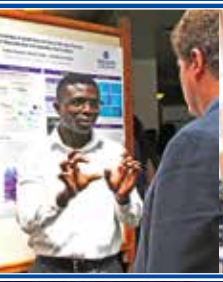
WILSON COLLEGE




16th Annual Barsy-Colgan Student Research Day

Celebrating the Creative and Scholarly Achievements of Wilson Students

April 18, 2025

16th Annual Barsy-Colgan Student Research Day

Year after year, Student Research Day stands as my favorite academic event on our calendar—a day when the full spectrum of Wilson's educational vision comes to life. There is something truly inspiring about witnessing our students showcase their scholarly achievements and creative work, thus representing the culmination of their Wilson experience.

What makes this day special is seeing the liberal arts and sciences in action. Today, we celebrate how our students synthesize knowledge across disciplines—where scientific inquiry meets humanistic understanding, where artistic expression informs social analysis, and where theoretical frameworks address real-world challenges. Each presentation demonstrates how a Wilson education transcends traditional boundaries among fields, fostering integrative thinking that prepares students for our complex world.

The projects you will see today reflect our students' intellectual passions and academic growth. Working closely with faculty mentors, these scholars have embraced the challenge of original research, asking important questions and pursuing answers through rigorous inquiry. This collaborative relationship between students and faculty mentors exemplifies the personalized educational experience that distinguishes Wilson College.

This year's presentations span numerous disciplines from the sciences, humanities, arts, and social sciences, showcasing the breadth and depth of a Wilson education. I encourage you to attend presentations outside your own field of interest—experience firsthand how the liberal arts and sciences enrich one another and foster innovative approaches to complex problems. Your participation honors these students' achievements and reinforces the value of interdisciplinary thinking that is central to our educational mission.

Thank you for supporting our scholars. Enjoy the day!

Sincerely,

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

SCHEDULE OF EVENTS

Harry R. Brooks Complex for Science, Mathematics and Technology Auditorium: Oral Presentations

9 – 9:10 a.m.	Welcome Address – **Wesley R. Fugate, Ph.D.,** *President*
9:15 – 9:35 a.m.	**Hennessy J. Strine '25** (p. 6) Overall Discrimination and Feelings of Belonging Among College Students
9:40 – 10 a.m.	**Deahnirah R. Menedis '25** (p. 7) The Impact of Positive vs. Negative Message Framing on Consumer Purchase Intentions
10:05 – 10:25 a.m.	**Matthew E. Line '25** (p. 8) Recognizing Our History: The Story of the Susquehannock
10:30 – 10:50 a.m.	**Erin R. Roszkowiak '25** (p. 9) The Effectiveness and Use of Anxiolytics Therapies in Cat Colonies
10:55 – 11:15 a.m.	**Adrian Lugo '25** (p. 10) The Effects of Serotonin Transporter Gene Variations on Major Depressive Disorder Treatment and Anxiety
11:20 – 11:40 a.m.	**Cassidy A. Sowers '25** (p. 11) Influence of Anthelmintic Medications on the Aerobic Bacterial Populations of the Equid Gastrointestinal Tract Microbiome
11:45 – 12:05 p.m.	**Judith Wolf '25** (p. 12) The Effects of Lipid Synthesis Inhibitor ND-630 on Fungal Species *Aspergillus fumigatus*, *Candida albicans*, and *Cryptococcus neoformans* in Comparison to Fluconazole

John Stewart Memorial Library and Harry R. Brooks Complex for Science, Mathematics and Technology Auditorium: Poster Session 11 - 1 p.m.

Individual and class posters described on pages 21-48 will be on display in the Library and the Brooks Science Center. See maps on pages 50-52.

Sarah's Coffee House: Poetry Reading

12 – 12:30 p.m. **Julia L. Elliott '25** (p. 13) Return to Sender

Harry R. Brooks Complex for Science, Mathematics and Technology Auditorium: Oral Presentations

1 – 1:55 p.m. **Shelby L. Harmon '25** (p. 14) The Disappearing Foundation: How Krill Decline Threatens Antarctica and the Planet

Emily D. Young '25 (p. 15) The Role of Sustainable Agriculture in the Biodiversity Crisis and How It Affects Us

Jillian Day Ahlgren '25 (p. 16) Sustainable Industry: Innovations to Manufacturing for Environmental Resilience

2 – 2:55 p.m. **Jenna Benke '25** (p. 17) Exploring the Development of Environmental Education Curriculum: Stream Monitoring in the Conococheague Creek

Kylie Wright '25 (p. 18) Assessing the Correlation Between California Mastitis Test Results and Somatic Cell Counts in Caprine Milk

Julia L. Elliott '25 (p.19) Drunkorexia Among College Students

Disert Scholar

3 – 3:30 p.m. **Hailey M. Steele '25** (p. 5) The Cytotoxicity of Synthetic Dye Red 40 and its Metabolites Cresidine-4-Sulfonate and 1-Amino-2-Napththol-Sulfonic Acid on the Caco-2 Human Colon Cell Line

John Stewart Memorial Library - 1st Floor: Art Exhibition

3:45 – 4 p.m. **Josie Reinhardt '25** (p. 20) Genesis: Retelling the Origin Story of Gender

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

Hailey M. Steele '25

Major: Biology
Minor/Certification: Chemistry and Healthcare and Medical Humanities
Athletics: Field Hockey

Adviser
Kathryn L. Sarachan, Associate Professor of Chemistry
Amber R. Marble, Assistant Professor of Biology
Sherri L. Buerdsell, Assistant Professor of Biology

The Cytotoxicity of Synthetic Dye Red 40 and its Metabolites Cresidine-4-Sulfonate and 1-Amino-2-Napththol-Sulfonic Acid on the Caco-2 Human Colon Cell Line

The most consumed artificial dye in the United States is Red 40. This chemical, classified as an "azo dye," is used in processed foods to enhance color and to entice the attention and desire of young consumers. As the consumption of ultra-processed foods has increased markedly over the past few decades, there has been an increase observed in the number of early onset colorectal cancer cases (EOCRC) along the same timeline. One contributing factor to the increase in colorectal cancer is the consumption of a high-fat diet, including these ultra-processed foods, which are likely to contain artificial dyes. This high-fat, low nutrient "Western diet," has been shown to cause inflammation of the colon. A state of chronic inflammation is understood to pose a threat to healthy tissue and provide optimal conditions for carcinogenesis over time. This research aimed to assess the effect of Red 40 on the viability of human colon cells using an MTT assay. Since Red 40 is metabolized into cresidine-4-sulfonate and 1-amino-2-naphthol-6-sulfonic acid in the colon, the effects of the metabolites themselves were also tested. An analysis of covariance showed that increasing concentrations of Red 40 and cresidine-4-sulfonate had a statistically significant adverse effect on the viability of the human colon cells. The results of this study provide insight into potential preventative measures against the increasing cases of early onset colorectal cancer. In addition, the results are educational for the general public when selecting foods to purchase and consume.

HONORS ORAL RESEARCH PRESENTATION

Hennessy J. Strine ’25

Major: Psychology and Sociology

Adviser
Alexandra E.T. Toms, Assistant Professor of Psychology

Overall Discrimination and Feelings of Belonging Among College Students

This study examined feelings of belongingness as a potential moderator for various types of discrimination on self-esteem and self-efficacy. While numerous studies have examined the effects of discrimination on mental health, less research has been conducted regarding the additional factors of belongingness as a coping mechanism and potential moderator of negative effects on self-esteem and self-efficacy. Participants in this study responded to a survey that assessed feelings of belongingness, perceived everyday discrimination, and feelings of self-esteem and self-efficacy. Findings of the study suggest that while high levels of self-esteem and general belonging and low levels of discrimination independently contribute to higher levels of self-efficacy, their interactions suggest moderating effects. Higher levels of general belonging reduce the negative effects of low self-esteem and high discrimination on levels of self-efficacy. These results demonstrate the complex, interlinked nature of the effects of belonging on perceived discrimination, self-esteem and self-efficacy.

