# High Point University
# Research & Creativity Symposium


## April 16, 2024

HIGH POINT UNIVERSITY

The Premier Life Skills University®

- Welcome from the -

# DIRECTOR OF UNDERGRADUATE RESEARCH AND CREATIVE WORKS

Welcome to the 12th High Point University Research and Creativity Symposium (High-PURCS). High Point University is an institution which fosters intellectual and creative scholarship through student engagement and student-faculty collaboration. Our students undertake significant work in intellectual and creative endeavors mentored by faculty; they regularly share their work at professional national and regional conferences. High-PURCS is an opportunity for students to showcase their projects on campus so HPU students, faculty, and staff can witness our students' professional development and gain a glimpse of tomorrow's future leaders, artists, scientists, teachers, and scholars. At this year's symposium, we have 196 projects from 299 undergraduate students mentored by 80 faculty from 28 different fields across most of High Point University's schools, including graduate schools. Our students' achievements reflect HPU's holistic learning approach and the dedication of its caring faculty. Thank you for being part of the 2024 High Point University Research and Creativity Symposium.

Dr. Joanne D. Altman
Director, Undergraduate Research and Creative Works
Professor of Psychology

# THE 12TH HIGH POINT UNIVERSITY
# RESEARCH AND CREATIVITY SYMPOSIUM
# (High-PURCS)

APRIL 16, 2024

Nido and Mariana Qubein Conference Center

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| | |
|---|---|
| 9:00 am – 9:30 am | **Welcome, Opening Remarks & Awards**<br>Premier Ballroom - 2202 G |
| 9:30 am – 10:30 am | **Poster Session & Exhibit I**<br>2nd floor Concourse (hallway) |
| 10:30 am – 11:30 am | **Oral Session I**<br>2202 A-F |
| 11:30 am – 12:30 pm | **Oral Session II**<br>2202 A-F |
| 12:30 pm – 1:30 pm | **Oral Session III**<br>2202 A-F |
| 1:00 pm – 2:00 pm | **Dance and Vocal Performances**<br>Premier Ballroom - 2202 G |
| 1:30 pm – 2:30 pm | **Poster Session & Exhibit II**<br>2nd floor Concourse (hallway) |

# Congratulations to our 2023-2024 Research Apprentices!

Research Rookies is a program for freshmen and first-semester sophomores who desire to be incorporated into the research and creative works atmosphere of High Point University while still early in their undergraduate careers. Participants have two consecutive semesters to complete a variety of activities. Completing this program earns the title of Research Apprentice and shows students are committed to independent work which will give them an edge later in job interviews or applications for graduate or professional schools. This spring we are excited to congratulate seven students who have recently completed the program and have earned the title of Research Apprentice.

## New Spring 2024 Apprentices:


Hailee Gosart


Patrick Hynds


Jenny Ngo


*Jordan Thompson


*Hudson Wesel


Muneeba Zaman

Brayden Mckibben (not shown) also completed the Research Rookies Program

**Denotes students who completed the Research Rookies program in one semester in the fall.*

## Research Apprentices recognized in a Fall 2023 ceremony:

| | | | |
|---|---|---|---|
| Isabel Boyles | Gena Ghandour | Godwin Mondo | Cam Siler-Nixon |
| Jake Drew | Madison Hill | Jake Morgan | Sara Solomon |
| Hailey Edwards | Emily Huitt | Adrianna Murray | Emma Spanvill |
| Abby Fort | Sara Jameson | Parker Nyboer | Andrea Zaglin |
| Macie Fox | Cassidy Krieger | Jack Quintana | Toheed Zaman |
| Catherine Gallagher | Caitlin McCray | Gabriella Rodriguez | |

SCHOLARLY INTERDISCIPLINARY RESEARCH GRANT

The Scholarly Interdisciplinary Research Grant (SIRG) is a competitive grant awarded to one student each year for work that crosses disciplines and involves mentorship from two mentors in different fields.

# Congratulations to the two 2024 SIRG winners!

## 1st Place - Catherine Gallagher

***Storytelling through Dance: Exploring the Impact of Learning Strategies and Cognitive Styles on Movement***

Mentors: Lindsey Howie, Dance; Stacy Lipowski, Psychology; Laura Nagy, Psychology

## 2nd Place - Jordan Destafino

***Exploring Neural Responses to Varied Physical Activities using fNIRS***

Mentors: Mike Dalton, Computer Science; Kimberly Jones, Psychology; Matt Eaton, Engineering

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## Last Year's SIRG winner

See last year's SIRG award winners Jalen Bynum (page 25) and James Gallagher (page 20).

## 9:00 am – 9:30 am Opening Remarks and Awards

# Poster Session I

9:30 am-10:30 am

| Board | Presenter(s) | Topic |
|---|---|---|
| 1 | Kiara Busby & Burton Brewer | Biochemistry |
| 2 | Maggy Henkel & Renee Monge | Biochemistry |
| 3 | Tristan Kaz | Biochemistry |
| 4 | Gabe Valenzano | Biochemistry |
| 5 | Michael Wright, Gracie Vickery, & Sienna Brown | Biochemistry |
| 6 | Rilee Bahner & Hailee Gosart | Biology |
| 7 | Laird Bickford | Biology |
| 8 | Hannah Clark | Biology |
| 9 | Josephine Ganshaw | Biology |
| 10 | Billy Hayden & Owen Kelley | Biology |
| 11 | Lindsey Logan | Biology |
| 12 | Caroline Paccione | Biology |
| 13 | Jack Quintana | Biology |
| 14 | Rhianna Schantz & Rayne Philpott | Biology |
| 15 | Marie Streng, Nina Ritter, & Elle McKay | Biology |
| 16 | Paige Van Vooren & Kayleigh Thurston | Biology |
| 17 | Halie Balogh | Chemistry |
| 18 | Jalen Dixon | Chemistry |
| 19 | Nadia Khan | Chemistry |
| 20 | Garrett Laws | Chemistry |
| 21 | Owen Mader & Harrison Shaeffer | Chemistry |
| 22 | Stephanie Mera & Kenzie Hagens | Chemistry |
| 23 | Erik Peterson | Chemistry |
| 24 | Lauren Vossen | Chemistry |
| 25 | Darryl Wright | Chemistry |
| 26 | Toheed Zaman | Chemistry |
| 27 | Alayna Adams | Data Analytics |
| 28 | Taylor Cox | Electrical Engineering |
| 29 | Charlotte Miller | Event & Sport Management |
| 30 | Sydney Chretien | Exercise Science |
| 31 | Norah Cook & Macey McGovern | Exercise Science |
| 32 | Hunter Hills & Darren James | Exercise Science |
| 33 | Cole Murray | Exercise Science |
| 34 | Sonia Piombino & Devon Derrenbacher | Exercise Science |
| 35 | Kiah Williams | Exercise Science |

| | | |
|---|---|---|
| 36 | Austin Edwards, Brett Ingram, Nate Bryant, Steven Gast, & Tyler Johnson | Game Design |
| 37 | Kayla Wylie | History |
| 38 | Becca Boorse, Aamiya Smith, Levi Wenger, & Ben Niehaus | Honors |
| 39 | Quinn DeWitt, Zach Wade, Quinn Rivers, & Alex Chen | Honors |
| 40 | Landon Hardister, Emma Higgins, Troy Kubanka, Cierra Mahoney, & Chloe Sagcal | Honors |
| 41 | Ainsley Krohn, Alexa Schuette, Isabel Arroyo, & Palmer Braswell | Honors |
| 42 | Catie McKinney, Mckenna Downey, Porter, Annie Sellenberg, & Caitlin Black | Honors |
| 43 | James Gallagher | Interdisciplinary |
| 44 | MaryKate Hewitt | Interior Design |
| 45 | Kaylin LaFleche | Interior Design |
| 46 | Taylor Galavotti | Neuroscience |
| 47 | Ana-Elana Kusters & Annelise Paris | Neuroscience |
| 48 | Cameron Siler-Nixon | Neuroscience |
| 49 | Ashley Westbrook | Neuroscience |
| 50 | Katie Gaines | Nursing |
| 51 | Isabella Maldonado & Andrea Zaglin | Pharmacy |
| 52 | Priya Thornton, Miranda Gough, & Rebecca Donaldson | Pharmacy |
| 53 | Teagan Graham | Physics |
| 54 | Catherine Gallagher | Psychology |
| 55 | Shira Gold | Psychology |
| 56 | Kelly Polk | Psychology |
| 57 | Hannah Tameling | Psychology |
| 58 | Jane Thompson | Psychology |
| 59 | Catherine Waldeck | Psychology |
| 60 | Alexandra Zimmerman | Psychology |
| 61 | Corey Palubinski | Sociology & Anthropology |
| 62 | Alexa Schuette | Strategic Communication |

# Technical Exhibits

| Space | Presenter(s) | Topic |
|---|---|---|
| 64 | Parker Greene, Paul Shumlas, Ashley Longbottom, Dominic Monaco, Nicolas Santomassimo, & Shane Cooper | Game Design |
| 65 | Daniel Haldeman, Sam Karlen, Olivia Farrell, Zuri Smith, Cecile Li & Terry Evans | Game Design |

# Oral Presentation Schedule

10:30 am – 1:30 pm

| | Room A | Room B | Room C | Room D | Room E | Room F |
|---|---|---|---|---|---|---|
| **Session I** | **Strategic Communication/ Sport & Event Management** | **Political Science** | **Interdisciplinary work with the Arts** | **Spanish I** | **English I** | **Honors I (20 Mins Each)** |
| 10:30-10:45 | Brenden Mahla, Joy Adjei, Holland Van Metre, Dean Petersen | Maggie Selman | Jalen Bynum | McKenzie Kauffman | Emma Jerrier | Jack Fobert, McKenna Holz, Alyson Longe, Genevieve Manger, Tatiana Ontivero-Campo Perales |
| 10:45-11:00 | Brittany Secraw, Alex Rucker, Carmela Petruccelli, Micheal Wipf, Richie McGuigan, Holland Barber | Hannah Parson | Thomas Owens | Ainsley Krohn | Julianne Kendrick | Alexa Dandrea, Ellie Moyer, Erik Peterson, Ben Ritter |
| 11:00-11:15 | Halle Nicols | Madison Deane | Lindsey Conway | Avery Sistare | McKenna Holz | Mahoney Cyr, Sophia Csulak, Lexi Gabrinowitz, Julia Thackston |
| 11:15-11:30 | Abby Hoag | Alexandra Bennett | | Paris Stankewich | | |

