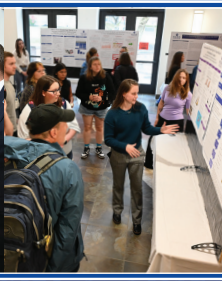
WILSON COLLEGE



17th Annual Barsy-Colgan Student Research Day

Celebrating the Creative and Scholarly Achievements of Wilson Students

April 23-24, 2026

17th Annual Barsy-Colgan Student Research Day

Year after year, Student Research Day remains my favorite academic event. It is a day when Wilson's educational mission is fully on display. It is deeply rewarding to see our students present their scholarly and creative achievements, marking the culmination of their Wilson experience.

What distinguishes this day is witnessing the liberal arts and sciences at work. We celebrate students' ability to integrate knowledge across disciplines, where scientific investigation intersects with human insight, artistic expression informs social inquiry, and theory addresses real-world challenges. These presentations reflect how a Wilson education moves beyond traditional academic silos, cultivating integrative thinking that prepares students for our complex world.

The projects featured today highlight our students' intellectual curiosity and academic development. Through close collaboration with faculty mentors, students have taken on the challenge of original research by asking important questions and pursuing answers through rigorous inquiry. The strong partnership between students and faculty exemplifies the personalized educational experience that defines Wilson College.

This year's presentations represent a wide range of disciplines across the sciences, humanities, arts, and social sciences, demonstrating both the breadth and depth of a Wilson education. I encourage you to explore presentations outside your own areas of expertise and interest to experience how disciplines inform and strengthen one another. Your presence here honors these students' achievements and affirms the interdisciplinary approach that is central to our educational mission.

Thank you for your continued support of our scholars. I hope you enjoy the day!

Sincerely,

Elissa Heil, Ph.D.
Provost/Vice President for Academic Affairs

SCHEDULE OF EVENTS

Thursday, April 23, 2026
Laird Hall Auditorium:

Poster Research Presentations 3–5 p.m.

Individual and class posters described on pages 24-46 will be on display.

Friday, April 24, 2026
Harry R. Brooks Complex for Science, Mathematics and Technology Auditorium:

Oral Research Presentations 8-4 p.m.

8 – 8:10 a.m.	Welcome Address – **Wesley R. Fugate, Ph.D.,** *President*
8:10 – 9 a.m.	**Allyson S. Garcelon '26** (p. 6) Stress, Burnout, & Coping Strategies Among College Athletes
	Rachel M. Biesecker '26 (p.7) The Politics of Equestria: Classism and Feminism in My Little Pony: Friendship is Magic.
	Ava Lynn Lawrence '26 (p. 8) Parasitic, Bacterial, Fungal, and Environmental Stress-Related Diseases in Koi and Goldfish: Diagnosis and Sustainable Management
9 – 10 a.m.	**Faith Crawford '26** (p. 9) The Sacred Heart of Butterflies
	Marianne Ngo Bapa Ba Boumtje '26 (p. 10) Testing the Photo-Response of Thin Film Elastiomers of Varying Thickness
	Adesewami E. Ajirotutu '26 (p. 11) Exploring the Link Among Visible Signs of Aging, Age Perception, Stress, and Telomere-Associated qPCR Ct Values
	Natalie O. Beckner '26 (p. 12) Women In The Henriad: Hegemony over Agency in Shakespeare's Second Tetralogy
10 – 11 a.m.	**Sarah E. Bushey '26** (p. 13) How Inaccurate Human Perceptions Influence Conservation Efforts for African Wild Dogs, Polar Bears, and Grey Wolves
	Emily G. Stamper '26 (p. 14) Enrichment in Feedlot Cattle

	Emily T. Johnson '26 (p. 15) Effects of Forest Fires on Regeneration of Tree Species Relative to Unburned Sites: A Look at Secondary Succession versus Established Communities
11 a.m. – 12 p.m.	**Kendi D. Long '26** (p. 16) Land Use Optimization Study; Potential for Pasture-to-Crop and Crop-to-Pasture Conversion
	Katherine F. Kimmel '26 (p. 17) Concentration of Iron in the Equine Hoof Wall and its Relationship to Veterinarian-Diagnosed Laminitis
	Erin Gohegan '26 (p. 18) In-Game and Psychological Factors Influencing Purchasing Behavior in Gacha Games
1 – 2 p.m.	A special message from the Barsy-Colgans.
	Brian P. Mulholland '26 (p. 19) The Effect of Glyphosate and Atrazine on Phenotypic Variation in Brassica rapa
	Jade M. Syto '26 (p. 20) From Red Panda to Bhutan Takin: How Culture, Communities, and Policies Shape Conservation Strategies
	Matt L. Browning '26 (p. 21) Environmental Factors and Their Impact on Bat Box Preference in Pennsylvania Over the Warm Season
2 – 2:20 p.m.	**Acadia J. Banis '26: Honors Thesis** (p. 22) Natural Versus Traditional: Comparative Effects of Essential Oil–Based and Veterinary-Grade Canine Topical Repellents on the Behavior of Ixodes scapularis
2:20 – 2:40 p.m.	**Alexa A. Kosofsky '26: Honors Thesis** (p. 23) Adoption & Mental Health

Disert Scholar

3:00 – 3:30 p.m.	**Rosa M. Portilla '26** (p. 5) The Effect of ApoE3 Glycosylation Levels on its Binding Affinity for the CLEAR DNA Motif

The Barsy-Colgan Student Research Day is supported by Louise Barsy Colgan '80, and her husband Sean. Their generous philanthropy supports student academic research and ensures this important Wilson event continues. Each year, students may apply for grants for research they intend to complete in their senior year for presentation on Student Research Day. Louise and Sean have endowed those grants.

The Colgans hope their support encourages students to passionately pursue their interests and to follow the patterns of the universe's minute, and immense, handiwork.

Louise is the daughter of Helen Yeager "HiY" Barsy '44, who passed away in 2019. Helen held a degree in chemistry from Wilson and became a teacher, earning her master's degree and later serving as a community volunteer.

Louise earned a degree in art history at Wilson. After graduation, she pursued graduate work at Cornell University in architectural preservation. Louise is a material culture artist with her bobbin lace work. She is a published author on the craft and has her own studio, Colgan Lace. Her husband Sean is an astronomer with NASA. Much like the intricately woven fibers of his wife's work, Sean's career has focused on the complicated patterns of star-forming regions, supernovae, and galactic centers.

DISERT SCHOLAR PRESENTATION

Rosa M. Portilla ’26

Major: Biochemistry and Molecular Biology

Adviser
Kathryn L. Sarachan, Ph.D., Associate Professor of Chemistry
Amber R. Marble, Ph.D., Assistant Professor of Biology

The Effect of ApoE3 Glycosylation Levels on its Binding Affinity for the CLEAR DNA Motif

Alzheimer’s disease is a neurodegenerative disorder characterized by beta-amyloid (Aβ) plaques and neurofibrillary tangles. The major genetic predisposition to Late-Onset Alzheimer’s disease is apolipoprotein E4 allele (APOE4). In the brain, ApoE primarily functions to mediate lipid and cholesterol transport to neurons to support membrane homeostasis, synaptic integrity, and injury repair. ApoE4 demonstrates increased binding affinity for the Coordinated Lysosomal Expression and Regulation (CLEAR) DNA motif. When ApoE4 binds to CLEAR, it inhibits the expression of genes that aid in clearance of aggregates such as Aβ plaques. Decreased levels of glycosylation of ApoE4, relative to other isoforms, contributes to its pathophysiological mechanisms by affecting its binding affinity for various molecules. ApoE isoforms E2, E3, and E4 have decreasing levels of glycosylation, respectively. Conversely, E2; E3; and E4 have increasing binding strength to CLEAR DNA, respectively. This research set out to determine if there is a connection between ApoE glycosylation levels and its binding affinity for CLEAR. Evidence of ApoE3 binding to CLEAR DNA was confirmed with Electrophoretic Mobility Shift Assay. Titration of non-glycosylated and glycosylated ApoE3 across a constant CLEAR DNA concentration was carried out by sedimentation velocity analytical ultracentrifugation to investigate the protein-DNA interaction; sedimentation behavior offered insight into molecular weights and shapes of the sedimenting species and suggested a possible stoichiometric binding model. Non-glycosylated and glycosylated ApoE3 displayed similar trends in the formation of higher order oligomers, with continuous distribution plots indicating concentration-dependent dimer and tetramer formation.