HONORS ORAL RESEARCH PRESENTATION

Deahnirah R. Menedis ’25

Major: Psychology
Minor/Certification: Criminal Justice
Athletics: Women’s Volleyball

Adviser
Brittany A. Harman, Assistant Professor of Psychology

The Impact of Positive vs. Negative Message Framing on Consumer Purchase Intentions

The field of consumer psychology, which focuses on purchase intentions and buying behavior, has found significant evidence in support of the phenomenon of brand loyalty (e.g., Baldinger & Rubinson, 1996; Knox & Walker, 2001; Mellens, Dekimpe, & Steenkamp, 1996). Brand loyalty involves repeatedly purchasing from the same brand, despite competitors offering the same or similar products and services (e.g., Dick & Basu, 1994; Hur, Ahn, & Kim, 2011). Many studies have provided evidence that positive message framing promotes more positive attitudes and increases purchasing intentions. While negative framing messages could instill a sense of trust, as the potential loss is being provided upfront. Little research, however, exists on factors that contribute to violations of brand loyalty. Specifically, what does it take to motivate customers to purchase from brands other than those to which they are typically loyal? One potential factor may involve the format of advertising messages. The present study investigates how framing an advertising message either positively (by emphasizing gains) or negatively (by focusing on losses) impacts purchase intentions among those who are high vs. low in loyalty to particular brands.

HONORS ORAL RESEARCH PRESENTATION

Matthew E. Line '25

Major: History and Political Science
Minor/Certification: Ancient Studies
Activities: President of History Club

Adviser
Bonnie Rock-McCutcheon, Assistant Professor of History & Ancient World Studies

Recognizing Our History: The Story of the Susquehannock

The land that Wilson College sits on was likely part of the land occupied by the Susquehannock Native Americans. This project's desire to is to illuminate the Susquehannock history to other students, faculty, and community members to help everyone recognize and gain a deeper appreciation for the land they use, and the power in its history. The Susquehannock people have a fascinating history, riddled with war, forced relocation, great power and authority, and ultimately, murder. It is important to recognize our history and try to understand how things were before we got here. Colonists were able to make such a good living in Pennsylvania because of the vast trade networks they set up with Indigenous groups. Then they forced the Natives out, and now Pennsylvania has not one recognized Native American tribe, despite there still being thousands who claim Native ancestry in PA. A discussion needs to be had about how we can remember the Native Americans, and how we can help them become recognized within the state and federal government. Land Acknowledgments are one way, and this is what the bulk of my presentation will focus on. Understanding the history of our land is critical to our future, and essential to bringing us together.

HONORS ORAL RESEARCH PRESENTATION

Erin R. Roszkowiak ’25

Major: Veterinary Nursing

Minor/Certification: Chemistry and Biology

Athletics: Academic Captain for Women’s Soccer

Activities: President of Pre-Vet Club

Advisers

Carolyn R. Tatsch, Assistant Professor of Veterinary Nursing

Alexander Munson, Associate Professor of Mathematics

The Effectiveness and Use of Anxiolytics Therapies in Cat Colonies

The purpose of this study is to determine the effectiveness of supplements for anxiolytic behaviors on feline phonophobia. The focus of this study involved introducing stress to a cat colony via a noise stimulus (phonophobia) to determine the effectiveness of anti-anxiety supplements (anxiolytics). Feline noise phobia has not received the same clinical attention and treatment options have not been explored to the same extent as their canine counterparts. Preliminary results show that exposure therapy may be more beneficial than anxiety supplements alone in treating phonophobia.

HONORS ORAL RESEARCH PRESENTATION

Adrian Lugo ’25

Major: Biology

Athletics: Baseball (pitcher)

Adviser

Amber R. Marble, Assistant Professor of Biology

Deborah S. Austin, Professor of Chemistry

The Effects of Serotonin Transporter Gene Variations on Major Depressive Disorder Treatment and Anxiety

The serotonin transporter gene (SLC6A4) has been found to play a role in the development of mental disorders such as major depressive disorder. Previous research suggests that variations in the serotonin transporter-linked polymorphic region (5-HTTLPR) may influence susceptibility to these disorders, but evidence remains inconclusive, especially regarding response to medications. This study investigated the relationship between genotypes in the 5-HTTLPR region of the serotonin transporter gene and the prevalence of depression and anxiety disorders, as well as the effectiveness of medications. It was hypothesized that individuals with the homozygous long allele (L/L) genotype would show a better response to selective serotonin reuptake inhibitors (SSRIs) and lower levels of anxiety and depression. Volunteers completed a survey and provided DNA samples, which were analyzed to determine their 5-HTTLPR genotypes. The results revealed a majority of individuals had the heterozygous (S/L) genotype, with the homozygous long (L/L) genotype observed in 9.1% of individuals. Interestingly, those with the L/L genotype reported both higher levels of depression and a significant presence of anxiety, challenging previous findings that suggested the L/L genotype provided protective effects. Multivariate analysis of variance showed no significant differences in depression and anxiety scores across genotype groups. These findings underscore the complexity of the relationship between genetic factors and mental health outcomes and highlight the need for further research. Future studies should involve larger, diverse populations, include additional genetic variants, and investigate the mechanisms by which serotonin transporter gene variations affect mood regulation and treatment efficacy.

HONORS ORAL RESEARCH PRESENTATION

Cassidy A. Sowers '25

Major: Biology

Minor/Certification: Chemistry

Adviser

Amber R. Marble, Assistant Professor of Biology

Sherri L. Buerdsell, Assistant Professor of Biology

Influence of Anthelmintic Medications on the Aerobic Bacterial Populations of the Equid Gastrointestinal Tract Microbiome

Parasitic infections are a prevalent issue throughout equid populations. Anthelmintic medications are readily used to treat parasitic infections. These medications are selective toxins meant only to target parasites by interfering with the vital processes or structural dexterity required for the parasite to survive and reproduce. Research has not yet determined if anthelmintic medications influence the gastrointestinal tract (GIT) microbiome because a complete understanding of the microbiome has not yet been determined. There is a determined symbiotic relationship between the microbiome and the equid; the microbes have a safe place to propagate, and when the microbes break down highly fibrous materials (via fermentation), the equid is provided with the nutrient byproducts. The microbiome offers a majority of the equid's daily nutrient requirements. The influence of these medications on the aerobic bacterial populations within the GIT was tested by serially diluting fecal samples onto agar plates treated with Ivermectin, Panacur, or Pyrantel. Colony-forming units per milliliter (CFU/mL) were calculated, and a one-way analysis of variance indicated no significant difference between treatment groups. This implies that anthelmintics do not influence the concentration of bacterial growth in the equid GIT microbiome. Subsequent gram staining was used to determine whether anthelmintics influence the composition of bacterial populations in the equid GIT microbiome. Eight out of nine isolates tested were gram positive. Future research examining the entirety of the microbiome will be required to understand anthelmintics' impact on the equid GIT microbiome fully.

