Welcome to the 2014 Undergraduate Research Symposium.

It is no secret that the driver of innovation in America is the strength of creative and critical thinking of researchers in all fields. While American culture often emphasizes the work in STEM fields—science, technology, engineering, and math—this symposium strives to recognize excellence in research across many different fields, including arts and humanities, social sciences, as well as the STEM fields. At Bowling Green State University (BGSU), we provide students the opportunity to develop skills for research, inquiry, critical thinking, and scholarship through a variety of programs and experiences. Today, we feature the works of students from the Honors College; Academic Investment in Math and Science (AIMS); the Center for Undergraduate Research and Scholarship (CURS); Science & Math Education in ACTION; Science, Engineering, & Technology Gateway Ohio (SETGO); Ronald E. McNair Post-Baccalaureate Achievement Program (McNair Scholars Program); and other programs on campus. These students are the future leaders of the world, and we are proud to share their excellence with you today.

For the Honors College, a significant part of the curriculum is the Honors Project experience that all students who aspire to graduate with University Honors must conceive and complete. The Honors Project is a self-designed, capstone experience intended to showcase the breadth and depth of a student's learning within a fairly narrowly-defined area of study. The Honors Project can be a "traditional" thesis, but it also can take on a number of other, different forms that suit an individual student's interests, areas of expertise, and dominant learning style. Examples include senior recitals in music, juried art shows, screen/stage plays, book manuscripts, and service-learning projects.

Graduating with University Honors is the highest honor granted by Bowling Green State University, and it is the expectation that every Honors student enrolled in the College will graduate with University Honors courses and demonstrate their attainment of the four learning outcomes essential to the Honors College: (1) the ability to think critically, (2 and 3) the ability to convey ideas clearly and forcefully both orally and in writing, and (4) the ability to integrate ideas across disciplines.

This symposium is designed to showcase the hard work our students and their peer-researchers in other similarly research-oriented programs have done and the goals they have accomplished. As Dean of the Honors College, I want to congratulate all of the students whose work is being showcased today for challenging yourselves to engage in research and produce original scholarship.

Sincerely,

Dr. Simon Morgan-Russell, Dean
Honors College
Schedule of Events

2:00 pm  Doors open, light appetizers in Olscamp 101
2:15 pm  Opening remarks, Dr. Cordula Mora, Director of Undergraduate Research

Dr. Mora leads the efforts to provide an engaged, integrated undergraduate learning experience for students at BGSU while supporting the scientific, scholarly, and creative research activities of faculty and staff. Dr. Mora is also a Professor in the Psychology Department and has over 15 years of research experience in the fields of animal navigation and neurobiology.

2:30 pm  Presentations in breakout rooms, Session I
3:30 pm  Presentations in breakout rooms, Session II
4:30 pm  Poster presentations in Olscamp 101
5:30 pm  Closing remarks and Mayeux Awards, Dean Simon Morgan-Russell

Dr. Simon Morgan-Russell is a Professor of English and the Dean of the Honors College, dedicated to developing critical thinkers.

About the Mayeux Awards
Patricia Gangwer Mayeux, a long-time employee at the University, created an endowment, the income from which is used to fund prizes to be given annually to the best Honors Projects completed since last year’s Undergraduate Research Symposium. To be eligible for a prize, an Honors student must present his or her project at the Undergraduate Research Symposium, have submitted an Honors Project to the Honors office by noon on Monday, April 21, and have earned an “A” on the project.
Bowling Green State University strives to increase the visibility, prestige, and material support for participation in research and creative activities by undergraduate students. Our belief is that critical and constructive thinking as well as communication are infused into the process of scholarly discovery and the dissemination of results. To that end, BGSU offers programs to support undergraduate students through mentorship, funding, and skill development. Participants do not only experience pride from expanding a body of knowledge on their topic, but they are better prepared for graduate studies or work-life.

The Center for Undergraduate Research and Scholarship (CURS) http://www.bgsu.edu/offices/curs/

Established in 2004, the mission of CURS is to enhance the undergraduate experience with meaningful research and creative activities in all fields of study. Through experiencing the processes of scholarly discovery and dissemination of their results, students become fully engaged members of our learning community.

- Open to all undergraduate students at BGSU from all disciplines
- Fall and spring research grants of up to $500 for supplies
- Summer research grants of up to $500 for students and $400 for faculty mentors to purchase supplies coupled with a $2,500 stipend for students who commit to a ten-week intensive research experience
- Travel grants of up to $200 for students to present their research projects and/or creative activities selected via peer-review or juried processes at regional, (inter)national conferences, or exhibits

Please contact Cordula Mora, Director of Undergraduate Research (cmora@bgsu.edu) for more information.

Ronald E. McNair Post-Baccalaureate Achievement Program (McNair Scholars Program) http://www.bgsu.edu/offices/sa/trio/mcnair/

The McNair Scholars Program is a U.S. Department of Education funded TRIO Program that encourages undergraduate students to pursue graduate studies by providing opportunities to define goals, to engage in research, and to develop the skills and student/faculty mentor relationships critical to success at the doctoral level. Staff work closely with program participants as they complete their undergraduate requirements to encourage them to enroll in graduate programs and to track their progress through to the successful completion of advanced degrees.

- Targets first generation college students who are economically disadvantaged as well as students from underrepresented racial/ethnic populations with an interest in pursuing the PhD
• Offers research opportunities and presentation experience under the mentorship of a faculty member
• Encourages participation in seminars and workshops that assist in understanding the culture of graduate school, graduate school admission process, and options for financing graduate education

Contact Tracy Tabaczynski at tttabcz@bgsu.edu for more information.

