



**WALSH**  
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## Honors Program

# Senior Honors Thesis Defense Presentations

**March 2021**

Day	Time	Group
Monday, March 22nd	5:00 pm - 6:20 pm	<b><u>Inequalities and Social Justice</u></b> Amelia Ohlin (Nursing) & Majesti Brown (Graphic Design) <b>Zoom Link:</b> <a href="https://walsh.zoom.us/j/97774500374">https://walsh.zoom.us/j/97774500374</a>
Tuesday, March 23rd	6:00 pm - 8:00 pm	<b><u>Exploring the Biological Sciences</u></b> Roja Baruwal (Biochemistry), Parvane Karimpour (Biology), & Megan Soehnen (Biology) <b>Zoom Link:</b> <a href="https://walsh.zoom.us/j/92152843624">https://walsh.zoom.us/j/92152843624</a>
Wednesday, March 24th	2:30 pm - 4:30 pm	<b><u>Research in Exercise Science &amp; Physical Therapy</u></b> Tyler Giesige (Exercise Science), Varney Pelima (Exercise Science), & Cade Lloyd (Pre-PT) <b>Zoom Link:</b> <a href="https://walsh.zoom.us/j/93348352260">https://walsh.zoom.us/j/93348352260</a>
Wednesday, March 24th	6:30 pm - 8:30 pm	<b><u>Studying Inequalities through Existing Statistics</u></b> Lindsey Craft (GFA), Christopher Dougherty (Psychology & Sociology), & Edward Walsh (GFA and International Relations) <b>Zoom Link:</b> <a href="https://walsh.zoom.us/j/94522455322">https://walsh.zoom.us/j/94522455322</a>
Thursday, March 25th	6:00 pm - 8:00 pm	<b><u>Nursing Perceptions in the Workplace</u></b> Jane Rybka (Nursing), Heidi Ebin (Nursing), & Leah Cavanaugh (Nursing) <b>Zoom Link:</b> <a href="https://walsh.zoom.us/j/91970483677">https://walsh.zoom.us/j/91970483677</a>
Monday, March 29th	1:30 pm - 3:30 pm	<b><u>Therapy and Evidenced-Based Practice in Healthcare</u></b> Abigail Lentz (Psychology), Dena Wenzinger (Pre-OT), & Kathrine Herrick (Nursing) <b>Zoom Link:</b> <a href="https://walsh.zoom.us/j/98946352889">https://walsh.zoom.us/j/98946352889</a>
Tuesday, March 30th	2:30 pm - 4:30 pm	<b><u>Understanding &amp; Improving Educational Experiences</u></b> Madison Markus (Behavioral Science), Suchitra Sherpa (Graphic Design), & Joseph Holiga (Computer Science) <b>Zoom Link:</b> <a href="https://walsh.zoom.us/j/96655336805">https://walsh.zoom.us/j/96655336805</a>
Wednesday, March 31st	4:00 pm - 6:00 pm	<b><u>Exploring the Humanities through Literature, History, &amp; the Arts</u></b> Karen Klatt (AYA-Language Arts & Art History), Dominic White (Biology), & Joseph Beaver (Psychology) <b>Zoom Link:</b> <a href="https://walsh.zoom.us/j/92898262451">https://walsh.zoom.us/j/92898262451</a>
Wednesday, March 31st	6:30 pm - 8:30 pm	<b><u>Survey Use Across Disciplines: Exploring Special Topics</u></b> Evelyn Aaron (GFA), Morgan Rowan (Psychology & Professional Education), Gabriel Kraus (AYA- Math & Mathematics) <b>Zoom Link:</b> <a href="https://walsh.zoom.us/j/94047422541">https://walsh.zoom.us/j/94047422541</a>

*Click Each Group Title to jump to that page in the Program and see who is presenting, as well as their presentation time slot, thesis title, and abstract!*

*Click the Student's Name on the pages below to jump to their picture and senior research quote!*

**Monday, March 22nd**

**5:00–6:20 pm**

**Inequalities and Social Justice**

**5:00-5:40      Majesti Brown**

**Adviser:** Dr. Jennifer Vokoun; **Reader:** Anne Berry

*Design Justice for the Flint Water Crisis: Utilizing a Socially Conscious Infographic to Bring Social Justice to a Modern Urban Tragedy*

As one of the most notable urban crises in the 21st century, the Flint water crisis has been revealed to be more than 50 years in the making due to various underlying issues. In recent times, social injustices have made their way to the forefront of conversations surrounding important topics such as race, education, and the environment. Under this lens of social justice awareness, the various racial, systemic, and environmental factors leading to the tragedy in Flint, Michigan are emphasized. Design has emerged to address social issues and to educate audiences about specific injustices. This study and creative project aim to educate others on an ongoing social issue through infographic design while also studying and investigating how this specific design process forms design justice. In this context, design justice is a practice that intends to ensure the equality through design distribution, focusing on the ways design challenges or reproduces the matrix of dominations of design. The associated infographic visually explains the lasting effects of redlining and redline zones on Flint residents. With the Flint water crisis as the focus, this study and creative work exemplify how the relationship between design justice and social issues highlight the impact that design can have on a society.

