychology

**3:00 p.m., Room 311**

Erin O'Mara, Ph.D., Thesis Advisor  
Psychology Department

### ***Personality and Health-Risk Information Avoidance***

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.

## **Katherine R. McCaffery**

Major: English and Spanish

**3:00 p.m., Room 331**

Miriamne A. Krummel, Ph.D., Thesis Advisor  
English Department

### ***Re-painting the Lion: Female Transgression and Authorial Reincarnation in the Works of Marie de France and Jane Austen***

My thesis focuses on the literature of Marie de France and Jane Austen, specifically looking at how they transgress social, cultural and even temporal boundaries through their writing.

## **Lauren M. Murray**

Major: Dietetics

**3:00 p.m., Room 211**

Diana Cuy Castellanos, Ph.D., Thesis Advisor  
Health and Sport Science Department

### ***Breaking Down Barriers to Sustainable Eating at the University of Dayton***

Sustainability is at the forefront in many conversations and innovations at the University of Dayton (UD), ranging from the Hanley Sustainability Institute to the Sustainability Club. However, sustainability extends beyond water and energy conservation. In addition to these, students and faculty at UD can impact the carbon footprint through sustainable eating. The purpose of this research is to define sustainable eating, determine the carbon footprint of foods served in the UD dining halls, examine its importance, consider the barriers to sustainable eating, and develop and evaluate an educational program for UD students and faculty within the dining halls.

## **Lisa E. Stone**

Major: Psychology

**3:00 p.m., Room 312**

Julie Walsh-Messinger, Ph.D., Thesis Advisor  
Psychology Department

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

Personality disorders are characterized by persistent maladaptive ways of thinking about and acting in the world. Historically, personality disorders have been

conceptualized as qualitatively distinct clinical syndromes. Debate persists about whether it is more clinically useful to categorize personality disorders this way or to use a dimensional model that instead focuses on pathological levels of normative personality traits. The purpose of this study is to further explore the relationship between normative and pathological personality traits and to test a dimensional model with confirmatory factor analysis. It is hypothesized that pathological personality traits, measured by the Personality Inventory for DSM-5, share the same underlying factor structure as normative traits, measured by the NEO Personality Inventory-3. 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.

## **Elizabeth M. Turnwald**

Major: Music and Spanish

**3:00 p.m., Room 310**

Samuel N. Dorf, Ph.D., Thesis Advisor  
Music Department

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

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 commercially popular, the songs 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. 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.

## **Kathryn R. Zimlich**

Major: Biology

**3:00 p.m., Room 222**

Karolyn M. Hansen, Ph.D., Thesis Advisor  
Biology Department

Douglas C. Hansen, Ph.D., Thesis Advisor  
UD Research Institute

### ***Modeling and Characterization of Mussel Adhesive Protein***

Mussel adhesive proteins (MAPs) are proteins secreted by mussels which form a plaque that allows these organisms to attach to substrates in marine environments. One of the adhesive proteins produced by foot of the mussel *Mytilus edulis* (MeFP-5. *M. edulis* Foot Protein -5) has been explored for its potential to inhibit corrosion on metal oxide surfaces through the formation of an epoxy-like barrier on the metal surface. This adhesion of the plaque onto metal oxides is thought to be facilitated by the complexation of metal ions and certain amino acid residues, though the exact mechanism of complexation is unclear. This project aims to characterize the nature of this adhesion through three-dimensional modeling.

**3:20 p.m.**

**Charles A. Benton**  
Major: Chemical Engineering

**3:20 p.m., Room 207**  
Mark Masthay, Ph.D., Thesis Advisor  
Chemistry Department

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

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. More specifically, we will look at how different combinations of energy states affect  $q$  in two-level paramagnetic spin lattices (PSLs; regular lattices with spin sites) that are placed in an external magnetic field. 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.

**Mary A. Brinkman**  
Major: Graphic Design

**3:20 p.m., Room 310**  
Misty Thomas-Trout, M.F.A., Thesis Advisor  
Art and Design Department

***Perceiving Place: A Social Design Case Study***

My thesis works to determine how the visual, cultural, social and environmental factors of an area affect one's perception of place. Utilizing qualitative research, this study focuses on diverse neighborhoods in the Dayton area, particularly that of Twin Towers. After defining the overlapping factors and characteristics of each space, and how they change and impact perception, I will communicate these findings through the medium of graphic design. This socially-engaged case study will allow visual language to promote and document a better understanding of place.