Academic Investment in Math and Science (AIMS)
http://www.bgsu.edu/offices/aims/

The mission of the AIMS Program is to establish a world-class training center for graduating-women and underrepresented minorities – STEM majors. Many of these students will proceed to get terminal degrees in their fields, then ultimately perform cutting edge research, service and/or teaching. Moreover, all should be well prepared to take advantage of an array of opportunities and make valuable contributions as STEM professionals.

• Program is open to incoming first-year students
• Yearly scholarships of $1,500
• Annual incremental increases for those remaining in good academic standing
• Additional financial assistance may be available for eligible participants

Contact Chris Mitchell at cmitch@bgsu.edu for more information.

Science, Engineering, & Technology Gateway Ohio (SETGO)
http://www.bgsu.edu/setgo/

SETGO is a collaborative venture in which BGSU and Owens Community College partner with local community-based organizations to increase the number of students graduating with Associate and Bachelor’s degrees in the STEM fields. By fostering retention and academic success via attention to the whole student—in academic, financial, and affective realms—SETGO is the gateway to opportunity. We aim to facilitate transitions from a 2 – to a 4-year college, and increase access to science-based careers for the large and demographically diverse student populations served.

Contact Moira van Staaden at mvs.bgsu@gmail.com for more information.

Name: L. Beth Weir, Elliott Pawloski, India Worthy, and Amanda Worcester
Major(s): Biology
Program: Lorain County Community College
Advisor(s): Harry Kestler, Science and Mathematics (LCCC)

Characterizing the Effects of CCR5 Δ32 Truncated Protein on the Expression of Wild-Type CCR5 Genes

HIV binds to two receptors to infect a cell. Δ32 truncates the CCR5 gene and may affect the viral efficiency. Homozygous Δ32 lowers susceptibility to HIV. Heterozygous Δ32 slows progression to AIDS. Hütter, an oncologist, found a Δ32 homozygous bone marrow donor and cured Timothy Ray Brown of HIV. The intent of this study is to determine how a transplant can eradicated HIV. Δ32 allele was transduced into the retroviral vector pLNCX2 and the packaging cell line PT67. Δ32 was spliced into pLNCX2. After transfection the pLNCX2/Δ32 retroviral particles will infect U937 and CEMX174 cells and be tested for expression of CCR5 and HIV infectibility. If Δ32 confers HIV resistance, novel gene therapies and treatments can be developed.

Name: Marjorie Williams
Major(s): Marketing
Program: CURS
Advisor(s): Opportune Zongo, Women’s, Gender, and Sexuality Studies

Leadership Through Adversity

This project studies how people not only cope with adversity, but how they overcome it and, if possible, use it to their advantage. In order to examine this topic I studied the history of female warriors, focusing on African and African American female warriors. I chose to focus on them due to the level of adversity that they experience. They are in two minority groups: being female and being of African decent. They experience what is referred to as the "Double Whammy" phenomenon, which refers to the feeling of being more disadvantaged than other because of your race and your gender.

Five books were examined: A Woman’s War, Zero to Breakthrough, Amazons of Black Sparta, One Woman’s Army, and Lean In. The results are accessible through a public wiki created for the project.
words of varying intent. In conjunction with this study, participants’ Smartphone use will also be measured. Studies have indicated that technology users tend to recall the “where” of information more than the information itself.

Seasonal Assessment of Microbial Denitrifying Activity in a Large Lake

This project assesses microbial diversity and denitrifying gene expression in water samples from the hypolimnion of Lake Erie Central Basin during summer and from the mixed layer during winter. Summer stratification typically yields hypolimnetic hypoxia resulting in an annual “dead zone” where denitrifying activity increases. We assessed three denitrifying genes: nosZ, nirK, and nirS. A PCR protocol was optimized to amplify these genes from known bacteria. Total RNA extraction followed by RT-PCR was successfully conducted using primers for the housekeeping gene rpoD to verify the effectiveness. This protocol was then used to compare denitrifying activity of the genes in water samples collected seasonally. PCR amplicons were then sequenced to assess the overall diversity of denitrifiers present.

Photoactive Iron-polysaccharide Materials

The polysaccharides Alginate and pectate are able to bind Fe3+ and form gels. These gels are photoactive, where Fe3+ is reduced to Fe2+ after light irradiation, leading to disassembly of the gel. Quantitative photochemistry of Fe-polysaccharides and Fe-pectate shows that the efficiency of the photoreaction (quantum yield, QY) for pectate was lower than for alginate. Four new structures were tested by acetylation of pectate and alginate and by adding a carboxymethyl group to alginate and pectate. All four new polysaccharides displayed lower QYs than parent alginate and pectate. We prepared gel beads using the Fe-polysaccharides. After light irradiation, the beads break apart releasing the cargo inside. We are now inserting drugs into these beads and using the beads for light-activated drug delivery.