HONORS ORAL RESEARCH PRESENTATION

Judith Wolf '25

Major: Biology

Minor/Certification: Chemistry

Athletics: Co-Captain of IHSA Hunt Seat Team

Adviser

Kathryn L. Sarachan, Associate Professor of Chemistry

Amber R. Marble, Assistant Professor of Biology

The Effects of Lipid Synthesis Inhibitor ND-630 on Fungal Species Aspergillus fumigatus, Candida albicans, and Cryptococcus neoformans in Comparison to Fluconazole

The fungal species *A. fumigatus, C. albicans,* and *C. neoformans* are prominent human fungal pathogens. Disruption of the microenvironment can cause disbalance between host immune system and fungal virulence factors, leading to overgrowth and ultimately infection. Current prescribed antifungals, such as fluconazole, used to treat fungal infections are becoming less effective due to rising antifungal resistance. This study explored fatty acid synthesis inhibition as a potential antifungal route through fatty acid synthesis inhibitor ND-630. ND-630 is an allosteric inhibitor of acetyl-CoA carboxylase I. All three fungal species were tested against each compound individually and synergistically at increasing concentrations. Cell viability was determined with an MTT assay. Individual results were analyzed utilizing simple linear regression and synergistic results were analyzed using a Bliss Independence test. Results of the individual test indicated that ND-360 had a lower minimum inhibitory concentration (MIC) on *C. albicans* than fluconazole, and fluconazole had a lower MIC on *C. neoformans* than ND-630. A negative linear relationship was observed between increasing ND-630 concentration and *C. neoformans* viability and increasing fluconazole concentration and *C. albicans* viability. The Bliss Independence test determined that ND-630 and fluconazole did not have synergy when used in a one-to-one concentration ratio. Although the effects of ND-630 on fungal infections have yet to be determined in vitro or in vivo, this study was able to determine the validity of limiting fatty acid synthesis on cell viability for the given species.

ORAL RESEARCH PRESENTATION

Julia L. Elliott ’25

Major: Psychology
Minor/Certification: Writing
Athletics: Women’s Soccer

Adviser
Matthew McBride, Assistant Professor of Interdisciplinary Practice/English

Return to Sender

“Return to Sender” is a collection of unsent letters that explores the hardships of college life and adulting. For the author, the creation of this book helped to write down what was never sent to those who may have hurt, helped, or loved her. Hopeful others will start to embark on the journey of writing to find their voice.

ORAL RESEARCH PRESENTATION

Shelby L. Harmon ’25

Major: Animal Studies

Minor/Certification: Biology and Psychology

Activities: Secretary of Environmental Club

Adviser

Tammy Ege, Associate Professor of Veterinary Nursing and Animal Studies

Mary Beth Wert, Assistant Professor of Veterinary Nursing and Animal Studies

The Disappearing Foundation: How Krill Decline Threatens Antarctica and the Planet

Krill fishing poses a major threat to the Antarctic ecosystem and is pushed by the demand for krill-based products in the health and wellness industry, specifically fish/krill oil supplements. Krill plays an important role in keeping the balance of the Antarctic ecosystem, serving as a main food source for marine life. The rapid progress of krill harvesting to meet worldwide consumer demand is disrupting the Antarctic food web, threatening biodiversity, and contributing to long-term environmental uncertainty. This research explores the environmental consequences of the krill fishery industry, focusing on how commercial harvesting for human health products encourages ecological decline. In addition, it highlights the potential for global repercussions as the disruption of Antarctica’s ecosystem could have an overflow of effects on marine biodiversity, climate regulation, and the overall health of the planet’s oceans.

ORAL RESEARCH PRESENTATION

Emily D. Young '25

Major: Animal Studies

Minor/Certification: Biology Minor/ concentration in biology/psychology

Athletics: Women's Lacrosse

Activities: Vice President of the Environmental Club

Adviser

Tammy Ege, Associate Professor of Veterinary Nursing and Animal Studies

Mary Beth Wert, Assistant Professor of Veterinary Nursing and Animal Studies

The Role of Sustainable Agriculture in the Biodiversity Crisis and How It Affects Us

Biodiversity is one of the most necessary assets to an ecosystem. The diversity and richness of life ensures the survival of all species and provides complex services to all organisms on the planet, including humans. It is often forgotten that humans are a part of nature and rely on the planet to keep us alive. Biodiversity levels are being threatened due to human activities that contribute to habitat loss, one of them being land used for agriculture. When biodiversity disappears, the consequences will be catastrophic to the human population and are nearly impossible to reverse with any amount of money. Sustainable agriculture can provide the first step into balancing the damage that humans have done to earth's biodiversity. Immediate solutions to the biodiversity crisis would be unethical and impractical, such as a major population decline and intense economical changes. The purpose of this research is to uncover the ways agriculturalists can begin to mitigate this problem, as well as bring awareness to the issue. Extensive literary research was conducted using a holistic approach to determine smaller, more sustainable solutions. Sustainable agriculture and alternative production methods can support more people with less resources. There are many options in agriculture to use less land that need to be implemented if humans want a planet to live on in the next century.

ORAL RESEARCH PRESENTATION

Jillian Day Ahlgren ’25

Major: Environmental Sustainability
Minor/Certification: Writing
Athletics: Women’s Lacrosse, Field Hockey

Adviser
Christine S. Mayer, Assistant Professor of Environmental Studies

Sustainable Industry: Innovations to Manufacturing for Environmental Resilience

Since the rise of the Industrial Revolution, the developed world has experienced expansive environmental degradation. In the last 50 years, developed countries have made countless improvements to environmental care, but still face industrial impacts on fossil fuel dependency or emissions, food waste, plastics or landfill waste, air pollution, threats to water health and more. Yet, modern society is steadily dependent on industry and manufacturing, and eliminating production is not a functional solution. Rather, reforming industry and corporate practices to minimize environmental effects will build the most effective and resilient pathway toward sustainability. This research explores how contemporary manufacturing industries are evolving to monitor and mitigate environmental concerns. Through alterations to the production process, community engagement, and various innovative technologies, manufacturers have countless opportunities to reduce their large environmental footprint. By investing in sustainable industrial practices, manufacturers can minimize environmental effects, all the while maintaining, or even improving, economic viability. This study will result in suggestions to weave sustainability measures into organizations’ operations with a goal to ensure continual environmental and economic enhancement.

ORAL RESEARCH PRESENTATION

Jenna Benke ’25

Major: Animal Studies and Environmental Sustainability

Minor/Certification: Minor in Conservation Studies through Smithsonian-Mason School of Conservation and Concentration in Environmental Science

Activities: Student Director for Campus Activities Board, President of Environmental Club

Adviser
Christine S. Mayer, Assistant Professor of Environmental Studies

Exploring the Development of Environmental Education Curriculum: Stream Monitoring in the Conococheague Creek

Environmental education curriculum continues to evolve with the ever-changing state of infrastructure, ecosystems, and the environment. To maintain understanding of the natural world, students must expand their knowledge on relationships that exist within ecosystems and to do that, new curriculum must be developed. Throughout the semester, new stream monitoring techniques were explored and implemented into the Introduction to Environmental Science class here at Wilson. This included a program called First Investigation of Stream Health, which involves collecting qualitative data on the physical environment which a stream runs through, such as ground cover, riparian buffers, canopy, human disturbance, etc. Despite successful integration of this new curriculum, challenges specific to environmental education arose and will be discussed, followed by the successes of the process and final establishment of the curriculum.