**Hannah S. Jackson**  
Major: Psychology and Spanish

**3:20 p.m., Room 222**  
Jackson Goodnight, Ph.D., Thesis Advisor  
Psychology Department

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

This research project explores variables that may impact the outcomes of children with clinically-depressed mothers, with the focus on 12- 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 and why some children of depressed mothers develop neither. 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. This project uses sibling- and cousin-comparison models in order to ensure that genetics are similar and 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.

**Maia A. McLin**  
Major: Biology

**3:20 p.m., Room 312**  
Julie Walsh-Messinger, Ph.D., Thesis Advisor  
Psychology Department

***Olfaction and Disgust as Predictors of Elevated Perfectionism***

The sense of smell aided in survival by providing a means to assess if foods were safe to consume. This assessment may have increased chance of survival leading to an evolutionary advantage. Disgust and smell are not as important in survival today because of current regulations that prevent the distribution of spoiled and contaminated foods. It is possible that heightened 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 while these characteristics were an advantage in the past. Both disorders display elevated perfectionism. This study examines associations between rigid perfectionism, odor detection sensitivity, perceived pleasantness of odors and disgust sensitivity. This study may provide further understanding of relationships between perfectionism, disgust and smell, and may also help identify possible target areas for OCD and OCPD treatment by changing odor perceptions.

**Mercedes C. Ramsey**  
Major: International Studies and French

**3:20 p.m., Room 311**  
Joel R. Puce, Ph.D., Thesis Advisor  
Political Science Department

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

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. 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?

**Madeline A. Sauer**  
Major: Exercise Physiology

**3:20 p.m., Room 211**  
Anne Crecelius, Ph.D., Thesis Advisor  
Health and Sport Science Department  
Joel Schilling, M.D., Ph.D., Thesis Advisor  
Cardiology Department,  
Washington University School of Medicine

***Interference of the Inflammasome via Interferon- $\beta$***

It is well established that macrophages, a classification of white blood cells, are the body's first line of defense against stressors such as bacterial and viral infections. The inflammatory response is adaptive and is the body's way of fighting anything that would be considered potentially dangerous to the human body. This project looks at metabolic diseases, such as obesity and type 2 diabetes mellitus, and the pro-inflammatory phenotype. This project aims to assess a specific protein that, when absent, has been shown to decrease this pro-inflammatory response. If the

mechanism behind how this protein works to decrease the inflammatory response can be established, it could be used clinically to treat many of the inflammatory conditions. If this novel mechanism can be established, it can be used therapeutically to decrease the pro-inflammatory response.

### **Ryan J. Westerbeck**

Major: History

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

"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 1900s, 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.

**3:40 p.m.**

### **Claire F. Bowman**

Major: Fine Arts

#### ***The Art of Feminism***

Society creates perceived standards for women that are inaccurate, impossible and stereotypical. These degrading paradigms negatively affect every aspect of modern life, evident from the political landscape to the current trend to overtly demonstrate less respect for women. Examples of women as objects for the male gaze still exist. Roles for women in the workplace, in advertising and the entertainment industries seem to be stagnating or reversing, and often negatively affect how women are perceived or perceive themselves. In a world so determined to stifle her voice and opinion, art is an ever important medium for a woman to express her outrage, her disillusionment and her ideas for positive change. I plan to use art as my form of communication to expose these issues for all to see, hopefully expanding the mind of anyone who may not have previously given them much thought.

**3:20 p.m., Room 331**

William V. Trollinger, Ph.D., Thesis Advisor  
History and Religious Studies Departments

### **Mark D. Bugada**

Major: Exercise Physiology

#### ***The Effect of Quadriceps Strength on Abnormal Movement Patterns after ACL Reconstruction: A Systematic Review***

Current literature is focused on looking at the role between quadriceps femoris strength deficits after anterior cruciate ligament reconstructive (ACLR) surgery. However, there is a lack of clear understanding about how this relates to movement patterns following surgery. My thesis project is to identify, assess and synthesize the evidence regarding the relationship between quadriceps femoris strength and abnormal movement patterns in patients after ACLR. This will be done by writing a scientific article in the form of a systematic review in conjunction with mentors from Cincinnati Children's Hospital, Division of Occupational Therapy and Physical Therapy – Sports Medicine.

### **Amanda N. Delaney**

Major: Mechanical Engineering

#### ***Analyzing the Factors of Performance: Is There a More Precise Way for Trainers to Score an Individual's Form During Exercises?***

My project analyzes the factors that contribute to predicting performance in a variable environment. Properly training for a military mission or sporting event in which the person must use his/her skills to adapt and succeed is the basis for this research. Within our collaborative team, a research protocol was developed to test the abilities of 20 athletic young adult males. Numerous tests in three categories (cognitive, traditional physical and multi-dimensional physical) preceded two tests of performance that were used as primary outcomes. My research focuses on the Lock and Load test from the third category. This test was measured by assigning ratings to the individuals' form. Biomechanical marker data was recorded and compared to the form ratings assigned by the trainer for Lock and Load to determine the accuracy of current scoring practices.