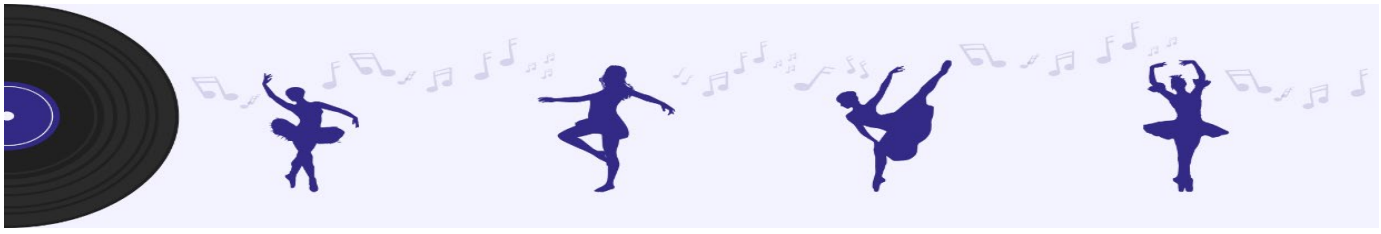
| | Room A | Room B | Room C | Room D | Room E | Room F |
|---|---|---|---|---|---|---|
| **Session II** | **Psychology I** | **Chemistry** | **Empowering Academic Futures** | **Spanish II/ French** | **English II** | **Honors II (20 Mins Each)** |
| 11:30-11:45 | Alexa Schuette | Sadie Flagg | Jade Stewart | Cora Hicks | Jowan Williams | Emma Jerrier, Matthew Ghiz, Lindsey Conway, Lena Hetrick |
| 11:45-12:00 | Hannah Tameling | Emily Gillis | Maggie Selman | Taylor Hawkins | Alexis Ross | Gracie LeFever, Meghan Bartel, Leslie Pierce, Julia Koshivos |
| 12:00-12:15 | Isabel Viana Teixeira & Ariana Gabriel | Ryan Goldin | Abby Fort | Dawson Wright | Hannah Parson | Maggie Roche, Zander Betterton, Lily Maggio, Haley McCall |
| 12:15-12:30 | Ethan Muckerheide | Angelina Pierre | | Lena Hetrick | Taylor Galavotti | |

| | Room A | Room B | Room C | Room D | Room E | Room F |
|---|---|---|---|---|---|---|
| **Session III** | **Psychology II** | **Biochemistry/ Biology** | **Interdisciplinarity within the Social Science** | **Game Design** | **English III** | **Honors III (20 Mins Each)** |
| 12:30-12:45 | Samantha Riveros, Gracie Lefever, Ioana Scalco | Abigail Nimmo | Hailee Gosart | Shanice Gamble | Abigail Ellis | Katie Craun, Madison Deane, Ava Kitchens, Kade Little, Allison Reed |
| 12:45-1:00 | Ioana Scalco | Katie McDonald | Zyncli Ramirez | Henry Wallace | Emma Jerrier | Chloe Cox, Anna Claire Miller, MacLean Mollins, Ethan Muckerheide, Lexie Young |
| 1:00-1:15 | | | Xuan Rui | | | Taylor Baxter, Noah Crag, Laura Sarafinas, Isabel Viana Teixeria |

# Performances

1:00 pm – 2:00 pm

| **Dance Performances:** |
| --- |
| Kendall McDowell and performers - FRACTURE<br>Caroline Cubas and performers- SHiFTED<br>Melanie Fitts and performers - Between<br>Mary Gomez and performers - Coexist<br>Sophie LeBron and performers - Better Left Unsaid<br><br>(see abstracts for performers) |
| **Theater Performances:** |
| Alyssa Vogt - When I Look at You |
| **Musical Performances:** |
| Finn Mulder and Mia Spies - Requiem: The Pure Land<br>Johnny Pohlman - Lasciatemi Morire! & I Have Trod the Upwards and the downwards Slope<br>Cate Stamper - Till There Was You<br>Aaron Jackson - Drum Corps International Auditions |



# Poster Session II

1:30 pm – 2:30 pm

| Board | Presenter(s) | Topic |
|---|---|---|
| 1 | Chloe Cox | Biochemistry |
| 2 | Imogen Irons | Biochemistry |
| 3 | Jake Morgan | Biochemistry |
| 4 | Makenzie Wiseman | Biochemistry |
| 5 | Alyson Acquard | Biology |
| 6 | Kara Bensel | Biology |
| 7 | Micayla Campbell & Hayes Bowman | Biology |
| 8 | Andrew Fox | Biology |
| 9 | John Guglielmetti | Biology |
| 10 | Catalina Kett | Biology |
| 11 | Tyler Matthews & Zachary Workman | Biology |
| 12 | Nhu Ngo, Esprit Cha & Muneeba Zaman | Biology |
| 13 | Madison Prendergast | Biology |
| 14 | Elizabeth Ruberia | Biology |
| 15 | Marie Streng | Biology |
| 16 | Catherine Summerrow & Dominick Latta | Biology |
| 17 | Justus Young | Biology |
| 18 | Ryland Brady, Sydney Wargo, & Kelsey Ryan | Chemistry |
| 19 | Madison Hill | Chemistry |
| 20 | Owee Kirpekar | Chemistry |
| 21 | William Lay | Chemistry |
| 22 | Isabel Marshall | Chemistry |
| 23 | Parker Nyober | Chemistry |
| 24 | Robin Stempel | Chemistry |
| 25 | Rachel Watne | Chemistry |
| 26 | Lexie Young | Chemistry |
| 27 | Kamryan Collis | Criminal Justice |
| 28 | Ryan Walter | Economics |
| 29 | Brett Sykes | Electrical Engineering |
| 30 | Levi Wenger | Electrical Engineering |
| 31 | Cydney Lafore, Annika Waguespack, Ana Wein, & Kailey Wrege | Event & Sport Management |
| 32 | Lindsay Bonsall | Exercise Science |
| 33 | Nathan Conrad | Exercise Science |
| 34 | Emerson Heckler | Exercise Science |
| 35 | Sydney Litwiller | Exercise Science |
| 36 | Millicent Tysinger, Sydney Chretien, & Sonia Piombino | Exercise Science |

| | | |
|---|---|---|
| 37 | Mara Cooper and Emma Scrivo | History |
| 38 | Bayli Alley, Danny Dwyer, Riley Maldonado, & Charlotte Miller | Honors |
| 39 | Autumn Bryan, Isabella Edwards, Kamryn Eller, Lacey Falloon, & Nate Hohensee | Honors |
| 40 | Caroline Field, Megan McCambridge, Eliana Reed, & Emmi Yates | Honors |
| 41 | McKenzie Kauffman, Elizabeth Ring, Taylor Galavotti, Alexandra Zimmerman, & Lauren Shinn | Honors |
| 42 | Jeremy Maas, Regan Stillman, Ashley Spreng, & Elijah Foggie | Honors |
| 43 | Justus Ullman, Nico Esposito, Maddie Litvan, Ash Corcoran, & Eli Lemons | Honors |
| 44 | Keelin Gallagher | Interior Design |
| 45 | Alexia Kallaur | Interior Design |
| 46 | Abigail Hyatt | Mathematics |
| 47 | Lena Hetrick | Neuroscience |
| 48 | Alison Reed | Neuroscience |
| 49 | Cameron Siler-Nixon | Neuroscience |
| 50 | Anayia Whitaker | Neuroscience |
| 51 | Owen Hunter &Heather Duensing | Pharmacy |
| 52 | Andrea Zaglin & Isabella Maldonado | Pharmacy |
| 53 | Jenna Mastropolo | Physics |
| 54 | Lily Grace Foister | Psychology |
| 55 | Catherine Gallagher & Genna Manger | Psychology |
| 56 | Caitlin McCray | Psychology |
| 57 | Kelly Polk, Jane Thompson, & Shira Gold | Psychology |
| 58 | Ashley Tarjick & Gabriella Korb | Psychology |
| 59 | Catherine Waldeck | Psychology |
| 60 | Margaret Weinbaum, Regan Jordan, & Cora Hicks | Psychology |
| 61 | Catie McKinney | Sociology & Anthropology |
| 62 | Aidan Brooks | Strategic Communication |
| 63 | Karlee Sanderford | Strategic Communication |

# Technical Exhibits

| Space | Presenter(s) | Topic |
|---|---|---|
| 64 | Shanice Gamble, Jace Tensley, Ryan Keenan, & Jonathan Zettlemoyer | Game Design |
| 65 | Henry Wallace, Bryant Nourse, Ethan Harshbarger, Ariel Escobar & Ashley Longbottom | Game Design |

# Poster Session I

9:30 am -10:30 am

## Biochemistry

***(1) Loratadine Derivatives: Novel Antibiotic Adjuvants Combating Antibiotic Resistance***
**Kiara Busby* & Burton Brewer***
Mentor: Meghan Blackledge, Biochemistry
Antibiotic resistance in bacteria is on the rise, and current treatments are no longer useful in treating infections. Our lab develops antibiotic adjuvants that potentiate pre-existing antibiotics. Previous research identified loratadine as an effective adjuvant against resistance. Analogs of this compound were synthesized. Synthetic methodologies will be presented.

***(2) Using CRISPR To Delete the Stk1 Gene In MRSA***
**Maggy Henkel* & Renee Monge***
Mentor: Heather Miller, Biochemistry
Methicillin-resistant Staphylococcus aureus (MRSA) is a pathogen that has developed antibiotic resistance. The master regulatory protein Stk1 is involved in antibiotic resistance and biofilm formation. Using CRISPR, we can delete the stk1 gene in medically relevant strains of MRSA. Creating these genetic tools will expand our knowledge of Stk1 function.

***(3) Using Self-Assembled Monolayers to Control the Pattern and Morphology of Conjugated Polymer Brushes of Poly(3-hexylthiophene)***
**Tristan Kaz*, Sadie Flagg, Oliva Armendarez, Grace Todd, Evan Silver, Brian Augustine, & Pamela Lundin**
Mentor: Pamela Lundin, Biochemistry
The formation of a polymer using poly(3-hexylthiphene) enables the structure to exhibit a π electron system across the entire polymer chain. When tightly compact, a π electron system can have a wide range of uses within thermoelectric, spintronics, and photovoltaic. Our lab set out to create tightly compact polymer brushes.

***(4) Loratadine's Influence on MRSA ATP Levels***
**Gabe Valenzano*, Meghan S. Blackledge, & Heather B. Miller**
Mentor: Heather Miller, Biochemistry
Methicillin-resistant Staphylococcus aureus is becoming an issue due to its resistance to β-lactam antibiotics. Previous research has investigated antibiotic adjuvants, such as loratadine, to combat resistance. To test whether loratadine decreases ribosomal functioning, strains of MRSA were subjected to drug treatment before measuring intracellular ATP levels.

***(5) Monitoring the Endangered Atlantic Pigtoe Mussel (Fusconaia Masoni) using eDNA and PCR***
**Michael Wright*, Gracie Vickery*, & Sienna Brown***
Mentor: Megan Rudock Bowman, Biochemistry
Fusconaia Masoni, better known as the Atlantic Pigtoe, is a critically endangered species of mussel found across the southeastern US. Environmental DNA collected from water in the Deep, Haw and Rocky rivers was tested using PCR-based assays for species' presence, to improve safety and efficiency of current surveillance methods.

## Biology

***(6) Assessment of Anti-Cataract Properties of Flavonoids Using an In Vitro Model of UV-Induced Photooxidation and Protein Aggregation***

**Rilee Bahner*, Hailee Gosart*, Kiernan McDonald, Billy Hayden, Nicole Hughes, Amanda Melin, James Higham, & Jeremy A. Whitson.**
Mentor: Jeremy Whitson, Biology

An assay to measure the UV-induced aggregation of lens proteins to simulate age-related cataract formation tested the efficacy of flavonoid compounds in reducing protein aggregation in lens homogenates of rhesus macaques. Flavonoids have been demonstrated to cross the blood-eye-barrier, which indicates that diet could play an important role in cataractogenesis.

***(7) Evolution of Blue Coloration in Kingdom Fungi: A Review***

**Liza Ragan, Nicole Hughes, & Laird Bickford***
Mentor: Nicole Hughes, Biology

Adaptive coloration of fungi remains largely unexplored. The objective of the current study was to review the literature for information on the biochemical, evolutionary, and ecological basis for blue colored fungi. Blueness is imparted by a variety of widespread (e.g., melanin, laccase) and taxon-specific molecules. Most haven't been identified.

***(8) Determination of the Environmental Conditions Required for the Insecticide Activity of Bacillus thuringiensis***

**Hannah Clark***
Mentor: Dinene Crater, Biology

Under environmental stress, bacteria like Bacillus thuringiensis (Bt) undergo sporulation, producing toxic spores harmful to insects. Bt regulates this process through transcription control, particularly via the DNA-binding protein GerE. Research aims to assess GerE's role in Bt's insecticidal properties through caterpillar tests, crucial for understanding its efficacy.

***(9) Effects of Protein Levels on the Development of the Skeletal System***

**Josephine Ganshaw***
Mentor: Kenneth McKenna, Biology

Protein is an important component for the development of the skeletal system. We studied the development of the second-generation rats who, like their parents, ate low protein diets. We will be presenting on how second-generation low protein rats compare to first-generation normal diet rats.

