ANNUAL UNDERGRADUATE SYMPOSIUM FOR RESEARCH AND SCHOLARSHIP
SATURDAY, APRIL 28, 2018
9 A.M. TO 1 P.M.
OLSCAMP HALL, BGSU
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bgsu.edu/cursresearchposters

The Undergraduate Symposium for Research and Scholarship online evaluation can be found at:
https://www.surveymonkey.com/r/CURS18

Help support the Center for Undergraduate Research and Scholarship!
CURS provides grants to students to conduct research, scholarly and creative projects, some of which are being showcased during this symposium. The demand for CURS grants has grown rapidly over the past few years as students discover the benefits from this high-impact learning experience. We are no longer able to fund all of the excellent applications we receive. To increase the number of projects we are able to fund, we have launched a crowdfunding project to raise additional funds for CURS grants. Please consider making a contribution at: bgsu.edu/givecurs.
SCHEDULE OF EVENTS
Saturday, April 28

8:30 a.m.  Doors Open  Discamp Hall
9:00 a.m. – 9:20 a.m.  Welcome and Opening Remarks  Discamp Hall Room 111
  •  Dr. Cordula Mora, Director, Center for Undergraduate Research and Scholarship
  •  Dr. Charles Kanwischer, Director, School of Art
9:20 a.m. – 9:30 a.m.  Presentation of the Undergraduate Faculty Mentor of the Year Award  Discamp Hall Room 111
  •  Dr. Virginia Dubasik, Assistant Professor of Communication Sciences and Disorders, Department of Communication Sciences and Disorders
9:30 a.m. – 9:45 a.m.  Light Breakfast Served  Discamp Hall Room 111
9:45 a.m. – 1:00 p.m.  Poster Judging and Public Viewing  Discamp Hall Rooms 201, 206, and 225
11:15 a.m. – 12:55 p.m.  2nd Round of Oral Presentations  Discamp Hall Rooms 201, 206, and 225
11:30 a.m. – 1:00 p.m.  Light Lunch Served  Discamp Hall Room 111
12:55 p.m. – 1:00 p.m.  Closing Remarks  Discamp Hall Room 111
  •  Dr. Cordula Mora, Director, Center for Undergraduate Research and Scholarship
Welcome to the Undergraduate Symposium for Research and Scholarship!

It is no secret that the driver of innovation in America is the strength of creative and critical thinking researchers, scholars, and artists 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 academic pursuit across all disciplines, including the arts and humanities, social sciences, education, business, the creative disciplines, as well as the STEM fields. At Bowling Green State University (BGSU), we provide students with the opportunity to develop skills for research, inquiry, critical thinking, creativity, and scholarship through a variety of programs and experiential learning opportunities.

Today, we feature the works of BGSU undergraduate students with a wide range of disciplines being represented at this annual Undergraduate Symposium for Research and Scholarship. I would like to welcome our students, their faculty mentors, their family and friends, as well as any visitors to our campus on Preview Day to this event and encourage them to help us celebrate undergraduate research, scholarship and creative achievements here at BGSU.

The Center for Undergraduate Research and Scholarship (CURS) supports and fosters undergraduate research, scholarship, and creative activities across all disciplines. Such activities are defined as any research, scholarly, or creative project that 1) makes an original intellectual contribution to the discipline, 2) is conducted under the guidance of a faculty mentor specializing in a discipline relevant to the project, and 3) is aimed to be disseminated to student peers, experts in the field, and/or the wider community. Student participants working on such projects are not only able to deepen their understanding of their chosen discipline through hands-on experience while working closely with a faculty mentor, but they are also able to take pride in their intellectual contribution to their field while at the same time preparing themselves for graduate studies or work-life.

As the Director of CURS I would like to congratulate all of the students whose work is being showcased today for challenging and engaging themselves in exemplary ways in research, scholarship and creative work.

Sincerely,

Dr. Cordula Mora, Director
Center for Undergraduate Research and Scholarship (CURS)
THANK YOU

On behalf of the Center for Undergraduate Research and Scholarship (CURS) and BGSU, I would like to recognize the people whose support has been crucial to the success of our students and this symposium. Thank you to the faculty mentors and research advisors for taking the time to assist these students in becoming the future leaders and scholars in their respective fields. Your guidance is integral to the research process and completion of the project. Thank you to the families and friends of the students we recognized today for building a foundation that encourages academic challenge and engagement, cheering them on throughout the process, and attending the symposium today. Finally thank you to the students for sharing their work with us this morning. It is truly incredible to see what our students are capable of accomplishing and is a testament to the value of a BGSU education.