### **Lauren A. Hoody**

Major: Pre-medicine

#### ***The Impact of the 515nm Effect on Singlet Oxygen Quenching in Photosynthesis: Model System Studies Using $\beta$ -Carotene-acid Complexes***

$\beta$ -carotene ( $\beta$ C) is an orange biological pigment present in green plants where it plays a protective role against the potential harmful effects of light.  $\beta$ C does this by deactivating "singlet oxygen", which is a toxic molecule generated during photosynthesis. During photosynthesis,  $\beta$ C temporarily converts from its native orange state to a pink state. I hypothesized that pink  $\beta$ C reacts with singlet oxygen

**3:40 p.m., Room 211**

Anne Crecelius, Ph.D., Thesis Advisor  
Health and Sport Science Department

Mark Paterno, Ph.D., PT, Thesis Advisor  
Sports Medicine at Cincinnati Children's  
Hospital and Medical Center

Catherine Quatman-Yates, Ph.D., DPT, Thesis Advisor  
Physical Therapy Department, School of Health  
and Rehabilitation Sciences, The Ohio State University

**3:40 p.m., Room 222**

Kimberly E. Bigelow, Ph.D., Thesis Advisor  
Mechanical and Aerospace Engineering Department

**3:40 p.m., Room 207**

Mark Masthay, Ph.D., Thesis Advisor  
Chemistry Department

less efficiently than native orange  $\beta$ C. To test this hypothesis, I chemically modeled  $\beta$ C's pink state with blue  $\beta$ C-acid complexes, which are chemically similar to pink  $\beta$ C, created by reacting  $\beta$ C with trichloroacetic acid (TCA).  $\beta$ C'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. My DPBF-based results to date indicate that native orange  $\beta$ C and blue  $\beta$ C-TCA complexes quench singlet oxygen with roughly equal efficiency. In the spring of 2018 I intend to confirm my DPBF-based results by monitoring the impact of  $\beta$ C and  $\beta$ C-TCA complexes on the 1270 nm (near-infrared) emission of singlet oxygen using a state-of-the-art, time-resolved near-infrared spectrometer.

**Maggie M. Jaeger**

Major: Psychology

**3:40 p.m., Room 311**

Erin O'Mara, Ph.D., Thesis Advisor  
Psychology Department

***The Other Woman: Examining the Tendencies and Perceptions of Mate Poaching Across the Menstrual Cycle***

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. From an evolutionary perspective, because of this danger, 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.

**Diane J. Leverich**

Major: English

**3:40 p.m., Room 331**

Patrick Thomas, Ph.D., Thesis Advisor  
English Department

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

This thesis project is an examination of how everyday people use evidence while engaging in political discussions on the social network Reddit.com. Evidence use can become especially important in online political conversations because the reporting of political events and issues on the Internet varies widely depending on the source and is often subject to intense deliberation. This project 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 aim to show how ordinary citizens (i.e., those lacking political power or influence) shape their own forms of political discourse online.

**Alia F. Whitney**

Major: International Studies and Philosophy

**3:40 p.m., Room 312**

Steve Bein, Ph.D., Thesis Advisor  
History Department

***An Analysis of Authentic Existence Online***

This thesis draws on Heidegger's conception of Da-Sein and Watsuji Tetsurō's concept of ningen in order to conceptualize digital being and its relationship to embodied presence in both the physical and digital worlds. I analyze data drawn from various social media websites in order to discuss the ethical norms in these communities. I will use Heidegger and Watsuji's conceptualizations and ideas to explore ideas of co-presence and the meaning of digital being contained within the digital world.

**4:00 p.m.**

**Olivia G. Grondalski**

Major: Pre-medicine and Psychology

**4:00 p.m., Room 311**

Erin O'Mara, Ph.D., Thesis Advisor  
Psychology Department

***Influence of Positive Illusions and Perceived Threat on Weight Gain in College Students***

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 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 reducing the perceived threat of gaining weight over time. It is hypothesized that a student's measured self-enhancement and psychological stress levels will influence weight gain throughout the semester.