ORAL RESEARCH PRESENTATION

Kylie Wright '25

Major: Biology

Adviser
Deborah S. Austin, Professor of Chemistry
Sherri L. Buerdsell, Assistant Professor of Biology

Assessing the Correlation Between California Mastitis Test Results and Somatic Cell Counts in Caprine Milk

As caprine dairy farming continues to grow, reliable diagnostic tools for mastitis are necessary for herd health and milk quality. The California Mastitis Test (CMT) is widely used for detecting mastitis in bovines. Its reliability in caprines is debated due to species-specific differences in lactation physiology. Unlike bovine somatic cell count (SCC), caprine SCC can be influenced by factors such as stage of lactation and stress. The CMT lyses somatic cells with a detergent, releasing DNA and forming a gel-like substance proportional to the SCC. The CMT scoring system assigns results of positive, negative, or trace, each corresponding to an estimated SCC value based on bovine data. The U.S. Food and Drug Administration mandates a SCC limit of $1.5x10^6$ per mL. This study examined the relationship between CMT results and SCC in caprine milk to evaluate the test's reliability. A total of 140 milk samples were collected and analyzed using both the CMT and a SCC. Results indicated that positive CMT scores consistently corresponded with high SCC values and negative results generally aligned with low SCC. Trace CMT scores yielded variable SCC results. These findings suggest that while CMT is a useful screening tool, its accuracy is more reliable at the high and low ends of the spectrum but remains uncertain for trace infections. These findings could help refine mastitis management strategies in dairy caprine herds, ultimately supporting milk quality and animal health. Additional diagnostic methods, such as bacterial cultures, should be evaluated to enhance mastitis detection accuracy in caprines.

ORAL RESEARCH PRESENTATION

Julia L. Elliott '25

Major: Psychology
Minor/Certification: Writing
Athletics: Women's Soccer

Adviser
Alexandra E.T. Toms, Assistant Professor of Psychology
Brittany A. Harman, Assistant Professor of Psychology

Drunkorexia Among College Students

Drunkorexia is a slang word used to describe individuals who restrict calories to counteract the calories associated with drinking (Speed et al., 2023). The three common behaviors related to drunkorexia are skipping meals, excessive exercising to compensate for increased caloric intake from alcohol, and the consumption of excessive amounts of alcohol to become sick to purge foods that were previously consumed. Furthermore, drunkorexia can be dangerous to many different groups, including women who do not have the same enzymes as men to metabolize alcohol and have a greater risk of brain or organ damage, nutritional deficits, hypoglycemia, memory lapses and blackouts (Wilkerson et al., 2017). Binge drinking, blackouts, and alcohol usage play a role in drunkorexic behaviors in undergraduate college students (Speed et al., 2023). Research has found that being an active college student may result in students being more likely to want to binge drink (Barry and Piazza-Gardner, 2012). In addition, first year students report not feeling like adults, which can result in less concern for the negative effects of drinking (Rinker et al., 2015). The present study investigated drunkorexic behaviors among different populations of college students, specifically comparing athletes and non-athletes. It was hypothesized that student-athletes would be more concerned about weight gain than non-athletes and therefore participate in more drunkorexic behaviors. Participants completed a survey about their drinking behaviors, calorie restriction while drinking, and athletic participation. The results were analyzed to identify trends and patterns.

ORAL RESEARCH PRESENTATION

Josie Reinhardt ’25

Major: Sociology and Studio Art

Minor/Certification:

Activities: Founder and Vice President of the Pollenators Arts Club, and ODK Honor Society

Adviser
Philip Lindsey, Professor of Fine Arts

Genesis: Retelling the Origin Story of Gender

Using the story of Adam and Eve as an entry point, Josie Reinhardt’s senior capstone explores the socially constructed nature of binary gender. The exhibition includes photography, painting, printmaking, and sculpture, and will provide a narrative of trans history.

POSTER RESEARCH PRESENTATION

Rosa Portilla '26

POSTER #1

The effect of ApoE4 sialylation levels on its binding affinity for the CLEAR DNA motif

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

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 (LOAD) is apolipoprotein E4 allele (APOE4). In the brain, ApoE primarily functions to mediate lipid and cholesterol transport to neurons. Through its interactions with a variety of cell surface receptors, ApoE supports membrane homeostasis, synaptic integrity and injury repair. The ApoE4 protein, however, demonstrates dysfunction and contributes to increased amyloid-β (Aβ) peptide accumulation in Alzheimer's disease. 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 sialylation of ApoE4, relative to other isoforms, contributes to its pathophysiological mechanisms through affecting its binding affinity for various molecules. This research will determine if there is a connection between ApoE4 sialylation levels and its binding affinity for CLEAR. ApoE4 will be sialylated, and the resulting sialylation levels will be quantified. Next, the binding affinity of desialylated and sialylated ApoE4 to CLEAR will be measured. Following this, the binding affinity of transcription factor EB (TFEB) to CLEAR in the presence of non-sialylated and sialylated ApoE4 will be assessed.

POSTER RESEARCH PRESENTATION

Acadia J. Banis ’26

POSTER #2

A Systematic Comparison of Traditional Veterinary-grade Preventatives Versus Holistic Topical Tick Repellants for Canines

Advisers
Amber R. Marble, Assistant Professor of Biology
Sherri L. Buerdsell, Assistant Professor of Biology

Each year, a substantial number of dogs—potentially in the hundreds of thousands—are diagnosed with tick-borne diseases, many of which have limited treatment options and can pose a significant risk to canine health. A pivotal strategy for combating these diseases is the implementation of tick repellents. Although a wide array of veterinarian-approved and FDA-registered products exist, their expense can be prohibitive, and they may induce adverse reactions due to genetic predispositions or allergies specific to individual dogs. This study aims to systematically evaluate the efficacy of veterinary-grade topical tick repellents compared to natural alternatives. Ticks will be collected from central Pennsylvania and categorized according to species, stage of life, and gender. Two distinct experiments will be conducted: the first will involve a behavioral assay of ticks when placed on filter paper, with one end treated with the individual repellants and the opposite end with ethanol. The second experiment will utilize an artificial feeding chamber designed to mimic a warm-blooded host, allowing a more realistic and controlled evaluation of the efficacy of the tested products. Upon completion of the experiments, natural repellents will be compared to their veterinary-grade counterparts in terms of efficacy. Furthermore, a comprehensive literature review will elucidate each prevention method’s health risks and associated costs. It is anticipated that at least one of the natural topical tick repellants will demonstrate to be just as efficient when compared to veterinary-grade products.

POSTER RESEARCH PRESENTATION

Adesewami E. Aijirotutu ’26

POSTER #3

Exploring the link among visible signs of aging, age perception and stress and telomere length (via qPCR)

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

Telomeres in humans are repeats of TTAGGG sequences. They are found at the end of chromosomes, serving as a protective cap. They play a role in cellular aging, and they protect the ends of the chromosomes from degradation. Telomere length usually shortens with each cell division, contributing to visible and physiological signs of aging. Telomere length does not only decrease as a result of biological processes; it is known that TL can also shorten as a result of environmental and lifestyle stressors. This research seeks to investigate the relationship between TL and visible signs of aging, such as gray hair and skin elasticity, while considering the impact of stress and lifestyle factors. The study will also explore the relationship between TL and the perception of age, examining whether individuals who appear older than their actual age have shorter telomeres. DNA samples will be collected through buccal swabs, and TL will be analyzed using quantitative PCR (qPCR). In addition, participants’ age will be estimated by a panel of independent raters. Since multiple raters will be involved, this approach provides a more objective way to determine perceived age while minimizing bias. This estimation will allow for a comparison between TL, chronological age, and perceived age.