ORAL RESEARCH PRESENTATION

Allyson S. Garcelon ’26

Major: Psychology
Athletics: Women’s Volleyball (2-year captain)
Activities: Student athlete academic counselor

Adviser
Brittany A. Harman, Ph.D., Assistant Professor of Psychology

Stress, Burnout, & Coping Strategies Among College Athletes

College athletes face a unique combination of athletic, academic, and personal demands that can contribute to elevated stress and burnout. Although previous research has examined mental health outcomes among student-athletes, less is known about the specific stressors they experience and the sources and types of social support they rely on to cope with these challenges. The present study investigated common life stressors among college athletes and examined how athletes seek and receive social support across academic, athletic, and personal stress contexts. College athletes between the ages of 18 and 24 completed an anonymous online survey assessing perceived stress, major life stressors, and the sources and types of support they received during stressful situations. Participants completed the Perceived Stress Scale and reported whether they received emotional, informational, instrumental, or esteem-based support from various individuals, including coaches, faculty or staff members, teammates, friends, family members, and mental health providers. Participants also rated the extent to which support from these individuals reduced their overall stress. The study aimed to identify patterns in both the sources of support athletes turn to and the types of support most commonly provided across different stress domains. By examining stress experiences alongside social support networks, this research provides a more comprehensive understanding of how college athletes manage stress. Findings may help inform strategies for improving mental health support within collegiate athletic environments and highlight the importance of fostering supportive relationships that promote athlete well-being both on and off the field.

ORAL RESEARCH PRESENTATION

Rachel M. Biesecker ’26

Major: Animal Studies

Minor/Certification: Environmental Science and English

Activities: Orchesis President 2023-Present

Adviser

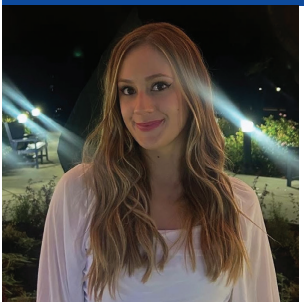
Tammy Ege, M.S., Associate Professor of Veterinary Nursing and Animal Studies

Mary Beth Wert, M.A., Associate Professor of Veterinary Nursing and Animal Studies

The Politics of Equestria: Classism and Feminism in My Little Pony: Friendship is Magic.

My Little Pony: Friendship is Magic (2010-2019) is a modern-day beast fable that is directed towards teaching children, mainly young girls about the power of friendship and working together. The show itself carries a hidden ideology of classism. Referred to as “ponies” in the country of Equestria, earth ponies, pegasi, unicorns, and alicorns all work together in specific labor roles. This however, shows an implicit hierarchy of classism through assigned labor roles to the different ponies based on their biological differences. In addition, a superficial feminism is apparent, as the show is marketed for young children, mainly girls, displaying a matriarchal society in Equestria. However, further examination reveals reinforced gender roles for both male and female ponies in the show, and unveiling the real-life consequences of the fragility of feminism through the “Brony” culture.

ORAL RESEARCH PRESENTATION



Ava Lynn Lawrence ’26

Major: Environmental Science

Minor/Certification: Animal Studies

Adviser

Christine S. Mayer, M.Ed., Assistant Professor of Environmental Sciences

Parasitic, Bacterial, Fungal, and Environmental Stress-Related Diseases in Koi and Goldfish: Diagnosis and Sustainable Management

This project will develop a comprehensive guidebook focused on the identification, causes, symptoms, and management of common diseases affecting koi and goldfish in freshwater hatchery and fishery settings. Drawing on hands-on experience at Mt. Parnell Fishery and supported by peer-reviewed scientific literature, this research combines practical observations with academic analysis to address common health challenges in ornamental aquaculture. The study examines parasitic, bacterial, fungal, and environmental stress-related diseases, emphasizing accurate diagnosis, prevention strategies, and sustainable treatment practices. By integrating field experience with current ecological and aquaculture research, this project aims to create both an academic research paper and a practical reference guide for hatchery managers and ornamental fish producers. The resulting guidebook is designed to support improved fish health management, reduce mortality rates, and promote responsible freshwater aquaculture practices. This work contributes to ecological perspectives in fisheries by connecting disease management with environmental conditions, water quality, and sustainable hatchery operations.

ORAL RESEARCH PRESENTATION

Faith D. Crawford ’26

Major: English (Creative Writing)

Minor/Certification: Environmental Studies and Sociology

Activities: Sigma Tau Delta, Pi Gamma Mu, and co-founder of The Pollenators Art Club

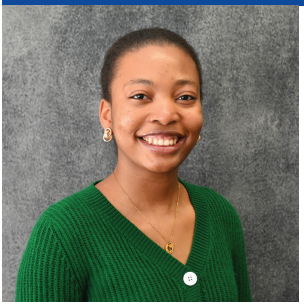
Adviser

Matthew McBride, Ph.D., Associate Professor of Interdisciplinary Practice

The Sacred Hearts of Butterflies

The Sacred Hearts of Butterflies is a collection of poetry that stands between the surreal and the metaphysical, articulating the unending journey toward becoming. It questions the atonement demanded of us by religious dogma, using mythology both historical and personal to illustrate a perspective where the Self is made new without shame.

ORAL RESEARCH PRESENTATION



Marianne Ngo Bapa Ba Boumtje '26

Major: Chemistry

Adviser
Kathryn L. Sarachan, Ph.D., Associate Professor of Chemistry
Zuleikha Kurji, Ph.D., Associate Professor of Chemistry, Saint Mary's College of California, Moraga CA

Testing the Photo-Response of Thin Film Elastomers of Different Thicknesses

Light-responsive liquid crystal elastomers (LCEs) can be used as actuators in biomedical devices and robotics. Thickness is an important engineering parameter that may affect the speed, force, and repeatability of the light-induced bend. Here we report the synthesis of azobenzene-containing thin film LCEs by sandwiching a still-crosslinking LCE reaction mixture between two glass slides with a release agent applied to make removal easier, using different layers of scotch tape as spacers to determine film thicknesses. After demolding, the sample was stretched and exposed to UV light at 405 nm to align the LC polydomain to the monodomain. This alignment concludes the second cross-linking. Using this method, thin films with thicknesses ranging from 50 -200 μm were successfully synthesized and aligned. Their light responses were measured using 405 nm light and the effect of increasing thin film thickness on LCE bending was analyzed. Establishing how different thicknesses of thin films react to light will help establish which different thicknesses will be more advantageous in an array of different fields, from biomedical to energetics technologies.

ORAL RESEARCH PRESENTATION

Adesewami E. Ajirotutu '26

Major: Biochemistry and Molecular Biology

Adviser

Amber R. Marble, Ph.D., Assistant Professor of Biology

Kathryn L. Sarachan, Ph.D., Associate Professor of Chemistry

Exploring the Link Among Visible Signs of Aging, Age Perception, Stress, and Telomere-Associated qPCR Ct Values

In humans, telomeres are repeats of TTAGGG sequences. They are found at the end of chromosomes, serving as protective caps that help to preserve genomic stability. Telomeres play a key role in cellular aging by protecting the ends of the chromosomes from degradation and inappropriate repair mechanisms. Over time, telomere length shortens with each cell division, contributing to visible and physiological signs of aging, and research shows that TL can shorten as a result of environmental and lifestyle stressors. This research examined the relationships between visible aging signs, age perception, perceived stress, and quantitative polymerase chain reaction (qPCR) cycle threshold (Ct) values. DNA samples were collected through buccal swabs and analyzed using qPCR. Participants provided demographic information, completed the Perceived Stress Scale (PSS), and submitted photographic data; used to assess visible and perceived age. Perceived age assessment was conducted using Copilot AI to provide objective comparison of perceived and chronological age. A strong positive correlation was found between chronological age and perceived age ($r = 0.867$, $p < 0.001$), showing that the perceived ages were generally close to participants chronological ages. However, sample telomere Ct values did not show significant relationships with chronological age, perceived stress, physical activity, or visible aging measures. The telomere Ct values were also not significantly associated with whether participants appeared older or younger than their chronological age. In all, this research suggests that in a small sample, biological aging markers and visible aging does not always align.