**Paige L. Ingram**

Major: Mechanical Engineering

**4:00 p.m., Room 222**

Kimberly E. Bigelow, Ph.D., Thesis Advisor  
Mechanical and Aerospace Engineering Department

***A Comparative Analysis of Breast Cancer Treatments and the Role of Taxane-based Chemotherapy-induced Peripheral Neuropathy on Postural Stability***

Twelve percent of women suffer from breast cancer each year, but survivorship is increasing due to improvements in treatments. However it appears there are lasting effects after treatment due to the toxicity of chemotherapy compounds. One of the most severe side effects is peripheral neuropathy which results in decreased sensation in the nervous system. With this loss, an individual's balance and postural stability is likely impacted, leading to an altered quality of life. Monfort et al. at The Ohio State University are among the first to identify balance deficits in breast cancer patients during treatment, even after the first treatment cycle. We recently joined with them as they extended this work to include long-term follow-up testing after the completion of treatment. Our efforts specifically investigate dynamic and static postural stability, range of motion and balance control while individuals stand on a force plate, looking at variances between individuals receiving different treatments and experiencing diverse outcomes.



**Reilly Kate Kincaid**

Major: Psychology

**4:00 p.m., Room 312**Catherine Zois, Ph.D., Thesis Advisor  
Psychology Department***Wives' Perceptions of Husbands' Housework and Parenting Contributions***

This study explores working wives' perceptions of varying types of household and parenting contributions made by their husbands. Reviewed literature suggests that it is more common for husbands to be “helpmates” to their wives, “doing” housework/parenting tasks, rather than organizing or “managing” the tasks that need doing. A helpmate husband, for example, would be more likely to pick his daughter up from soccer when prompted by his wife rather than to be the one coordinating her extracurricular schedule and carpools. Using a survey, I quantified the prevalence of the helpmate husband in a UD sample of female faculty and staff. I also examined different labor distributions' implications regarding wives' satisfaction with life and marriage.

**Gregory C.J. Moellering**

Majors: Biochemistry and Pre-medicine

**4:00 p.m., Room 207**Matthew Lopper, Ph.D., Thesis Advisor  
Chemistry Department***Efflux Pump Inhibition in Multiple Antibiotic Resistant Bacteria***

Over the last few decades, humans have largely overused and misused antibiotics. As a result, bacteria have developed resistance to these drugs, rendering the antibiotics ineffective. One of the mechanisms these bacteria have developed to gain resistance to antibiotics is the use of efflux pumps. Efflux pumps essentially take the antibiotics brought into a bacterium and pump them out of the bacterium and into the surrounding environment. The goal of this thesis has been to research and to develop strategies to inhibit these pumps and ultimately find a way to combat drug resistance in bacteria.

**David A. Rivetti**

Major: Biology

**4:00 p.m., Room 211**Karolyn M. Hansen, Ph.D., Thesis Advisor  
Jayne B. Robinson, Ph.D., Thesis Advisor  
Biology Department***Inhibition of Biofilm Growth: The Effect of Cationic and Zinc Porphyrins on Pseudomonas aeruginosa Biofilm Formation on Different Substrata***

The goal of this project is to determine if biofilm growth can be inhibited on a variety of different surfaces (substrata) by using cationic and zinc porphyrins to both disrupt and prevent biofilm formation. Biofilms are comprised of individual bacterial cells that are held together in an extracellular matrix, and the cells in a biofilm stick to each other as well as to a variety of surfaces. The detrimental impact of biofilms is widespread, as biofilms can form on both biological and non-biological surfaces and are often resistant to treatment. In order to identify a treatment option that could address biofilm formation on multiple surfaces, this experiment will utilize porphyrins, or ringed chemical compounds, to disrupt the biofilms. The results of this project will be used to understand more about how to disrupt these strongly associated films of bacterial cells.

**Stephanie S. Rodriguez**

Major: Finance and International Business

**4:00 p.m., Room 331**Nicola Work, Ph.D., Thesis Advisor  
Global Languages and Cultures Department***French Colonization to African Globalization: Economic Cooperation Opportunities in French-Algerian Social Politics, Modeled in the Oil Industry***

This cross-disciplinary research on French-Algerian relations is designed to expose the impact of historical cultural perceptions on the future of international economic growth and integration. Historical, societal and economic elements used to defend these interrelations include France-Algeria's colonial history, post-colonial political and societal structures in France regarding Algerians and current bilateral foreign relations in economic trade. Using post-colonial statistics and policies on Algerian immigration and French employment, as well as cultural elements of French and Arabic language usage and Islamic religious affiliation, this research analyzes past conflict in colonialism and proposes future cooperation through globalization. Using the oil industry as the economic sector for conflict and cooperation analysis, this research defends the need for economic diversification and cultural exchange between France and Algeria to achieve economic cooperation opportunities and positive globalization outcomes.