Meteoritical disordered carbon: Nano-scale flakes and ab initio calculations

Micron-sized carbon spheres have been discovered in the meteorite Murchison. These structures have an onion-like shell of graphite layers and a core made up of a novel composition of carbon, neither crystalline nor amorphous in nature. X-ray diffraction experiments done by Mandell et al. suggest a hybrid internal structure: a cross between two-dimensional and three-dimensional carbon. Using Density Functional Theory, these structures are constructed and analyzed from first principles calculations. Molecular dynamics simulations were used to model their formation, from which electron diffraction spectra were computed for experimental comparison.
Breakout Session 1

Olscamp 111

**Name:** Hannah Duffy  
**Major(s):** Biology  
**Program:** Honors College, CURS, SetGo  
**Advisor(s):** Lee Meserve, Biological Sciences; Casey Cromwell, Psychology  
**Presentation:** 2:30pm

**Determining a Developmental Window for the Effect of Polychlorinated Biphenyl (PCB) on Ultrasonic Vocalizations (USVs) in Sprague-Dawley Rat Pups**  
Polychlorinated biphenyl (PCB) is a known endocrine disruptor that has been shown to cause altered maternal and pup behavior in rats. To examine the hypothesis, is there a critical “window” of development with the greatest impact of PCB diet during one of five, two week “developmental windows.” Ultrasonic vocalizations (USVs) were recorded on pup postnatal day (PND) 3, 7, 14, 21, and 22, followed by blood serum collection for thyroid hormone analysis. Grooming, open field, and play behaviors were also observed. Preliminary data show that there is a significant difference with a greater number of USVs emitted among the “window” groups and between developmental days PND 3 and 7.

**Name:** Merissa Acerbi  
**Major(s):** Psychology, Neurology  
**Program:** Honors College, CURS, McNair/TRIO, SetGo  
**Advisor(s):** Cordula Mora, Psychology and CURS; Vern Bingman, Psychology  
**Presentation:** 2:47pm

**The Effect of Visual Wulst Lesions and Trigeminal Nerve Sectioning on the Discrimination of Magnetic Inclination in the Homing Pigeon (Columbia livia)**  
Homing pigeons are able to return to their loft from distant and unfamiliar places using both a map and a compass. Considerable evidence has accumulated that magnetic inclination could be used by homing pigeons as a part of a magnetic compass and/or a magnetic map, but little is known about the neurological pathway. We surgically removed an area in the visual Wulst (N=7) or sectioned the ophthalmic branch of the trigeminal nerve (N=11) in homing pigeons. Post-surgery the birds’ discrimination performances dropped to chance level (50%) when required to discriminate magnetic inclination cues in a conditioned spatial orientation task to obtain food rewards. Therefore, this forebrain region and the trigeminal nerve are both involved in the perception of magnetic inclination in homing pigeons.

Olscamp 115

**Name:** Alexandra Kolker  
**Major(s):** Graphic Design  
**Program:** Honors College  
**Advisor(s):** Jenn Stucker, Graphic Design; Gordon Rick-ets, Arts Village  
**Presentation:** 2:30pm

**“A Shopper’s Tale”**  
“A Shopper’s Tale” is a creative project that approaches non-traditional storytelling through design. It serves to explore the research question: how can non-traditional presentations of narrative play with one’s expectations and engage people to see their world differently? To do this, “A Shopper’s Tale” explores how narrative can be presented in visual, everyday mediums to challenge the reader to view a new way of narrative presentation.

**Name:** Brittany Edwards  
**Major(s):** Early Childhood Education  
**Program:** Honors College  
**Advisor(s):** Mary Ann Culver, School of Teaching and Learning; Rona Klein, English  
**Presentation:** 2:47pm

**Her Last Seed**  
“Her Last Seed” is the story of Hayley, a soon-to-be fifth grader who has been bullied all her life, and is determined to make friends when she attends Camp Callaway. However, when Hayley turns to bullying another girl at camp as her means to make friends, she quickly loses control of the situation. As more girls join in on the “fun,” Hayley begins feeling emotions of shame and guilt, wishing she could start over. Hayley learns the hard way that her actions have far-reaching effects. Designed as a teacher resource to teach students the negative outcomes of bullying for all who are common online practices. This is the first study to evaluate this industry in Ohio. The results of this study will shed light on the unique needs of modern pet adopters and will inform best practices for animal shelter websites.

**Name:** Daniel Rossignol  
**Major(s):** Political Science  
**Program:** Unaffiliated  
**Advisor(s):** Nicole Kalaf-Hughes, Political Science

**The Floridian Cuban-American’s impact on U.S.-Cuban foreign policy**  
The Cold War, as well as the human rights violations being committed by Fidel Castro, were the original driving forces behind U.S.-Cuban foreign policy in the 1960s. However, the Cold War has been over since 1991 and trade and diplomatic relations have been opened up with other Cold War enemies including Russia, China, and North Vietnam (Vietnam). What was a reasoned historical approach supporting the U.S.-Cuban foreign policy causes many to question why this policy is still in place today. In a 2009 Gallup poll, 60% of Americans support re-establishing diplomatic relations with Cuba. I believe the reasoning behind the outdated policies with Cuba lies with the Floridian Cuban American population. I am researching whether or not my theory is valid.

**Name:** Kevin Rowlands  
**Major(s):** Biology  
**Program:** CURS  
**Advisor(s):** Ray Larsen, Biological Sciences

**Screening Techniques for Zoonotic Bacteria in Green Tree Pythons**  
As more people come into contact with reptiles the likelihood of running into bacteria they carry increase as well. This was a pilot to determine what bacteria are present in Green Tree Pythons housed in the BGSU Herpetarium and what temperature those bacteria grow optimally. Selective media and bile salts were used to screen for potentially zoonotic bacteria. After isolating potential bacteria purification techniques were used to gather DNA. DNA was sent off to another lab to be sequenced to give positive identification. Several Zoonotic species were found. Broth cultures were created and observed over time, incubated at both 30°C and 37°C. Most cultures grew well at both temperatures. Screening techniques used in this pilot proved effective at selecting for zoonotic bacteria.