Dr. Cordula Mora,
Director of CURS

GUEST SPEAKERS

Dr. Cordula Mora grew up originally in Germany and was always very interested in understanding why animals behaved the way they did. She completed her undergraduate and graduate education at the University of Auckland in New Zealand. There she worked for her Ph.D. thesis with homing pigeons trying to understand how they use the Earth’s magnetic field to home back to their loft from completely unfamiliar places. For her postdoctoral studies at the University of North Carolina she investigated the behavior of loggerhead sea turtles to see how they use various sensory cues to find their way in their home territory as well as during long-distance migrations. In 2008, she joined the Psychology Department at BGSU, where she continued her navigation research with homing pigeons as part of the J.P. Scott Center for Neuroscience, Mind & Behavior. She became the director of the Center for Undergraduate Research and Scholarship in 2014.

Charles Kanwischer is the Director of the School of Art and Professor of Art at Bowling Green State University, where he’s been teaching courses in drawing and painting since 1997. He previously taught at Amherst College and Yale University. The majority of Kanwischer’s studio practice is based in drawing, with a secondary interest in photography. The various ways that drawings and photographic document and embody time is a central concern of his work. Kanwischer has presented numerous solo exhibitions of his drawings, most recently at Sheneen Contemporary Art, Cleveland in 2017. He’s participated in many national and regional group exhibitions including: “The Pencil Show,” at Foxy Production in New York City, “Small Worlds” at the Toledo Museum of Art, and “Visions and Revisions, Art on Paper Since 1960” at the Museum of Fine Arts Boston. Kanwischer is the recipient of seven Ohio Arts Council Individual Artist Excellence Awards and his work is included in such public and private collections as the Museum of Fine Arts Boston, the Akron Museum of Art, and the Cleveland Clinic. Kanwischer holds an MFA in Painting/Printmaking from the Yale University School of Art and a BFA in Printmaking from the University of Iowa.

GLASS AWARD

Three students giving an oral presentation and three students presenting posters will be awarded the CURS glass award designed by BGSU faculty member and glass-blower extraordinaire, Joel O’Dorisio. This stunning award symbolizes the student (osphere) being embraced by BGSU (orang and brown falcon talons) with the award as a whole also resembling an abstract eye, symbolizing knowledge. Posters and presentations will be judged by faculty volunteers and the winners will be announced several days after the symposium event.
Bowling Green State University strives to increase the visibility, prestige, and material support for participation in research, scholarly 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 enhance the experiential learning experience of undergraduate students by providing support through mentorship, funding, and skill development. Participants do not only experience pride from making an original intellectual or creative contribution within their chosen discipline, 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, scholarly, and creative activities in all fields of study. Through experiencing the processes of 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 the faculty mentors lab for supplies and a $200 stipend for the student
- Summer research grants of up to $500 for the faculty mentors lab for supplies and a stipend of up to $2,500 for the student are available to support a 10-week (28 hours per week) intensive research project
- Travel grants of up to $200 for students to present their research, scholarly, or creative activities selected via peer review or juried processes at regional, (inter)national conferences or exhibits.

Contact Dr. Cordula Mora at cmora@bgsu.edu for more information.

Ronald E. McNair Post-Baccalaureate Achievement Program (McNair Scholars Program)
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 Ph.D.
- 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, the graduate school admission process, and options for financing graduate education.

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

Academic Investment in Math and Science (AIMS)
bgsu.edu/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 start at $2,000 with annual increases for those in good academic standing
- Many program features enhance academic success and preparation for exemplary careers as STEM professionals

Contact aims@bgsu.edu for more information
UNDERGRADUATE RESEARCH & SCHOLARSHIP OPPORTUNITIES AT BOWLING GREEN STATE UNIVERSITY

Building Ohio’s Sustainable Energy Future (BOSEF)
The BOSEF scholarship program is funded by the Choose Ohio First program for students in the AIMS program for students who are interested in pursuing careers in research in renewable energy and sustainable environmental practices. BOSEF draws on the special strengths of Northwest Ohio in these fields to provide state-of-the-art education opportunities. It provides scholarships and an innovative program that enriches students’ opportunities for research and internships to ensure that they are optimally prepared for the next steps in their preparation for an exciting and highly successful career. Applications are submitted through the AIMS program.
Contact aims@bgsu.edu for more information.

Meeting Essential Doctor Needs in Urban and Rural Areas (MEDNURA)
The MEDNURA scholarship program is also funded by the Choose Ohio First program and designed to recruit and support under-represented minority and economically disadvantaged students from urban and rural areas to become physicians providing primary care in under-served areas. Like BOSEF, MEDNURA is also part of the AIMS program and includes all of the support structures and strategies of that program plus additional activities and features to help prepare students for success in applying to and preparing for medical school, especially for the NEOMED BGSU Pathway program which offers early admission to the NEOMED medical school program.
Contact aims@bgsu.edu for more information.

Northern Ohio Alliance for Graduate Education to the Professorate (NOA-AGEP)
Funded by the AGER program of the National Science Foundation, the primary goal of NOA-AGEP is to increase the number of URM graduate and post-doctoral trainees in STEM fields throughout Northern Ohio who complete doctoral degrees and go on to successful careers in the professorate. This is accomplished through the development, implementation, and study of innovative evidence-based models, designed to address the unique challenges faced by URM students and to improve their participation, preparation, and success in STEM graduate education and post-doctoral training. Each year, NOA-AGEP Scholars receive:
• A stipend enhancement (in addition to department funding)
• Travel allowance to attend a research conference
• Opportunities to participate in professional development activities/community building events
• Participation in annual research symposia
• A strong, supportive community of scholars and faculty
Contact noa-agep@bgsu.edu for more information.