**Melanie C. Zebrowski**

Major: Fine Arts

**4:00 p.m., Room 310**Emily Sullivan Smith, M.A., Thesis Advisor  
Art and Design DepartmentAili Bresnahan, Ph.D., Thesis Advisor  
Philosophy Department***Reconceptualizing Space: Multisensory Rooms and the Immersive Art Experience***

The modern human being lives in human-built society, very much separated from the natural world. Whether this is a classroom, office, house or even phone and computer screens, many people don't realize that the environments in which we spend most of our time influence our mental and emotional well-being. Very often, the thoughts, ideas and feelings that filter through from these environments do more to disconnect us from ourselves and the present moment rather than help us feel centered in it. As an artist, I've set out to build a multisensory, immersive, geodesic dome with the intent to use this space as a way to connect ourselves to the here and now. This is an exploration into my creative process and the physical manifestation of the idea that our built environments have the potential to foster a sense of harmony and connection if they are aesthetically understood.

**4:20 p.m.**

**Sarah P. Baxter**

Major: Biochemistry

**4:20 p.m., Room 207**

Matthew Lopper, Ph.D., Thesis Advisor  
Chemistry Department

***An Investigation of Bacterial Efflux Pump Inhibitors through Aptamers***

Multidrug-resistant bacteria have become increasingly difficult to treat due to the resistance of the cells to accept the active chemicals in drugs. Drug-resistant bacteria present with efflux pumps along the membrane of the cell that transport chemicals out of the cell. In drug-resistant cells, these efflux pumps have been found to expel the desired chemicals out of the cell, making it difficult for the bacteria to receive the intended effects of those drugs. Inhibitors of the efflux pumps were investigated in an attempt to prevent the efflux pumps from allowing antibiotics to leave the cell. A process called SELEX was used to discover DNA fragments that have the correct shape to fit on the surface of the pumps and block their function. The ability of the DNA to inhibit the activity of bacterial efflux pumps was tested in living bacterial cells using a fluorescence-based assay.

**Lucy E. Bratton**

Major: Graphic Design

**4:20 p.m., Room 310**

Jayne Matlack Whitaker, M.F.A., Thesis Advisor  
Art and Design Department

***Understanding Place Branding***

Place branding is an emerging area of graphic design encompassing region branding and city branding. It 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. This process is particularly complex because of the diversity of stakeholders involved. When created and implemented successfully, place branding has a unique ability to unite and enhance the lives of citizens. By closely examining successful samples of recent place branding, this project has yielded the creation of a mark and guidelines for the place branding of the City of Dayton, Ohio.

**Zhipeng Jiang**

Major: Mechanical Engineering

**4:20 p.m., Room 211**

Timothy Reissman, Ph.D., Thesis Advisor  
Mechanical and Aerospace Engineering Department

***Reformed Body-powered Upper-limb Prosthesis***

People with below-elbow amputations often wear a body-powered prosthesis due to its affordable cost and the fact that it can improve their ability to do daily activities. While this technology is functional, it poses difficulties when trying to work with a range of different objects. The focus of this work is to improve its versatility by engineering both variable grip strength and changeable gripper shape capabilities into the device. Through mechanism design, the new prosthesis will have user-selected force options, thereby being able to hold objects of different masses. Additionally, exploring conformable-topology gripper designs will enable the ability to be able to grab items of diverse shapes and textures.

**Lydia C. Payton**

Major: Pre-medicine

**4:20 p.m., Room 331**

Amit Singh, Ph.D., Thesis Advisor  
Biology Department

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

Alzheimer's disease (AD) is a progressive neurodegenerative disorder that affects cognitive function and memory of the patient. It results from plaques formed by the abnormal cleavage of the Amyloid Precursor Protein (APP), which result in the formation of 42 amino acid polypeptide, also known as amyloid beta 42 (A $\beta$ 42). Accumulation of A $\beta$ 42 peptide triggers cell death in the neuronal cell population of central nervous system. However, the trigger for this abnormal cell death is unknown. A possible explanation involves the role of mitochondrial dysfunction as the trigger for neurodegeneration. Mitochondria are involved in vital cellular functions, including ATP production, calcium ion homeostasis, reactive oxygen species production, and apoptosis. Two potential modifiers of the human A $\beta$ 42 phenotype have been identified in this study. Those modifiers were two enzymes: alpha-ketoglutarate dehydrogenase and pyruvate dehydrogenase. In order to investigate AD and these modifiers, a *Drosophila melanogaster* eye model is used with the Gal4/UAS to misexpress the human A $\beta$ 42 polypeptide in the photoreceptor neurons of the fly retina.