**5:40-6:20      Amelia Ohlin**

**Adviser:** Professor Tracey Herstich; **Reader:** Julia Villasenor

*Incorporating Language & Culture in Providing Holistic Care to the Spanish Speaking Population in the United States*

The present study experimentally investigated the level of perceived cultural competence among medical interpreters for Spanish/English, and whether years of experience, race, or ethnicity played a role in the perceived level. Participants, above 18 years of age with any amount of interpreting experience for Spanish/English, were reached out to through Facebook groups and were invited to complete a survey over SurveyMonkey. They were asked questions regarding demographics and how they work with patients for interpretation. While the results were insignificant due to the low number of participants in the study, they did show that there is a high level of perceived cultural competence among medical interpreters of any amount of experience. Race and ethnicity were not factors that affected the perceived cultural competence of an interpreter. For future research, a wider range of years of experience and ethnicity/race should be obtained, and the sample size should be increased to lead to a possibility for significant results.

**6:00-6:40****Roja Baruwal****Adviser:** Dr. Adam Underwood; **Reader:** Dr. Darlene Walro***Functional Implications of NAA10 Variant E100K on Protein-Protein Interaction***

N-terminal acetylation (NTA), the addition of an acetyl moiety to the N-terminus of a protein, is one of the most common posttranslational modifications to occur in eukaryotic cells. NTA is catalyzed by N-terminal acetyltransferases (NATs). NAT A is a heterodimeric complex composed of the catalytic NAA10 and the axillary NAA15 subunit. NAA10's function includes post-translational NTA and lysine acetylation. A collaborating clinical lab identified a potentially harmful variant that exchanges glutamic acid (E) with a lysine (K) amino acid at residue 100. This change in protein sequence could interfere with NAT A complex function. The objective of this project was to determine if there is any decreased binding affinity of the variant NAA10 protein to its binding partner NAA15 by using NAA10 FLAG-tagged fusion proteins (wildtype and variant) to capture NAA15 proteins. The hypothesis was: FLAG-tagged NAA10-K100 protein will show reduced binding and coimmunoprecipitate of NAA15 when compared to wildtype NAA10-E100 in transiently transfected HeLa cells. To test this hypothesis, 90,000 cells were seeded in a 6-well plate. HeLa were co-transfected with either NAA10-E100 or NAA10-K100 and NAA15 constructs in three wells. After lysing cells under nondenaturing conditions, CO-IP using goat anti-FLAG antibodies captured FLAG tagged NAA10. The conjugated NAA10 complexes, both wildtype and variants, were then used to capture the NAA15 from each lysate. Captured proteins were subjected to SDS PAGE and western blot. Immunoreactive Myc-tagged NAA15 was detected with anti-Myc epitope antibodies (Sigma). These assays allowed us to demonstrate that the NAA10-K10 variant exhibits reduced binding to NAA15 relative to wildtype NAA10-E100 emphasizing the possible pathogenicity of this variant NAA10 due to altered NAT A complex function.

**6:40-7:20****Parvaneh Karimpour****Adviser:** Dr. Jackie Novak; **Reader:** Dr. Philip Owens***Fibroblast BMPR1a Knockout Suppresses Mammary Tumor Growth through Matrix & Immune Modulation***

Bone morphogenetic proteins (BMPs) are a class of molecules involved in normal tissue development, but they have also been implicated in several diseases, including various types of cancers. Although BMP signaling has been studied extensively in primary tumors, the role of BMPs within the context of the tumor microenvironment is not as well understood. Within the breast tumor microenvironment, cancer-associated fibroblasts (CAFs) are key regulators of immune modulation and collagen deposition. Thus, elucidating the relationship between BMPs and CAFs will allow for a more complete understanding of the stromal factors influencing cancer development. In this study, samples from murine breast cancer models were digitally analyzed to study the effects of fibroblast BMPR1a knockout on the tumor microenvironment. In a two-pronged approach, the collagen content and immune compositions of both groups were analyzed to examine the complex role of BMP signaling in promoting tumor growth. The BMPR1a knockouts exhibited significantly more birefringent fibrous capsules surrounding the tumor mass and double the concentration of macrophages in the tumor microenvironment, suggesting that the knockout of BMP signaling in fibroblasts serves an anti-tumorigenic function. Furthermore, these findings support the hypothesis that BMP inhibition in fibroblasts promotes tumor suppression in a process that parallels wound repair through the recruitment of immune cells and the production of a collagen capsule.

**7:20-8:00****Megan Soehnlen****Adviser:** Dr. Jennifer Clevinger; **Reader:** Prof. Judith Sudomir***An Investigation of the Fecundity of *Euonymus alatus*: A Popular Landscape Shrub that has Escaped into Native Habitats throughout the Eastern USA***

Invasive species are organisms that are not native to a region which cause harm to the ecosystem that they invade. Not only do they contribute to the disruption of an ecosystem, but they can also cause millions of dollars in economic damage. Winged burning bush (*Euonymus alatus*) is a plant that is invasive throughout the eastern United States. Its fecundity, or its capability to reproduce successfully, which is often measured by how many seeds it produces, is not well known. Flower counts and fruit counts were surveyed from fifty plants across twenty data collection sites, ten wild and ten cultivated, to calculate and compare *E. alatus*'s fecundity in wild and cultivated environments. On average, cultivated plants produced more flowers than wild plants did, but wild plants produced significantly more fruit than cultivated plants did. Post hoc, it was discovered that light availability was a confounding variable. This research suggests that the cultivar type of *E. alatus* does affect invasiveness.