ORAL RESEARCH PRESENTATION

Natalie O. Beckner '26

Major: English—Literary Studies

Minor/Certification: Medical and Healthcare Humanities

Adviser

Michael G. Cornelius, Ph.D., Dean of the School of Arts and Sciences and Professor of English

Women In The Henriad: Hegemony over Agency in Shakespeare's Second Tetralogy

Shakespeare's Second Tetralogy is heavily structured around male-centered themes and narratives, including succession, lineage, authority, and action. The few female characters who appear in these plays are often treated as marginal characters who have little to no agency over their own lives or participation in the events within the plays. This paper argues that the absence of agency among these figures promotes their use of hegemony as a form of narrative authority. Through emotional expression and social manipulation, female characters shape the narrative in subtle but significant ways. Focusing on three distinct characters—the Duchess of Gloucester, the Duchess of York, and Princess Katherine—this paper analyzes how, despite the positioning of these women outside the male-centered themes and issues, Shakespeare still allows them to shape meaning and present hegemony over the male characters as well as the narrative.

These women reveal how the lack of agency for female characters can promote the subtle use of hegemony to shape the structure of the narrative. By examining the relationship between agency, hegemony, and gender in Shakespeare's history plays, this paper demonstrates that female marginalization and lack of formal agency in the bookend plays of the Henriad allows the female characters to express hegemonic influence on the male characters and within the narrative. Because they exist outside the direct structures of male authority, their roles give voice to the emotional interpretations of the actions and consequences of male characters as well as the human costs embedded in the actions of kings and nobles. Even in a narrative dominated by male authority, women can shape meaning by occupying positions where their agency is absent, but their hegemony and influence remain intact and possible.

ORAL RESEARCH PRESENTATION

Sarah E. Bushey ’26

Major: Animal Studies
Minor/Certification: Biology
Activities: Omicron Delta Kappa and other clubs

Adviser
Tammy Ege, M.S., Associate Professor of Veterinary Nursing and Animal Studies
Mary Beth Wert, M.A., Associate Professor of Veterinary Nursing and Animal Studies

How Inaccurate Human Perceptions Influence Conservation Efforts for African Wild Dogs, Polar Bears, and Grey Wolves

Perceptions can form from many things, including personal experiences, cultural and societal beliefs, and historical events. But because of these factors, ideas of animals can form that are inaccurate. The purpose of this research was to view inaccurate perceptions of African wild dogs, polar bears, and grey wolves and how it negatively affects their conservation efforts. It was found that appreciations of African wild dogs are negative, the recognitions for polar bears are positive, and the acknowledgements for grey wolves is mixed. These species are threatened and inaccurate knowledge affects their conservation efforts. Because both grey wolves and African wild dogs are often viewed as villains because they hunt livestock, they have little support for their conservation, while polar bears have a lot of support, but it can cause problems when people want to interact with them, and those actions cause further problems. But when new research on grey wolves came out in the 20th century about how they are family-orientated animals, peoples’ understanding of them changed. Therefore, by having more accurate depictions of these animals, people will understand what they are really like, and why they are suffering from endangerment. This will prompt people to support their conservation efforts, and help these species. But this can be applied to other disliked species because showing people the accurate lives of these animals and their need for conservation, people’s minds might also be changed to help these species too.

ORAL RESEARCH PRESENTATION

Emily G. Stamper '26

Major: Animal Studies

Minor/Certification: Environmental Studies Concentration

Adviser

Tammy Ege, M.A., Associate Professor of Veterinary Nursing and Animal Studies

Mary Beth Wert, M.S., Associate Professor of Veterinary Nursing and Animal Studies

Enrichment in Feedlot Cattle

Feedlots across America are known for having little space, enrichment, and allowance for natural behavior of cattle. Very little has been done to push for implementing changes to these production facilities. Enrichment is key to ensuring the wellbeing of these animals by not only encouraging positive behaviors, but also decreasing negative, unwanted behavior in cattle. While a producer might argue that enrichment is unnecessary and costly, there is evidence that proves otherwise. Not only can this improve the wellbeing of cattle, but there are production benefits as well. Animals with lower cortisol levels have shown an increase in feed intake therefore resulting in higher weight gain and carcass quality. A decrease in muddy environments reduces dirt and fecal matter on carcasses, so that production is not slowed for carcass cleaning. This paper will look at current feedlot practices and underlying issues, as well as potential enrichment and implication to operations.

ORAL RESEARCH PRESENTATION

Emily T. Johnson ’26

Major: Environmental Science

Minor/Certification: Biology and Animal Studies

Athletics: Hunt Seat Equestrian Team

Adviser

Christine S. Mayer, M.Ed., Assistant Professor of Environmental Sciences

Sherri L. Buerdsell, Ph.D., Assistant Professor of Biology

Effects of Forest Fires on Regeneration of Tree Species Relative to Unburned Sites: A Look at Secondary Succession versus Established Communities

Comparing burned and unburned sites with similar pre-fire conditions allows for a better understanding of early successional and pyrophilous species. Some species of trees native to Pennsylvania have adapted to fire by either being early colonizers or requiring fire to germinate. By comparing burned and unburned sites, it can show how fire changes forest composition and if post-fires conditions favor pyrophilous tree species. In Micheaux State Forest, Pine Grove, PA, two sites, each with a burned and unburned section, were studied. In each section, data were collected from three belt transects measuring 20 m long and 1 m wide. The selected species that were studied were based on the common trees growing in the area which included Red Maple (Acer rubrum), Chestnut Oak (Quercus montana), Black Tupelo (Nyssa sylvatica), Sassafras (Sassafras albidum), and Pitch Pine (Pinus rigida). Within the boundaries of the transects, the number and heights of the emerging saplings were recorded every two weeks. The study took place over three months in 2025, beginning one month after the initial fire.

ORAL RESEARCH PRESENTATION

Kendi D. Long ’26

Major: Equine Studies

Minor/Certification: Small Business Management and Entrepreneurship and Environmental Studies

Athletics: Hunt Seat Equestrian Team

Activities: Equine Club and Omicron Delta Kappa

Adviser
Christine S. Mayer, M.Ed., Assistant Professor of Environmental Sciences

Land Use Optimization Study; Potential for Pasture-to-Crop and Crop-to-Pasture Conversion

Several land parcels located behind the equestrian facilities across the railway corridor have remained out of active use for multiple years. These include Pasture Five as designated in the Wilson College Farm Plan (commonly referred to as the “X-tracks”), as well as Crop Fields Two and Four and Hay Fields One and Two associated with Fulton Farm. Due to size, topography, and management challenges, these areas are currently underutilized.

This feasibility study evaluates land use optimization through the partial restoration of retired equine paddocks and the conversion of remaining acreage into cropland for hay production to support the institution’s equine program. The study examines environmental factors such as land condition and soil suitability, alongside economic considerations including estimated hay yields, production per acre, total equine hay demand, and cost comparisons between on-site hay production and external procurement. Findings from this study will inform whether repurposing underutilized land can improve resource efficiency and reduce long-term operational costs.