**Malle R. Schilling**

Major: Mechanical Engineering

**4:20 p.m., Room 222**

Margaret Pinnell, Ph.D., Thesis Advisor  
Mechanical and Aerospace Engineering Department

***The STEM Gender Gap: An Evaluation of the Efficacy of Women in Engineering Camps***

It is not uncommon to see a class full of engineering students with very few women in the room. To combat this gender gap, colleges and universities have employed outreach programs and developed summer engagement opportunities that allow women to explore engineering before they graduate high school. To understand how these programs affect the women who participate in them, a research study was conducted to evaluate the effects week-long engineering camps had on participants through a disseminated survey and observations of activities at both a single-sex female camp and a co-ed camp. Additionally, interviews were conducted with leaders of engineering camps at universities across the nation to better understand the programming and purpose of engineering camps.

**4:40 p.m.**

**Karin E. Forsthoefel**

Major: Intervention Specialist Education

**4:40 p.m., Room 312**

Mary-Kate Sableski, Ph.D., Thesis Advisor  
Teacher Education Department

***Mentoring Strategies for the Support of High School Students Experiencing Anxiety and Depression: A Case Study of Two Catholic High Schools***

There is a high prevalence of anxiety and depressive-related disorders among adolescents ages 13-18 in the United States, and these statistics do not include the undiagnosed experiences of anxiety and depression that are typical during adolescence. This case study examines the supports provided for students experiencing anxiety and depression in two Catholic high schools. The aims of the study were to collect a list of strategies and interventions being used in Catholic high schools to address the needs of high school students experiencing anxiety and depression and to investigate the use of mentoring opportunities through which teacher-student relationships can be developed. Faculty and staff members were surveyed and interviewed to gather specific information about strategies and mentoring opportunities employed. Themes among the data include the teacher roles of seeking knowledge, collaborating with parents and staff, modeling healthy coping strategies and creating supportive environments to foster student openness.

**Stephen K. Harvey**

Major: Finance and  
Management Information Systems

**4:40 p.m., Room 311**

Tony Caporale, Ph.D., Thesis Advisor  
Economics and Finance Department

***Lending Club's Note Trading Platform Facade: An Examination of Peer-to-peer (P2P) Lending Secondary Market Inefficiency***

Peer-to-peer (P2P) lending is the practice of matching borrowers and lenders through a third-party, such as Lending Club, allowing for lenders to pool their funds together to match the need of a borrower. Those who pledge funds to a borrower receive a note proportional to their invested amount. After a loan closes, lenders may choose to sell their notes on a secondary market. These secondary markets allow for the lender to set a price and auction their notes. Through an analysis of Lending Club's secondary market (Note Trading Platform), it can be determined that this method of price setting often causes prices to be misaligned to the true value of notes. This results in an inefficient secondary market where the majority of notes posted for auction are never purchased, leaving lenders with a potential level of liquidity that is not met.

**Eric M. McGill**

Major: Mechanical Engineering

**4:40 p.m., Room 222**

Andrew P. Murray, Ph.D., Thesis Advisor  
David Myszka, Ph.D., Thesis Advisor  
Mechanical and Aerospace Engineering Department

***Design of a Self-orienting Solar Array for Low-earth Orbit Cubesats***

As electronics have become increasingly smaller and more capable, small satellites called cubesats are deployed in missions that would have taken much larger spacecraft 30 years ago. To power these satellites while in orbit, a novel solar array design is proposed by which these small satellites may harvest energy. With the inspiration of a sunflower that autonomously faces the sun as it passes overhead, a solar array possessing similar characteristics is desirable. The proposed design could generate

more energy during the craft's time in the sunlight by continuously adjusting to face the sun. More energy gathered corresponds to an enhancement of the capability of these cubesats due to the ability to accomplish missions with greater scope than those currently in use.

**Logan J. Roebke**

Major: Pre-medicine

**4:40 p.m., Room 211**

Madhuri Kango-Singh, Ph.D., Thesis Advisor  
Biology Department

***Drosophila Glioma Models Reveal Cooperative Interactions between Yki and Tai to Promote Glioma Growth***

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. Briefly, so far, we found that downregulation of Wg affects glioma growth. We are currently testing radio-resistance to establish the conditions under which the tumor-containing flies survive post-radiation.

**Elisabeth C. Spector**

Major: Sociology and  
Women's and Gender Studies

**4:40 p.m., Room 207**

Jeanne Holcomb, Ph.D., Thesis Advisor  
Sociology, Anthropology and Social Work Department

***Farm to Liberation: Towards Feminist Food Justice***

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.