POSTER RESEARCH PRESENTATION

Brian Mulholland '26

POSTER #4

The Effect of Environmental Stressors on Phenotypic Variation in Arabidopsis

Advisers
Sherri L. Buerdsell, Assistant Professor of Biology
Amber R. Marble, Assistant Professor of Biology

Epigenetics in plants are crucial to their responses to environmental stress by altering the gene expression whilst not altering the DNA sequence of the plant. This study will examine changes in plant phenotype to determine the presence of epigenetic mechanisms. The plants, Arabidopsis, will be exposed to two different herbicides, a simulated environment of consistent rain, and two controls for the two experimental groups that will be cared for as under normal circumstances: 16 hours of light and 8 hours of dark, 50-70% humidity, normal soil required for Arabidopsis, and the normal amount of water given for Arabidopsis growth. The herbicide group will be kept under those circumstances. The consistent rain simulated group will receive 10-15mL of water a day at the level of 70-80% soil moisture to prevent water logging. The phenotypic changes and development of the plants will be observed to understand how environmental stress influences epigenetic responses. The phenotypes that will be tracked are changes in morphological states: plant height, leaf length and leaf changes, such as leaf color; and Arabidopsis growth rate and biomass and the mortality rate as these will suggest the presence of epigenetic modifications. It is expected that with the exposure to the different herbicides and a consistent rainfall simulation, when compared to the controls, there will be evidence of epigenetic modifications affecting the Arabidopsis in these experimental conditions. The findings of this study will contribute to a broader understanding of plant epigenetics in response to chemical and environmental stress and possibly offering insight to any adaptive strategies and potentially an application in agricultural resilience against unwanted weeds and in growing plants in less than desirable conditions.

POSTER RESEARCH PRESENTATION

Katie F. Kimmel '26

POSTER #5

Concentration of Iron and Copper in the Equine Hoof Wall and Its Relationship to Veterinary Diagnosed Laminitis

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

The frequency of laminitis in horses presents substantial issues for equestrian health experts and owners alike. Laminitis occurs when the tissue (laminae) between the hoof wall and the coffin bone becomes inflamed. The condition is painful and severely limits the mobility of the horse. Despite breakthroughs in treatment options, prevention remains the primary goal. The type of food that a horse consumes is one of the most essential elements that defines the mineral profile and tensile strength of its hooves and is critical for maintaining adequate hoof condition and minimizing the risk for laminitis. This study aims to investigate the relationship between the concentration of iron and copper in the hoof wall and the occurrence of veterinarian diagnosed laminitis. Hoof wall samples will be collected and analyzed for iron and copper content using atomic absorption spectroscopy. In addition, horse owners will complete a survey regarding diet and frequency of laminitis. Results may lead to improved prevention strategies for laminitis.

POSTER RESEARCH PRESENTATION

Matt L. Browning '26

POSTER #6

The Effect of Human Presence on the Cortisol Levels of Bats Roosting in Nursery Boxes

Advisers
Sherri L. Buerdsell, Assistant Professor of Biology
Amber R. Marble, Assistant Professor of Biology

Habitat destruction, degradation, and fragmentation are some of the biggest threats to bats, leading to a decrease in population. Habitat loss is primarily caused by human activities. The purpose of this research is to determine how stress cortisol levels in bats differ between moderate and low human activity areas. Nursery boxes will be used to supplement the natural environment of bats by providing a place for shelter and the ability to give birth away from predators. Four nursery boxes will be constructed and placed in two urban and two rural areas. Cortisol manages the body's response to stress by regulating homeostatic processes and can be an indicator of stress. An enzyme-linked immunosorbent assay (ELISA) will be used to measure the levels of cortisol in guano. Samples will be collected weekly, starting in May and ending in September, from a tray that has been placed under each box and frozen and stored at -20^{0}C. The cortisol extraction and ELISA quantification will show the statistical difference and significance of each location's cortisol levels using repeated-measures ANOVA statistical analysis. This study will reveal how the stress on bats changes throughout the season as well as quantify any disparity of cortisol levels in different areas of human activity. The differences between cortisol levels will give insight into what causes stress in bats and how humans affect them. Cortisol levels can influence management practices by showing areas of high stress and plan accordingly.

POSTER RESEARCH PRESENTATION

Marianne Ngo Bapa Ba Boumtje '26

POSTER #7

The Effect of Sound and Visible Light on The Elasticity of Liquid Crystal Saturated Elastomers Using Different Frequencies

Advisers
Kathryn L. Sarachan, Associate Professor of Chemistry
Deborah S. Austin, Professor of Chemistry and Associate Dean of Academic Advising
Sherri L. Buerdsell, Assistant Professor of Biology

Polymers are large molecules made up of repeating subunits called monomers. Liquid-crystalline elastomers (LCEs) are a class of soft stimuli-responsive materials composed of stiff mesogens bound to an elastomeric network of flexible polymer chains. Stimuli-responsive materials are materials that have a physical response to external stimuli like light, sound or pressure; natural and synthetic examples include wool and nylon. LCEs have a wide range of applications ranging from the textile industry to the biomedical field. In this experiment LCEs will first be synthesized by reacting the liquid monomer with a thiol and DR1 acrylate, which is a dye that would be used to view the reaction of the elastomer. The response of the LCE will then be assessed to two different stimuli: sound at different frequencies (500-1200 Hz) and light at different frequences (400-780nm) The different sound frequencies will be obtained using a tuning fork while for different visible light frequencies, different light colors will be used. It is hypothesized that the light and sound with the highest frequency will cause a more prominent response of the elastomer. The response will be observed by measuring the angle of bending; in case of bending and the length of stretching, in case of stretching.

POSTER RESEARCH PRESENTATION

Jenna Benke '25

POSTER #8

Exploring the Arrival of Invasive Species in the Great Lakes Via Ballast Water Release and How Citizen Science Can Increase Public Knowledge on the Ecological Impacts

Advisers
Tammy Ege, Associate Professor of Veterinary Nursing and Animal Studies
Mary Beth Wert, Associate Professor of Veterinary Nursing and Animal Studies

As international goods exchange continues to increase, so does the number of transoceanic ships and the release of ballast water. The complex system of ballast water release and its international consequences have been neglected, resulting in a general lack of outreach and knowledge. Due to the lack of education regarding ballast water release from transoceanic ships, there continues to be a nationwide and exponential increase in the introduction of invasive species, specifically in the Great Lakes. As ecosystem degradation continues to increase throughout the Great Lakes there is a growing need for public outreach using citizen science as the driver. This poster explores why ballast is a necessity for transoceanic vessels, as well as the transition to using water as ballast material and the general mechanics that are used for ballast water intake and release. It will also analyze three invasive species causing ecological, economic, or recreational damage to the Great Lakes, due to their arrival via ballast water release, including Zebra mussels (*Dreissena polymorpha*) and quagga mussels (*Dreissena bugensis*), invasive common reed (*Phragmites australis*), and round goby (*Neogobius melanostomus*).

POSTER RESEARCH PRESENTATION

Arij Rzeigui ’ND

POSTER 9

Memory Offloading: Producing Digital Amnesia in the Research Lab

Advisers

Brittany A. Harman, Assistant Professor of Psychology

Digital amnesia is the tendency to forget information we know is readily available elsewhere, such as online or on digital devices. Many research and news articles have discussed digital amnesia, but only one study has found evidence of digital amnesia in a research lab (i.e., Sparrow, Liu, & Wegner, 2011). Since 2011, two studies have been conducted to examine digital amnesia in a lab environment, but both failed to find evidence of its existence (i.e., Benediktsdottier, 2021; Camerer, 2018). One potential explanation is due to methodological differences between these studies and Sparrow et al. (2011), but Henkel (2014) found a similar effect in a significantly more ecologically valid context. The purpose of the present study is to investigate whether we can find evidence of digital amnesia in our own lab study. Consistent with the findings of Sparrow et al. (2011) and Henkel (2014), we predict that participants who expect to have access to experimental stimuli during a subsequent memory test will have significantly lower average memory test scores than those who do not have such expectations. The results of this study will provide key evidence about whether the recent, rapid acceleration of our reliance upon digital devices and the Internet truly represents a significant threat to learning and memory.