ORAL RESEARCH PRESENTATION

Katherine F. Kimmel '26

Major: Biochemistry and Molecular Biology

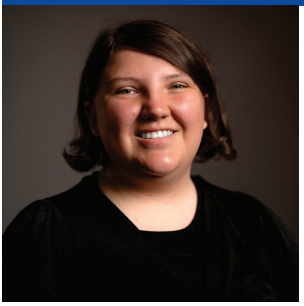
Adviser

Deborah S. Austin, Ph.D., Professor of Chemistry and Associate Dean of Academic Advising
Kathryn L. Sarachan, Ph.D., Associate Professor of Chemistry

Concentration of Iron in the Equine Hoof Wall and its Relationship to Veterinarian-Diagnosed Laminitis

Laminitis is a painful and disabling condition in horses caused by inflammation of the laminae that connects the hoof wall to the coffin bone and frequently results in severe lameness and impaired quality of life. Imbalance in trace minerals such as iron and copper may increase the risk of laminitis since these elements are crucial for the structure of the hoof wall and the integrity of the connective tissue. This study examined the iron content in the hoof wall and possible correlations with body weight and brand of food. During routine farrier visits, samples of the hoof wall were taken, and a survey was completed. The hoof wall material was digested using hydrogen peroxide and nitric acid. Atomic absorption spectroscopy was used to measure the concentration of iron. One-way ANOVA and Pearson correlations were done. The content of iron in the hoof wall varied statistically between laminitic and non-laminitic horses ($p = 0.002$), with the average iron levels being greater in non-laminitic horses. The iron content in the hoof wall varied significantly with brand of food ($p < 0.05$). The body weight of the horse and the iron content of the hoof wall were also shown to be somewhat positively correlated ($r = 0.630$, $p = 0.038$). This indicates that iron content is at a lower level when laminitis is present. Further studies should include an analysis of copper in the hoof wall to better understand the role of mineral composition and the incidence of laminitis.

ORAL RESEARCH PRESENTATION



Erin Gohegan '26

Major: Psychology

Minor/Certification: Sociology

Adviser

Alexandra E. Toms, M.S., Assistant Professor of Psychology

In-Game and Psychological Factors Influencing Purchasing Behavior in Gacha Games

Gacha games are a popular genre of video games that include loot box mechanics so the player can spend in-game currency for a chance at random rewards. The purpose of this study was to explore how influential in-game and psychological factors are on gacha game players when making in-game purchases. In particular, this research examined how the fear of missing out (FOMO) and self-esteem influenced purchasing behavior. Building upon previous research methods, participants were recruited from Discord servers and Reddit forums (N=21) and first asked to anonymously complete inventories to measure their FOMO and self-esteem, ranging from low to high. To measure purchasing behaviors, participants were sent weekly surveys for at least 4 weeks to self-report purchasing behavior and what influenced them in making purchases. Though no significant data was found regarding FOMO and purchasing behaviors, there was a significant negative correlation between self-esteem levels and FOMO levels. In addition, self-esteem was negatively correlated with the average amount of money spent weekly and the influence of competition on purchasing behaviors. When examining the influence of in-game factors on number of transactions, there were significant positive correlations between limited time events and number of individual transactions and scarcity and number of transactions. Additionally, people who self-identified as collectors were more likely to be influenced by scarcity than those who were not collectors. Although there are limitations due to small sample size, this study suggests further research into influences on purchasing behavior in gacha games and psychological factors like self-esteem and FOMO.

ORAL RESEARCH PRESENTATION

Brian P. Mulholland ’26

Major: Biology

Athletics: Men’s Soccer

Adviser

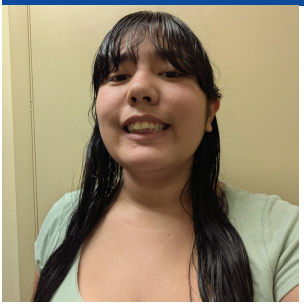
Sherri L. Buerdsell, Ph.D., Assistant Professor of Biology

Amber R. Marble, Ph.D., Assistant Professor of Biology

The Effect of Glyphosate and Atrazine on Phenotypic Variation in Brassica rapa

Herbicide exposure has been shown to cause phenotypic changes in plants. This study examined the effects of atrazine and glyphosate on Brassica rapa over a one-week period to determine the presence of epigenetic changes. Plant height, leaf area, chlorosis, necrosis, mortality, and dry biomass were observed. The data was organized in an Excel spreadsheet, and statistical analysis tests were performed. There was no significant difference in plant height, leaf area, or dry biomass. Necrosis occurred much less frequently than chlorosis, and no mortality was observed. There were seven glyphosate-treated plants that showed signs of chlorosis, and three atrazine-treated plants that showed signs of chlorosis. A Pearson correlation test was done comparing percentage necrosis and percentage chlorosis; there was no significant correlation. A Kruskal Wallis One-Way ANOVA for chlorosis percentage indicated a difference (p-value= 0.003). A Dunn’s Post Hoc test showed that glyphosate-treated plants differed significantly from both atrazine-treated and control plants. A Kruskal Wallis One-Way ANOVA for necrosis percentage did not differ significantly. The results indicate chlorosis, but not necrosis, served as a reliable indicator of herbicide stress within the one-week observation period. While this study confirmed observable phenotypic changes, whether these reflect underlying epigenetic modifications remains unknown. Future studies incorporating epigenetic analysis could determine if these herbicide-induced stress responses are heritable.

ORAL RESEARCH PRESENTATION



Jade M. Syto '27

Major: Animal Studies

Minor/Certification: Psychology and Biology

Athletics: Field Hockey

Adviser

Tammy Ege, M.S., Associate Professor of Veterinary Nursing and Animal Studies

Mary Beth Wert, M.A., Associate Professor of Veterinary Nursing and Animal Studies

From Red Panda to Bhutan Takin: How Culture, Communities, and Policies Shape Conservation Strategies

Red pandas are a symbol of culture and a key icon in conservation. To compare Bhutan takin are a national animal of their country and are also a viable symbol of culture, however due to lack of research not much is known. Their traditions, perceptions, and knowledge shape understandings in red pandas to highlight their importance to their environment. Community involvement is used to brainstorm suggestions to strengthen conservation efforts for red pandas, a great example of this is rebuilding habitats. Policies have been made to benefit and enforce the livelihood for red pandas to reduce species pressure and expand populations. Since cultural traditions, community involvement, and public policies were all used to shape conservation for red pandas. By modifying these strategies to other vulnerable species like the Bhutan takin, we can strengthen conservation methods and species protection.

ORAL RESEARCH PRESENTATION

Matt L. Browning '26

Major: Biology and Environmental Science

Minor/Certification:
Conservation Studies

Adviser
Sherri L. Buerdsell, Ph.D., Assistant Professor of Biology
Amber R. Marble, Ph.D., Assistant Professor of Biology

Environmental Factors and Their Impact on Bat Box Preference in Pennsylvania Over the Warm Season

Habitat destruction, degradation, and fragmentation are some of the biggest threats to bats, leading to a decrease in population. Bat boxes were used to collect samples of guano to measure activity levels in five bat boxes in Pine Grove Furnace State Park. Two of the five boxes were inhabited by bats. Samples were collected over a period of 24 weeks with a total of 236 samples being collected. Temperature, humidity, box color, and the orientation of the boxes were recorded. A preference of box color was observed, the two boxes inhabited were painted black while the other three boxes were unpainted wood. Temperature and humidity had no impact on the activity levels of the bats. Placement and orientation of the boxes was observed to play a role in choosing what box to inhabit. This study revealed the preference of bat box choice based on orientation, color, and height. More research is needed into what other environmental factors cause preferences to determine where and how bat boxes should be constructed.