**Name:** Nathan Ryczek  
**Major(s):** Biology  
**Program:** CURS  
**Advisor(s):** Eileen Underwood, Biological Sciences

**Health and Aging of Reptiles**  
This study dealt with the health and aging in reptiles. Observations were made on several species including both elderly and injured animals. An example of aging in crested geckos included buildup of shed on nails, hip dysplasia, and mouth scaring. As reptiles age they slow down, become more fragile, and more susceptible to contracting various conditions and ailments. More long term data is needed to develop a protocol for dealing with the aging of reptiles. Changes in weight, abnormal masses, lesions, burns, balance, and drastic reduction in overall activity outside the normal, while related to aging, should be brought to a veterinarian’s attention.

**Name:** Megan Smith  
**Major(s):** Psychology  
**Program:** Pai Chi  
**Advisor(s):** Samuel Jaffee, Psychology; Laura Marie Leventhal, Retiree Emeritus

**Prioritizing Information in a Recall Task**  
The Treisman Attentuation theory suggests that attention and memory work together to help filter out any unneeded information. In support of this theory, many recall studies have found that the mind will process information that is deemed not mine theory is valid.
more information about retinal. Our research goal consists of fabricating a cage-like structure that is facile to tune through shape, size, and chemical identity to allow for the tethering of retinal.

Name: Jill Nelson
Major(s): Visual Communication Technology
Program: Unaffiliated
Advisor(s): Jerry Schnepp, Visual Communication Technology-Tech Education

Online Route Mapping Travel Blog
This presentation details the design and development of Aboutmyroute.com, a website that lets users create and share travel details including precise routes and images. There is not a free web service that integrates each of these functions. The ability to log and annotate details of trips is important to users wishing to share unique aspects of a trip such as scenic routes, restaurants, or other activities. Aboutmyroute.com is a social media site and a resource for users. Users can refer to previously made maps to record the routes they enjoyed and the routes they did not. Once users create a route, it is shared with other users based on privacy settings. By sharing routes, other users can find routes or activities that they had previously not considered.

Name: Cole Olmstead
Major(s): Biology (sp. Ecology and Environmental Conservation)
Program: SetGo
Advisor(s): Eileen Underwood, Biological Sciences

Corn Snake “odd” gene reduces viability and fertility
This is a continuing study and analysis of the effects of the odd mutation on fertility and viability in corn snakes. The study included establishing genetic crosses to test for allelism to other genes, heterozygosity, and reduced fertility in odd snakes. Examination of genetic crosses from previous years for evidence of reduced fertility and viability in odd snakes was another focus of the study as well. The experimental design of the genetic studies for this years crosses is presented here, but as the eggs have yet to hatch the analysis of these crosses remains to be done. Analysis of previous years data suggests that the odd mutation reduces both fertility and viability in females.

Name: Benjamin L. Powell
Major(s): 2D Fine Arts
Program: CURS
Advisor(s): Charles Kanwischer, School of Art (Drawing)

Illustrating The Revelation
The Revelation is a biblical text well-known for its confusing, disturbing and cryptic imagery. Because of the difficulty in understanding it, few contemporary artists attempt to illustrate the book. In general, biblical or religious art is not taken as seriously as it once was. The worlds of religion and contemporary art don’t often mix well anymore. As a fine art student and a Christian, I would like to change that.

For my CURS project, I created four drawings using charcoal which illustrate the more notable scenes from The Revelation. I studied the book, other artists’ depictions of it, and tried to conjure a contemporary appearance to my pieces which resonates with the modern world.

Name: Megan R. Rose
Major(s): Visual Communication Technology
Program: Unaffiliated
Advisor(s): Jerry Schnepp, Visual Communication Technology-Tech Education

Animal Shelters’ Web Presence
To succeed online, business websites must be engaging, informative, and highly usable. This is certainly the case for animal shelters, where a customer’s goal is to adopt a pet. Pet adoption is a significant commitment. Thus, customers want to learn comprehensive details about the pet they will potentially adopt. This study evaluates the results of two surveys conducted during Spring 2014. In the first, customers shared their experiences with web resources during the pet adoption process. A second survey of shelter business-owners provides insight to the most involved, “Her Last Seed” includes discussion questions and extension activities intended to urge students to think critically about how they treat others and the serious repercussions of the choices they make.

Name: Kelly Rippeth
Major(s): Early Childhood Education
Program: Honors College
Advisor(s): Rona Klein, English; Stacey Dudley, School of Teaching and Learning
Presentation: 3:04 pm

Henry’s BIG Adventure
For my Honors Project, I have written and illustrated a children’s book as well as planned a selection of lesson plans that can be used in addition to the book. Illustrated children’s books are very valuable to the development of children by aiding in comprehension. According to Mary Renck Jalongo, author of Young Children and Picture Books, children can learn so much from reading stories, even fiction ones. Henry’s BIG Adventure centers on a young boy who finds an old photo album with pictures of several places he has never been before. The album leads him on a big adventure to explore these places in his flying red wagon. My reason for creating this book is to produce a book that I can use in my own classroom, while also showcasing the education I have gained through BGCU.

Olscamp 117
Comparison of Body Composition Measures in Older Adult Males
Body Mass Index (BMI) is a measure created to assess population wide statistics of obesity and stratify health risk. However, there are large differences in health risk when comparing BMI with measures of body composition. BMI is not a measure of body composition. Body composition measures are used to distinguish between fat mass, fat-free mass, and percent body fat; which are more strongly correlated with health risk.