***(10) Analysis of Post-translational Modifications Associated with Age and Insolubilization in Rhesus Macaque Lenses***

**Billy Hayden*, Owen Kelley*, Keith Zientek, Ashok Reddy, Phillip Wilmarth, Rachel Munds, Michael Montague, Melwenn I. Martinez, Gadi Wollstein, James Higham, Arturo Barron-Arrambide, John Danias, Amanda Melin, & Larry L. David, Jeremy A. Whitson.**
Mentor: Jeremy Whitson, Biology

The accumulation of posttranslational modifications (PTMs) in lens proteins with age resulting in insolubilization has been hypothesized as a primary cause of age-related cataract. Advances in proteomics technology allowed us to analyze lens cores of young and aged rhesus macaques for PTMs that accumulate with age and cause insolubility.

***(11) Exploring the Molecular Mechanisms of Endometriosis Using Biological Sensors***
**Lindsey Logan* & Daniel Stroik**
Mentor: Daniel Stroik, Biology
Endometriosis is a gynecological condition involving inappropriate endometrial growth outside the uterus. Scientific evidence is lacking to explain why endometriosis develops in some individuals. We are using tissue culture to model the behavior of molecules implicated in disease development. Preliminary work establishes the use of biological sensors in our model.

***(12) Genetic and Physical Characterization of an Unknown Bacteriophage from a Commercially-Available Sample of Bacillus thuringiensis***
**Caroline Paccione***
Mentor: Dinene Crater, Biology
Bacillus thuringiensis (Bt) is a soil bacteria that is used as a natural insecticide. We isolated an unknown bacteriophage from a commercially-available sample of Bt. The purpose of our research is to perform structural and genetic characterization of this bacteriophage to determine its relatedness to known bacteriophage.

***(13) Monitoring the Endangered Cape Fear Shiner (Notropis Mekistocholas) Presence in the Cape Fear River Basin Using Environmental DNA***
**Jack Quintana* & Megan Rudock**
Mentor: Megan Rudock, Biology
Notropis Mekistocholas (Cape Fear Shiner) is an endangered species of minnow fish native to southeast North Carolina that are in need of more efficient monitoring strategies. PCR assays are being developed by utilizing environmental DNA to confirm this species presence in their habitats.

***(14) Effects of Wnt Signaling Agonists and Antagonists on Butterfly Color Pattern Development***
**Rhianna Schantz* and Rayne Philpott***
Mentor: Kenneth McKenna
Butterfly color patterns develop in response to many different signaling pathways. Here we test the effects of Wnt signaling. We will report on findings that demonstrate differential effects along the proximodistal axis of the wing.

***(15) Comparative Analysis of the Performance of the CareSuperbTM COVID-19 Antigen Home Test with Three Other Antigen Tests Using SARS-CoV-2 Wild Type and Omicron Variants***
**Marie Streng*, Nina Ritter*, Elle McKay*, & Y. Kevin Suh**
Mentor: Y. Kevin Suh, Biology
Self-antigen tests are crucial for the control of COVID-19. Access Bio, Inc. has created the CareSuperbTM COVID-19 antigen home test using new platform technology to address low sensitivity in self-antigen tests. In this study, the sensitivity of CareSuperb was compared with the sensitivity of three other market-available antigen tests.

***(16) Evaluating the Influence of Phylogeny, Climate, and Soil Properties on Evolution of Autumn Leaf Color in North American Oaks***
**Paige Van Vooren* & Kayleigh Thurston***
Mentors: Nicole Hughes, Biology
The hypothesis that oak species with red autumn leaves would more likely inhabit physiologically-stressful environments compared to yellow-leafed species was tested using a Maxent presence-only prediction analysis in ArcGIS, comparing species ranges with soil and climate variables. We also tested a potential phylogenetic effect. Results are forthcoming.

## Chemistry

***(17) The Antihistamine, Loratadine, Modulates Hemolysin Gene Expression in MRSA***
**Halie Balogh*, Brianna Viering, Meghan S. Blackledge, & Heather B. Miller**
Mentor: Heather Miller, Chemistry
Methicillin-resistant Staphylococcus aureus (MRSA) has developed resistance to multiple antibiotics and is combated with novel antibiotic adjuvants. The adjuvant loratadine causes changes in antibiotic resistance and hemolysis gene expression, which has been verified with reverse transcription quantitative polymerase chain reactions (RT-qPCR). We will discuss these discoveries and new data.

***(18) Optimization of Fluorescence Correlation Spectroscopy: Characterization of Novel Fluorophores***
**Jalen Dixon*, Angelina Pierre, Keir Fogarty, & Pamela Lundin**
Mentor: Keir Fogarty, Chemistry
The novel Rhodamine B Dimer (RB2) we've developed exhibits a unique property called photo-switching. This property grants RB2 a wide array of applications in optoelectronics, super-resolution microscopy, and environmental sensors. Using Fluorescence Correlation Spectroscopy (FCS), we can characterize this property in preparation for future applications.

***(19) Expression, Purification, and Characterization of a Novel Carbonic Anhydrase from Hypsibius exemplaris (HeCA)***
**Nadia Khan*, Parker Nyboer, & Kelsey M. Kean**
Mentor: Kelsey M. Kean, Chemistry
Carbonic anhydrases (CAs) are the catalysts for a chemical reaction that produces hydrogen and bicarbonate ions. We identified a putative β CA from the tardigrade Hypsibius exemplaris (HeCA). We utilized a pH-based assay to characterize HeCA's activity as a CA. Ultimately, we propose to further optimize HeCA purification conditions.

***(20) Method for the Analysis of Crude Carbazole Products using Gas Chromatography Mass Spectroscopy***
**Garrett D. Laws***
Mentor: Meghan Blackledge, Chemistry
Carbazoles are important building block molecules in both medicinal and materials chemistry. Crude carbazole products require purification before they can be used as molecular scaffolds. Using Gas Chromatography Mass Spectroscopy, a method to determine the quantity of product within a crude sample is created using instrument-specific calibration techniques.

***(21) Development of a Guided Inquiry Experiment in the General Chemistry Laboratory: Synthesis of Biodiesel***
**Owen Mader*, Harrison Shaeffer*, Maggie Junkin, Kelsey Ryan, & Kaitlyn Acoveno**
Mentor: Sarmad S. Hindo, Chemistry
This study outlines the development of a novel guided inquiry laboratory experiment focusing on the synthesis of biodiesel and analysis of its thermodynamic properties. This immersive approach is expected to enrich students' comprehension of biodiesel as a sustainable energy source and provide practical laboratory skills.

***(22) Analyzing The DNA from Various Fruit Samples using Gel Electrophoresis***
**Stephanie Mera*, Kenzie Hagens*, & Christopher Fowler**
Mentor: Christopher Fowler, Chemistry
DNA from various fruits is extracted and analyzed via nanodrop and gel electrophoresis. The variations in atomic weight of the DNA allows for a comparison of multiple fruits to be performed. Data collected will be used to generate a protocol to be implemented in general and forensic chemistry laboratories.

*(23) Synthesis and Sonogashira Polymerization of a Meta-Substituted Ethynylbenzene Derivative*
**Erik Peterson*, Caitlyn Bontempo, & Pamela Lundin**
Mentor: Pamela Lundin, Chemistry
Poly(arylene ethynylene)s or m-PAEs are synthetic polymers with a helical structure. We have been studying the polycondensation of m-PAE using the Sonogashira reaction mechanism, which produces the polymer through a chain-growth mechanism, rather than the more common step-growth mechanism. Our work focuses on the optimization of this process.

*(24) Analysis of Antibiotic Adjuvants on Hemolysin Gene Expression in MRSA*
**Lauren Vossen*, Halie Balogh, Meghan S. Blackledge, & Heather B. Miller**
Mentor: Heather Miller, Chemistry
Methicillin-resistant Staphylococcus aureus (MRSA) is a pathogen that develops antibiotic resistance and produces many virulence factors. We have investigated the transcriptome-wide effects of antibiotic adjuvant molecules that go beyond resistance. With results from RT-qPCR, I will discuss data on hemolysin genes that are differently expressed when antibiotic adjuvants are present.

*(25) Cyclic voltammetry investigation of redox chemistry of rhodamine B amide derivatives*
**Darryl Wright***
Mentor: Keir Fogarty & Pamela Lundin, Chemistry
Cyclic Voltammetry (CV) is a technique used to investigate the reduction-oxidation (redox) chemistry of analyte molecules. We have observed in the past that our amide derivatives have interchangeable forms which exhibit orange and blue fluorescence, respectively. The energetics of the color change will potentially allow for applications in optoelectronics devices.

*(26) 4-Phenylbutyrate promotes mitochondrial biogenesis and metabolism in C2C12 myotubes while increasing extracellular BCAA concentrations during insulin resistance*
**Caroline N. Rivera, Carly E. Smith, Lillian V. Draper, Toheed Zaman*, Rachel M. Watne, Roger A. Vaughan, & Andrew J. Wommack**
Mentor: Pamela Lundin, Chemistry
Branched-chain amino acids (BCAAs) are essential nutrients in the human diet. Elevated levels of BCAAs in the bloodstream are shown to cause insulin resistance. 4-Phenylbutyrate (PBA), an ammonia scavenger, has been shown to activate BCAA metabolism and ER stress, and rescue BCAA-mediated insulin resistance. To test this, C2C12 myotubes with or without insulin resistance were treated with different concentrations of PBA for 24 hours and were analyzed via liquid chromatography-mass spectrometry (LC-MS/MS).

## Data Analytics

*(27) The Effects of Gender and Race on ACT Scores: Evidence From the Tennessee STAR Data*
**Alayna Adams***
Mentor: Peter Summers, Economics
Do same sex and same race student-teacher relationships in primary school affect college entry exam scores? I use various regression techniques to study this effect using data from the Tennessee STAR program. I find large between-group differences in average ACT scores, but most are statistically insignificant.

## Electrical Engineering

***(28) Effects of Substrate and Structure on Performance of GaAsSb Near-infrared Core-shell Nanowire Photodetectors***

**Taylor Cox***

Mentor: Sean Johnson, Electrical & Computer Engineering

Near-infrared nanowire photodetectors are foundational to many light-sensing technologies. Hybrid axial core-shell structure and graphene substrate are investigated through literature review and analysis of relevant new data, showing how these novel design choices may promote better photoresponse. Potential solutions avoid common issues while combining the benefits of new research.

## Event & Sport Management

***(29) Adapting to Altered Environments and The Use of AI: The Resiliency of Event Professionals***

**Charlotte Miller***

Mentor: Jessica Wiitala, Event & Sport Management

This study explores the impact of event professionals' resilience on their willingness to adopt AI technology in event planning. As disruptive technology evolves, tools like Project SPARK by PCMA are designed to assist, not replace, professionals. Understanding resilience's role in embracing AI amid industry challenges is crucial for future success.

## Exercise Science

***(30) Warmup Protocol Impact on Caloric Expenditure During a Virtual Cycling Class***

**Sydney L. Chretien*, Millicent R. Tysinger, Sonia M. Piombino, Chris W. Benoit, Braden H. Romer, James M. Smoliga, & Colin R. Carriker**

Mentors: Colin R. Carriker & Braden H. Romer, Exercise Science

Adding a short duration warmup did not impact calories burned, heart rate, power, and cadence during a 20-minute pre-recorded virtual cycling class. However, a 5-minute cycling warmup increased total (25-min) caloric expenditure by ~15%. Regardless of pre-participation in a 5-minute warmup, measured variables remained consistent throughout the 20-minute class.

***(31) Effect of the mTORC agonism via MYH1485 with and without Rapamycin on C2C12 myotube metabolism***

**Norah E. Cook*, Macey R. McGovern*, & Roger A. Vaughan**

Mentor: Roger A. Vaughan, Exercise Science

The mechanistic target of rapamycin complex (mTORC) regulates protein synthesis and mitochondrial function. This work assessed the effect of mTORC agonism and inhibition on myotube metabolism and related gene expression via MYH1485 and rapamycin, respectively. Rapamycin reduced pmTORC expression, mitochondrial content/function, and insulin sensitivity, while MYH1485 had no significant effect.