# advisors

ADVISOR	DEPARTMENT	ADVISOR	DEPARTMENT
Agnew, Christopher, Ph.D.	History	McEwan, Ryan W., Ph.D.	Biology
Ambrosius, Joshua, Ph.D.	Political Science	Morgan, Thomas, Ph.D.	English
Bein, Stephen, Ph.D.	History	Murray, Andrew, Ph.D.	Mechanical and Aerospace Engineering
Bigelow, Kimberly E., Ph.D.	Mechanical and Aerospace Engineering	Myszka, David, Ph.D.	Mechanical and Aerospace Engineering
Brecha, Robert, Ph.D.	Physics	O'Mara, Erin, Ph.D.	Psychology
Bresnahan, Aili, Ph.D.	Philosophy	Ordóñez, Raúl, Ph.D., S.M.	Electrical and Computer Engineering
Burmeister, Jacob, Ph.D.	Psychology, University of Findlay	Paterno, Mark, Ph.D., PT	Sports Medicine, Cincinnati Children's Hospital and Medical Center
Butler, Tracy R., Ph.D.	Psychology	Pinnell, Margaret, Ph.D.	Mechanical and Aerospace Engineering
Carrillo, Albino, M.F.A.	English	Pitychoutis, Pothitos, Ph.D.	Biology
Caporale, Tony, Ph.D.	Economics and Finance	Potter, Rebecca, Ph.D.	English
Crecelesius, Anne, Ph.D.	Health and Sport Science	Pruce, Joel, Ph.D.	Political Science
Cuy Castellanos, Diana, Ph.D.	Health and Sport Science	Quatman-Yates, Catherine, Ph.D., DPT.	Physical Therapy, The Ohio State University
Dasgupta, Simanti, Ph.D.	Sociology, Anthropology and Social Work	Reissman, Timothy, Ph.D.	Mechanical and Aerospace Engineering
Davis, Susan, Ph.D.	Psychology	Robinson, Jayne B., Ph.D.	Biology
Dixon, Lee, Ph.D.	Psychology	Sableski, Mary-Kate, Ph.D.	Teacher Education
Dorf, Samuel N., Ph.D.	Music	Schilling, Joel, M.D., Ph.D.	Cardiology, Washington University School of Medicine
Goldman, Daniel, Ph.D.	Geology	Singh, Amit, Ph.D.	Biology
Goodnight, Jackson, Ph.D.	Psychology	Small, Jamie, Ph.D.	Sociology, Anthropology and Social Work
Hallinan, Kevin, Ph.D.	Mechanical and Aerospace Engineering	Sullivan Smith, Emily, M.A.	Art and Design
Hansen, Karolyn M., Ph.D.	Biology	Subramanyam, Guru, Ph.D.	Electrical and Computer Engineering
Hanson, Douglas C., Ph.D.	UD Research Institute	Sun, Yvonne, Ph.D.	Biology
Holcomb, Jeanne, Ph.D.	Sociology, Anthropology and Social Work	Talbott, Anthony, Ph.D.	Human Rights Center
Hovey, Peter, Ph.D.	Mathematics	Thomas, Patrick, Ph.D.	English
Hudson, Natalie, Ph.D.	Political Science	Thomas-Trout, Misty, M.F.A.	Art and Design
Jackson, Kurt, Ph.D., PT	Physical Therapy	Trollinger, William V., Ph.D.	History / Religious Studies
James, V. Denise, Ph.D.	Women's and Gender Studies	Walsh-Messinger, Julie, Ph.D.	Psychology
Kango-Singh, Madhuri, Ph.D.	Biology	Warmke, Annie	Blue Rock Station LLC
Kebede, Temesguen, Ph.D.	Robotics Laboratory	Williams, Thomas M., Ph.D.	Biology
Kinney, Allison, Ph.D.	Mechanical and Aerospace Engineering	Work, Nicola, Ph.D.	Global Languages and Cultures
Krane, Carissa M., Ph.D.	Biology	Yost, Kevin, M.S.	Air Force Research Laboratory, Wright-Patterson Air Force Base
Krummel, Miriamne A., Ph.D.	English	Zois, Catherine, Ph.D.	Psychology
Lopper, Matthew, Ph.D.	Chemistry		
Linderman, Jon, Ph.D.	Health and Sport Science		
Masthay, Mark, Ph.D.	Chemistry		
Matlack Whitaker, Jayne, M.F.A.	Art and Design		