In this study we analyzed various body composition methodologies including waist circumference at the umbilicus and at the narrowest point, sagittal abdominal diameter, bioelectrical impedance analysis, and air displacement plethysmography. Our goal is to determine the appropriateness of these methods in accuracy and cost in the older male population aged 50 and over.

Name: Cody Smith
Major(s): Applied Health Sciences
Program: Honors College, CURS
Advisor(s): Mary-Jon Rudy, Family and Consumer Science; Amy Morgan, HMSLS*
Presentation: 2:30 pm

In this study we analyzed various body composition methodologies including waist circumference at the umbilicus and at the narrowest point, sagittal abdominal diameter, bioelectrical impedance analysis, and air displacement plethysmography. Our goal is to determine the appropriateness of these methods in accuracy and cost in the older male population aged 50 and over.

Name: Kasiie Durkit
Major(s): History; Political Science; and Women’s Studies
Program: Honors College
Advisor(s): Benjamin Greene, History; Melissa Miller, Political Science; Neil Englehart, Political Science
Presentation: 2:47 pm

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Name: Kasiie Durkit
Major(s): History; Political Science; and Women’s Studies
Program: Honors College
Advisor(s): Benjamin Greene, History; Melissa Miller, Political Science; Neil Englehart, Political Science
Presentation: 2:47 pm
Exploring Collaboration between Speech-Language Pathologists and Special Educators in Secondary Education Settings

The purpose of this study was to explore the nature of collaboration between SLPs and teachers in secondary education settings, an educational issue that has not been examined. The following research questions were addressed: How do SLPs and special education teachers in a high school setting characterize effective and ineffective collaboration? How do their perceptions of each other affect their ability to effectively collaborate? What are the perceived benefits and barriers to collaboration? Three SLP and special education teacher dyads in secondary education settings were recruited to complete questionnaires and face-to-face interviews. Findings from this work may ultimately inform training/professional development efforts in educational settings where collaboration is an expectation.

Photo-Controlled Nitric Oxide Release from Metal Complex/Polymer Composites for Therapeutic Applications

Described is the photochemical nitric oxide release from the complex trans-[Cr(ONO)(z)cyclam]C24H20B (CrONO) that has been encapsulated in polydimethylsiloxane (PDMS) composites. Experimental studies focused on encapsulating CrONO in the polymer (e.g., solvent choice, curing time) Upon light irradiation with 405nm, measurable nitric oxide (NO) release was detected from these composites under air and nitrogen environments. These separate environments give us both an ideal and realistic measurement of NO release. The quantum yields for photochemical NO release from individual film composites were also determined, and correlated with porosity and surface area of the polymer. These results show that effective, biologically relevant amounts of NO can be released from solid composite films.

Towards Covalent and Non-Covalent Tethering of Chromophores in Metal-Organic Polyhedra

Retinal is an important biological light absorbing molecule responsible for human sight and can be found within the protein pockets of rhodopsins. While inside the protein pocket, retinal changes conformation only at the 11th carbon along its chain when it is irradiated with light. However, in solution, retinal will change conformation at any double bond on the carbon chain. The design of a structure that will mimic the protein pocket of rhodopsin is pertinent to characterize and gain...
important turning point that influences desistance; however, studies on the link between fatherhood and desistance are sparse. Using data from the National Longitudinal Study of Adolescent Health, this study examines the likelihood that fatherhood emerging after criminal justice contact will enact desistance. Analyses begin to show that being a father is beneficial by resident status as well as race.

Name: Alexandria N. Hill
Major(s): Biology (sp. Ecology and Conservation)
Program: CURS
Advisor(s): Helen J. Michaels, Biological Sciences

Nectar Composition from Oak Openings Butterfly Restoration Sites
Habitat restoration of rare butterflies native to the oak savannas of Ohio’ Oak Openings has increased availability of the larval host plant, Lupinus perennis, but minimal research has been done on nectar resources. We sampled 30 savanna forbs previously reported or likely to be visited by Karner Blue butterflies across three sites, collecting nectar from flowers from which pollinators had been excluded for 24 – 72 hours. Samples were analyzed for nectar volumes, sugar concentrations and presence of amino acids. We found substantial interspecific variation in nectar volume, concentration and composition. Our results suggested butterfly restoration plans consider increasing planting of selected species that are more likely to provide enriched nectar resources for adults.

Name: Kali Irvin
Major(s): AYA* Education, Life/Earth Science
Program: CURS, ACTION
Advisor(s): Bob Midden, COS-MOS

Water Quality in the Portage River Watershed: The Effects of Fertilizer and Pollutants
I investigated the impact on the Portage River Watershed of the application of liquid manure from Concentrated Animal Feed Operations (CAFOs). CAFO manure can provide valuable nutrients to maximize crop yield and is a potentially sustainable environmental practice. However, excessive application on fields that are already nutrient rich or under certain circumstances can result in contamination of waterways with E. coli, ammonia, phosphate and nitrate. I collected water samples at specific locations, testing the water upstream and downstream from the fields in which CAFOs manure was applied. Physical, chemical and microbial water analyses were performed. At some sites, pollutants were lower upstream compared to downstream, signifying contamination introduced from the manure application.