***(32) Exploring the Test-Retest Reliability of Markerless Motion Capture for Outdoor Walking***

**Hunter Hills*, Darren James*, Sydney Litwiller, Jeffrey Taylor, Kevin Ford, & Brett Pexa**

Mentor: Brett Pexa, Exercise Science

Markerless motion capture is a rapidly advancing technology and has been tested indoors and proven reliable, but there is no established reliability for outdoor testing. The purpose of this study is to determine the reliability of knee kinematics using a portable markerless motion capture system during a walking test outdoors.

***(33) Drop Vertical Jump Movement Strategy as an Indicator of Performance Outcomes in Elite Competitive Athletes***
**Cole Murray***
Mentor: Brett Pexa, Exercise Science
The drop vertical jump can assess variance in movement strategy in athletes, characterized by varying levels of reliance on the hip or knee joint for power production. This study analyzes how this variance correlates with countermovement jump performance and on-field performance in elite competitive athletes.

***(34) Influence of Elvevated Heel Height on Concentric and Eccentric Barbell Velocity***
**Sonia M. Piombino* & Devon M. Derrenbacher***
Mentor: Braden Romer, Exercise Science
A common design feature of athletic footwear is heel-to-toe height differentials, with previous indications that even small heel height differentials alter lower extremity joint kinematics and kinetics. Therefore, the present study examined the effects of heel height on barbell velocity, a method of resistance training exercise prescription, during barbell squats.

***(35) Descriptive and Comparative Training Load Measures Across Positions in Men's Lacrosse***
**Kiah Williams***
Mentor: Brett Pexa, Exercise Science
Quantifying training loads can provide useful data during athletic activities amongst different positions to manage performance and rehabilitation stages. The purpose of this study was to measure the training load in collegiate men's lacrosse players and compare the data across positions using a wearable device during the competitive season.

## Game Design

***(36) Paper Pals***
**Austin Edwards*, Brett Ingram*, Nate Bryant*, Steven Gast*, & Tyler Johnson***
Mentor: Brian Heagney, Game Design
Paper Pals is an engaging 1-4 player party game that combines cooperation and competition. Players navigate through various rooms solving puzzles, completing minigames, and overcoming adversaries with a diverse cast of characters, striving to conquer challenges en route to triumph.

## History

***(37) In Pursuit of Perfection: Examining John Wesley's Doctrine of Holiness***
**Kayla A. Wylie***
Mentor: Amanda Allen, History
John Wesley's Doctrine of Holiness posed a direct challenge to Anglican Predestination- arguing Salvation was available for everyone and all became worthy through Holy Living. To grow in Holiness, Wesley instructed Eighteenth-Century Methodists to serve with Christ-like conduct and Love. As a result, Wesley's Doctrines of Holiness and Holy Living became a central theme of Methodism.

## Honors

***(38) Do You Want to Play? Technology and Motivation in Preschoolers***
**Becca Boorse*, Aamiya Smith*, Levi Wenger*, & Ben Niehaus***
Mentor: Stacy Lipowski, Psychology
This research investigates the influence of handheld devices on physical activity motivation in children aged 3-6. Handheld devices are defined as smartphones and tablets. Dat a will be collected via parent and child questionnaires. Addressing a gap in current literature, this study explores technology's impact on young children's physical activity motivation.

***(39) Social Media, Self-Esteem, And Fitness Culture, How Our Perceptions Of Self Are Impacted By Exposure To Fitness Content***
**Quinn DeWitt*, Zach Wade*, Quinn Rivers*, & Alex Chen***
Mentor: Silvana Rosenfield, Sociology & Anthropology
It has long been observed that there is a link between social media and self-esteem, and a link between fitness culture and self-image. Using a multi-question survey, our group sought to establish a link between the three aforementioned variables, with preliminary results showing a positive correlation.

***(40) Information Communication Technologies and Work-Life Balance***
**Landon C. Hardister*, Emma R. Higgins*, Troy A. Kubanka*, Cierra J. Mahoney*, & Chloe T. Sagcal***
Mentor: Jay Putnum, Theater
Today, instant communication technologies (ICTs) like messaging, email, and video conferencing shape the modern workplace, influencing work-life balance. Our research explores the evolving dynamics, assessing how ICTs impact flexibility and boundaries between work and personal life, examining whether their efficiency enhances or hinders employee satisfaction with work-life balance.

***(41) Comparing Idealistic and Realistic Expectations of Young Generation's Lifestyles***
**Ainsley Krohn*, Alexa Schuette*, Isabel Arroyo*, & Palmer Braswell***
Mentor: Silvana Rosenfeld, Sociology & Anthropology
This study will be looking at the way the social life, cost of living, and career success of young adults in their early 20's is portrayed in Friends compared to how these aspects of life actually are for young adults today. Data collection is currently in progress.

***(42) Children's Health and Nutrition: Analyzing Factors Influencing Food Choices***
**Catie McKinney*, Mckenna Downey-Porter*, Annie Sellenberg*, & Caitlin Black***
Mentor: Stacey Lipowski, Psychology
The present study analyzed food literacy in children 2nd to 5th grade, examining how social or familial factors affect levels of food literacy. Parents and children completed measures that allowed us to assess the relationships between children's food literacy, familial socio-economic status, and food activities.

## Interdisciplinary Work in Social Sciences

***(43) Living with the Vietnam War: Stories of Surviving and Coping from Vietnam Veterans***
**James Gallagher***
Mentor: Joey Fink, History & Kirsten Li-Barber, Psychology
This presentation will be a synopsis of oral history interviews conducted with Vietnam veterans here in North Carolina. This project brought together history with psychology to uncover the war from grunts' perspectives and understand how they have lived with the memory of the war.

## Interior Design

***(44) Cascade Cancer Center: Healthcare Design***
**Mary Kate Hewitt***
Mentor: Jane Nichols, Interior Design
Design has a major impact on people's physical and emotional wellbeing, particularly when color and nature are incorporated. With this in mind, I will establish a family center within the cancer center. I developed a design program based on research and precedents, which I intend to develop over the next year.

***(45) The Iron Inn Adaptive Reuse Design***
**Kaylin LaFleche***
Mentor: Jane Nichols, Interior Design
For this design, the existing structure of the Flatiron Building was reimagined into an innovative and sustainable hotel called The Iron Inn relocated to Asheville, NC. I focused on maintaining the integrity of the building while sourcing sustainable FF&E. The aesthetic is described as modern with a slight 70s influence.

## Neuroscience

***(46) Examining the Impact of Embryonic Fluoride Exposure on Behavior Changes in a Zebrafish Model***
**Taylor Galavotti***
Mentor: Kristin Ackerman, Dental
While water fluoridation is helpful for maintaining dental health, recent studies demonstrate fluoride exposure can have neurotoxic effects. Developmental fluoride exposure results in an increase in anxiety-like behaviors, skeletal malformation, pigment loss, and heart edema. Motor development and response, however, is unimpaired.

***(47) Surveying Gene Regulation Controlling Metamorphosis In a Gregarious Beetle.***
**Ana-Elena Kusters*, Anneliese Paris*, & Ken McKenna**
Ken McKenna, Biology
The superworm beetle Zophobas morio will only metamorphose into the pupil stage when isolated from grouping conditions. We are assaying the expression of metamorphic genes during the course of isolation. We will present the findings from our gene expression analysis.

***(48) Cannabinoids in Attenuation of Neuronal Injury***
**Cameron Siler-Nixon* & Michael Grider**
Mentor: Michael Grider, Neuroscience
In recent years, the neuroprotective effects of cannabinoids (CBD, delta8, delta9) has been studied following new legislation and a subsequent rise in recreational usage of cannabinoids. In this experiment, an oxidative injury was established in cultured neuronal cells to investigate the usage of cannabinoid molecules in attenuation of neuronal injury.

***(49) In Oxidative Stress Models of Injury, Δ8 THC Is Not an Effective Treatment***
**Ashley Westbrook***
Mentor: Michael Grider, Neuroscience
Oxidative stress is vital in the pathogenesis of various neurodegenerative diseases. Hydrogen peroxide is a commonly used oxidative stress inducer in cellular models. Cannabinoids like Δ8-THC have previously been explored in more complex models for neuroprotection however, its efficacy in mitigating oxidative stress in a cellular model remains unknown.

## Nursing

***(50) Shifting The Culture: The Effects Of Switching To Bedside Reporting***
**Katie Gaines***
Mentor: Alexis Best-Rhodes, Nursing
A detailed shift report allows nurses to communicate effectively with each other, meet the needs of their patients, and know how to provide the best care for their patients. This exploration reviews published literature to discover if bedside reporting versus non-bedside reporting is the better approach for patient care.

## Pharmacy

***(51) Assessment of the E,icacy of Oxa-noribogaine, Novel Iboga Alkaloid, in Reducing Withdrawal Symptoms in Heroin Dependent Rats.***
**Isabella Maldonado*, Andrea Zaglin*, Dalibor Sames, Valcav Havel, Scot McIntosh, & Scott E. Hemby**
Mentor: Scot McIntosh & Scott E. Hemby, Pharmaceutical Sciences
Ibogaine, a hallucinogenic alkaloid in *Tabernanthe iboga*, has been shown to reduce opiate withdrawal in humans; however, psychedelic and cardiotoxic effects limit its utility. We compared the efficacy of oxa-noribogaine, a novel iboga alkaloid lacking these effects, to ibogaine and noribogaine in reducing spontaneous and naloxone-precipitated heroin withdrawal in rats.

***(52) A Multidiscipline Approach to Neurofibromatosis Type 1***
**Priya Thornton*, Miranda Gough*, Rebecca Donaldson*, Sara Jameson, Kristina Dzamba, Evan Adams, Amy Nwachukwu, Desmond Durham, Gabrielle Schmale, Garrett Alewine, Bashnona Attiah, Andrew Cavanaugh, Cale Fahrenholtz, & Robert A. Coover**
Mentor: Robert A. Coover, Pharmacy
Neurofibromatosis Type 1 (NF1) is an autosomal dominant disorder affecting 1 in 3000 people worldwide. The NF1 gene is pleotropic, thus the inactivating mutations have multiple clinical manifestations. Our lab utilizes medicinal chemistry and molecular cell biology to target and investigate NF1 neurological tumors and manifestations.

## Physics

***(53) Design Of Micropatterned Surfaces For Prevention Of Bacterial Biofilm Growth***
**Teagan Graham***
Mentor: Briana Fiser, Physics
With bacteria becoming increasingly resistant to antibiotics, it is imperative to find new ways to fight its growth. One technique is to fabricate micropatterned surfaces that impede bacteria growth. We designed multiple patterns to determine how feature shape, size, and spacing affect this growth on surfaces.

## Psychology

***(54) Judging Yourself and Ruminating on Others: Do Deficits in Mindfulness Mediate the Relationship Between Self-Criticism and Post-Event Processing?***
**Catherine Gallagher***
Mentor: Laura Nagy, Psychology
We hypothesized that deficits in mindfulness would mediate the relationship between self-criticism and post-event processing. Results indicated that deficits in certain facets of mindfulness explain the relationship between self-criticism and post-event processing. While more research is needed, mindfulness-based treatments for self-criticism may benefit from specifically targeting specific facets of mindfulness.

***(55) Exploring the Role of Self-Criticism in Why People Hurt Themselves.***
**Shira Gold***
Mentor: Laura Nagy, Psychology
This study investigated how self-criticism relates to different functions of nonsuicidal self-injury (NSSI). Results indicate that those who are highly self-critical may be more likely to engage in NSSI for affect regulation or self-punishment purposes.

***(56) Has Stigma Infiltrated Our Court System? An Investigation on How Mental Health Stigma Affects Juror Perceptions of Crime Victims with Mental Illness.***
**Kelly Polk***
Mentor: Laura Nagy, Psychology
Stigma toward people with mental health diagnoses can impact every aspect of those people's lives, including their involvement in the legal system. This experimental study aimed to investigate how different mental health diagnoses would affect jurors' perceptions of victims of crime.