**2:30-3:10****Tyler Giesige****Adviser:** Dr. Kelton Mehls; **Reader:** Sarah Martinez***Muscle Activity Evaluation of Baseball Prehab Activities***

Currently, there is limited information regarding the activation of muscles in the upper extremities during prehabilitation techniques in baseball pitchers. Prehabilitation exercises are widely used prior to games to prepare the body ready to perform at the highest level. A common prehabilitation activity that is done with baseball pitchers are J-Bands. J-Bands are used at almost every level of baseball as a warmup technique for pitchers to use before they go into a game to pitch. This study evaluated the muscle activity in the triceps and serratus anterior in 14 different male pitchers in two different bullpen sessions. The triceps and serratus anterior were the two muscles chosen to test because they are two of the most active muscles in the entire pitching motion for a pitcher. The first session was with the use of the J-Band warmup while the second sessions would be without the use of a J-Band warmup. The differences between the muscle activity after throwing 5 pitches in each session was calculated. Independent sample t tests revealed a significant difference in the average triceps activity between the standard session and the J-Band session. The average muscle activity in the triceps was much greater during the 5-pitch session with the J-Band warmup compared to the warmup without. No other significant differences were found in the peak triceps muscle activity or the average or peak muscle activity in the serratus anterior. These results indicate that the J-Band warmup was generally more catered to the upper arm extremity compared to the muscles surrounding the back or serratus anterior. The results do show that the J-Band prehabilitation warm-up was effective overall.

**3:10-3:50****Varney Pelima****Adviser:** Dr. Brandon Pollock; **Reader:** Dr. Jonathon Stavres***The Influence of Gender on Electrodermal Activity During Balance Exercise***

The purpose of this study was to determine the influence of gender on electrodermal activity (EDA). This study was also tasked with determining whether EDA was related to perceived difficulty of the single balance task being performed. An experimental design was used to investigate these relationships. Male and female participants of college-age were asked to complete one balance task while having their EDA measure through electrodes on their index and ring finger continuously. They were then asked to comment on the difficulty of the task using a Likert scale upon completion of the task. The results represented a difference in EDA between the seated and standing position. There was also a reported difference in EDA between genders characterized by males having higher signals in both the seated and standing positions. No correlation was found between EDA values and perceived difficulty of the task. The findings support the hypothesis that gender influences EDA while performing a balance task.

**3:50-4:30****Cade Lloyd****Adviser:** Dr. Antonette Doty; **Reader:** Dr. Robert Phillips***Use of the Timed Up and Go as an Outcome Measure in Young Adults***

The Timed Up and Go (TUG) is an easy to use and cost-efficient measure of a person's functional mobility. TUG studies have been conducted in populations of children and older adults, but not for younger adults. Therefore, the purpose of this study is to obtain normative data for young adults to expand the use of the TUG for physical therapists working with this age group. Forty participants without disabilities, ranging from 18 years of age through 22 years of age were selected for this study. The TUG which measures the time taken by an individual to stand from a chair, (approximately 18 inches tall, arm height 25.6 inches) walk three meters, turn, walk back to the chair, and sit down was used as the outcome measure. Two testers timed 1 practice trial and 3 timed trials to obtain data for mean speeds in seconds and reliability data. The final scores included 14 male participants and 26 female participants from 18-22 years. With an overall mean speed of 7.63 seconds intraclass correlation coefficients demonstrated high reliability for both intra-rater reliability (ICC=.917/.920) and inter-rater reliability (ICC=.991). No significant differences were found for differences in age, BMI, or gender. Conclusion: The TUG was found to have high intra-rater and intra-rater reliability for young adults. With expanded normative reference data from this study, physical therapists will be provided improved assessments of this functional activity when evaluating transition age patients clinically. This data serves as NRV for young adults 18-22 years of age, so that physical therapists can better assess people of the same age.



Wednesday, March 24th 6:30-8:30 pm

## Studying Inequalities through Existing Statistics

**6:30-7:10 Lindsey Craft**

**Adviser:** Dr. Koop Berry; **Reader:** Dr. Peter Yocabucci

### *Immigrant Inclusion as a Determinant of Naturalization Success*

This study examines the relationship between immigrant inclusion and naturalization. After immigrants arrive in their new country, they begin to integrate into the society. Inclusion, in this study measured by a multitude of integration factors, including unemployment, relative poverty, educational attainment, perceived discrimination, life satisfaction, and gross domestic product per capita, is used to measure how well a country incorporates its immigrants. This study measures the correlation on how well immigrants are included into society and what that means for a country's naturalization rate. Presumably, immigrants that are included into their host country's society naturalize at higher rates compared to countries that do not include their immigrant populations. Naturalization is the process of becoming a citizen, meaning that if a country does not work to include the immigrant population, once that population becomes citizens, the country will remain separated and will struggle to unify, further reinforcing the importance of immigrant inclusion. This study incorporates existing research regarding immigrant inclusion into a new dimension regarding naturalization.