HONORS ORAL RESEARCH PRESENTATION

Acadia J. Banis ’26

Major: Biology

Minor/Certification: Chemistry

Adviser

Amber R. Marble, Ph.D., Assistant Professor of Biology

Sherri L. Buerdsell, Ph.D., Assistant Professor of Biology

Natural Versus Traditional: Comparative Effects of Essential Oil–Based and Veterinary-Grade Canine Topical Repellents on the Behavior of Ixodes scapularis

The eastern black-legged tick (Ixodes scapularis) is a primary vector of Lyme disease and other tick-borne pathogens, posing ongoing challenges for canine ectoparasite management. While veterinary-grade topical repellents are widely recommended and used, the emergence of essential oil-based formulas represent an alternative approach to canine tick prevention. This study systematically evaluated the efficacy and behavioral impacts of veterinary-grade topical tick repellents and their essential oil-based alternatives against adult I. scapularis. A total of 57 adults (29 female and 28 male) were obtained from the Tick Rearing facility at Oklahoma State University. Three laboratory experiments were conducted. The first consisted of an immediate exposure behavioral assay, with tick movements recorded 30 seconds posttreatment. The second involved an extended exposure behavioral assay, with movements recorded four hours after application of the treatment. The third experiment utilized an artificial feeding chamber to evaluate repellent efficacy under controlled, host-mimicking conditions. Behavioral parameters, including movement patterns and avoidance responses, were quantified and statistically compared across treatment groups. Product cost was additionally analyzed to assess economic considerations alongside efficacy. Across all experimental conditions, veterinary-grade tick products consistently demonstrated greater repellency than essential oil–based treatments. Within the essential oil–based treatment group, turmeric and frankincense produced the highest levels of avoidance behavior, indicating greater repellency than the other essential oil-based products. Collectively, these findings provide a more informed, evidence-based framework for comparing natural versus traditional canine tick prevention strategies by integrating behavioral efficacy with economic considerations.

HONORS ORAL RESEARCH PRESENTATION

Alexa A. Kosofsky '26

Major: Psychology

Minor/Certification: Studio Art

Adviser

Brittany A. Harman, Ph.D., Assistant Professor of Psychology

Adoption & Mental Health

Adoption is a complex life experience that can influence psychological development, identity formation, and mental health outcomes. Although previous research has documented elevated rates of certain mental health challenges among adoptees, less is known about how different adoption experiences relate to psychological well-being. The present study examined relationships between adoption characteristics, mental health diagnoses, self-esteem, and aggression among adopted individuals. Seventy-three adult adoptees completed an anonymous online survey assessing adoption history, mental health diagnoses, self-esteem, and aggression-related traits. Participants completed the Rosenberg Self-Esteem Scale and the Anger and Hostility subscales of the Buss–Perry Aggression Questionnaire. Results indicated that mental health diagnoses were common within the sample, with many participants reporting multiple diagnoses. Individuals with at least one mental health diagnosis reported significantly higher anger scores than those without diagnoses. In addition, pre-adoption residence was associated with differences in anger levels, with participants who resided in institutional care prior to adoption reporting higher anger scores than those placed immediately with adoptive families. Perceptions of overall adoption experience were also related to psychological outcomes: participants reporting negative adoption experiences showed lower self-esteem and higher levels of anger and hostility compared with those reporting neutral or positive experiences. Together, these findings highlight the importance of adoption experiences and early environments in shaping psychological outcomes. Understanding these factors may help inform adoption-related support services and mental health interventions for adoptees and their families.

POSTER RESEARCH PRESENTATION

Grace Buzby '26

POSTER #29

The Manifestation of Zoochosis: Understanding and Managing Abnormal Behaviors in Captive Animals

Adviser
Alexandra E. Toms, M.S., Assistant Professor of Psychology

Zoochosis is a term first used by Bill Travers in 1992 to describe the repetitive, abnormal behaviors that captive animals develop when their psychological needs are not being met (Yasmeen et al., 2023). These behaviors, such as pacing, self-biting, and feather-plucking, are most common in animals such as primates, big cats, and birds, and are a signal that an animal is experiencing serious mental distress. Zoo Science and Behavioral Management is a growing field that studies these behaviors among others and aims to develop strategies to reduce them through enrichment, training, and individualized care. While zoochosis occurs differently across species, zoo professionals can reduce these behaviors through personality-based enrichment and behavioral management strategies catered to each species for the better health and welfare of animals in zoos and other facilities. This poster examines the cause zoochosis across different species, the psychological experiences of animals experiencing zoochosis, and techniques to decrease the rate of zoochosis.

POSTER RESEARCH PRESENTATION

Edrick Cartagena ’26

POSTER #25

An Analytical Overview of Motivational Interviewing

Adviser
Alexandra E. Toms, M.S., Assistant Professor of Psychology

Motivational interviewing is defined as a non-confrontational approach focused on helping individuals identify their own reasons to change and achieve realistic goals. The process is done by emphasizing an individual’s personal commitment and motivational drive to accepting change in their life (Ritson, 2005). This approach is driven by what an individual believes they need to improve, which gives them the power to decide what is best for them rather than what a professional believes is best for that person. It values the autonomy in counseling that is critical to aiding individuals find their own direction in life. This poster will look at motivational interviewing, its uses and effects, its relation to mental illness and substance abuse, and the process of recovery. Specifically this poster analyzes motivational interviewing in terms of how effective it can be to treat individuals affected by substance abuse.

POSTER RESEARCH PRESENTATION

Brenden J. Cleary '27

POSTER #11

Assessing the effect of experimental evolution on Klebsiella antibiotic resistance and virulence in Galleria mellonella

Advisers
Amber R. Marble, Ph.D., Assistant Professor of Biology
Kathryn L. Sarachan, Ph.D., Associate Professor of Chemistry

Bacteria in the environment have evolved to resist stressors like changes in temperature, pH levels and naturally occurring antibiotics. Over the last sixty years, since clinical antibiotics have been introduced into the medical field, bacteria have evolved to resist them, which lowers antibiotic effectiveness. Pathogenic bacteria that have evolved to resist modern antibiotics pose a potential health risk if they cannot be effectively treated. Klebsiella, a Gram-negative bacterium found in human stool, is a known cause of pneumonia in immunocompromised individuals and is becoming increasingly resistant to modern antibiotics. This research study will aim to experimentally evolve Klebsiella to resist environmental stressors such as temperature, pH and salinity changes and assess the mortality rate of greater wax moth larvae (Galleria mellonella) when exposed to these evolved strains. By exposing the bacteria to these stressors over generations, the progeny will become more resistant and more virulent compared to the unevolved strain. The experimentally evolved bacteria will also be exposed to antibiotics to observe resistance after each generation. The results of this study aim to assist understanding in how bacteria adapt to stress so that alternative methods may be employed to combat pathogens that are evolving to resist antibiotics.

POSTER RESEARCH PRESENTATION

Kylie S. Gardiner '27

POSTER #5

A Comparison of BRCA1 Expression Levels in Mammalian Breast Cancer Cells Under Oxidative Stress

Advisers
Amber R. Marble, Ph.D., Assistant Professor of Biology
Carlee A. Resh, Ph.D., Assistant Professor of Biology

Oxidative stress occurs when reactive oxygen species (ROS) overwhelm a cell's antioxidant defenses, causing damage to DNA, proteins, and lipids. This damage can disrupt normal cellular processes and is a major factor in cancer development. The tumor suppressor gene BRCA1 plays a crucial role in DNA repair and genomic stability, and changes in its expression are strongly linked to breast cancer risk. This study will investigate how hydrogen peroxide (H_2O_2)-induced oxidative stress affects BRCA1 expression in SK-BR-3 human breast cancer cells. Cells will be grown in McCoy's 5a medium supplemented with 10% fetal bovine serum and maintained under standard conditions. When cultures reach 70–80% confluence, they will be treated with H_2O_2 to induce oxidative stress, while untreated cells will serve as controls. Following treatment, RNA will be extracted, converted to complementary DNA (cDNA) through reverse transcription, and analyzed using quantitative real-time PCR. GAPDH will be used as a housekeeping gene to normalize BRCA1 expression, and relative changes will be calculated using the ΔΔCt method. By comparing BRCA1 expression in treated and control cells, this study aims to clarify how oxidative stress influences a key tumor suppressor gene. The findings may provide insight into the early molecular events that contribute to breast cancer development and support future strategies for targeted prevention or therapy.