Northwest Ohio Center for Excellence in STEM Education (NWVO)

The Northwest Ohio Center for Excellence in STEM Education (NWVO) strives to advance STEM education for people of all ages. To serve that mission NWVO hosts a wide range of activities, events, initiatives, and programs. Among these are projects which promote the success of under-represented minority and female students in STEM undergraduate and graduate degree programs funded by state and federal grants: Building Ohio’s Sustainable Energy Future (BOSEF) and Meeting Essential Doctor Needs in Urban and Rural Areas (MEDNURA) which are funded by the Choose Ohio First Program of the Ohio Board of Regents, and the Northern Ohio Alliance of the AGEP program funded by a grant from the National Science Foundation’s Alliance for Graduate Education to the Professorate (AGEP) program. NWVO also plays a role in the AIMS program (Academic Investment in Mathematics and Science). The primary goal of NOA-AGEP is to increase the number of URM graduate and post-doctoral trainees in STEM fields throughout Northern Ohio who complete doctoral degrees and go on to successful careers in the professorate. This is accomplished through the development, implementation, and study of innovative evidence-based models, designed to address the unique challenges faced by URM students and to improve their participation, preparation, and success in STEM graduate education and post-doctoral training. Each year, NOA-AGEP Scholars receive:
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• A strong, supportive community of scholars and faculty
Contact noa-agep@bgsu.edu for more information.

Science & Math Education in ACTION (ACTION)

The ACTION program provides innovative opportunities to BGSSU students to prepare the best science and mathematics teachers in the state of Ohio. The goal of ACTION is to increase the number of science and mathematics education graduates and to improve their effectiveness at teaching these subjects. The program achieves these goals by providing early exposure to hands-on science, mathematics, and education topics, research experience, and a “family” atmosphere. Available for incoming first-year students at BGSSU who are Ohio residents. Open to top students interested in teaching science and/or mathematics in grades 4 through 12.
Funding covers: a four-year academic scholarship that increases every year, an all-expenses paid residential Summer Bridge experience before freshman year, first-year science or mathematics group research project, sophomore year science or mathematics practicum experience, junior and senior year pedagogical (classroom) research project.
Contact action@bgsu.edu for more information.
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### ORAL PRESENTATIONS

Name: Emily Ridge  
Faculty Mentor: Jon Sprague  
Department: College of Arts and Sciences - Forensic Science  
Presentation Time: 9:45-10:05am  
Location: Room 201

Host Microbiome Regulation of Hyperthermia Mediated by 3,4-Methylenedioxyxymethamphetamine (MDMA, Ecstasy)  
Hyperthermia is one of the most acute and life-threatening consequences of 3,4-methylenedioxyxymethamphetamine (MDMA) use. The hyperthermia induced by MDMA involves a complex interaction between heat generation and loss of heat dissipation. Recent studies have demonstrated a role for gut microbiome in the regulation of body weight and temperature. Here, we investigated the potential role of gut microbiome in MDMA-mediated hyperthermia. For fourteen days prior to treatment with MDMA (20 mg/kg, sc) male, Sprague-Dawley rats were provided regular drinking water or drinking water laced with the non-absorbable antibiotics, bacitracin (0.5 mg/mL), neomycin (2 mg/mL), and vancomycin (0.2 mg/mL). Antibiotic (ABX) treatment reduced gut bacteria and increasedecal size. MDMA-induced a hyperthermic response that resulted in a maximal temperature change (ΔTmax) of 4.9 ± 0.1 °C and only a 5% survival rate 60 minutes after treatment. Conversely, ABX treatment prior to MDMA attenuated the hyperthermic response with a ΔTmax of 3.4 ± 0.6 °C and a 100% survival rate 60 minutes after treatment. An acute intraperitoneal injection of ABX 30 minutes before MDMA had no effect on the hyperthermic response, eliminating the possibility of a pharmacodynamic interaction between ABX and MDMA. Overall, these findings demonstrate that the gut microbiome contributes to the hyperthermia mediated by MDMA.

Name: Neal Kolonay & Lana Neff  
Faculty Mentor: Kevin Neves  
Department: College of Arts and Sciences - Biological Sciences  
Presentation Time: 10:05-10:25am  
Location: Room 201

Raising Yellow Perch (Perca flavescens), Freshwater Prawn (Macrobrachium rosenbergii), and Plants in an Integrated Multi-Trophic Aquaculture System  
In this study, we utilized a system to test the viability of yellow perch (Perca flavescens) to an economically productive size in a system with freshwater prawns (Macrobrachium rosenbergii) and various leafy green vegetables including green leaf lettuce (Lactuca sativa), curly kale (Brassica oleracea), basil (Ocimum basilicum), and garden thyme (Thymus vulgaris). This will allow us to assess the feasibility of a larger scale integrated multi-trophic aquaculture system with the same components.