**7:10-7:50 Christopher Dougherty**

**Adviser:** Dr. Laci Fiala; **Reader:** Dr. Michelle Bemiller

### *The Effects of District Level Characteristics on the Achievement of Students with Disabilities*

The effects of district-level characteristics on the achievement of students with disabilities has received minimal attention in research. Some characteristics that have been found to have significant effects on general student achievement, however, include district-level socioeconomic status, percent minority population, and instructional spending. In a few studies, some of the same factors have also been found to have effects on the achievement of students with disabilities. Specifically, time in the least restrictive environment and access to special education teachers have been found to affect the achievement of students with disabilities. The current study aimed to find further support for the relationships between the achievement of students with disabilities and the district characteristics of instructional spending, number of special education teachers, time in the least restrictive environment, and number of school psychologists. It adds to the current body of knowledge by also considering the moderating effects of percent minority and percent low SES students on these relationships. Data was drawn from the Ohio Department of Education website from 108 public school districts in Northeast Ohio. Significant relationships between academic achievement and the independent variables of instructional spending, time in least restrictive environment, and special education teachers were found. The impact of both the number of special education teachers and the amount of instructional spending on achievement was found to vary by different levels of the percent of low SES students in the district.

**7:50-8:30 Edward Walsh**

**Adviser:** Dr. Bill Davis; **Reader:** Dr. Laci Fiala

### *Measuring the Compounding Effects of Income Inequality, Poverty, and Race on Crime*

The nature of this study was to investigate the nature of indicators of crime to each other. Of the many possible indicators of criminality three were chosen: income inequality, poverty, and racial identity. It was hypothesized that each of these variables would have a significant correlation to criminality. The theory of Hyper Disadvantage was then used as a theoretical framework to hypothesize that racial identity would moderate the effect of poverty to crime and income inequality to crime. Eighty Metropolitan Statistical Areas (MSAs) were chosen from the 2018 American Community Survey conducted by the US Census Bureau measuring poverty, income inequality, and racial identity. Then corresponding rates of violent and property crime from The 2018 Unified Crime Report conducted by the Federal Bureau of Investigation were measured. Bivariate regression was done to highlight each variable's individual correlation with criminality. Multivariate regression was then conducted to see if race had a moderating effect on these relationships. The results found only poverty as having a significant correlation with criminality. Furthermore, racial identity did not have a significant moderating effect on any of the variables.

**6:00-6:40****Jane Rybka****Adviser:** Dr. Mary Cook; **Reader:** Marie Hooper*The Level of Work Engagement in Oncology Nurse Navigators*

The role of the Oncology Nurse Navigator (ONN) is a relatively new one that is becoming more prevalent in hospitals and health care facilities. The success of this role can have a direct impact on return on investments (ROI) and it is critical to determine if the role is effective or not. Many studies have been done that have showed the success of the ONN from the patient's viewpoint, but very few have been done that from the viewpoint of the actual ONN. This study analyzed the work engagement and the perceived effectiveness of ONNs who were part of a Facebook group. The results of the study showed that ONNs have high work engagement and perceived effectiveness and that there is a correlation between these variables. As a result, these high levels in the two variables will help to increase the ROI in hospitals and health care facilities.

**6:40 -7:20****Heidi Ebin****Adviser:** Professor Theresa Engle; **Reader:** Professor Karen Wajda*Obstetric Nurses' Beliefs on the Implementation of Comprehensive Postpartum Hemorrhage Protocols*

The purpose of the study was to answer the questions: Do obstetric nurses' beliefs about comprehensive postpartum hemorrhage protocols affect how they implement the protocols? Do years of experience affect nurses' beliefs about the implementation of postpartum hemorrhage protocols? And do obstetric nurses feel confident in their ability to implement postpartum hemorrhage protocols when compared with nurses from the original EBP Beliefs Scale study? This was achieved by using a non-experimental study design with convenience sampling using Facebook groups and the researcher's personal Facebook page. The results from the study showed that out of the sample of 56 nurses, almost all work in hospitals with postpartum hemorrhage protocols in place, and about 90% reported that they implement these protocols thoroughly and consistently. When compared to nurses from the original EBP Beliefs Scale study, the nurses in this sample had significantly stronger positive beliefs on the implementation of postpartum hemorrhage protocols. The results also showed a statistically significant positive correlation between years of experience and beliefs on postpartum hemorrhage protocols. The results from this study can be used to help guide future research on comprehensive postpartum hemorrhage protocols and what affects the implementation of these protocols.