***(57) The Memory Benefits of Self-Performed Written Production in Elementary School Children***
**Hannah Tameling* & Ethan Muckerheide**
Mentor: Stacy Lipowski, Psychology
The production effect shows that actively producing an item leads to enhanced memory (MacLeod et. al, 2010). Recent research in children demonstrates memory benefits when using writing as an encoding strategy (Lipowski et al., 2022). This study aims to investigate how writing and tracing compare as encoding strategies.

***(58) Fanning the Flames: Rumination on Interpersonal Offenses as a Moderator of BPD and Aggression***
**Jane E. Thompson***
Mentor: Laura Nagy, Psychology
This study explored the role of rumination on interpersonal offenses as a moderator in the relationship between borderline personality disorder (BPD) and aggression. Findings indicate that high levels of rumination could intensify the link between BPD and aggression, suggesting the importance of addressing rumination in therapeutic interventions to improve outcomes.

***(59) Family Dinners and their Impact on Mental Health Outcomes***
**Catherine Waldeck* & Mackenzie Kraras**
Mentor: Kirsten Li-Barber, Psychology
Current study examines the form of family dinner experiences and the specific components of family dinners that are linked with positive mental health outcomes. Results begin to shed light on specific properties of dinner that result in psychological benefits, which in turn may be linked to positive mental health outcomes.

***(60) Personality and Feelings of Obligation in Relation to Communication with Parents and In-laws***
**Alexandra N. Zimmerman***
Mentor: Deborah Danzis, Psychology
This study investigated feelings of obligation and personality traits as they correlated to communication with an individual's parents/in-laws because communication with parents/in-laws can heavily impact the couple's relationship. I found positive correlations between feelings of obligation and communication, but no correlations between personality and communication.

## Sociology & Anthropology

***(61) Unmanned Aerial Vehicles and their application in archaeology: the case of Chavin de Huantar (Peru)***
**Corey Palubinski***
Mentor: Silvana Rosenfeld, Sociology & Anthropology
Archaeology is by nature a destructive science, thus documentation and preservation of spatial relationships is key for research. Detailed hand mapping can be time consuming. This study explores the application of drone mapping at the ancient site of Chavin de Huantar and the resulting orthomosaic, 3D model, and elevation images.

## Strategic Communication

***(62) The Effects of Gender and Parents' Perceptions on Children's Science Identity***
**Alexa Schuette***
Mentor: Sarah Vaala, Strategic Communications
This study examines whether parent's belief of their child's science ability impacts the way the child rates their own science identity. Findings reveal a positive relationship between the parent's belief and the child's own science identity. Parents also rate their daughters' science identity lower than that of their sons.

# Technical Exhibits

9:30 am – 10:30 am

***(64) Lux Radorium***
**Parker Greene*, Paul Shumlas*, Ashley Longbottom*, Dominic Monaco*, Nicolas Santomassimo*, & Shane Cooper***
Mentor: Brain Heagney, Game Design
Lux Radorium is a First Person Shooter where the player is playing as Kedron, who used to work for a company called Luminos. You are trying to exact revenge on this evil corporation and take them down from the inside as a Bounty Hunter who wants to avenge his family.

***(65) Mechanical Mari*s**
**Daniel Haldeman*, Sam Karlen*, Olivia Farrell*, Zuri Smith*, Cecile Li*, & Terry Evans***
Mentor: Brian Heagney, Game Design
Mechanical Maris is a 2.5D platformer game where you play as D4N13L DROSS, a robot who is currently tasked with scrounging sunken labs for parts to fix the submarine that hosts the last of humanity. He will have to fight rogue AI, avoid hazards and use tech he finds along the way to progress.

# Oral Presentations

## Oral Session I • 10:30 am – 11:30 am

**Strategic Communication / Sport & Event Management** **Room A**

10:30-10:45
***PINHEAD***
**Brenden Mahla* (Director/Writer), Holland Van Metre*(Cinematographer), Joy Adjei* (Producer), Dean Petersen* (Editor), Milla Carazo (Audio sound mixer) & Sara Belle (Set Design)**
Mentor: Barry Thornburg, Popular Culture & Media Production
Our project/short film is a student lead production. "PinHead" is about a middle-aged man with large anger issues. He is a bowling enthusiast; he is almost banned right before a tournament. Our film goes through his week navigating how to deal with his anger with layered comedic tropes.

10:45-11:00
***No Service: A Narrative Short Film***
**Brittany Secraw*, Alex Rucker*, Carmela Petruccelli*, Michael Wipf*, Richie McGuigan*, & Holland Barber***
Mentor: Barry Thornburg, Popular Culture & Media Production
No Service is a short narrative film that aims to create connection through the shared experience of consuming media. No Service is a story about accepting who you are through watching the main character's experience. The goal is to connect the message of the film to the audience's own lives.

11:00-11:15
***Sponsorships: The Driving Factor of Technological Development in Formula One***
**Halle Nichols***
Mentor: Tim Koba, Sport Management
In motorsport, sponsorships are essential for teams to maintain competitive balance and continue to enter their leagues season-to-season. Analyzing the importance that professionals in F1 place on the resources provided to teams through sponsorships is essential to the understanding of truly knowing the impact these resources have on F1 teams.

11:15-11:30
***Interactivity, Engagement, and Intention to Return in Virtual Conference Networking***
**Abigail Hoag*, Marisa Ritter, Brianna S. Clark, & Jessica Wiitala**
Mentors: Marisa Ritter, Brianna S. Clark, & Jessica Wiitala Sports, Event Management
The research explores the relationship between interactivity, engagement, and return intentions, offering insights for event organizers and attendees. COVID-19 led to a rise in virtual events yet challenges exist in replicating in-person dynamics online. This study examines how interactivity influences participants' engagement and intention to return using the S-O-R framework.

## Political Science — Room B

10:30-10:45

***Beyond the Binary: How Knowledge from Religion, Science, and Personal Contact Influence Hostility Toward Transgender Rights***

**Maggie Selman***

Mentor: Mark Setzler, Political Science & International Relations & Martin Kifer, Political Science

This study analyzes religious, scientific, and contact knowledge as predictors of hostility toward transgender rights. Findings reaffirm religion as a strong predictor of hostility toward transgender rights, introduce scientific knowledge as a significant predictor of hostility, and implicate knowledge from contact as a predictor of hostility toward body-centric rights.

10:45-11:00

***Historical Patterns and Defining Qualities of Contemporary Racism***

**Hannah Parson***

Mentor: Mark Setzler, Political Science

This study examines how well theories and attitudes used to explain Americans' levels of symbolic racism also predict views on racial issues in American society today. My work confirms the modern relevance of principled conservatism, social conservatism, the Minority Conflict Theory, and polarized party identification.

11:00-11:15

***Fate, Randomness, and Economic Policy Attitudes***

**Madison Deane***

Mentor: Mark Setzler, Political Science

This study examines the impacts of worldviews, or "metatheories," underlying popular understandings of poverty, on attitudes toward redistributive economic policy. Using logistic regression analysis, I reaffirm previous findings about metatheories known as individualism and structuralism and test the effects of two new metatheories: fatalism and randomness.

11:15-11:30

***Demographics, Media Consumption, and Foreign Policy Attitudes: A Study on U.S. Military Intervention and International Cooperation***

**Alexandra Bennett***

Mentor: Martin Kifer, Political Science

This study, utilizing Harvard's 2022 Cooperative Election Study Common Content dataset, explores how demographics and media habits shape attitudes toward U.S. military intervention and foreign policy, particularly regarding Russia's invasion of Ukraine and international agreements. Findings illuminate the intersection between individual politics, media exposure, and foreign policy opinions.

## Interdisciplinary with the Arts — Room C

10:30-10:45

***Theater of the Mind: Simulating Psychiatric Patient Encounters with Student Actors***

**Jalen A. Bynum*, Mackensie Chapman, Douglas Brown**

Mentor: Shaina Schwartz, Pharmacy

Simulated psychiatric patient encounters can help student actors learn improvisational skills and student pharmacists learn communication skills and empathy. In this project, actors portrayed the roles of various psychiatric patients who had an encounter with a pharmacist. Surveys were used to assess the impact on the pharmacy students.

10:45-11:00
**Coloring With Blake: Exploring William Blake's Art Through a Mathematical Lens**
**Thomas Owens***
Mentors: Emily Gerhold & Laura Alexander, Art & Graphic Design
The Romantic artist William Blake merged his expressive use of color with Enlightenment ideas about mathematics and science to create multi-layered works of art. Inspired by this, I used the Desmos graphing calculator to interpret Blake's work in a new way that combines both the visual arts and mathematics.

11:00-11:15
***Refined Violence: Dualities in Cy Twombly's Fifty Days at Iliam (1978)***
**Lindsey Conway***
Mentor: Emily Gerhold, Art & Graphic Design
This research examines Cy Twombly's works, which challenged perspectives of violence. Contemporaneous artists often portray violence as a gendered dichotomy. Twombly subverts this dichotomy and addresses psychological perspectives on the depiction of violent art as seen in the Fifty Days at Iliam series (1978) and Leda and the Swan.

## Spanish I — Room D

10:30-10:45
***La revolución del rap: El combate contra la corrupción en Cuba***
**McKenzie Kauffman***
Mentor: Adam Winkel, Spanish
I am studying how Cubans are resisting their government in the film Viva Cuba Libre: Rap es Guerra, a documentary about a musical group who raps about the negative experiences of Cubans such as inequality and police brutality. I am analyzing how the film demonstrates corruption in Cuba. (Talk will be in Spanish.)

10:45-11:00
***El lenguaje de la dictadura en una novela por Jorge Zalamea***
**Ainsley Krohn***
Mentor: Adam Winkel, Spanish
I am studying the language of the dictator in El Gran Burundún-Burundá ha muerto, by Jorge Zalamea to understand how governments quiet people under their regime and show my audience how to recognize governmental corruption during a period of social turmoil, such as the Colombian "La Violencia". (Talk will be in Spanish.)

11:00-11:15
***¿Qué significa ser un exiliado? Un análisis de Antología traducida por Max Aub***
**Avery Sistare***
Mentor: Adam Winkel, Spanish
I am studying Antología traducida by Max Aub to understand what it means to be an exile. This presentation will analyze select descriptions of Aub's invented "authors" and their poems to examine how they reflect being an exile after the Spanish Civil War. (Talk will be in Spanish.)

11:15-11:30
***La humanidad en la Guerra Civil Española: la revelación del clima social a través de la fotografía***
**Paris Stankewich***
Mentor: Adam Winkel, Spanish
I am studying the representation of human connection in photographs of the Spanish Civil War to explore how photography reveals a period's social climate. The Spanish Civil War was the first widely photographed war, where photographers such as Capa, Seymour, and Taro captured the human spirit behind the lines. (Talk will be in Spanish)

**English I** **Room E**

10:30-10:45
***Little Red Riding Hood: The Culture of Fear and Female Culpability***
**Emma Jerrier***
Mentor: Laura Alexander, English
This research explores themes of fear and female culpability in the fairy tale Little Red Riding Hood and other versions of the story. It examines the female sexuality and maturation of Little Red Riding Hood and reflects on how different cultures look at women and their roles in society.

10:45-11:00
***God Is a Meth Addict***
**Julianne Kendrick***
Mentor: Matthew Carlson, English
"God Is a Meth Addict" is a work of creative nonfiction that moves between moments in my life centered around religion and moments centered around drugs. I examine the queer experience and how growing up in a strict religious environment affected me and others around me.

11:00-11:15
***It's Alive! Or...is It? The Uncanny in House of Wax***
**McKenna Holz***
Mentor: Matthew Carlson, English
The 1953 horror film House of Wax exemplifies the uncanny in its content as well as its form: the central character, a mad sculptor named Professor Henry Jarrod, provokes the uncanny through his showmanship and realistic wax figures, while the eerily artistic cinematography elicits an uncanny response from the audience.