POSTER RESEARCH PRESENTATION

Jenna Benke '25

POSTER #10

Spending a Semester at the Smithsonian-Mason School of Conservation

Advisers
Christine Mayer, Assistant Professor of Environmental Studies
Deborah S. Austin, Professor of Chemistry and Associate Dean of Academic Advising

Wilson College is partnered with the Smithsonian-Mason School of Conservation which allows students to enroll in semester-away programs such as Wildlife Ecology Conservation, Endangered Species Conservation, and Conservation, Biodiversity, and Society! SMSC is located in Front Royal, VA in the heart of the Shenandoah Valley and provides students with housing, dining, activities, and much more, all while offering an immersive, educational experience. This poster will provide an overview of the Conservation, Biodiversity, and Society program which I participated in during the Fall 2024 semester. I will include details on the coursework for that particular track and highlight some of my favorite experiences and projects. I will also be including a synopsis of my semester-long practicum experience, which involved an invasive species survey throughout Seven Bends State Park in Woodstock, VA!

POSTER RESEARCH PRESENTATION

Anne Wolfrum ’27

POSTER #11

LGBTQ+ History in Central Pennsylvania

Advisers
Bonnie J. Rock-McCutcheon, Assistant Professor of History and Ancient World Studies

Historically, Central Pennsylvania has not been the most welcoming and accepting place for members of the LGBTQ+ community. While in major cities, queer people have long been able to find and form their own communities, those in rural areas have experienced a lot more isolation from each other. Today, queer people living in rural places like Central Pennsylvania face a lot more hatred from the faces elected to lead them than those in some other states and in urban areas. But just like in those urban areas, queer people have always existed in Central Pennsylvania, and it is important to talk about and celebrate their history as we move forward. This poster ties together the history of queer communities in Central Pennsylvania, primarily in Harrisburg, with a discussion of LGBTQ+ rights and politics in the area today.

POSTER RESEARCH PRESENTATION

Drew M. Alldredge '25

POSTER #12

Coerced to Confess: The Psychology of Intimate Partner Violence: Victims and Perpetrators

Advisers
Alexandra E.T. Toms, Assistant Professor of Psychology

Intimate partner violence is a challenge that one in four women and one in seven men face every day. This literature review briefly examines the history of intimate partner violence discussing when it became legally recognized and the evolution of legal protections. Risk factors and preventions for intimate partner violence are briefly discussed. This review will then discuss the psychological implications of intimate partner violence, exploring both the victim and the offender. Specifically, I discuss the different psychological profiles and characteristics of the perpetrator, including the psychological challenges that can lead to the offender murdering the victim. Lastly, it will discuss the future of intimate partner violence, such as gaining further recognition and ways to put this issue to an end.

POSTER RESEARCH PRESENTATION

Lesley Rodriguez '25

POSTER #13

The Benefits of Psychiatric Service Dogs for Individuals with Mental Health Conditions

Advisers
Alexandra E.T. Toms, Assistant Professor of Psychology

Service dogs have been around for decades and originally were trained to help with physical disabilities like visual impairment. In more recent years, psychiatric service dogs have been trained to help people with mental health disabilities like PTSD, autism, anxiety, and depression. They are trained to help people live independently and being able feel safe and confident in public or social settings. The service dog can help their owner open doors, retrieve items and keep them on a set schedule. They can also help with a sleep schedule or feeling safer when going to bed. Individuals with autism have reported that they have better sleep and feel safer with their dog around. These trained canines can help their owners get through public situations when they experience sensory overload, such as from loud noises or overstimulation. Because of these benefits of psychiatric service dogs, programs should continue to look at increasing accessibility since it is expensive to train and get a psychiatric service.

POSTER RESEARCH PRESENTATION

Jennifer F. Miller ’25

POSTER #14

Coerced to Confess: Where Confirmation Bias and Intellectual Disability Meet

Advisers
Alexandra E.T. Toms, Assistant Professor of Psychology

Confirmation bias, a distinct form of prejudice where individuals favor information that confirms their preexisting beliefs, can significantly interfere with a police officer’s ability to conduct investigations and seek justice. This bias is particularly concerning when it intersects with the vulnerability of individuals with Intellectual Disability (ID). Interview and interrogation techniques, designed to cause extreme emotional and physical discomfort in a suspect, can increase the risk of false confessions in individuals with diminished cognitive ability and impairments in communication skills caused by ID. Research has demonstrated that instances of false confessions and the resulting false convictions of individuals with ID has perpetuated a disproportionate representation of ID in jails and other secure facilities. This paper will briefly introduce confirmation bias and intellectual disability before dissecting interrogation techniques used by police. Literature will be examined to demonstrate how the Reid Technique of police interrogation, when used on a suspect with ID, can force false confessions.

POSTER RESEARCH PRESENTATION

Jeremiah M. Loyer '27

POSTER #15

Boycott to Boycott: The Active 60s at Wilson College

Advisers

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

Less than nine full years separated the Wilson College boycott of the Penn-Wilson restaurant (1960) and the campus boycott of classes conducted by the Afro-Am Society (1969). Two drastic events at the beginning and end of the 1960s, but what else occurred? This research was strictly collected from Wilson College's *Billboard* as it provides first-hand accounts of students' thoughts and actions taken throughout the 1960s. Overall, this research aims to tell the full story of Wilson's involvement with the Civil Rights Movement during the 1960s and acknowledge the struggles that challenged Wilson.

POSTER RESEARCH PRESENTATION

NUR 380: Research in Healthcare

Adviser
Kimberly M. Erwin, Instructor of Nursing

Students were to develop, evaluate, critique, and synthesize research on a topic relevant to their healthcare practice. The students developed a PICO question, searched the literature, and critically evaluated and synthesized five articles related to their topic. This information was evaluated, and students identified the healthcare practice implications of these studies' results. Finally, they were to present the literature review to their peers in the form of a poster.

Group Members

Poster #	Students	Titles
16	Lauren M. Stroup '25 Bianca J. Sommers '25 Jamie D. Smith '25 Gillian G. Walters '25 Libby Heaton '25	Respiratory Muscle Training Versus Traditional Swallowing Therapy and the Effect on Aspiration Pneumonia in Adult Stroke Patients: A Literature Review

POSTER RESEARCH PRESENTATION

BIO 207: Vertebrate Physiology

Adviser
Brad E. Engle, Adjunct Instructor of Biology

Join the students enrolled in BIO 207: Vertebrate Physiology for an interactive forum and engage with them as you learn about various physiological parameters, responses and adaptations in animals and humans. Posters will reflect a comprehensive presentation of knowledge that the students gathered as they researched specific physiological mechanisms of the vertebrate organism under varied conditions. This student-centered, active learning experience incorporates the scientific poster presentation to develop a better understanding of physiological principles and facilitate communication about their chosen topic. Students successfully reviewed the primary literature to collect information about physiological effects, as well as underlying physiological mechanisms and responses to changing environmental conditions, both short and long-term. An overarching goal of the poster project was to substantially enhance the depth of understanding of physiology, as well as provide a forum for an educational opportunity to convey facts and concepts about physiological mechanisms to the broader community.