# presenters

PRESENTER	SESSION TIME AND ROOM	PRESENTER	SESSION TIME AND ROOM
Baxter, Sarah P.	4:20 pm, Room 207	McFadden, Stephen T.	1:00 pm, Room 222
Beban, Madalyn A.	1:40 pm, Room 222	McGill, Eric M.	4:40 pm, Room 222
Benton, Charles A.	3:20 pm, Room 207	McLin, Maia A.	3:20 pm, Room 312
Borchers, Steven G.	1:20 pm, Room 331	Michel, Katherine G.	2:20 pm, Room 310
Bowman, Claire F.	3:40 pm, Room 310	Mingus, Alexander M.	1:00 pm, Room 312
Bratton, Lucy E.	4:20 pm, Room 310	Moellering, Gregory C.J.	4:00 pm, Room 207
Brinkman, Mary A.	3:20 pm, Room 310	Murray, Lauren M.	3:00 pm, Room 211
Bugada, Mark D.	3:40 pm, Room 211	Olson, Lauren T.	2:00 pm, Room 311
Bullock, Leah D.	2:40 pm, Room 211	Outwater, Kevin L.	1:00 pm, Room 207
Buskey, Taylor M.	1:40 pm, Room 310	Pacifico, Allyson J.	1:20 pm, Room 311
Carroccio, Julia C.	2:20 pm, Room 312	Pagan, Angel J.	2:40 pm, Room 311
Dalton, Nicholas A.	2:40 pm, Room 331	Payton, Lydia C.	4:20 pm, Room 331
Deak, Andrew J.	1:00 pm, Room 311	Peterson, Hanna J.	2:20 pm, Room 207
Delaney, Amanda N.	3:40 pm, Room 222	Pezzutti, Dante L.	1:20 pm, Room 310
Dombrowski, Timothy E.	1:20 pm, Room 207	Ramsey, Mercedes C.	3:20 pm, Room 311
Forsthoeft, Karin E.	4:40 pm, Room 312	Restrepo, Ryan E.	2:00 pm, Room 222
Franz, Jaclyn H.	1:00 pm, Room 211	Rivera, Lauren M.	1:20 pm, Room 222
Goff, Logan L.	2:20 pm, Room 222	Rivetti, David A.	4:00 pm, Room 211
Griff, Parker M.	3:00 pm, Room 207	Rodriguez, Stephanie S.	4:00 pm, Room 331
Gronalski, Olivia G.	4:00 pm, Room 311	Roebke, Logan J.	4:40 pm, Room 211
Gross, David D.	1:40 pm, Room 207	Rucoba, Rose A.	1:00 pm, Room 331
Grasziewicz, Abigail M.	1:20 pm, Room 211	Sauer, Madeline A.	3:20 pm, Room 211
Hall, Julia K.	2:20 pm, Room 331	Saurine, Joseph E.	2:40 pm, Room 310
Harvey, Stephen K.	4:40 pm, Room 311	Schalle, Naomi E.	2:20 pm, Room 211
Hoody, Lauren A.	3:40 pm, Room 207	Schilling, Malle R.	4:20 pm, Room 222
Ingram, Paige L.	4:00 pm, Room 222	Schmeusser, Benjamin N.	2:40 pm, Room 222
Jackson, Hannah S.	3:20 pm, Room 222	Spector, Elisabeth C.	4:40 pm, Room 207
Jaeger, Maggie M.	3:40 pm, Room 311	Stone, Lisa E.	3:00 pm, Room 312
Jiang, Zhipeng	4:20 pm, Room 211	Thompson, Kylie A.	2:00 pm, Room 331
Julian, Kelsey M.	3:00 pm, Room 311	Turnwald, Elizabeth M.	3:00 pm, Room 310
Kincaid, Reilly Kate	4:00 pm, Room 312	Venetis, Emma R.	2:00 pm, Room 207
Koch, Aidan P.	2:20 pm, Room 311	Vieson, Jamie A.	1:00 pm, Room 310
Kramer, Andrew M.	2:00 pm, Room 312	Vonderhaar, Lora C.	1:40 pm, Room 312
Landers, William E.	1:40 pm, Room 331	Westerbeck, Ryan J.	3:20 pm, Room 331
Lawler, Thomas R.	2:40 pm, Room 312	Wey, Emily E.	1:40 pm, Room 211
Lawriw, Alexander N.	1:20 pm, Room 312	Whitney, Alia F.	3:40 pm, Room 312
Leverich, Diane J.	3:40 pm, Room 331	Wisniewski, Andrea L.	2:00 pm, Room 211
Lynch, Caroline A.	2:40 pm, Room 207	Zebrowski, Melanie C.	4:00 pm, Room 310
Maloney, Margaret E.	2:00 pm, Room 310	Zimlich, Kathryn R.	3:00 pm, Room 222
McCaffery, Katherine R.	3:00 pm, Room 331		



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