POSTER RESEARCH PRESENTATION

Kaelyn Goff '27

POSTER #17

Potential Effects of Ocean Acidification on Adult Sea Urchins

Adviser
Carlee A. Resh, Ph.D., Assistant Professor of Biology
Sherri L. Buerdsell, Ph.D., Assistant Professor of Biology

Ocean acidification is the reduction of ocean pH caused by increased absorption of atmospheric carbon dioxide (CO_2). Adult purple sea urchins (Strongylocentrotus purpuratus) possess skeletons composed primarily of calcite, a crystalline form of calcium carbonate. Because calcite is sensitive to changes in pH, decreasing ocean pH may negatively affect sea urchin growth and skeletal development. This experiment will examine the effects of reduced pH on the growth of adult sea urchins. Two aquariums will be used, a control tank maintained at normal seawater pH levels (8.1-8.3) and an experimental tank in which pH will be gradually lowered using peat moss. The peat moss normal pH range is 3.0-4.5; it will be placed in a mesh media bag within the filtration system. Initial measurements of sea urchin height, diameter, and weight will be recorded prior to treatment. Growth measurements will then be collected weekly and compared between the control and reduced pH tanks. The results will determine how ocean acidification may impact the skeletal growth of calcifying marine organisms.

POSTER RESEARCH PRESENTATION

Alyvia P. Henneman ’27

POSTER #2

Evaluating the Synergistic Impacts of HER2 Kinase and HDAC Inhibition in HER2-Positive Breast Cancer Cells

Adviser
Amber R. Marble, Ph.D., Assistant Professor of Biology
Kathryn L. Sarachan, Ph.D., Associate Professor of Chemistry

Human epidermal growth factor 2-positive (HER2-positive) breast cancer is characterized by the overexpression of the HER2 protein on breast cancer cells, which correlates with aggressive tumor growth. It accounts for 15% to 20% of all breast cancers, resulting in poorer outcomes as excess HER2 protein causes the cancer cells to grow, divide, and spread more rapidly. Trastuzumab, a target monoclonal antibody treatment, has revolutionized the treatment for HER2-positive breast cancer; yet its high costs, vulnerability to resistance, and adverse side effects remain as limitations. For these reasons, a range of cancer treatment options for patients is crucial. Synergistic combination therapies tend to be more effective than single-agent HER2-targeted approaches and can address these limitations. Lapatinib is a kinase inhibitor often used in conjunction with trastuzumab, but at a greater risk of toxicity. Scientists have shown that Histone Deacetylases (HDAC) inhibitors are highly effective in conjunction with kinase inhibitors against other cancers. If resulting in comparable efficacy, HDAC inhibitors could serve as an alternative to trastuzumab when treating HER2-positive breast cancer. The proposed research will evaluate the synergy of kinase inhibitors, Lapatinib and Selumetinib, paired with HDAC inhibitors Nexturastat A and Panobinostat, in different combinations against HER2-positive breast cancer cells. It is hypothesized that the synergy between the selected combinations of these agents will be more effective when treating the cells than if used individually, with the combination of Panobinostat and Lapatinib being the most effective.

POSTER RESEARCH PRESENTATION

Lexie L. Hubbard ’27

POSTER #24

“I Can Always Google It Later”: How Expectations of Digital Access Shape Learning and Memory

Adviser
Brittany A. Harman, Ph.D., Assistant Professor of Psychology

Digital technologies increasingly function as external memory systems, enabling individuals to rely on search engines, cloud storage, and other digital tools rather than storing information internally. This phenomenon, often described as the Google effect or digital amnesia, has raised concerns about potential consequences for learning and memory. The present research examined whether expectations of future access to information influence encoding strategies and subsequent memory performance. Across two experiments, participants either expected continued access to learning materials or believed they would need to rely on their own memory. Experiment 1 tested this question in a controlled laboratory setting using factual information about the solar system. Participants who believed the materials would remain accessible later demonstrated significantly poorer memory performance than those who did not hold this expectation. Experiment 2 extended this investigation to a classroom context using a lecture-based learning task. Consistent with the laboratory findings, students who expected access to lecture slides during the assessment performed significantly worse on a subsequent learning test than students who did not expect access. Together, the findings suggest that anticipated access to information can reduce encoding effort and impair later memory. These results indicate that digital amnesia may reflect a context-dependent, belief-driven phenomenon with important implications for educational practices in increasingly digital learning environments.

POSTER RESEARCH PRESENTATION

Emily T. Johnson ’26

POSTER 50

Effects of Forest Fires on Regeneration of Tree Species Relative to Unburned Sites: A Look at Secondary Succession versus Established Communities

Adviser
Christine S. Mayer, M.Ed., Assistant Professor of Environmental Sciences
Sherri L. Buerdsell, Ph.D., Assistant Professor of Biology

Comparing burned and unburned sites with similar pre-fire conditions allows for a better understanding of early successional and pyrophilous species. Some species of trees native to Pennsylvania have adapted to fire by either being early colonizers or requiring fire to germinate. By comparing burned and unburned sites, it can show how fire changes forest composition and if postfires conditions favor pyrophilous tree species. In Micheaux State Forest, Pine Grove, PA, two sites, each with a burned and unburned section, were studied. In each section, data were collected from three belt transects measuring 20 m long and 1 m wide. The selected species that were studied were based on the common trees growing in the area which included Red Maple (Acer rubrum), Chestnut Oak (Quercus montana), Black Tupelo (Nyssa sylvatica), Sassafras (Sassafras albidum), and Pitch Pine (Pinus rigida). Within the boundaries of the transects, the number and heights of the emerging saplings were recorded every two weeks. The study took place over three months in 2025, beginning one month after the initial fire.

POSTER RESEARCH PRESENTATION

Jeremiah M. Loyer '27

POSTER #42

Henninger Field: Whose Story Has Been Told, and Whose Hasn't

Adviser

Maxine R. Wagenhoffer, Ph.D., Director of the Hankey Center for the History of Women's Education and Assistant Professor of History

Since Henninger Field opened in Chambersburg, Pennsylvania, in 1895 (originally called Wolf Park), some of the greatest names in sports history have graced its field. More than ten eventual Hall of Famers, including both Major and Negro League stars, took the field here. Yet the stories of many of these athletes, specifically Negro League players such as Josh Gibson and Olympic athlete Jim Thorpe have often been overlooked in local memory. This research was collected from primary sources such as local newspapers and secondary scholarship and explores how Henninger Field's history has been selectively remembered: elevating certain legends, like Babe Ruth and the Yankees, while forgetting others. The purpose of this research, however, is not to diminish the significance of already celebrated events, but rather to highlight ways to present a fuller, more inclusive history of the field, including opportunities for memorials or exhibits that honor all the athletes who helped make Henninger a historic community staple.

POSTER RESEARCH PRESENTATION

Aislynn E. Richards ’28

POSTER #41

Radical Ink: Feminisms in the Billboards in the 1970s

Adviser

Maxine R. Wagenhoffer, Ph.D., Director of the Hankey Center for the History of Women's Education and Assistant Professor of History

Wilson College was created with an emphasis on the value of women’s education. In the 1970s, the Wilson College Billboard was a visible platform for students to express political and cultural ideas shaped by elements of second-wave feminism. Over the decade, the Billboard was used by students for creative expression, campus awareness, debate and feminist discourse. Crucially, in 1979, the Billboard promoted the Save Wilson Campaign, which implemented feminist values to defend the importance of women’s education and argue for the institution to remain open. This research examines the visual imagery and written content in the Wilson College Billboard as an epicenter of student feminist activism during the 1970s. Overall, the project aims to show how feminisms shaped Wilson’s culture and contributed to the survival of Wilson College during a challenging moment in the institution’s history.