Group Members

Poster #	Students	Titles
17	Acadia Banis '26	Embryonic Diapause as an Adaptation for Survival in Mammals
18	Rebecca Bardsley '27	Altered Physiological Mechanisms in the Progression of Multiple Sclerosis
19	Alexis Buckley '25	The Hidden Language of Sound: Echolocation as a Mechanism of Communication, Navigation and Prey Detection in Bats

POSTER RESEARCH PRESENTATION

BIO 207: Vertebrate Physiology *(Continued)*

20	Sarah Bushey '26	African Wild Dogs (*Lycaon pictus*) and Gray Wolves (*Canus lupus*): Adaptive Survival Mechanisms for Different Hunting Strategies
21	Katelyn DeHaven '26	The Physiological Effects of Global Climate Change on Wombats (*Vombatus ursinus*)
22	Jenna Dixon '25	Physiological Effects in the Different Stages of Chronic Kidney Disease
23	Patty Flook '25	Pathophysiological Effects in the Progression of Atherosclerosis
24	Emily Garner '25	Pathophysiological Mechanisms Correlated with the Degradation of Collagen Due to Environmental Pollutants
25	Shannon Gouge '25	Understanding Avian Influenza and its Devasting Effects on the Feline Population
26	Alyvia Henneman '27	Abnormalities of the Electrical Conduction System of the Heart
27	Katie Kimmel '26	The Role of the Lymphatic System in Fat Absorption: How Lacteals Support Digestion and Metabolism
28	Drue Meals '28	A Comparative Study of Equine and Human Visual Systems
29	Brian Mulholland '26	Possible Zoonotic Transmission Pathways and Physiology of the SARS-CoV-2 Virus (COVID-19)

BIO 207: Vertebrate Physiology *(Continued)*

30	Kalea Pechart '27	Ectothermic Energy: How Reptiles Regulate Metabolism and Body Temperature
31	Rosa Portilla '26	The Pathophysiological Mechanisms of ApoE4 Implicated Alzheimer's Disease
32	Yashene Perumal 'ND	Electric Organ Discharge in Electric Fish and the use of Bioelectricity for Migration, Communication, and Behavior
33	Halley Shaffer '26	Long-Term Effects of Hormonal Contraceptives on Bone Density
34	Ashley Stevens '25	A Comparative Analysis of Visual Systems in Owl, Mantis Shrimp, and Squid Species
35	Hunter Zittle '28	Physiological Adaptations to Venom: A Comparative Study of the Cobra and Honey Badger

POSTER RESEARCH PRESENTATION

BIO 306: Immunology

Adviser
Kathryn L. Sarachan, Associate Professor of Chemistry

Join the students enrolled in Bio 306: Immunology in an interactive forum and engage with them as you learn about various types of immunological disorders. Posters will reflect a comprehensive presentation of knowledge that the students gathered as they researched specific disorders. This student-centered, active learning experience incorporates a scientific poster presentation fostering learning of Immunology as well as communication of their chosen topic.

Students successfully mined primary literature to collect information ranging from epidemiological data on incidence and population trends, any suspected correlations to genetics as well as inheritable factors to current and trending diagnostic and therapeutic approaches to the disorder.

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

Group Members

Poster #	Students	Topics
36	Katelyn Dehaven '26	The immune system of the water bear or the tardigrade, a microorganism
37	Adam Mowery '25	Biomarkers in Sepsis: Predicting Disease Severity and Progression to Septic Shock
38	Brian Mulholland '26	Assessing the Immunological Mechanisms of Drug-Induced Hypersensitivity Reactions

POSTER RESEARCH PRESENTATION

BIO 306: Immunology *(Continued)*

39	Kella Sponheimer '26	Understanding Multiple Sclerosis: An Immunological Approach
40	Hailey Steele '25	A Review of the Impact of Natural Killer Cell Receptors in Endometriosis
41	Judith Wolf '25	Polyketides and their application as a novel anti-inflammatory medication
42	Kylie Wright '25	Genetic Mutations in H5N1 and the Evolution of Avian Influenza for Cross-Species Transmission

POSTER RESEARCH PRESENTATION

CJ 310: Transforming Communities

Adviser
Madhuri Sharma, Assistant Professor of Criminal Justice

Study of the practices, attitudes, and other factors capable of transforming communities marred by violence into flourishing communities. Topics include violence, nonviolence, community organizing.

Group Members

Poster #	Students	Titles
43	Brady C. Bakner '25 Dallas A. Gilbert '26	Economic Challenges Associated with Post-Prison Life Directly Affect Accessibility to Proper Food and Nutrition
44	Kaitlyn N. Blizzard '27 Lexie Hubbard '27	Domestic Violence Issues
45	Geneiva A. Pawlowski '27 Madelyn R. Mccoy '27	Law Enforcement Responds Negatively to Mentally Ill House Calls Due to Lack of Training and Resources
46	Faith D. Crawford '26 Jade Syto '26	Racial Ecocide
47	Allie M. Cullison '25 Jayden Pritchett '26	Alternatives to Incarceration for Drug and Alcohol Offenses
48	Emma-Leigh O. Gillingham '27 Deahnirah R. Menedis '25	Transportation Issues Impacting Ex-Felons

POSTER RESEARCH PRESENTATION

HIS 332/532: Museums and Material Culture

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

Students in the course have immersed themselves in the College's archives to research a topic related to the history of Wilson College. These projects span a variety of subjects and periods and draw from multifarious sources.

Group Members

Poster #	Students	Titles
49	Brady C. Bakner '25	Wilson Women in the United States Military
50	Gavin A. Bigelow '26	Wilson College During the Cold War
51	Aubri A. Doyle '27	Orchesis (Dance) at Wilson College
52	Lyssa R. Gable '27	The Accomplishments, Achievements, and Legacy of Margaret Disert
53	Taylor Hayes '27	Wilson College Riding Program Through the Years
54	Matthew E. Line '25	Evolution of Ancient History Education at Wilson College
55	Hailee S. Little '26	Wings of Change: Sally Hoyt Spofford and Improving Ornithology
56	Keaira F. Lutz '26	Equestrian/Equine Studies Through the Years

POSTER RESEARCH PRESENTATION

HIS 332/532: Museums and Material Culture *(Continued)*

57	Sydney A. Marza '27	Veterinary Nursing at Wilson College Over the Years
58	Emily G. Stamper '26	Exploring Wilson's Presidential Leadership Throughout the Years
59	Anaida Fahradyan '23, '26 MH	The History of International Students at Wilson College and the Legacy of the Muhibbah Intercultural Club

POSTER RESEARCH PRESENTATION

BIO 211: Microbiology

Adviser
Amber R. Marble, 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 isolates four 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
60	Elizabeth R. Landon '26 Kylie C. Wright '25	Isolation and analysis of E. coli for antibiotic resistance in the Conococheague Creek
61	Hayden Sturgeon '26 Julie Warnick '26	Fear the Fecal: determination of extended-spectrum beta-lactamase producing Enterobacteriaceae in the Conococheague creek

POSTER RESEARCH PRESENTATION

BIO 211: Microbiology *(Continued)*

62	Jenna Dixon '25 Patty Flook '25	Detection of multidrug resistant E. coli and antibiotic resistance genes in the Conococheague Creek in Chambersburg, PA
63	Brenden Cleary '27 Kassandra Dotterer '26	Phenotypic determination of coliform bacteria found in the Conococheague Creek
64	Rachel Coulter '25 Katie Kimmel '26 Marianne Ngo Bapa Ba Boumtje '26	Water quality and the presence of Extended-spectrum Beta-Lactamase producing bacteria within the Conococheague Creek.

POSTER RESEARCH PRESENTATION

HIS 228: Pennsylvania Archaeology

Adviser
Bonnie J. Rock-McCutcheon, Assistant Professor of History and Ancient World Studies

Pennsylvania Archaeology introduces students to archaeology—the study of the past through material culture—as well as the prehistory and history of Pennsylvania. In addition to exploring archaeological methods, students learn how to research and interpret local history, connecting broader historical events to specific communities. Understanding local history is essential for recognizing how national and global developments have shaped Pennsylvania's identity. By uncovering overlooked stories, students help preserve voices and experiences that define the region. Moreover, engaging in local history research strengthens critical thinking skills, informs public policy, and fosters civic engagement.

For this project, students selected a research question related to the history of Pennsylvania, Franklin County, Chambersburg, or Wilson College. Using local archives, they investigated their topics and compiled their findings to share with the Wilson College community—demonstrating that history is not just a record of the past but an active and evolving part of our present.