**7:20-8:00****Leah Cavanaugh****Adviser:** Professor Tracey Herstich; **Reader:** Professor Zana Zawahri*A Descriptive Study of the Relationship Between Knowledge and Attitudes Towards E-Cigarettes Held by Nurse Anesthetists*

E-cigarettes are smoking devices that primarily deliver nicotine and possibly tetrahydrocannabinol to users through an inhaled aerosol. Despite the lack of data on the short-term and long-term effects of inhaling e-cigarette aerosols, these devices continue to grow in popularity. Negative attitudes towards conventional cigarette use has been researched within medical professionals, but no research has been done regarding negative attitudes towards e-cigarette use from medical professionals. Negative attitudes towards patients who use conventional cigarette can affect patient care outcomes. This research will examine the correlation between knowledge of e-cigarettes and negative attitudes towards them held by Nurse Anesthetists through a survey in a private Facebook group of Ohio Nurse Anesthetists. Negative attitudes in this study has been divided into two variables, health risk and health promotion. The hypothesized result of this study was a positive correlation between knowledge of e-cigarettes and negative attitudes towards e-cigarette users. This study showed a positive correlation between e-cigarette knowledge and negative attitudes towards e-cigarette users held by Nurse Anesthetists, meaning that when a participant scored higher in e-cigarette knowledge, they were likely to have stronger negative attitudes towards e-cigarette users.

**Monday, March 29th**

**1:30-3:30 pm**

**Therapy and Evidenced-Based  
Practice in Healthcare**

**1:30-2:10**

**Abigail Lentz**

**Adviser:** Dr. Carey Minard; **Reader:** Dr. Joe Wayand

*Perspectives on Effectiveness of Sensory Based Interventions in Treating Performance Skills*

Research on sensory based interventions (SBI) provides inconsistent results when studying the effect on client performance skills. Additionally, perspectives of Occupational Therapists (OT) and Occupational Therapy assistants (OTA) on SBI is lacking in existing literature. To determine the perceived effectiveness of this intervention on client performance skills and disorders, 65 OT/OTAs were surveyed. Analyses were completed on the collected data to establish if the OT/OTA's level of education or years of experience dictated their perspectives on effectiveness. The results of this study indicated no significant relationship between the level of education or years of experience and the perspectives on effectiveness. Although the results were insignificant, the descriptive survey results indicated a positive response to using SBI in treatment for individuals with performance skill issues or those diagnosed with a disorder that may compromise performance skills.

**2:10-2:50**

**Dena Wenzinger**

**Adviser:** Professor Dana Ilg; **Reader:** Dr. Nina Rytwinski

*Attitudes of OT & PT Students and Therapists toward Animal Assisted Therapy as an Intervention to Treat Patients with Cerebral Palsy*

As cerebral palsy (CP) is a prominent, life-long disorder, people diagnosed with it need to find the best treatment plan and long-term care. There are several different routes for treatment and animal-assisted therapy (AAT) could potentially be found to significantly impact someone with CP as it has been found to provide benefits to other people. This study looks at how occupational therapists, physical therapists, and students studying to become therapists view AAT, in general, and how they view AAT as an intervention for treatment with patients who have been diagnosed with CP, which has not been studied before. This study recruited graduate students from Walsh University and therapists to complete a survey. Among what was discovered was that knowledge of AAT's use with CP patients was significantly associated with perceived effectiveness and the impact of AAT on CP patients' feelings was significantly correlated with the likelihood of future use of AAT with CP patients. Although more research is needed, the results of the current research serves as a promising outlook on the effectiveness and impact of AAT and the likelihood of AAT being used with CP patients.

**2:50-3:30**

**Kathrine Herrick**

**Adviser:** Professor Tammie Davis; **Reader:** Dr. Britt Cooper

*Effects of Music Therapy on Pain in Pediatric, Adult, and Elderly Populations*

This research study compared the effectiveness of music therapy in reducing pain levels in the pediatric, adult, and older adult populations. In addition, this study compared different types of music therapy and their effectiveness in reducing pain levels in comparison to pediatric, adult, and older adult populations. The research design is a content analysis to study the relationships between the effectiveness of music therapy in reducing pain levels in various populations with different types of music therapy. This study included peer-reviewed scholarly journals that included human participants that researched the effect of music therapy implemented by a licensed music therapist on pain levels using valid and reliable pain measurement tools in the pediatric, adult, and elderly populations. Music therapy is a growing field and is effective in providing non-pharmacological pain relief in individuals of all ages. The results of this research study can assist in guiding future research by identifying the varying effectiveness of music therapy in different populations.

**Tuesday, March 30th**

**2:30-4:30pm**

**Understanding & Improving  
Educational Experiences**

**2:30-3:10      Madison Markus**

**Adviser:** Dr. Nina Rytwinski; **Reader:** Dr. Tiffany Peets

***Perceptions of Campus Religious Environment & College Adjustment Among Freshmen University Students***

Freshmen college adjustment is relevant due to an increasing interest in retention rates and overall well-being for college students. This thesis was conducted to examine the relationship between freshmen perceptions of the religious environment on campus and their adjustment scores. Freshmen students (N=165) at Walsh University completed a self-report questionnaire that assessed adjustment (using the College Adjustment Test), religiosity, and perceptions of the religious environment on campus. A large majority of participants (90.40%) reported that the religious environment on Walsh University's campus is "just right." However, those participants who viewed the religious environment as too strong had significantly lower positive effect scores than both those who view it as just right or not strong enough. When this effect was further examined, it only proved to be significant for students who reported that Walsh's religious environment was not relevant to their decision to attend the university. This is the first study to examine the relationship between perceptions of a university's religious environment and freshmen adjustment. Though additional longitudinal research is needed, understanding the different factors that are related to adjustment may be used to improve college student success.