Name: Nathan Johnson
Major(s): Chemistry, Microbiology
Program: Unaffiliated
Advisor(s): Andrew Torelli, Chemistry

Gene and Protein Expression of NifU from Streptococcus mutans
The NifU protein is found in a variety of bacteria that exhibit nitrogen fixation. This protein is one of two proteins responsible for the assembly of iron sulfur clusters that aid in nitrogen fixation. The IscU scaffold protein shares similar properties to the NifU protein as it has a common three-cysteine residue-binding region. Experiments this year were first aimed at studying lactic acid producing bacteria such as the gram positive Streptococcus. Mutans as iron production is reduced. PCR gene amplification was completed to amplify the nifu gene from S. mutans. A series of digestions, gel purifications, and transformations, were completed for successful gene expression and isolation of the nifu gene as well as protein expression.

Name: Amanda Fry
Major(s): Communication Sciences and Disorders
Program: Honors College
Advisor(s): Virginia Dubaski, Communication Sciences and Disorders; Wendy Watson, Gerontology
Presentation: 2:30pm

Factors that Influence Undergraduate Communication Sciences and Disorders Students’ Clinical Preferences
The number of older adults in the United States is increasing and impacting the size and composition of Speech-Language Pathologists’ caseloads. Research indicates that program curriculum, knowledge, and experience with older adults may contribute to students’ attitudes and interest in working with this group. The aim of this study was to explore factors that relate to undergraduate communication sciences and disorders students’ interest in working with older adults. The variables of interest included students’ education, knowledge and perceptions about older adults. Data were collected via an online survey of undergraduate students from 10 universities in Ohio. Findings from this work may ultimately inform university training programs that prepare future Speech-Language Pathologists.

Name: Jessica Myers
Major(s): Interior Design
Program: Honors College
Advisor(s): Debra Zappitelli, Interior Design; Nancy Orel, Gerontology
Presentation: 3:04pm

Quality of Life, Health Status, and Academic Success in Undergraduates
Undergraduates are a suitable population to examine the precursors to chronic diseases of adulthood. The purpose of this study was to test correlations between health status, quality of life, and academic success in college students. A quality of life survey (Goodman, 1997) was used to determine the behavioral difficulties of 86 first and second year college students. Correlations with grade point average and various health markers were studied using Pearson correlation coefficients. Total behavioral difficulties were positively correlated with body fat percentage and BMI. GPA was negatively correlated with behavioral difficulties. Correlations may guide future programming for college health professionals. Modification in health related variables may lead to improved academic success.

Name: Anna Voinovich
Major(s): Spanish
Program: Honors College
Advisor(s): Jodi Devine, Honors College, Honors Learning Community; Heath Diehl, Honors College
Presentation: 2:30pm

Inspiring active citizenship through alternative break trips
This spring break, 24 students from the Honors Learning Community spent their vacation providing home repair for families in need in Appalachia. Through this service, pre-trip and post-trip meetings, students strove to move forward on the active citizenship continuum all while meeting BGSU and HLC learning outcomes. This honors project explored the role between service trips and students’ commitment to leadership and social justice.
Delray: A Case of Environmental Justice in Detroit

I am conducting an in-depth case study on the Delray neighborhood located on the southwest side of Detroit. The context of the case study is the Delray communities’ struggle with issues of environmental justice. The concept of environmental justice promotes the idea that people should have a voice when it comes to issues in their community that can impact their health, safety, education and quality of life. Delray is a prime example of a community that has been destroyed by environmental injustices. Through this case study I am going to discuss the evolution of a vibrant immigrant community in the 1930’s, to a desolate neighborhood, cut off from the rest of Detroit by layers of industry. I will discuss the key issues, main actors and potential solutions.

Raising Awareness Concerning Food Pantry Access for BGSU Students

The purpose of this research is to examine student food insecurity at Bowling Green State University (BGSU) and available resources in Bowling Green. Seven classes from BGSU’s main campus were randomly chosen to complete a survey regarding participant background information, details concerning food attainment, food security level, and use of community resources to allow for food acquisition. These classes included undergraduate classes and ranged from 15 to 272 students per class. Overall, the results from this study may be used to increase the awareness of BGSU students’ food insecurity issues, and to bridge any gaps between students’ need and community resources.

Shakespearean Adaptation in the Fairytales of Nikolai Medtner

While Medtner’s Fairy Tales have received attention due to their musical qualities, there has not been much research regarding their place as a musical form of adaptation. In my research, I consider Medtner’s works through the lens of Adaptation Theory by asking, “Are Medtner’s Fairy Tales adaptations?” and “How do the pieces interact with their original texts?” By using methodology pioneered by Linda Hutcheon in her book, A Theory of Adaptation, as well as a combination of Intentionalism and New Criticism, I conclude that Medtner’s pieces are examples of descriptive adaptation. This research is of utmost importance because it expands the realm of study in Adaptation theory and provides new methodology for the field of musicology, creating a unique kind of interdisciplinary analysis.

The Ohio Renaissance Festival

Every year, for eight weekends in the months of August, September, and October, the Ohio Renaissance Festival takes place in Harveysburg Ohio. My honor’s project is a 10-22 minute “talking heads” documentary revolving around the interviews of five individuals that work with or at this festival. It is a study in theatrical performance and event administration that is executed through a visual medium.

Crested Gecko Care Study and Children’s Book

This project was designed to determine the best housing situation and food options for hatching Crested Geckos as measured by growth. Three different enclosure sizes and two different types of food were compared. Geckos were weighed once a week. Geckos housed singly in critter keepers were not significantly different than those in group housing (3 geckos per 10 gal. tank). Both of these grew significantly more than geckos in 32 oz. dell cups, but the affect size was small (univariate ANOVA analysis F=5.76, P=0.007, partial eta squared=0.243). Geckos fed Repashy grew significantly more than those fed the puree over the 16 weeks (F=5.76, P=0.007). Sample size was small, the affect size was moderate (partial eta squared=0.45). In addition, a kid’s book called Emie’s Favorite Food.