Name: Lana Neff & Neal Kolonay  
Faculty Mentor: Kevin Neves  
Department: College of Arts and Sciences - Biological Sciences  
Presentation Time: 10:35-10:55am  
Location: Room 201

Assessing the Aquaponic Production of Four Vegetables Utilizing Nitrogenous and Phosphorous Waste from Yellow Perch (Perca flavescens) and Freshwater Prawn (Macrobrachium rosenbergii)  
Aquaculture and hydroponics are an important source of food and nutrition throughout the world and involve the farming of aquatic organisms and plants in environments without soil. Aquaponics is the combination of aquaculture and hydroponics and produces both aquatic organisms and plants efficiently. The idea of aquaponics has been taken to an additional level of complexity recently through the concept of integrated multi-trophic level aquaculture (IMTA). This allows for many different levels of organisms to be grown and reduces waste because the system allows for each organism to utilize the byproducts of another trophic level. A system was built in the greenhouse at Bowling Green State University utilizing two organisms Perca flavescens, Macrobrachium rosenbergii, and four vegetable crops; Lactuca sativa, Brassica oleracea, Ocimum basilicum, and Thymus vulgaris. Two primary goals were investigated. The first was to measure the height and weight of the plants in the system to determine the growth rate of plants using the nutrients generated. The second goal was to calculate nitrogen and phosphorus consumption rates of the various plants. To date, the plants have grown well, especially the basil and kale, which have grown 4.5 and 13 times their starting weight since the start of the trial. Our results indicate that the plants have effectively removed nitrogen and phosphorus from the water.
**ORAL PRESENTATIONS**

**Name:** Wesley Radabaugh  
**Faculty Mentor:** Kevin Neves  
**Department:** College of Arts and Sciences - Biological Sciences  
**Presentation Time:** 10:45-11:05am  
**Location:** Room 201

Optimization of Aquaponic Crop Production from a Land-based Freshwater Integrated Multi-Trophic Aquaculture System

An integrated multi-trophic aquaponics system has been operational for 6 months and has shown to be productive in terms of fish and freshwater plant growth. A step that remains is to identify ideal plant crops to effectively and efficiently remove nitrogenous wastes and phosphorous from the water. These materials build up via natural bacterial processes and can reduce fish and plant growth. Therefore, having plants that grow well and can provide an additional crop, as well as remove these materials from the water, is critical. This project compares up to 8 new plant species to kale and basil, which performed quite well over the summer. Growth was measured using visual observations and by finding the mass of each of the individual plants. It was concluded that the tomato plant had the highest success based off these measurements of growth. Using these findings, more refinement can be made to the system in an attempt to further optimize both plant and animal growth.

**Name:** Christopher Pyles  
**Faculty Mentor:** Marco Naritone  
**Department:** College of Arts and Sciences – Physics and Astronomy  
**Presentation Time:** 11:15-11:35am  
**Location:** Room 201

Simulation of High Efficiency Solar Cells Using Recent Advances in Semi-conductors

Recent advances in semiconductor materials have made certain schematics for solar cells more viable. One such concept is the All-Back Schottky Contact (ABCSS), which promises to reduce cost of solar electricity while improving reliability. Rather than a typical p-n junction, electron-hole pair separation is achieved by Schottky junctions formed between the semiconductor and interdigitated, i-metallic contacts. This type of device minimizes the number of semiconductor layers and removes the need for the extrinsic impurities required for p-n junction to build a high efficiency device. Here, a theoretical study is presented concerning the set of optimal parameters for an ABCSS device that employs recent advances in long lifetime polycrystalline CdTe, acting as the absorber layer. An ABCSS device requires long-lifetime materials to work efficiently, making CdTe an optimal choice. Computational simulations were performed using the software COMSOL Multiphysics® to find theoretical performance. It is determined that >20% efficiency can be achieved using reasonable device architecture. These results will provide guidance for the fabrication of prototypes.

**NAME:** Elizabeth Fullenkamp  
**Faculty Mentor:** Cristina Lutcnford  
**Department:** College of Education & Human Development - Higher Education and Student Affairs  
**Presentation Time:** 11:35-11:55am  
**Location:** Room 201