**3:10-3:50      Suchitra Sherpa**

**Adviser:** Dr. Jennifer Vokoun; **Reader:** Dr. Ron Scott

***The Role of Gamification and UX Design in Educational Websites for Pre-schoolers***

This qualitative research study examines gamification and applies user-experience design to review several children's educational websites for preschoolers, including PBS Kids, Starfall, and CBC Kids. The purpose of this study is to examine the usability, visual design, feelings, and gamification in these sites and to analyze the experience of children, parents, or caregivers, in using these sites. User experience (UX) design is an emerging field, and methods of analysis include gathering data about the websites through applications such as Google Analytics and Google Lighthouse, creating fictional personas and specific scenarios based on target users, creating user-flows, conducting heuristic evaluations, and making journey maps. In addition, the application of gamification in each of the websites is explored by identifying the known gamification elements present and understanding the type of feelings that they communicate with the users. Gamification factors such as rapid feedback, storytelling, progression, freedom to fail, challenges, plus game features like points, rewards leaderboards, badges, etc. were reviewed and analyzed to infer the total experience of the target users. With this study, the aim is to contribute to the limited research about the emerging field of UX Design and Gamification in academia and highlight how these fields are important in defining user behaviors and needs and the overall experience of interacting with a product or experience.

**3:50-4:30      Joseph Holiga**

**Adviser:** Dr. Samer Khasawneh; **Reader:** Professor Jim Jerkofsky

***Additions to Mathematics Lessons Authoring System: A Web-based Mathematics Education Tool***

The demand for web-based educational tools is growing exponentially in the world we live in today. With the constant advancement and availability of technology, as well as the developments in remote learning brought on by quarantine for the Coronavirus, the need for readily available educational tools is at an all-time high. This thesis illustrates the process of developing web-based interactive learning software for math students at the primary school level. Three interactive manipulatives were developed using the languages JavaScript, HTML, PHP, and MySQL, as well as the JavaScript framework jQuery. These manipulatives span the subjects of hundreds chart exploration, money counting, and fractions, and were implemented into a Mathematics Lessons Authoring System, a system which can be easily implemented into any primary school curriculum. The implementation of these manipulatives into MLAS advances the ability for educators to customize technology to their curriculum and acknowledges the growth of technology in the school environment.

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Wednesday, March 31<sup>st</sup>

4:00-6:00 pm

## Exploring the Humanities through Literature, History, and the Arts

**4:00-4:40 Karen Klatt**

**Adviser:** Dr. Katherine Brown; **Reader:** Dr. Jennifer Green

*The Representation of Female Artists in Ohio Department of Education Standards for Visual Arts Grades 9-12: Lesson Planning on Sofonisba Anguissola, Mary Cassatt, and Frida Kahlo*

Professionally, female artists are underrepresented in museums. This disproportionate representation stems from the lack of historical female artists presented in visual arts classrooms. Since adolescents are directly impacted by same-gender role models, it is essential for young women to be exposed to works by professional female artists while their brains are still developing. If female students are presented with successful role models who share their identity, they are more likely to choose careers in professional art. Thus, my research focuses specifically on the inclusion of three historical female artists within visual arts classrooms in Ohio public schools. I selected three diverse artists to represent sequential periods of time: Sofonisba Anguissola of the 16th-17th century, Mary Cassatt of the 19th century, and Frida Kahlo of the 20th century. My research seeks to answer the following questions: Who are these significant female artists? What are their major contributions? How did they develop their skills? Why have female artists traditionally used the genre of self-portraiture to assert their place in society? Why is it important to study these female artists? I will then propose why the inclusion of female artists should be mandated at the state level for Visual Arts classrooms in grades 9-12.

**4:40-5:20 Dominic White**

**Adviser:** Dr. Rachel Constance; **Reader:** Dr. Tom Freeland

*The Evolving Rights of the Dead: The Anatomy Act of 1832 and the Expansion of Liberal Subjects in 19th Century Great Britain*

During the 19th century in Great Britain, the medical profession's rising demand for human bodies to dissect was stymied by the limited legal supply. The body shortage led to the rise of resurrectionists, who dug up fresh human remains and sold them to anatomy schools. At the same time, liberal ideologies, which focused on concepts of freedom and individual rights, rose to prominence in British politics. As a result, Britons gained status as liberal subjects, who are individuals with particular rights to be protected. The Anatomy Act of 1832 was designed to create a legal supply of human bodies, which would eliminate the need for resurrectionists. This thesis argues that the growing issue of body snatchers, the evolution of liberalism, and the development and professionalization of the medical field during the 19th century established human corpses as liberal subjects which granted them specific rights after death. This was achieved in part through the Anatomy Act of 1832. If corpses developed liberal subject status, they also gained rights; essentially, a living person could agree to serve the government by donating their body to science, and in return, the government protected the rights of their bodies to be treated respectfully after death.