POSTER RESEARCH PRESENTATION

Adan Rodriguez-Sapien '27

POSTER #4

The Effect of Caffeine on Cognitive Performance Among College-Aged Students

Adviser
Sherri L. Buerdsell, Ph.D., Assistant Professor of Biology
Deborah S. Austin, Ph.D., Professor of Chemistry and Associate Dean of Academic Advising

Surveys show that 94% of adults in the United States consume some form of caffeine, and more than 60% drink caffeinated beverages daily. Coffee and tea are the most popular choices for both men and women, although men are more likely to consume energy drinks. Among undergraduate students, caffeine is often used to improve mood, boost alertness, and enhance academic or cognitive performance. This study aims to determine how caffeine affects cognitive performance and reflexes in undergraduate college students. These effects will be tested using an ocular (visual) reflex computer test and a Words Per Minute (WPM) typing test. Sixteen students will participate, divided into three groups of six. One group will serve as the control group and consume a non-caffeinated carbonated drink. The second group will receive a lightly caffeinated drink (e.g. Bubblr), and the third group will receive a moderately caffeinated drink (e.g. Red Bull). The data will be collected in a single-blind study format. Assessments will take place before and 20 minutes after consumption to allow for the caffeine to take effect. The results from the "pre-caffeine" trials will be compared with those of the "post-caffeine" trials to determine whether caffeine produces measurable improvements in reflex speed and typing performance, or if the results are simply a placebo. Overall, this experiment seeks to further evaluate whether caffeinated beverages truly enhance cognitive function and reflexes as commonly advertised, or whether perceived benefits may be due to a placebo effect.

POSTER RESEARCH PRESENTATION

Mandy Weinel '26

POSTER #33

Mahouts: A Psychological Analysis of the Mahout-Elephant Relationship

Adviser
Alexandra E. Toms, M.S., Assistant Professor of Psychology

The term 'mahout' refers to a person, traditionally male, who cares for elephants. Being an elephant mahout is an overall demanding job, and involves understanding animal behavior, a branch of psychology. Elephants live in a well-organized, tightly knitted, multi-tiered herd of hierarchy, and it is important for mahouts to understand herd behavior as much as they understand one individual elephant. Being an elephant mahout is an emotionally and physically demanding job that can take years to understand. The cohesive bonds held between a mahout and their elephant have helped create unique multispecies communities, grabbing the attention of ecotourists by spreading knowledge and raising global awareness. The branch of psychology that was focused on throughout research for this poster was animal behavior, narrowing in on the job description of an elephant mahout, and how husbandry and communication skills (good or bad) can affect mahout-elephant relationships.

POSTER RESEARCH PRESENTATION

Ellen Zimmerman ’27

POSTER #20

Effects of 528 Hz Auditory Stimulation on Oxytocin Production and Interpersonal Perception.

Adviser

Kathryn Sarachan, Ph.D., Associate Professor of Chemistry
Deborah S. Austin, Ph.D., Professor of Chemistry and Associate Dean of Academic Advising

This study aims to determine whether exposure to 528 Hz can significantly increase oxytocin production and influence interpersonal perception. Using a single-blind design with participants will be separated by gender to minimize potential bias and examine gender-related differences in response. Baseline oxytocin levels are assessed prior to auditory exposure through noninvasive salivary enzyme-linked immunosorbent assay (ELISA) analysis, followed by a post-exposure measurement. Participants listen to a 528 Hz frequency for approximately 5–10 minutes while engaging in a structured coloring activity to promote relaxation and sustained attention during exposure. To evaluate psychological responses, participants will view flashcards displaying images of people to rate them on attractiveness/or whether they look trustworthy both before and after auditory exposure. Each image will be presented briefly (0.05–0.10 seconds), and participants will record their ratings of interpersonal attraction or related perceptions. The findings may clarify the role of frequency-specific auditory stimulation in modulating hormone release and social behavior and contribute to understanding the potential applications of sound-based interventions for enhancing emotional and social well-being.

POSTER RESEARCH PRESENTATION

ANS 499: Animal Studies Senior Thesis

Advisers
Tammy Ege, M.S., Associate Professor of Veterinary Nursing and Animal Studies
Mary Beth Wert, M.A., Associate Professor of Veterinary Nursing and Animal Studies

Students in the Senior Thesis capstone course (ANS499) conduct independent research on a topic of their choosing related to the interdisciplinary field of animal studies. Topics explore the complex and often dynamic relationships between animals and humans and may draw upon perspectives from the fields of conservation, behavior, ethics, sociology, or environmental studies.

Throughout their work, students develop research questions, conduct scholarly literature reviews, and construct an evidence-based argument that contributes to conversations in the field. The final thesis that is submitted is a substantial project of at least 15 pages, demonstrating the student's ability to critically analyze sources, synthesize information, and communicate their ideas both effectively and clearly.

Group Members

Poster #	Students	Titles
43	Rusbelly Almonte '26	The Gendering of Companion Dogs: Owner Identity, Dog Size, and Social Perception
44	Angelina G Carleo DiTroia '26	Casualty among the Indiana and Northern Long-Eared Bats on sitings in Pennsylvania
45	Allison R Earnshaw '26	The Portrayal of Canines and Felines as Heroes and Villains within Film Media
46	Grace E. Hull '26	Misidentification in Hunting Migrating Coastal and Sea Ducks

ANS 499: Animal Studies Senior Thesis *(Continued)*

47	Aliya C. Lockman '26	The Causes and Solutions to Deer-Vehicle Collisions in Pennsylvania
48	Kayla, A. Robinson '26	A Man's Best Friend Versus Robotic Canines: Should Robotic Dogs Replace Traditional Working Dog Roles?
49	Madison A. Rodriguez '26	How Videogames can Promote Pro-Conservation/Wildlife Protection Ideologies and Influence Positive Attitudes Towards Animals

POSTER RESEARCH PRESENTATION

BIO 211: Microbiology

Adviser
Amber R. Marble, Ph.D., Assistant Professor of Biology

Despite stringent water quality standards for recreational and drinking water, waterborne diseases are estimated to cause ~6,500 deaths in the US every year. The final lab project for BIO 211- Microbiology consisted of a seven-week Course Based Undergraduate Research Experience (CURE) where students investigated the water quality and presence of fecal microbes in a water sample taken from the Conococheague Creek. The goal of this project was threefold: estimate how many fecal coliform bacteria are in the creek, characterize these bacteria, and determine if any possess antibiotic resistance genes. Each student pair isolated two unique bacterial isolates to characterize. Over the course of the experiments, students performed common techniques used for characterizing bacteria in a clinical setting, generating original results for their specific isolated bacteria. This project will be repeated in future semesters to determine if water quality metrics change seasonally or vary by location. The following students elected to present their findings as posters for Student Research Day:

Group Members

Poster #	Students	Titles
6	Kylie S. Gardiner '27 Maria F. Klein '26	Isolation, Identification, and Antibiotic Resistance Characterization of Environmental Enterobacteriaceae from the Conococheague Creek
13	Amanda Blount '27 Sophie G. Shatzer '28	Assessment of Water Quality and the Occurrence of ESBL-Producing Bacteria in Conococheague Creek
3	Laci M. Weinhold '26 Aeryn E. Seibert '26	*E. coli* Happens: Analyzing Water Quality and Presence of Antibiotic Resistance Genes in the Conococheague Creek

POSTER RESEARCH PRESENTATION

BIO 211: Microbiology *(Continued)*

1	Michaela R. Black '27 Alyvia P. Henneman '27	Isolation and Characterization of ESBL-Producing Coliform Bacteria from the Conococheague Creek
8	Sarah Crowe '28 NikkiLee Hockenberry '26	Phenotypic Evaluation of Extended-Spectrum Beta-Lactamase Producing Bacteria in the Conococheague
9	Rosa M. Portilla '26 Molly J Proctor '27	Detection and Characterization of ESBL-producing Enterobacteriaceae isolated from the Conococheague Creek
12	Isabella Weaver '26 Emily Breighner '27	Identification of Antibiotic-Resistant Enterobacteriaceae in the Conococheague Creek
14	Cheyenne M. Shepard '26 Hailey H. Bucha '26 Kris R. Robinson '26	Conococheague Creek Water Quality and Extended-Spectrum Beta-Lactamase Gene Analysis