Developing Education and Training related to Queen/Trans* Identity at BGSU

The purpose of this applied research project was to enhance the current educational outreach capacities of a LGBTQ+ undergraduate student organization at Bowling Green State University, the Queen/Trans Student Union. Recognizing the Queen/Trans Student Union’s current outreach initiative “The Panel Program” as operating in accordance with a limited and outdated understanding of intersectional identity, I sought to reestablish the Panel Program as one firmly rooted in evidence-based practices and grounded in the most current literature. In order to achieve this objective, I reviewed research in an array of fields including those of education, sociology, political science, ethnic and gender and sexuality studies. The result of this study is a comprehensive resource for future leaders in BGSU’s Queen/Trans Student Union, containing renovated training and presentation materials of my design which reflect current understandings of the intersectional nature of identity. The intended outcome of this applied research is to aid future Queen/Trans Student Union leaders in their effort to counteract homophobic and transphobic attitudes in the Bowling Green and Bowling Green State University communities.
Men and masculinity has shifted through the decades along with how they are studied. Currently, masculinity measures focus primarily on how men adhere to traditional masculine norms. This study seeks to better understand how masculinity is defined by college men in the 21st century who are experiencing the effects of traditional masculinity on their lives, but also experiencing shifts of masculine attitudes away from traditional masculinity, i.e. acceptance of showing and sharing emotions. Through better understanding of how college men define their own masculinity in the 21st century, it will allow us to get a glimpse into these shifts to begin work towards a third generation of masculinity studies. This study used a 79-item 4-point Likert (1=strongly agree) self-report measure created by the researchers to capture the importance of stereotypical characteristics/features towards participants own masculinity, i.e. “Being straight is important to my perception of masculinity.” Participants were recruited via mass email at a university in northeast Ohio. Crostials were used to determine agreeability (participant selecting agree or strongly agree) on items. Results indicated high agreeability (>59%) for, being in a community, expressing emotion, having a family, being physically and being able-bodied. Some shocking items that did not meet the threshold for agreeability were: Being straight, having sex, being athletic, participating in sports. In addition, participants were asked if they believed we missed any important items to masculinity and results indicated that, positive characteristics, helping behavior, kindness, responsibility, and confidence were important to participants’ masculinity. These findings create agency in the field to better capture contemporary masculine ideologies and behaviors, as currently many measures would categorize some of these findings as feminine or not masculine. Future research seeks to integrate behaviors and attitudes together to create a fuller picture of contemporary masculinity.
The Effects of Mental Health Professional Development on Preservice Teachers

One in five children from the ages of thirteen to eighteen has a mental illness and suicide is the third leading cause of death of youth from ages ten to twenty-four. With rates like this something has to be done. The best place to start is in schools where all the children are. This study focuses on how doing professional development hours related to mental health will help preservice teachers. Learning about mental health and related skills can help a teacher in their personal life and they can use this knowledge to help students.

Rebeccah Knoop
Faculty Mentor: Jadwiga Carlson
Title of Presentation: CODE4her Spring 2018

The Effects of Refugees and Human Rights Violations Through Media Representation

Recently, within the last few years Europe as a whole has seen a rise in refugees and asylum seekers from both the Middle East and Africa. With the rise of people seeking refuge away from their home country this causes some change for their neighboring countries. With such a surge, it is hard for many countries to keep up with the flow of refugees seeking help in their country. When taking on new people in a country, especially those of refuge it is important to keep in mind the Universal Declaration of Human Rights (UDHR) and the right to seek asylum. There are many cases of human rights violations to such a vulnerable group of people seeking refuge. It is important to uphold human rights in all aspects and situations of the world. Human rights violations cannot be ignored or put off for an extended time, which is why a shorter sunset clause would be beneficial in situations like the current refugee crisis. Media is a platform that gives governments and different companies an easy outlet for human rights violations and the spreading of wrongful information. Human rights violations and media production and information spreading has a direct effect on the lives of those seeking refuge as well as those who live in the host country.

Rachel Bianculli
Faculty Mentor: Joseph Furgal
Title of Presentation: Amino Acid Variances in Mammalian Mitochondrial RNA Protein Sequences

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When Facing International Human Rights Courts

Russia has a long history of valuing state sovereignty as opposed to conforming to law implemented by foreign entities. This leads to conflict between majority groups and minority groups, one currently being LGBT+. Recently, Russia has begun to disregard international laws which threatens to undermine the precedence set by the European Commission of Human Rights court ruling of Alekseyev v Russia. They do recognize international legal institutions such as the ECHR, International Covenant on Civil and Political Rights, and the Universal Declaration of Human Rights, however if their legal aviation continues, and they allow human rights to go unrecognized for LGBT+ citizens, it could set a new global preeminence for how other states treat LGBT+ people. There is no way to enforce legal rulings by the ECHR which leads to the question, if states want to ignore human rights for LGBT+ people, who will be there to tell them no, and how will this affect the progression of human rights outside the region?