Assessing English Language Learners in Ohio: A Survey of Best Practices

The number of school-age Spanish-speaking children in Ohio has increased steadily over the past two decades. This increase has implications for assessment practices used by Speech-Language Pathologists (SLPs) who work with children in this group. Research indicates that over- or underestimation of skills, and/or over- or underidentification of disorders may be consequences of specific practices used to assess non-English speakers (Wolf & Leon, 2009). The project aims to determine assessment practices used by SLPs in Ohio when assessing English language learners (ELLs). Survey methodology was used to gather information regarding assessment practices and training from 230 American Speech Language Hearing Association (ASHA) certified school-based SLPs working with ELLs in Ohio.

More Spanish for Más Votos?

After Latino Americans demonstrated their power in the 2012 presidential election, securing increased minority support at the polls has become a major goal for both major US political parties. A reliable bloc of Latino voters on one’s side could mean more wins, but Latinos have a low voter turnout rate. This paper explores how to increase Latino turnout and argues the use of Spanish language in electoral advertising will have a positive effect. By comparing Latino turnout data in two California elections – one with multilingual campaign advertisements and one with solely English ads – I expect to find elections with a sizable amount of Spanish language get-out-the-vote messages see increased rates of Latino voter turnout.

Moving Toward Desistance from Crime: A Longitudinal Analysis of Fatherhood as a Key Transition

Prior research indicates that there are many life transitions that may enact desistance from crime. Parenthood is an important turning point that significantly impacts one’s likelihood to desist. Although there is much qualitative research suggesting fatherhood is an important transition, quantitative evidence to confirm these findings is lacking. Analyses have determined that motherhood is an

Name: Danielle Trauth-Jurman
Major(s): Sociology
Program: Honors College
Advisor(s): Margaret Weinberger, Sociology; Holly Myers, Environment and Sustainability
Presentation: 2:17pm

Name: Katie Koller
Major(s): Dietetics
Program: Honors College
Advisor(s): Staci Freeworth, Family and Consumer Sciences; Mary Ellen Benedict, Economics; Katie Magismen-Conrad, Communication
Presentation: 3:04pm

Name: Alicia Wodarski
Major(s): Music (Piano), English Literature
Program: Honors College, CURS
Advisor(s): Stephannie Gearhart, English; Laura Melton, Music Performance Studies
Presentation: 3:30pm

Name: Skye McCullough
Major(s): Film
Program: Honors College
Advisor(s): Cynthia Baron, Theatre and Film; Lucas Ostrowski, Theatre and Film
Presentation: 3:47pm

Name: Alex Ervin
Major(s): Political Science
Program: Honors College
Advisor(s): Nicole Kalaf-Hughes, Political Science
Presentation: 3:04pm

Name: Ryan J. Flynn
Major(s): Criminal Justice
Program: Unaffiliated
Advisor(s): Raymond Swisher, Sociology; Danielle C. Kuhl, Sociology
Presentation: 3:47pm
Acronyms:
*HMSLS: the School of Human Movement, Sport, and Leisure Studies
*AYA: Adolescence to Young Adult Education major
*EFLP: the School of Educational Foundations, Leadership, and Policy

Olscamp 101

Name: Mikayla Bond
Major(s): Biology
Program: CURS, AIMS
Advisor(s): Lee Meserve, Biological Sciences; Jodi Devine, Honors College; Chris Mitchell, Honors College
Presentation: 4:04pm

The Effects of Polychlorinated Biphenyls Prenatally and Postnatally on Rat Pups.
Polychlorinated biphenyls (PCB), used in manufacturing until they were banned, have left lasting effects on the environment. They can penetrate animals’ and humans’ food sources. The effects of PCB can be shown through Sprague-Dawley rat pups. It can show both behavior and hormonal effects. To clarify further and examine the point at which it is most crucial, pups are exposed to PCB through their mother during a certain week of gestation or while they are still feeding from their mother. Tests are performed postnatal days (PND) 3, 7, 14, 21, and 28. Also on these days, blood serum is collected and examined for thyroid hormone concentration. These tests examine behaviors and the blood serum examines the amount of hormones. These test determine if PCB had an effect on the pups.

Name: Esko Brummel
Major(s): Liberal Arts
Program: Honors College, CURS
Advisor(s): Chris Fey, EFLP*
Presentation: 4:04pm

How Pierre Bourdieu Taught Me To Unlearn What I Already Knew About Navajo Nation.
The assumption that any amount of learning within cross-cultural immersions is ever obvious to the learner is toxic to a fair and accurate understanding of visited cultures. While quite the opposite, cross-cultural immersions by definition, among other things, are “foreign” to the learner in all sense of the word. Yet without addressing this toxic assumption of such trips, what of value is actually lost or threatened? Following the recent interest of the BGSU Office of Service Learning and related service student organizations to create “alternative break” trips, inquiry as to the

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Name: Janelle Horstman
Major(s): Environmental Science (sp. Watershed Management)
Program: Honors College
Advisor(s): Robert Midden, Chemistry, COSMOS; George Bullerjahn, Biological Sciences
Presentation: 3:30pm

The Effects that Liquid and Solid Cattle Manure Have on the Water Quality of Drainage Ditches in Putnam County, Ohio
Agriculture in northwest Ohio is a contributing factor to the algal blooms in the western basin of Lake Erie. My research explores the effects that solid and liquid dairy cattle manure applications have on water quality of agricultural drainage ditches in Putnam County, a region in northwest Ohio that is highly agricultural. Samples of water runoff from drainage tiles and surface drainage sources were taken after precipitation events and winter thaw. The water samples were then chemically and microbiologically analyzed. From the seven sites that I monitored, my results showed that high manure application rates and winter application led to extremely high nutrient runoff concentrations and high amounts of microbial growth. Many microbial colonies exhibited resistance to ampicillin.