POSTER RESEARCH PRESENTATION

BIO 270: Biology of Cancer

Adviser
Amber R. Marble, Ph.D., Assistant Professor of Biology

Cancer is not just a single disease, but a collection of more than 100 different diseases. All cancers are defined by uncontrolled cell growth, but each cancer type may have unique causes, behaviors and treatments. The students of BIO270 were tasked with a semester long research project to perform a literature review on a cancer of their choice. Posters will reflect a comprehensive presentation of knowledge that the students gathered as they researched specific forms of cancer. The information discovered ranges from epidemiological data on incidence and population trends, to suspected correlations to exposures and heritable factors, to current and trending diagnostic and therapeutic approaches. While given the option to present to the class privately or in the public forum of Student Research Day the following students elected to present their findings as posters for SRD:

Group Members

Poster #	Students	Titles
19	Armana Smithsberger '27	The Role of the STX17 Gene Mutation in the Development of Melanoma in Grey Horses

POSTER RESEARCH PRESENTATION

BIO 312: Molecular Cell Biology II

Adviser
Amber R. Marble, Ph.D., Assistant Professor of Biology

Molecular genetics is a branch of biology that involves the study of the structure and function of genes as well as mutations and their roles in causing disease and evolutionary change. The students enrolled in BIO312 each chose a topic of interest to research and present their findings. This student-centered, active learning experience incorporates a scientific poster presentation fostering learning of molecular genetics as well as communication of their chosen topic. Students successfully mined primary literature to collect information ranging from genetic information and the protein products of genes, to how genetics relates to real world scenarios in industry and medicine.

An overlying goal of the poster project was to substantially enhance the depth of understanding of the biology of molecular genetics as well as provide a forum for an educational opportunity to convey facts and concepts about molecular genetics to the broader community.

Group Members

Poster #	Students	Titles
16	Adesewami E. Ajirotutu '26	Proteostasis Failure and Genetic Risk Factors for Amyloid-β and Tau Misfolding and Aggregation in Alzheimer's Disease
10	Brenden J. Cleary '27	HPV Protein Hijacking: Mechanisms of Viral Gene Expression and Host Suppression
7	Kylie S. Gardiner '27	Ion Channel Conformational Dynamics in Response to General Anesthetic Binding
15	Halley G. Shaffer '26	The Agricultural Use of DNA Technologies in Seed Purity Testing
18	Ellen D. Zimmerman '27	Epigenome Alterations Associated with Long-term Glyphosate Exposure and its Effects on Human Health

POSTER RESEARCH PRESENTATION

HIS 228: Archaeology of Pennsylvania

Adviser
Bonnie Rock-McCutcheon, Ph.D., Associate Professor of History and Ancient World Studies

In Archaeology of Pennsylvania, students explore how archaeologists study the past and what archaeological evidence can tell us about the people who lived in this region long before us. Through lectures, readings, and case studies, the course introduces students to archaeological methods and to several important sites in Pennsylvania. Along the way, students consider how physical evidence—from tools and objects to landscapes and sites—can help historians and archaeologists better understand human activity in the past.

A central component of the course is a collaborative research project focused on local history and archaeology in Franklin County and the surrounding region. Working in small groups, students develop a research question and investigate it using historical sources, archaeological scholarship, and local archival materials. Many projects focus on places, institutions, or historical developments connected to Wilson College and the broader Chambersburg area, encouraging students to think critically about the history of the landscapes and communities around them.

The resulting research posters highlight the questions students asked, the sources they examined, and the conclusions they drew from their work. Through this project, students gain experience developing research questions, interpreting evidence, collaborating with peers, and communicating their findings clearly to a broad audience.

Group Members

Poster #	Students	Titles
37	Rachel Biesecker '26 Hailee S. Little '27 Sariah Pietz '28 Damien Shull '28	Chambersburg's Mt. Lebanon Cemetery: The Local Fight for Freedom and Independence
36	Manal Alanazi '28 Mackenzie Boarts '29 Madison Bootie '28 Samantha Meek '26 Kaylea Sanders '29	The Unfortunate Events at the Carlisle Indian Industrial School

HIS 228: Archaeology of Pennsylvania *(Continued)*

38	Sareana Framilla '28 Logan Frazier '27 Danielle Garman '28 Amanda Nuss '28 Sierra Wayland '28	Alexander McClure, Wilson College, and Norland Hall
40	Idalia Colón '27 Melissa Labritz '28 Abigail Lerch '29 Aislynn Richards '27 Danica Frushour '28 Madison Kline '29	Road to Freedom
39	Elliott Bowen '27 Gavin Creamer '28 Jessica Kreh '29	The Impact of the Cumberland Valley Railroad Line

POSTER RESEARCH PRESENTATION

NUR380: Research in Healthcare

Adviser
Kimberly M. Erwin, MSN, RN, CCRN, Instructor of Nursing

Evidence-Based Practice is critical to promote safe and effective care for patients throughout the healthcare system. Students in NUR380 were asked to develop, evaluate, critique, and synthesize research on a topic relevant to their healthcare practice. The students developed a PICO question, searched the literature, critically evaluated, and synthesized five relevant articles. This information was evaluated, and potential practice changes were identified.

Group Members

Poster #	Students	Titles
21	Maya Grove '26	Reducing Emergency Department Wait Times: A Literature Review
22	Jennifer Haugh '26	Solutions Addressing Workplace Violence in Nursing: A Literature Review
23	Gretchen Turner '26	Impact of Trauma-Informed Care on Post Traumatic Stress Disorder: A Literature Review

POSTER RESEARCH PRESENTATION

PSY 468: History and Systems of Psychology

Adviser
Alexandra E. Toms, M.S., Assistant Professor of Psychology

Join the students enrolled in PSY 468: History and Systems of Psychology to learn how historical contexts have shaped the development of different areas of psychology. Students outlined a historical time period during which a specific area of psychology experienced growth, change, or controversy. Then they analyzed how the historical context influenced the changes in that area of psychology.

Group Members

Poster #	Students	Titles
30	Alexa Kosofsky '26 Grace Buzby '26	The Move from DSM-III to DSM-IV
27	Allyson Garcelon '26 Shavani Maharaj '27	Reevaluating Attachment: Insights from Harry Harlow's Monkey Experiments
28	Amayah Walker '27 Elizabeth Cordon '27	The Illegalization of Certain Sexual Behaviors Alongside the Rise of Consent as a Social Value in the U.S.
31	Andrew Mellott '27 Erin Gohegan '26 Malakai Francis '27	Historical Handlings of Grief
32	Atiya Jackson '27 Mackenzie Caldwell-Degnon '27 Zoe Rosen '27	Historical Context of Witch Hunts
26	Edrick Cartagena '26 Jermane Miller '27	The Ethical Debate Over the Little Albert Study
35	Emily Martin '27 Grace D'Amato '27	From Chains to Care: History of the Eastern State Hospital
34	Lexie Hubbard '27 Mandy Weinel '26	Rebranded Confinement: How the Carceral State Absorbed Mental Illness

We would like to thank the members of the Barsy-Colgan Student Research Day Committee. Without you, this wonderful day showcasing our students and their research would not be possible.

Thank you for all your hard work.

Sherri L. Buerdsell
Assistant Professor of Biology

Michael G. Cornelius
Dean of The School of Arts & Sciences and Professor of English

Kimberly M. Erwin
Instructor of Nursing

Janet Foor
Assistant Professor of Special Education

Amy Gulino
Director of Grants, Foundation Relations, and Advancement Services

Brittany Harman
Assistant Professor of Psychology

Sandy Huffman '86
Content Developer and Managing Editor

Cynthia Hyland
Director of Academic Technology

Moe Kiefer '24
Assistant to the Provost/VP of Academic Affairs

Denise Sandell
Director of Library Services

Wilson College Barsy-Colgan Student Research Day highlights the research, scholarship, creative activities, and achievements of students and their faculty mentors.

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