Nicholas Jackson
Faculty Mentor: Joseph Furgal
Title of Presentation: Amino Acid Variances in Mammalian Mitochondrial RNA Protein Sequences

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### POSTER PRESENTATIONS

**COLLEGE OF ARTS AND SCIENCES – BIOLOGICAL SCIENCES (continued)**

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### ORAL PRESENTATIONS

**Name:** Rebecca Ebert  
**Faculty Mentor:** Colleen Fitzgerald  
**Department:** College of Health and Human Services - Communication Sciences and Disorders  
**Presentation Time:** 10:25-10:45am  
**Location:** Room 208

**The Effect of Phonetic Environment on the Acoustic Duration of Verb –s**  
A particular grammatical structure, verb–s (e.g., wants or needs) has been given special attention in recent research. Compared to other language structures, it has a protracted course of development. Verb–s is also relatively short in acoustic duration because it usually occurs in the middle of a sentence between other sounds. The current study aims to investigate the acoustic factors, or sound properties, of the phonetic environment of verb–s. This study is a follow-up to Fitzgerald, Bridges, Wettstein, and Ebert (2017) in which we proposed that verb–s might be longer between vowels. The question this study addresses is: how does phonetic environment affect the acoustic duration of verb–s? Verb–s is hypothesized to have the greatest duration when it is at the end of the sentence and follows a vowel (e.g., There he goes) and the shortest duration when in the middle of the sentence and between consonants (e.g., His dad walks to their seats). Participants include 15 students from the Communication Sciences and Disorders department at Bowling Green State University. Participants were recorded reading a children's book strategically designed to have some of the verb–s uses present between vowels and others between consonants (Ebert, 2017). Recordings will be coded for sentence position (i.e., medial or final), coda phoneme (i.e., the sound before verb–s), and onset phoneme (i.e., the sound following verb–s). Differences in conditions will be analyzed with an ANOVA. Studying the acoustic factors of verb–s will shed light on whether its duration between vowels is longer and how manipulating these factors can make better therapy tools for children.

**Name:** Hannah Baatz  
**Faculty Mentor:** Brad Felver  
**Department:** College of Arts and Sciences - English  
**Presentation Time:** 10:45-11:05am  
**Location:** Room 208

**Education in Ohio: A Last Art**  
Education in Ohio has become standardized—one size being made to fit all students across different skill levels. This should not be the case, as all students have different needs that, quite simply, are not satisfied by Common Core. To combat this issue, the arts should be reintroduced to the education system as a valuable and useful tool to aid students on their academic journey. In my essay, I will be arguing for the inclusion of the arts into the Ohio education system, and why I believe it necessary for arts to be included in the curriculum. I will also be covering the relationship between the arts and education, and how arts instruction can benefit students in all academic subjects.

**Name:** Jessica Bindersen  
**Faculty Mentor:** Ronny Woodruff  
**Department:** College of Arts and Sciences – Communication Sciences and Disorders  
**Presentation Time:** 11:15-11:35am  
**Location:** Room 208

**Inquiry into Pate de Verre Processes**  
Pate de Verre is a kiln-casting technique where one mixes glass powder and a binder to create a paste that you then paint into a mold. This technique allows the artist to paint color exactly where they want it to go in a mold and create nice blending which allows for a more realistic casting. My anokw has led me to use Pate de Verre processes to explore color theory and develop a color palette to create artificial light and shadows in my glass castings of different types of drapery that examine the malleability of memory and time.

**Name:** Natalie Wise  
**Faculty Mentor:** Andrew Patterson  
**Department:** College of Arts and Sciences – English  
**Presentation Time:** 11:45-12:05pm  
**Location:** Room 208

**Stop the Hate: Explaining Why Bystanders Intervene**  
A particular grammatical structure, verb–s (e.g., wants or needs) has been given special attention in recent research. Compared to other language structures, it has a protracted course of development. Verb–s is also relatively short in acoustic duration because it usually occurs in the middle of a sentence between other sounds. The current study aims to investigate the acoustic factors, or sound properties, of the phonetic environment of verb–s. This study is a follow-up to Fitzgerald, Bridges, Wettstein, and Ebert (2017) in which we proposed that verb–s might be longer between vowels. The question this study addresses is: how does phonetic environment affect the acoustic duration of verb–s? Verb–s is hypothesized to have the greatest duration when it is at the end of the sentence and follows a vowel (e.g., There he goes) and the shortest duration when in the middle of the sentence and between consonants (e.g., His dad walks to their seats). Participants include 15 students from the Communication Sciences and Disorders department at Bowling Green State University. Participants were recorded reading a children's book strategically designed to have some of the verb–s uses present between vowels and others between consonants (Ebert, 2017). Recordings will be coded for sentence position (i.e., medial or final), coda phoneme (i.e., the sound before verb–s), and onset phoneme (i.e., the sound following verb–s). Differences in conditions will be analyzed with an ANOVA. Studying the acoustic factors of verb–s will shed light on whether its duration between vowels is longer and how manipulating these factors can make better therapy tools for children.

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ORAL PRESENTATIONS

Name: Linore Huss
Faculty Mentor: Marissa Saneholtz
Department: College of Arts and Sciences - School of Art - Metals
Presentation Time: 11:35-11:55am
Location: Room 208

Understanding Post-Traumatic Stress Disorder through Body Adornment

The problem I chose to address is the misconception that post-traumatic stress disorder survivors fit a particular description or backstory. I interviewed five survivors and recorded their stories, then made a piece of jewelry or interactive art to portray their struggle. These pieces and a pamphlet with the stories are on display at BGSU’s BFA show which is open March 17th-April 1st. I predicted that the majority of viewers will be interested enough to pick up a pamphlet, and a subset of those will skim through it and discuss it with their friends and family. This proved largely true at the gallery opening, and several people approached me to thank me for shedding light on PTSD and share part of their own story.