**5:20-6:00 Joseph Beaver**

**Adviser:** Dr. Chris Seeman; **Reader:** Dr. John Kandl

*Reflections on the Origins and Impact of the Watchers Tradition*

Culture and society in the ancient world were shaped by the mythological beliefs of individual civilizations. The Watchers tradition, an Ancient Near Eastern myth present in the Hebrew Bible as well as in non-canonical books such as The Book of the Watchers, contains some of the least understood elements within the mythology of the Jewish people. These sources reveal myths to be dynamic reflections of changing cultural values. Between the first references to the Watchers in Hebrew mythology and their elaboration during the Hellenistic period six centuries later, the Watchers tradition developed from a reference in passing in the Book of Genesis to an in-depth exploration of Good and Evil in The Book of the Watchers. The nature and meaning of this development warrants discussion, as do the cultural exchanges and historical context that may have generated it. If the transformation of the Watchers myth was influenced by Jewish experience of Hellenistic rule, that invites further reflection on how the idea of supernatural evil entered into Judaism and would influence the later idea of fallen angels in Western civilization.

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Wednesday, March 31st

6:30-8:30pm

## Survey Use Across Disciplines: Exploring Special Topics

**6:30-7:10**

**Evelyn Aaron**

**Adviser:** Dr. Koop Berry; **Reader:** Dr. Barbara Palmer

*The Gender Gap and Generational Differences in Ohio's Bellwether*

This study looks at Stark County, Ohio – a national bellwether – through the conduction of a survey at all six of its institutions of higher education, enabling the study of the gender gap and women's generational gap in a college-educated atmosphere. A total of 725 respondents among students, staff, and faculty gave complete responses that were used to analyze political party affiliation, political ideology, and attitudes toward public policies. While women were far more likely to identify as Democrats, chi-square and independent samples t-tests indicate that women only support more liberal pro-women policies and government program expansion; men and women has similar attitudes toward both economic and social inclusion policies. Women over 25 held more liberal attitudes toward pro-women and social inclusive policies than college-age women, but the two groups answered similarly on government programs and economic inclusion.

**7:10-7:50**

**Morgan Rowan**

**Adviser:** Dr. Gary Jacobs; **Reader:** Dr. Laci Fiala

*The Effects of Self-Determination and Campus Service Utilization on the Academic Performance of College Students*

This study was conducted to examine the effect of self-determination, or one's feelings of satisfaction in three basic psychological needs – autonomy, competence, and relatedness – and the use of campus services on academic performance among students with and without attention-deficit hyperactivity disorder (ADHD) and/or specific learning disabilities (SLD). Sixty-nine participants at a small liberal arts college in Ohio completed an online survey containing a self-determination scale; a survey to measure how frequently they used an array of academic and non-academic campus services; and demographic questions about their GPA and key control variables. A significant relationship was found between satisfaction of relatedness needs and outreach to non-academic campus services, but no relationship was found between any self-determination constructs or use of campus services on academic performance. Study outcomes also showed students in the sample did not frequently utilize campus services, were highly self-determined, and earned high GPAs overall. While too few participants identified as having ADHD and/or SLD in the sample precluded any comparison between students with and without disabilities, these sample characteristics and other facets of the study design emphasized the complicated role of campus connections and engagement in academic outcomes for all students.

**7:50-8:30**

**Gabriel Kraus**

**Adviser:** Dr. Kim Metz; **Reader:** Dr. Laci Fiala

*Examining Parents' Perceived Knowledge and Response to Pornography in the Digital Age*

Parents with children in 5th -12th grade (N=80) responded to instruments measuring the relationship between their perceived knowledge, attitudes, and internet safety strategies with respect to the topic of pornography, as well the quality of communication that parents have with their child. Results showed that when parents possessed higher perceived knowledge of pornography, they were stronger in their belief that it was negative and that there is a need for restrictions. Furthermore, an increase in perceived knowledge of pornography was associated with an increase in the use of internet safety strategies. Multiple regression analysis suggests that the increase in the use of internet safety strategies as perceived knowledge increased showed to be much greater for parents that possessed a low quality of communication with their reference child. The implications of the findings as well as suggestions for future research are discussed throughout.

## 2021 Honors Seniors

**Evelyn Aaron**



"As someone interested in a career in public opinion polling and database management, the Honors Thesis was the perfect opportunity to do this for the first time! Having over 800 respondents? Both so exciting and so gratifying."

**Roja Baruwal**



"Honors program helped me expand my horizon, gain a holistic educational experience, and make amazing friends on the way!"

**Joseph Beaver**



"Researching this project and developing it into its current form has been one of the most challenging and rewarding experiences of my college career...It fills me with pride to be able to present on a topic of such personal interest to me, that I no doubt would never have been made aware of without the Walsh University Honors Program."

**Majesti Brown**



"My Honors experience is really important to me because not only did I grow as a student during this time, but it also it gave me the opportunity to research and design a creative piece about a topic that I really care about. What I have learned and created along the way, with the help of my advisor and reader, has proven to me that design students can have a valuable Honors research experience."

**Leah Cavanaugh**



"The honors program has helped develop as a professional and as a person. I am very grateful for the opportunity to do original research and widen my depth of knowledge throughout my four years at Walsh University."

**Lindsey Craft**



"My memorable moment was attending the US/Mexico border trip in Laredo, Texas my freshman year which sparked my interest in immigration teaching me that inspiration for research can begin in unexpected places. This trip has led me down the path of many different research projects throughout my undergraduate career until finally my last (and biggest) one!"