**Honors I** **Room F**

10:30-10:50
***Nostalgia and Community Building: A Study of Generation Z***
**Jack Fobert*, McKenna Holz*, Alyson Longe*, Genevieve Manger*, Tatiana Ontivero-Campo Perales***
Mentor: Timothy O'Keefe, English
Our research focuses on how nostalgia contributes to community formation through the exploration of Generation Z's nostalgic cues. By exploring nostalgia through psychological, historical, and cultural contexts, we examine how memory shapes Gen Z perceptions of community and identity.

10:50-11:10

***A Study of Depictions of Greek Mythological Figures from Original Sources to Modern-Day Media***

**Alexa Dandrea*, Eleanor Moyer*, Erik Peterson*, and Ben Ritter***

Mentor: Virginia Leclercq, English

This project focuses on modern adaptations of Greek mythological figures in video games, novels, and movies/tv shows. Through a comparison of modern interpretations of Athena, Heracles, and Zeus with their depictions in historical sources, we explore how changes in plot, character space, and physical appearance reflect shifting cultural mores.

11:10-11:30

***The Relationship Between Prison Food & Inmate Behavior/Mood and Its Effect on Prison Culture***

**Mahoney Cyr*, Sophia Csulak*, Lexi Gabrinowitz*, and Julia Thackston***

Mentor: Silvana Rosenfeld, Anthropology

The US has the highest prison population and recidivism rates in the world. Do culinary conditions in prisons affect rehabilitation rates? We analyze the literature on the effects of food quality on inmate mental health and behavior, and data from World's Toughest Prison show to understand how these factors are related.

# Oral Presentations

## Oral Session II • 11:30 am – 12:30 pm

**Psychology I** **Room A**

11:30-11:45

***How is Retail Therapy Related to Mood and Impulsivity?***

**Alexa Schuette***

Mentor: Kimberly Wear Jones, Psychology

Shopping is often a method of boosting mood, especially for women, resulting in the term "retail therapy". The current study investigated these relationships and found retail therapy was positively correlated with impulsivity. A trend showed a reduced negative affect with increased retail therapy. In-person and online shopping effects were explored.

11:45-12:00

***Getting Under the Skin: Investigating Childhood Maltreatment and Implicit Associations with NSSI***

**Hannah Tameling***

Mentor: Laura Nagy, Psychology

Research has shown that childhood maltreatment, self-criticism, and nonsuicidal self-injury (NSSI) are closely intertwined concepts (Glassman et al., 2007). The aim of this study is to investigate how implicit associations of the self with NSSI are related to childhood maltreatment and self-criticism as assessed using a mediation model.

12:00-12:15

***The Thin Line between Healthy and Unhealthy Eating. Who's at Risk?***

**Isabel Viana Teixeira*, Ariana Gabriel* , Mahoney Cyr, & Kirsten Li-Barber**

Mentor: Kirsten Li-Barber, Psychology

A moderated-mediation model of high-risk and low-risk populations for developing orthorexia to evaluate if unhealthy eating attitudes would act as a mediator between perfectionistic tendencies and risk for ON, and the degree of perceived social support for engaging in extreme healthy eating would be a moderator in this relationship.

12:15-12:30

***Examining the Complex Relationship Between Nonsuicidal Self-injury and Body Regard***

**Ethan Muckerheide***

Mentor: Laura Nagy, Psychology

Nonsuicidal self-injury (NSSI) involves harming oneself without suicidal intent, while body regard refers to one's attitudes and connection with their body. The relationship between these constructs is complex. This presentation will examine the roles of self-esteem and rumination in relation to body regard and NSSI.

11:30-11:45

***Understanding the Impact of BHT Inhibitor and Water on the Microstructure of Spun-cast Nanoporous Films of PMMA Exhibiting High Surface Areas***

**Sadie Flagg* & Brian Augustine**

Mentor: Brian Augustine, Chemistry

The acid-base properties of solvents and hydrogen bonding influence the dissolution of a polymer solute. We examined the effect of the interaction between the solvent THF, BHT, and water on the nanoporosity of films made from poly(methyl methacrylate) (PMMA) that were spun-cast from a THF solution onto silicon substrates.

11:45-12:00

***Using Amine-Terminated Self-Assembled Monolayers to Combat Methicillin-Resistant Staphylococcus aureus Biofilm Formation***

**Emily Gillis***

Mentors: Pamela Lundin & Meghan Blackledge, Chemistry; Briana Fiser, Physics

As bacteria grow resistant to antibiotic treatment, methicillin-resistant Staphylococcus aureus has become a problem in healthcare. We have investigated a method for inhibiting MRSA biofilm formation by functionalizing a polydimethylsiloxane surface with SAMs APTES and AUTES. Bacteria are added to functionalized PDMS, incubated for 24 hours, and their biofilms quantified.

12:00-12:15

***3D Models of Electronic Orbitals Through 3D Printing***

**Ryan Goldin*, Riccardo de Cataldo, Kaitlyn Griffith, & William Lay**

Mentor: Keir Fogarty, Chemistry

Atoms consist of three subatomic particles; protons, neutrons, and electrons. An electron's behavior is modeled by quantum mechanics using electron orbitals. These orbitals were modeled using the 3-dimensional software, Calc. Plot 3D. This allows for the 3D printing mathematically accurate models for educational purposes. My work focused on hybrid orbitals.

12:15-12:30

***The Role of Structure, pH, and Concentration in Fluorescence Photo-switching of Covalent Rhodamine Amide B Dimers***

**Angelina Pierre*, Brandy-Fey Stratton, Rachel Spera, & Madison Hill**

Mentors: Pamela Lundin & Keir Fogarty, Chemistry

We are interested in how forming rhodamine B amide dimers impacts the subsequent optical properties. A library of rhodamine B covalent dimers has been synthesized using different diamine linkers that vary in flexibility. We have observed a blue and orange fluorescence in respect to the pH of its environment.

## Empowering Academic Futures — Room C

11:30-11:45

***Exploring Pathways: Freshmen Perspectives on College Decisions & Readiness***

**Jade Stewart***

Mentor: Mark Plume, Sociology & Anthropology

This survey investigated college freshmen's high school curriculum, college knowledge, and student-counselor relationships. While most students chose to attend college themselves, they did not feel their counselors prepared them for the new environment. This study provides researchers with data to find ways to bring "college readiness" to more students.

11:45-12:00

***Nurturing Future Scientists: Child Science Identity as a Moderator in Science Media Engagement and STEM Career Aspirations***

**Maggie Selman***

Mentor: Sarah Vaala, Strategic Communication

This study analyzes the moderating effect of child science identity on 8-to-13-year-old children's engagement with science media and their reported desire to work in science. Results show a significant moderating effect of child's science identity in science engagement and STEM career interest models.

12:00-12:15

***Research Rookies: Introducing Research Skills for Freshmen Success***

**Abby Fort***

Mentor: Joanne Altman, Psychology

High Point University's research preparedness program, Research Rookies, introduces freshmen to the research culture and puts them in the pipeline and onto the path to the many benefits of undergraduate research. The program's assessment data have demonstrated the program's positive impact on critical thinking, growth mindset, mentorship acquisition, and retention.

## Spanish II / French — Room D

11:30-11:45

***"¡Adelante las mujeres!" Poesía sobre el papel de las mujeres durante La Guerra Civil Española***

**Cora Hicks***

Mentor: Adam Winkel, Spanish

I am studying how female poets during and after the Spanish Civil War viewed their ability to contribute to war efforts and subsequent labor responsibilities as women. These beliefs reflect a hastily constructed Republican left and show the battle for women's rights within and beyond the frame of the war. (Talk will be in Spanish.)

11:45-12:00

***La Guerra Civil de El Salvador: una historia contada por niños soldados en* Voces Inocentes**

**Taylor Hawkins***

Adam Winkel, Spanish

*Voces Inocentes*, an emotional film produced by Óscar Torres, follows the story of an eleven-year-old boy and his fight to survive El Salvador's civil war. I am studying how the film represents the psychological impact of violence on children and the trauma imposed on the child soldiers.

(Talk will be in Spanish.)

12:00-12:15
***Un Dialogue Littéraire Philosophique : Est-il Nécessaire de parler de L'auteur ?***
**Dawson Wright***
Mentor: Morgane Haesen, French
Michel Foucault et Roland Barthes sont deux philosophes du XXe siècle qui discutent de la fonction de l'auteur dans leurs écrits. Dans cette présentation, j'offrirai leurs avis épistémiques, si c'est nécessaire de parler de l'auteur au XXIe siècle et ajouterai mes conclusions à propos du sujet.
(Talk will be in French)

12:15-12:30
***Enchevêtrement Empathique : la Cultivation de Sympathie***
**Lena Hetrick***
Mentor: Morgane Haesen, French
Cette analyse littérature examine l'(auto)biographie Dora Bruder qui se passe après la Seconde Guerre Mondiale par auteur Patrick Modiano. J'étudie la cultivation des relations entre Modiano, la protagoniste Dora, et le lecteur. J'affirme que les différences des relations soulignent la sympathie vers Dora et les personnes juives en France.
(Talk will be in French)

**English II** **Room E**

11:30-11:45
***Exploring Black Identity in Chester Himes' Cotton Comes to Harlem***
**Jowan Williams***
Mentor: Matthew Carlson, English
Chester Himes' Cotton Comes to Harlem is firmly rooted in the detective fiction genre; however, the text explores so many racial concepts that it's also a political piece. Applying Du Bois' concept of double consciousness, this presentation analyzes Himes' work to better understand the complex history of African American identity.

11:45-12:00
***The Influence Of Ovid's Narcissus***
**Alexis Ross***
Mentor: Laura Alexander, English
Ovid's myth of Narcissus follows the story of a destructive, vanity-stricken character. The name Narcissus and the term "narcissism" has persisted through time. This presentation considers the literary and cultural influence of the Ovidian myth and its significance for understanding evolving perceptions of the self.

12:00-12:15
***Identity and Self-Perceptions in Anna Karenina***
**Hannah Parson***
Mentor: Virginia Leclercq, English
This research examines the importance of self-perception and identity, its sources, and its manifestation in individual lives within 19th-century Russia's greater social context based on Anna Karenina's references to how the characters view themselves, their struggles to understand their identities, and the comparison of themselves to other characters.

12:15-12:30

***Russian Motherhood and Daughterhood: The Futility of the Female Condition in 19th Century Russia***

**Taylor Galavotti***

Mentor: Virginia Leclercq, English

This paper defines ideal Russian motherhood and daughterhood during the 19th century by analyzing Anna Karenina, A Double Life, and Eugene Onegin, examining the impact of proximity to the ideal on novelty and requisite treatment, and comments on differences in form to demonstrate the futility of womanhood during this time.

**Honors II** **Room F**

11:30-11:50

***Painting A Corpse: Mortality & Art In World Cultures***

**Emma Jerrier*, Matthew Ghiz*, Lindsey Conway*, & Lena Hetrick***

Mentor: Virginia Leclerq, English

This study focuses on how different countries—Japan, United States, Nigeria, and France—depict mortality and death in post-WWII art. We selected examples of literary, performance, and visual art from each country and did a comparative analysis on the themes and motifs centered on death and mortality in each work.

11:50-12:10

***Changes in Romantic Idealism in Film Over 40 Years***

**Gracie LeFever*, Meghan Bartel*, Leslie Pierce*, & Julia Koshivos***

Mentor: Jay Putnam, Theater & Dance

Since 1980, depictions of romance culture in movies have changed dramatically. In this project, we analyzed four romantic tropes in the top grossing romance movies from 1980-2019. Our data was compared to general romance trends to examine differences between romance in media and the decade in which it was produced.

12:10-12:30

***Love Bites & Reality Hurts: Relationship Attitudes via Reality Dating Shows***

**Maggie Roche*, Zander Betterton*, Lily Maggio*, & Haley McCall***

Mentor: Timothy O'Keefe, English

This study investigates the ways frequent RDS viewing shapes perceived relationship quality. A season of The Bachelor and Love Island UK were examined to consider how the shows portray relationships. A distributed survey measured control/possession, jealousy/infidelity, reciprocity, and demeaning behavior in the viewers' relationships.