One major issue in our society is a lack of communication about difficult issues; this project will make it easier to start a conversation about PTSD and other mental illnesses. My ultimate goal is to educate people about a variety of mental illnesses as I continue the series and open their minds to the struggle that those around them are going through every day.

Name: Lindsay Pfeiffer
Faculty Mentor: Lynn Whitney
Department: College of Arts and Sciences - School of Art - Photography
Presentation Time: 11:55am-12:15pm
Location: Room 208

Women in Music

This work was made for my BFA thesis project. It consists of black and white portraits made with a large format film camera of women who play in punk and rock bands. There were nine of these photographs in the BFA exhibition this past March, however this project is ongoing. For the exhibition, I printed each portrait on 20x24 inch darkroom paper, and placed every photograph in a large white frame. The portraits were meant to be large and imposing to get the viewer to consider the visibility (or lack thereof) of women not just in these kinds of music, but also in the world. I am still making these portraits, and I hope to make the project into a book.

Name: Laura Francisco
Faculty Mentor: Janet Ballweg
Department: College of Arts and Sciences - School of Art - Printmaking
Presentation Time: 12:15-12:35pm
Location: Room 208

Women are Weapons

Despite a growing movement toward normalizing sex and female empowerment, antiquated ideas about female sexuality still prevail in many parts of our culture. My research and body of work explores female empowerment and disempowerment through sexuality and the consumption of women’s bodies. These works depict moments of intimacy and sexual tension, and illustrate the act of seduction through the audience’s interaction with them. Through a combination of aesthetic choices and conceptual ideas, this body of work subverts typical ideas about female sexuality. I ask who is the forced and the forcer, manipulated and manipulator, and the disempowered and powerful.
Dr. Virginia L. Dubasik, Assistant Professor in the Department of Communication Sciences at Bowling Green State University

She holds a M.A.Ed. with a Diverse Learner Specialization and a M.S. in Clinical Speech Pathology. Dr. Dubasik earned her Ph.D. from Arizona State University (ASU) in Speech and Hearing Sciences in 2011 and subsequently was given a Postdoctoral Research Fellowship to continue her work at ASU.

Dr. Dubasik’s research spans several closely related areas and focuses on speech and language development in bilingual children in typical and clinical populations, as well as assessment and intervention. Dr. Dubasik’s lines of inquiry contribute to the knowledge base by establishing a corpus of linguistic data from young Spanish-English dual language learners (DLLs), as well as data from educators and practitioners who work with this group. Of special interest to Dr. Dubasik are the instructional practices utilized in early childhood education programs, and practices employed by Speech-Language-Pathologists serving DLLs, and the relationships between practices and child language and literacy outcomes. Young DLLs are an understudied group who consistently perform poorly in terms of language and literacy, relative to their monolingual peers. Intervention cannot be addressed until experts better understand the linguistic profiles of children in this group and know the measures that will be useful in predicting future performance or strategies that improve outcomes.

By exploring the interrelations among children’s linguistic development and early childhood experiences and language exposure, experts in communication sciences and disorders and linguistics can work collaboratively with experts in related areas (e.g., education, psychology, early intervention) to mitigate risk of poor school outcomes for young DLLs. This line of inquiry began with Dr. Dubasik’s dissertation work on a small sample of typically developing DLLs and continues at Bowling Green State University where the original project has been expanded to include larger samples of DLLs. What distinguishes her work from that of her colleagues and peers is that Dr. Dubasik’s studies are designed to obtain rich data that describe all aspects of linguistic development as opposed to a single area. Results of her ongoing investigations build upon existing work and are expected to enhance understanding of the linguistic knowledge of DLLs in typical and clinical populations.

A few words from the students who nominated Dr. Dubasik:

"Dr. Dubasik goes above and beyond for all of her students. She strives to provide numerous opportunities for undergraduate students, both in the classroom and with research. She instills confidence in her students and pushes them to be successful in their research. Dr. Dubasik also allows for autonomy while working with her but still provides the necessary support to succeed. She goes out of her way to work with as many undergraduate students as she can to provide research opportunities to everyone. She has greatly contributed to my success here at BGSU as well as the success of other students. With her open door policy, I know that she is a faculty member that I can always count on."

"Dr. Dubasik strives to provide ample opportunities for undergraduate students in research. She allows students to build upon their confidence when working with her by allowing autonomy in research but still providing the necessary help to be successful. She has made a very large impact on my experience at BGSU, and has inspired me to become involved in more research. She has allowed me to build confidence in my ability to conduct research through my honors project. Through a project being presented at the Ohio Academy of Science annual conference, and helped me to build a proposal to hopefully present at a national conference in the fall. Dr. Dubasik has helped me to understand the process of research and has given me out of her way to provide as much support as necessary. She also has helped numerous other CDIS undergraduates in their research endeavors."