Group Members

Poster #	Students	Titles
65	Grace Owens '27 Alexis Doyle '28 Jaylyn Lopez '28 Kylie Gardener '27 Gary Robertson '25	Student Life at Wilson College: A Glimpse into the Early Years
66	Jennifer E. Lepouski '25 Emily R. Martin '27 Anna Rozenson '27 Kendall L. Brechbill '29 Anne Wolfrum '27 Jill Schaefer '27	Hannah J. Patterson: A Wilson Suffragist

POSTER RESEARCH PRESENTATION

HIS 228: Pennsylvania Archaeology *(Continued)*

67	Tearney L. Richard '26 Lyssa R. Gable '27 Matt L. Browning '26 Jenna C. Howell '26	Coal Mining in Pennsylvania: Industry, Labor, Legacy
68	Lily M. Clark '27 Matt E. Line '25 Charles F. Musser '27 Alessandro A. Granados '28 Jordan Daphney '25 Jeremiah M. Loyer '27	Water Sports of Wilson

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.

Brittany Harman
Assistant Professor of Psychology & Committee Chair

Sherri Buerdsell
Assistant Professor of Biology

Kim Erwin
Instructor of Nursing

Janet Foor
Assistant Professor of Special Education

Amy Gulino
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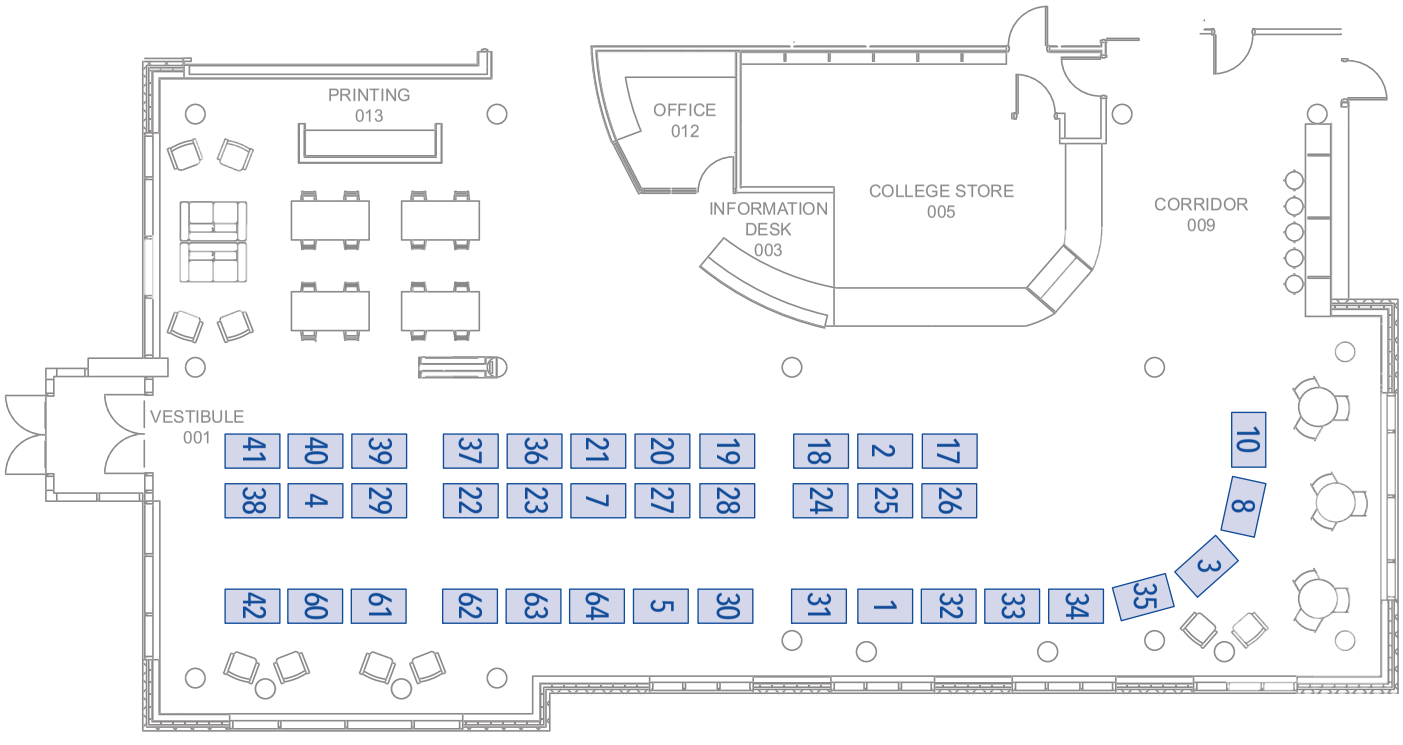
Cynthia Hyland
Director of Academic Technology

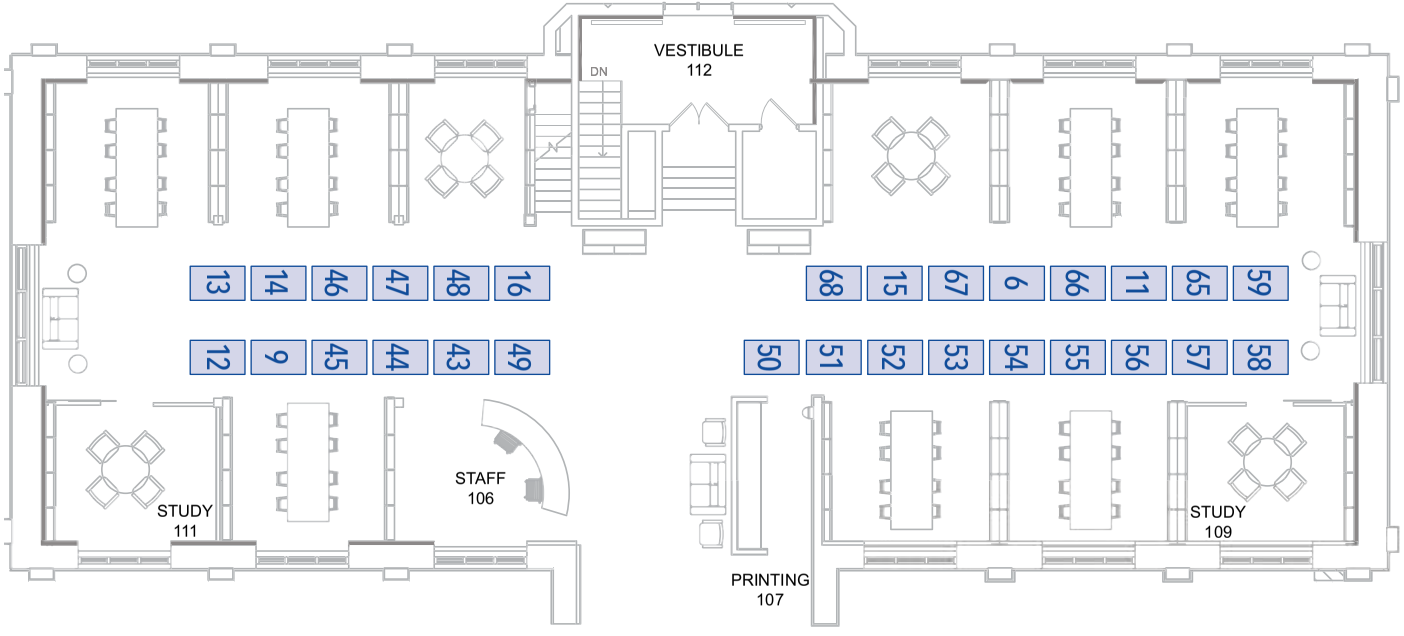
Moe Kiefer '24
Assistant to the Dean of Faculty & Provost

Denise Sandell
Director of Library Services

LIBRARY - GROUND FLOOR



LIBRARY - FIRST FLOOR



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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