# Oral Presentations

## Oral Session III • 12:30 pm – 1:30 pm

**Psychology II** **Room A**

12:30-12:45

***Using Board Games to Reduce Cognitive Decline in Older Adults***

**Samantha Riveros*, Gracie Lefever*, & Ioana Scalco***

Mentor: Kimberly Wear Jones, Psychology

Two pre- post-test studies were conducted assessing working memory using the MoCA, Trail Making B, and Raven's Matrices. During the intervening 6 weeks, participants engaged in commercial board games that exercised working memory bi-weekly (1.5-hour sessions). Results showed improved scores for those who played games more consistently.

12:45-1:00

***Perceptions of Stress and Stress Management in College Students and Faculty: An Extension of APA 2010 Report***

**Ioana Scalco***

Mentor: Kirsten Li-Barber, Psychology

Study was conducted in an effort to both replicate and extend a 2010 APA report on experience of stress and stress management among working adults. We compared perceived stress and stress management techniques as well as self-efficacy in stress management between a group of college students and faculty

**Biochemistry/ Biology** **Room B**

12:30-12:45

***Novel Expression and Characterization of Lactate Monooxygenase from Thermus thermophilus***

**Abigail Nimmo* & Makenzie Wiseman**

Mentor: Kelsey Kean, Chemistry

Lactate monooxygenase (LMO) is an α-hydroxy acid oxidase flavoprotein that uses lactate and oxygen to make acetate and carbon dioxide. Here, we report the first expression, purification, and characterization of this protein from Thermus thermophilus (TtLMO), confirming it behaves as a lactate monooxygenase.

12:45-1:00

***Exploring Surface Structures Of Superhydrophobic Tropical Plant Matter***

**Katie McDonald***

Mentor: Nicole Hughes, Biology

There is a growing interest in exploring physical, nano-scale mechanisms for water repellency. Such structures also prevent biofilm formation. For my research project I am examining the leaf surface structures of two new potentially superhydrophobic plants, specifically the corpse flower (Amorphophalus sp.) and jewelweed (Impatiens capensis), using drying techniques and SEM images.

## Interdisciplinarity in the Social Sciences — Room C

12:30-12:45

***Exploring the Interplay of Exercise and Nutrition in North Carolinians: Insights from the High Point University Survey Research Center***

**Hailee Gosart***

Mentor: Martin Kifer, Political Science

An analysis of North Carolinians' exercise and nutrition habits using a unique data set based on interviews with 1000 North Carolina adults. Correlations between demographics, exercise frequency, and nutrition choices were explored and assessed to determine their impact on motivation for healthy living.

12:45-1:00

***Between Past and Present: Chavinos' Identity in a Shifting Landscape***

**Zyncli Ramirez***

Mentor: Silvana Rosenfeld, Anthropology

This ethnographic study explores Chavinos' identity in Chavin de Huantar, Peru, concerning the national museum, monument, and 2022 Shallapa mountain peak collapse. Interviews with locals, workers, foreign archaeologists, and business owners reveal views on the museum, site memories, monument pride, and Shallapa's impact, revealing evolving perspectives on archaeological sites.

1:00-1:15

***Cultivating An Interdependent Relationship With The Divine And One Another: A Comparative Study Between St. Irenaeus And Xunzi On The Problem Of Evil***

**Xuan (Dynasty) Rui***

Mentor: Thaddeus Ostrowski, Religion & Philosophy

A comparative study assessing the effectiveness of theologian St. Irenaeus of Lyon and Axial Age Chinese philosopher Xunzi's approach to the problem of evil and reflecting on the importance for humans to cultivate an interdependent relationship with the divine and one another.

## Game Design — Room D

12:30-12:45

***Why "Feedback" Is Important***

**Shanice Gamble***

Mentor: Brian Heagney, Game Design

In this presentation I will share my experience with communication in my capstone project. In order to establish the importance of communication during the game development process. Subjects will include: establishing boundaries, being open about your skills, how to maintain clear and concise communication, and knowing when to say "no".

12:45-1:00

***Dynamic Level Design***

**Henry Wallace***

Mentor: Brian Heagney, Game Design

Dynamic level design that teaches and empowers players is vital for a successful game. I will showcase what skills I learned throughout the process of designing previous video games. Techniques such as agile development, Disney "weenies", and film techniques (leading lines, color, framing, etc.) made this possible.

## English III — Room E

12:30-12:45

***The Social Nature of Relationships***

**Abigail Ellis***

Mentor: Virginia Leclercq, English

This paper explores the connections between two novels - Tolstoy's Anna Karenina and Austen's Pride and Prejudice – that are deeply concerned with the social influence on romantic relationships. My discussion will focus on the authors' representation of women's rebellion against social norms and the complicated nature of their freedom.

12:45-1:00

***Echoes Of Expression:***

***The Importance Of Communication As Self Expression In Anna Karenina And Eugene Onegin***

**Emma Jerrier***

Mentor: Virginia Leclerq, English

This analysis explores themes of communication in Tolstoy's Anna Karenina and Pushkin's Eugene Onegin. Through examining epistolary communication, verbal and nonverbal communication and the impact of language and written literature, it analyzes how effective communication shapes characters' relationships, self-understanding, and mental stability.

## Honors III — Room F

12:30-12:50

***Swipe Insights: Dating-App Behaviors Among Different Genders in a College Environment***

**Katie Craun*, Madison Deane*, Ava Kitchens*, Kade Little*, & Allison Reed***

Mentor: Timothy O'Keefe, English

This project investigates dating culture through the lens of dating-app behaviors among college students. Our group examined a variety of factors (e.g., time spent on apps, profiles swiped through) as potential indicators of satisfying relationships, goals within dating, and gender stereotypes.

12:50-1:10

***Multiple Tales of Mermaids: Examining the Relationship Between Culture and Myth Via The Little Mermaid***

**Chloe Cox*, Anna Claire Miller*, MacLean Mollins*, Ethan Muckerheide*, & Lexie Young***

Mentor: Jay Putnam, Theatre & Dance

Scholars argue that myth is culturally revealing. Using multiple iterations of The Little Mermaid, we explore the extent to which this is true, paying special attention to how each version of this classic tale aligns with its respective cultural timepoints regarding women's roles, love, and marriage.

1:10-1:30

***Chasing Glory: The Hero's Journey in Sports Documentaries***

**Taylor Baxter*, Noah Craig*, Laura Sarafinas*, & Isabel Viana Teixeria***

Mentor: Jay Putnam, Theatre & Dance

Utilizing the framework of Joseph Campbell's The Hero with a Thousand Faces, this research aimed to scrutinize the potential for sports figures to ascend to the status of heroes. Employing Campbell's 17 deeply mythological guiding principles, we analyzed documentaries featuring four prominent athletes: David Beckham, Michael Jordan, Serena Williams, and Tiger Woods.

# Performances

## Premiere Ballroom 2202 G
## 1:00 pm – 2:00 pm

**Dance**

***FRACTURE***
**Kendall McDowell**
**Performers: Nicole Amorocho, Caitlin Black, Caroline Cubas, Aleigh Garrecht, Kendall McDowell, Jessamina Piazza, Natalia Siepka, & Devlin Turner**
Mentor: Christine Stevens (choreographer), Dance
This work was inspired by the abstract artwork of Wassily Kandinsky. Some of his compositions were inspired by the apocalypse. As the world hurtles towards an uncertain fate, society stands at a crossroads, between self-destruction and collective redemption. The end of time casts a shadow over humanity's future, prompting an introspection into the very essence of our existence.

***SHiFTED***
**Caroline Cubas**
**Performers: Karissa Fryar, Aleigh Garrecht, Sophie LeBron, Kendall McDowell, & Natalia Siepka**
Mentor: Lindsey Howie, Dance
SHiFTED, inspired by artist Elizabeth Thrift, is about the slow acceptance of dealing with body image. The artwork is a depiction of a woman's silhouette, where I saw a reflection of myself in it. The concept of this piece is shown with the use of the dancers' costumes and contrasting movements.

***Between***
**Melanie Fitts**
**Performers: Nicole Amorocho, Blaire Edwards, Monica Kepins, Sophie LeBron, Cierra Mahoney, Jessamina Piazza, & Cassidy Spencer**
Mentor: Lindsey Howie, Dance
This work investigates the little things that we often take for granted, for example, the heartbeat of someone we love, or the footsteps of a friend in the silence. We are surrounded by moments that get drowned out in the midst of our daily lives. This work explores those "between" moments.

***Coexist***
**Mary Gomez**
**Performers: Nicole Amorocho, Cierra Mahoney, Jessamina Piazza, & Ja'Niyah Williams**
Mentor: Mentor: Lindsey Howie, Dance
This piece was inspired by the unnamed wire sculpture by Kinsey Gebhart. The sculpture looks at the balance of good and evil. Throughout the dance, we see the push and pull of each side as they try to overtake the other. In the end there is balance. This piece was part of a dance concert in Chicago where all the other pieces were also inspired by visual artwork.

***Better Left Unsaid***
**Sophie LeBron**
**Performers: Nicole Amorocho & Sophie LeBron**
Mentor: Lindsey Howie(choreographer), Department of Theatre and Dance
Better Left Unsaid explores the power dynamics between two individuals. The core of the piece is about craving and wanting someone's attention, only to be pushed, thrown aside, or stepped over. The dancers express moments of neglect, manipulation, and struggle, each trying to exert power over the other which is never fully resolved.

## Theater

***When I Look At You***
**Alyssa Vogt**
Mentor: Brandon Wallace, Theater
This performance will be a presentation of When I Look at You from The Scarlet Pimpernel. This song tells the story of Margueritte, a wealthy woman living in England during the French Reign of Terror, as she questions why her husband is suddenly acting like a completely different person.

## Music

***Requiem: The Pure Land***
**Finn Mulder**
**Performer: Mia Spies**
Mentor: Louis Raymond-Kolker, Music
"Requiem: The Pure Land" is an original piece featuring a vocalist and piano. The text is from the poem "Requiem to a Dead Sister" by Master Wolmyong. He read this text at her funeral, after which a wind came by and whisked the offering off of her grave.

***Lasciatemi Morire!***
**Johnny Pohlman**
Mentor: Jaclyn Surso, Music
I will be performing "Lasciatemi Morire!" By Claudio Monteverdi (1567-1643). This is one of the three songs that I performed at the National Association of Teachers of Singing competition held at the University of North Carolina Charlotte. Once polished with my voice teacher I practiced with a live accompanist and performed for professional musicians that each provided written feedback.

***Till There Was You***
**Cate Stamper**
Mentor: Jacyln Surso, Music
I will be performing "Till There Was You" from the 1957 musical The Music Man and composed by Meredith Willson. This is one of four songs I performed at the National Association of Teachers of Singing competition in the fall at Meredith College, where I received feedback from professional musicians at the competition. I was able to work on the piece with the help of my voice teacher and a live accompanist in the fall semester.

***Drum Corps International Auditions***
**Aaron Jackson**
Mentor: Louis Kolker, Music
I participated in an audition camp for Pacific Crest, a drum and bugle corps who participates in Drum Corps International. At this camp I learned new musical styles, corrected my technique, learned to cooperate in a large ensemble, and gained more knowledge and understanding in music theory.

# Poster Session II

## 1:30 pm – 2:30 pm

### Biochemistry

***(1) Evaluating the Therapeutic Potential and Host Toxicity of Antibiotic Adjuvants via a C. elegans Infection Model against Antibiotic-resistant S. aureus***
**Chloe Cox***
Mentors: Meghan Blackledge and Heather Miller, Biochemistry
Antibiotic adjuvants are non-toxic molecules that enhance antibiotic efficacy. Our lab has identified loratadine as having positive adjuvant activity in vitro against antibiotic-resistant S. aureus. To determine efficacy in vivo, we developed a host infection model using Caenorhabditis elegans (C. elegans). Assay parameters and biological results will be discussed.