"Dr. Dubasik has been my research and professional mentor for two academic years. I have taken two major classes with her as well as completed my honors project under her advisement. I was able to present the research conducted for my honors project at conferences on a national and state level this year as well. She has challenged me more than any other professor I’ve ever had, but I’ve now accomplished more than I ever thought I would in my undergraduate career."

Dr. Dubasik with BGSU students (left to right) Tanessa cupner, Alyssa Hulten & Mia Fears at the 2017 annual convention of the American Speech-Language Hearing Association in Los Angeles, CA. All three undergraduate students were selected to participate in the ASHA Progeny Program as undergraduate first authors!
ORAL PRESENTATIONS

Name: Rachel Coleman
Faculty Mentor: Carolyn Tompsett
Department: College of Arts and Sciences - Psychology
Presentation Time: 10:25-10:45am
Location: Room 225

Effects of Regenerative Braking Systems

We will be looking at the effects of a regenerative braking system on a racing go-kart. Overall, we will be testing the existing braking system, fixing any parts that are not working before the testing, to see how much of an effect it has on the total distance our kart can travel. The regenerative braking system is also attached to the driven axle, so it should have a substantial amount of effect on the total distance the kart can travel on one charge. We are expecting a total distance gained to be about 5-20% and hoping to be closer to the 20% gain.

Name: Brad Holmes
Faculty Mentor: Kevin Vallier
Department: College of Arts and Sciences - Philosophy
Presentation Time: 10:45-11:05am
Location: Room 225

Community Environmental Protection: Resistance Against Corporate Projects Across The Country

Communities across the United States are put at risk to environmental, economic, and social harms due to the implementation of various corporate projects and operations. In this presentation, I delve into a variety of examples of communities, whether in towns, cities, or counties, that have organized in resistance against these unwanted harms. Ranging from industrial logging and aerial pesticide spraying in Oregon, to corporate water withdrawals and large-scale electricity generation projects in New Hampshire, I present findings I have gathered from these states, along with Colorado and Ohio, which paint a rather bleak picture. Essentially, due to a variety of political and economic imbalances, we are seeing corporations of various sorts overwhelm the desires of local communities across the country, instigating widespread pushback - some of which has shown to more successful than others. This presentation will encapsulate my interactions with people and groups in these four states, as well as my theories as to why these occurrences take place, and what needs to happen for them to stop.

Name: Noah Dunn
Faculty Mentor: Mikhail Shilov
Department: College of Technology, Architecture, and Applied Engineering - Engineering Technologies
Presentation Time: 11:35-11:55am
Location: Room 225

Autonomous Vehicle: Object Recognition Research

As autonomous vehicles become more prevalent, finding solutions to object recognition problems are of the upmost importance. In August 2017 researchers at the University of Virginia found that they could trick an autonomous vehicle’s object recognition system into misidentifying a stop sign as a speed limit sign. This leads to concerns regarding how vandalized stop signs could potentially fool autonomous vehicles. Our research attempts to find an assistant algorithm for stop sign identification. This algorithm could be implemented in various autonomous vehicles, supplementing their current object recognition systems.

Name: Dakota Perry & Bradley Deeter
Faculty Mentor: Mikhail Shilov
Department: College of Technology, Architecture, and Applied Engineering - Engineering Technologies
Presentation Time: 11:55am-12:15pm
Location: Room 225

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Name: Hanna Pittman
Faculty Mentor: Jerry Schnepp
Department: College of Technology, Architecture, and Applied Engineering - Virtual Communication and Technology Education
Presentation Time: 12:15-12:35pm
Location: Room 225

Customer Insight: Online Digital Templates

This project aims to discover what drives individual consumers to buy digital templates for personal events online, and what method of delivery they prefer. This data will be used to enable sellers of digital templates to improve their offering and gain a greater understanding of their customers. The two methods of delivery are editable PSDs requiring the customers to have Adobe Photoshop, and “Templats,” an online, editing software that gives the customers a great deal of editing control. Both of these methods are used by current sellers, but it is unclear which offers a greater advantage for both customers and sellers. The presentation will include data from actual customers who have bought and used the author’s templates, as well as supplemental data from user testing. Additionally, qualitative data obtained through open-ended questionnaires will provide insight into how well each option performed.

Name: Benjamin Thornton & Gangori Patel
Faculty Mentor: Jake Lee
Department: College of Arts and Sciences - Computer Science
Presentation Time: 12:35-12:55pm
Location: Room 225

Exploring Software Development Methodologies and Technologies to Support Sports Management Research

Project Goals

- Investigating different methodologies, technologies tools and tools for software development and develop a web-based experimental platform
- Examine the most controversial issue related to Law of Dilution in Sports Management area