Name: Joanna M. Hamilton
Major(s): Geology
Program: Honors College
Advisor(s): Margaret M. Yacobucci, Geology; Jeffrey A. Snyder, Geology
Presentation: 3:47pm

Analysis of a Sponge Bioherm, Hermosa Group, Molas Lake Area, Colorado
The Hermosa Group is a Pennsylvanian (~310 Ma) rock package found in the southwestern San Juan Mountains and the Paradox Basin. The Paradox Basin was an evaporite basin in which alternating carbonate, sandstone and siltstone layers were deposited at the margins. Within the carbonate layers, ancient phylloid algal mounds and sponge bioherms can be found. In this project I document fossil sponges and algae from a Hermosa Group locality in southwestern Colorado. I look at the environments in which the sponges lived, those being relatively deep water, above wave-base; as well as inter-sponge growth habits, where one is dominant and grows overtop of another. This information may help to model reef responses to climate change and help to explain complex stratigraphic sequences in future studies.

Name: Stevey Willey
Major(s): Visual Communication Technology
Program: Honors College
Advisor(s): Charles Spontelli, Visual Communication Technology, Abigail Cloud, English
Presentation: 4:04pm

Malaria: The Story of Struggle, Suffering, and Eradication
Every year over two million men, women, and children around the world are affected by malaria, a disease that can easily be prevented with awareness, education, and support. In April 2014 I held a malaria event in which guests had the opportunity to witness the effects malaria has on people, not just physically, but emotionally and economically as well. The death rate has moved from one person every 30 seconds to one every 60 seconds since 2010. The improvement in the rate of deaths has resulted from the increase in awareness of this disease. It is my goal with this project to do just that, I want to raise awareness of the issue, educate those in the community, and hopefully in doing so I will gain the support needed to help eradicate malaria by 2015; malaria can be stopped.
The Falcon Leadership Institute was created to develop first-year students with the confidence, ability, and passion to be active and engaged leaders in their communities. With BGSU’s Center for Leadership, the Falcon Leadership Institute was created under the principles of servant and relational leadership. Through bi-weekly cohort meetings, readings about leadership theory, a self-guided service project, and compiling their own leadership theory, members of the Falcon Leadership Institute have spent the year developing themselves as leaders. Members of the Falcon Leadership Institute have accomplished much over the year, and many plan to stay involved in the program in some capacity in the future.

This study examines the relationship between student creative problem solving (CPS) styles and their future career path choices. The study uses Badur’s creative problem solving inventory to classify students into one of four basic CPS styles. Individual CPS styles will be correlated with student career choices to test several hypothesized relationships. Subjects used in the study include BGSU undergraduate students majoring in Visual Communication Technology, Architecture and Environmental Design, Construction Management and Aviation Studies.

Humans are constantly making decisions. The rules or “heuristics” that guide our decisions are not explicitly known to us because their formation within our mental processes is ambiguous. These heuristics can be multiply activated when concerning moral issues. Although our decisions are evident in such cases, the origins of justifying such decisions are not. It is essential to parse out the sociocultural variations that are normally given, which opens up class time for activities, problem solving, and learning new content during out-of-class time instead of the traditional review exercises that are normally given, which opens up class time for activities, problem solving, and other forms of instruction. During this study, a flipped classroom was implemented in a high school mathematics course. Data was collected from student grades, a pre and post survey, a class interview/discussion, and my personal notes from teaching. My results indicate that some potential benefits of the flipped classroom make it a form of education that teachers should not overlook.

This research study explores the “flipped” or “inverted” classroom and its effects on student learning. The flipped classroom is a form of education in which students learn new content during out-of-class-time instead of the traditional review exercises that are normally given, which opens up class time for activities, problem solving, and other forms of instruction. During this study, a flipped classroom was implemented in a high school mathematics course. Data was collected from student grades, a pre and post survey, a class interview/discussion, and my personal notes from teaching. My results indicate that some potential benefits of the flipped classroom make it a form of education that teachers should not overlook.

The focus of this study will be to look at active learning and how it affects student achievement, attitude, and knowledge of content. By administering a survey of students’ attitudes toward science and assessment of content knowledge at the beginning and end of the semester and comparing it to student’s test scores a correlation can be found to analyze the effects of an active learning classroom. The effective use of undergraduate learning assistants will also be analyzed by distributing a survey about use of learning assistants and the classroom format and its effectiveness in increasing student knowledge from the course.

A frequent question about today’s high school English classroom is how "the classics" fit into a 21st century curriculum. Students ask, "How is this relevant to me?" and complain that much of literature is outdated and difficult to understand. Based on emerging research in education, my project explains how technology and the power of parody and satire can be used together to help students embrace these texts in an innovative way that they will not only understand, but engage with on a critical level. Lesson plans for three class projects include a digital adaptation poster, a YouTube parody video, and a novel character’s Twitter account. By creating these projects myself, I am modeling activities that will help students think critically and creatively about what they read in class.

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