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## 2021 Honors Seniors

**Christopher Dougherty**



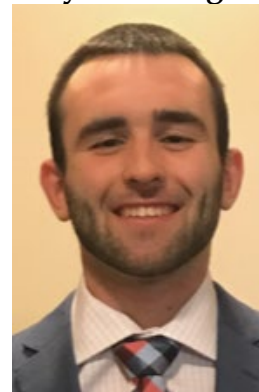
"My experience in honors over the last four years has widened my perspective on many topics while also helping me learn which topics I am truly passionate about. Working on my thesis has helped me see that disparities in education is an issue that I am passionate about and want to work to resolve in the future."

**Heidi Ebin**



"Honors research involves a lot of effort, determination, creativity, and discipline, and provides an amazing opportunity for students to contribute to the knowledge on a subject that they are passionate about."

**Tyler Giesige**



"Honors at Walsh was a great way to create a solid and lasting friend group as well as enhancing opportunities for future study and research to be conducted after undergraduate school."

**Kathrine Herrick**



"My experience in the honors program has given me opportunities to explore new ways of thinking in several disciplines and has allowed me to do original research. Being able to do original research has been a remarkable experience that has allowed me to challenge myself and my abilities, while also expanding my knowledge in areas of interest."

**Joseph Holiga**



**Parvaneh Karimpour**



"With the outbreak of the pandemic during the height of our thesis proposals, my proposed wet-lab research project had to be modified into a digital study. Not only were my advisors and mentors in the Owens lab instrumental in guiding me through the process, but I also discovered the incredible potential of digital pathology and computational research!"



## 2021 Honors Seniors

**Karen Klatt**



"I tremendously enjoyed creating my Senior Honors Thesis about the representation of female artists in Ohio public high schools. As a dual major in Art History and High School Education, the topic of women in the arts holds great significance for me. I loved bringing both the paintings and personalities of the artists Sofonisba Anguissola, Mary Cassatt, and Frida Kahlo to life. I hope the upcoming generation of students can one day benefit and be inspired by the careers of these women who changed the field of art."

**Cade Lloyd**



"As I am in my 2nd semester of my graduate studies, it is nice to finally see some of the literature I learned about for my JHP come to life."

**Gabriel Kraus**



"My Senior Honors Thesis has been a great educational and personal journey. I have had the unique opportunity to further develop and refine my research skills while pursuing a topic that is important to our discussion as a society.... Researching and writing my thesis has provided me an opportunity to work toward my goal of addressing issues that our youth face while contributing to this field of research. I am thankful for all of those individuals that shared in this journey with me."

**Madison Markus**



"Having Dr. Rytwinski as my thesis advisor has allowed me to learn so much about how to properly conduct a study and format a research paper. I have grown so much in my academic ability through her guidance and feel more confident approaching research in the future!"

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**Abigail Lentz**



"I loved being able to work with faculty on my research, getting to share ideas and gain knowledge on a topic I will use in my future career."

**Amelia Ohlin**



"The Honors Program has given me the ability to explore two of my passions: nursing and Spanish. Presenting an interdisciplinary thesis is something I would have never been able to accomplish without the support from the Honors Program!"

## 2021 Honors Seniors

**Varney Pelima**



"My honors experience has led to valuable academic and personal growth"

**Morgan Rowan**



"Since starting my internship at an educational non-profit this semester, I have enjoyed seeing the cross applications of my thesis research. My internship team is working to apply self-determination principles to make the organization's evaluation processes more engaging and empowering for students and other program stakeholders. It has been exciting to see how my thesis research topic can apply to real world education experiences!"

**Jane Rybka**



"The Honors Program has helped me to grow both academically and personally and it was so rewarding to use the skills I learned throughout the four years to finally complete my research and thesis."

**Suchitra Sherpa**



"The senior honors research project has given me such an amazing opportunity to explore the fields of UX Design and Gamification, by giving me direction and guidance to properly conduct qualitative research on those topics. I'm really grateful for the opportunity and this research project is definitely one of my best college achievements."

**Megan Soehnlen**



"Participation in the Honors Program and the thesis experience pushed me to meet new academic highs."

**Edward Walsh**



"Only in the Honors program could pondering if Crows can do science lead to a deep revelation about what is at the heart of human existence."

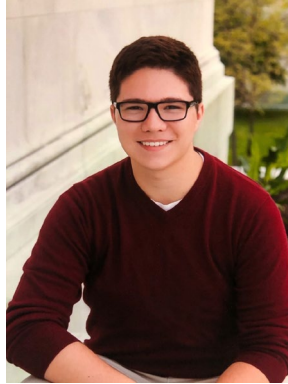
## 2021 Honors Seniors

**Dena Wenzinger**



"My time in the Honors Program has brought so much to my life, from life-long friends to skills that will stay with me as I continue my education to become an Occupational Therapist. My research has also led me to want to incorporate animal-assisted therapy into the therapy I will provide."

**Dominic White**



"Through the Honors Program, I have been able to explore new concepts and ideas in a variety of fields. The interdisciplinary program has allowed me to grow as an individual while researching topics that interest me. My experiences with research have motivated me to continue searching for answers, and I will always be grateful for my time in the Honors Program."