***(2) Novel Expression and Characterization of Lactate Monooxygenase from the Parasitic Fungus Beauveria Bassiana.***
**Imogen Irons***
Mentor: Kelsey Kean, Biochemistry
Lactate monooxygenase (LMO) is a flavoenzyme that utilizes flavin mononucleotides to catalyze redox chemistry. We present the first study of a putative LMO from the parasitic fungus, Beauveria bassiana. We used recombinant protein expression in Escherichia coli and purification by affinity chromatography to isolate pure protein.

***(3) Synthesis of Bromodiphenylamine for Applications in Antibiotic-Resistant Bacteria.***
**Jake Morgan*, Jess Emrich, & Meghan Blackledge**
Mentor: Meghan Blackledge, Biochemistry
Methicillin-resistant Staphylococcus aureus (MRSA), an antibiotic-resistant bacteria, causes millions of deaths from nosocomial infections. Brominated carbazoles have been shown to increase effectiveness of β-lactam antibiotics by inhibiting master regulatory kinases. The substitution pattern of bromine on the carbazole was studied to generate the best way to synthesize the target molecule.

***(4) Novel Expression and Characterization of Lactate Monooxygenase from Halopiger Salifodinae***
**Makenzie Wiseman*, Abigail Nimmo, Imogen Iron, & Kelsey Kean**
Mentor: Kelsey Kean, Chemistry
Lactate monooxygenase (LMO) is part of the α-hydroxy acid oxidase protein family. We present the first study of LMO from Halopiger salifodinae. Colorimetric assays and HPLC-based assays were used for characterization. We optimized conditions by adding FMN or replacing the purification tag with GST.

### Biology

***(5) Phylogeny and Evolution of Dipensiaceae Pollen Morphology***
**Alyson Acquard***
Mentor: Nicole Hughes, Biology
Using various methods of microscopy, this project focuses on features of pollen grains that can be used to characterize the Diapensiaceae family. These characteristics are compared to the other families within the Ericales order.

***(6) Investigating the Role of Grasses in the Formation and Expulsion of Hairballs in Domestic Cats (Felis catus L.)***
**Kara Bensel***
Mentor: Nicole Hughes, Biology
Cats have been observed eating grasses before expelling hairballs. We hypothesized grasses and other plant materials play a role in the gathering of hairs ingested by diet or grooming to help facilitate their expulsion. Hairballs were analyzed under SEM and genetically tested using DNA barcoding to identify the plant species.

***(7) Characterizing Plant Biochemical Responses to Pathogenic Stress: Spotlight on Red Leaf Spots***
**Micayla Campbell*, Anna Ferraro, Maggie Salley, & Hayes Bowman***
Mentor: Nicole Hughes, Biology
In this study, the role of anthocyanin pigments in infected tissues of Indian hawthorn was explored. Using analytical techniques, we identified major anthocyanins and assessed their impact on stress and antioxidant activity. These pigments likely serve photo-protective functions, similar to those in young and senescing leaves. Further investigation is underway to explore potential antimicrobial effects.

***(8) Determination of the Role of Ger-E in the Insecticidal Ability in Bacillus thuringiensis***
**Andrew Fox***
Mentor: Dinene L. Crater, Biology
Bacterial sporulation is a response where an endospore is formed, rather vegetative growth. Since GerE is active during sporulation, we seek to determine if GerE is necessary for the insecticidal properties found in Bacillus thuringiensis. CRISPR-derived mutations in gerE will determine if GerE is essential for insecticide activity in Bt.

***(9 Documenting the Fire History of Pilot Mountain State Park***
**John Guglielmetti* & Esprit Cha**
Mentor: Dane Kuppinger, Biology
Fire suppression policies in place nationally from 1930-1980 decreased fire frequency in southeastern Piedmont, but effects upon fire community composition remain understudied. During this study a total of 45 fires were documented; 22 during the pre-suppression period, 12 during the suppression period, and 11 during the post-suppression period.

***(10) Crisper Butterflies***
**Catalina Kett***
Mentor: Kenneth McKenna, Biology
The developmental genetics of butterfly color patterns is just beginning to take shape. Our aim is to establish CRIPSR gene editing to study the role of candidate genes in wing color pattern development. We will discuss our microinjection techniques, survivorship, and phenotypic analysis.

***(11) A Potential Role For Color and Stress in Determining Reproductive Success in Danio Rerio***
**Tyler Matthews*, Zachary Workman*, & Virginia Vincent**
Mentor: V McNeil Coffield, Biology
It's known that colored environments alter cortisol production in zebrafish, inducing stress. We further analyzed the effects of environmental color and stress on zebrafish egg production and embryo viability. Our findings suggest green environments induce less cortisol, resulting in increased egg production and embryo viability compared to a red environment.

*(12) Pilot Mountain Fire History*

**Nhu Ngo*, Esprit Cha*, Muneeba Zaman*, & Dane Kuppinger**

Mentor: Dane Kuppinger, Biology

Fire is vital in some ecosystems; promoting growth, wildlife habitat, and preventing intense wildfires. Evolving perceptions over time have resulted in three fire management periods. Recent practices raised fire frequency but haven't reached pre-suppression levels. This fire history will inform fire management programs in these mountain ecosystems.

*(13) Identification of the Antimicrobial Activity of Anthocyanins Toward the Plant Pathogen Xanthomonas campestris*

**Madison Prendergast ***

Mentor: Dinene Crater, Biology

Xanthomonas campestris, a plant pathogen, causes colored spot formation on plant leaves. These spots are caused by anthocyanins. The purpose of the study is to test the interaction of Xanthomonas campestris with purified anthocyanins to determine if the anthocyanins can act as antimicrobial reagents for infected plants.

*(14) Glutathione Deficiency Alters Urea Efflux from the Lens*

**Elizabeth Rubeira*, Billy Hayden, Alejandra Soto, David Sell, Zongbo WEI, Xingjun Fan, Vincent M. Monnier, & Jeremy A. Whitson**

Mentor: Jeremy Whitson, Biology

Urea is a common waste product produced in the lens and its export is an important and regulated process that is affected by GSH deficiency. The differences between urea transport in GSH deficient and wildtype lenses are due to changes in urea efflux, likely a result of increased UT-B activity.

*(15) Melittin May Induce Multiple Types of Programmed Cell Death in Triple Negative Breast Cancer Cells*

**Marie Streng*, Justus Young, & Y. Kevin Suh**

Mentor: Y. Kevin Suh, Biology

Previously, we have shown that melittin inhibits viability and migration of Hs578t triple negative breast cancer cells using MTS assay and Ibidi plates, respectively. In the present study, we investigated the mechanism of programmed cell death in melittin treated Hs578t cells using Western blotting, DNA fragmentation, and proluminescent caspase assay.

*(16) Development of an eDNA Assay for Surveillance of the Endangered Carolina Redhorse (Moxostoma sp. Carolina) Fish.*

**Catherine Summerrow*, Dominick Latta*, & Megan Rudock Bowman**

Mentor: Megan Rudock Bowman, Biology

The Carolina Redhorse, Moxostoma sp. Carolina, is an endangered fish species native to the Pee Dee River basin of North Carolina. The cost, efficiency and frequency of surveillance can be improved using aquatic environmental DNA and PCR-based assays. Results are visualized via electrophoresis and confirmed with genetic sequencing.

*(17) Melittin Inactivates Erk MAPK Pathway and Suppresses Invasion and Anchorage-Independent Growth in Hs578t Cells*

**Justus Young*, Marie Streng & Y. Kevin Suh**

Mentor: Y. Kevin Suh, Biology

The Erk/MAPK pathway is an important target in cancer research. One hallmark of cancer is the ability of neoplastic cells to survive and proliferate without anchorage. In our study, we investigated the impact of melittin on the activation of Erk/MAPK and anchorage-independent growth in Hs578t cells.

## Chemistry

***(18) Development and Analysis for Utilization of ChemDraw/Chem3D Software To Teach Lewis Structures and VSEPR Theory In General Chemistry Laboratories***

**Ryland Brady*, Sydney Wargo*, Kelsey Ryan*, Jared Toney, Harrison Schaeffer, Maggie Junkin, Owen Mader, & Kaitlyn Acoveno**

Mentor: Sarmad S. Hindo, Chemistry

This study describes the development of a novel undergraduate laboratory experiment utilizing molecular modeling software ChemDraw/Chem3D to teach Lewis structures and VSEPR theory. The study assesses the efficacy of integrating this software into the general chemistry curriculum. Current analysis indicates improvements comparable to pre-established laboratory procedures.

***(19) Impact of Ultraviolet Light on Aggregation-Induced Fluorescence of Rhodamine B Amide Derivatives***

**Madison Hill* & Darryl Wright**

Mentor: Keir Fogarty, Chemistry

Rhodamine B is a xanthene dye that fluoresces orange. In prior research, our lab has explored the optical behaviors of rhodamine B amide derivatives. Our current experiments explore the impact of solvents and functional groups on the ultraviolet-induced ring opening reaction of rhodamine B amide derivatives.

***(20) Evaluation of a Small Compound Library for Antibiofilm Activity in Staphylococcus aureus (MRSA)***

**Owee Kirpekar*, Sophie Gregory, & Meghan Blackledge**

Mentor: Meghan Blackledge, Chemistry

The goal of this research is to evaluate a library of small compounds tht may disrupt the regulation of adherence and dispersal in MRSA biofilms. Compounds of interest were tested using a standard static crystal violet biofilm assay. Biological results and future directions will be presented.

***(21) 3D Printing Atomic Orbitals***

**William R. Lay*, Ryan Goldin**

Mentor: Keir H. Fogerty, Chemistry

Atoms consist of protons, electrons, and neutrons. Electrons dictate an atom's chemical behavior. Electron waves determine the atom's shape, or orbital. We created a comprehensive document of equations of quantum mechanics that recreate the atom's orbital shape, so we can 3D print physical figures for students to learn with.

***(22) The Effect of Antibiotic Adjuvants on Linezolid-Resistant Staphylococcus aureus***

**Isabel Marshall***

Mentor: Meghan Blackledge, Chemistry

We are interested in studying antibiotic adjuvants that are effective in Staphylococcus aureus, a pathogen responsible for over 20,000 deaths annually. Linezolid-resistant Staphylococcus aureus (LRSA) is becoming increasingly prevalent. We have tested loratadine and 4-bromocarbazole, for the ability to potentiate linezolid and oxacillin in LRSA clinical isolates

***(23) Expression, Purification, and Characterization of Carbonic Anhydrases from Extremophiles***
**Parker Nyboer***
Mentor: Kelsey Kean, Chemistry
Carbonic anhydrases (CAs) are metalloenzymes that catalyze the conversion of water and carbon dioxide to carbonic acid. We have identified a putative β CA from the extremophile Hypsibius exemplaris (tardigrade). For CA acquisition, we use recombinant protein expression and His-tag purification. For activity characterization, we are using a colorimetric-based assay.

***(24) Transcriptomic Analyses of Multiple Antibiotic Adjuvants Against MRSA***
**Robin Stempel*, Halie Balogh, Brianna Viering, Lauren Vossen, Meghan S. Blackledge & Heather B. Miller**
Mentor: Heather Miller, Chemistry
As bacteria become more resistant to antibiotics, methicillin–resistant Staphylococcus aureus (MRSA) has become an increasing concern. Our lab reports on antibiotic adjuvants compound 8 and loratadine. We expanded our analyses to clinically relevant MRSA strains, USA100 and USA300. We will discuss strain-specific differences in transcriptome disruption by these molecules.

***(25) Analytical Methods and Characterization of Beer Samples***
**Rachel Watne***
Mentor: Keir Fogarty, Chemistry
Beer analysis and characterization plays a vital role in producing consistent and high-quality brews. We collaborated with Brown Truck Brewery here in High Point, N.C. to characterize beer samples using spectrophotometric techniques for the determination of color, bitterness, and diacetyl (VDK) content.

***(26) Creation of a Microfluidic Flow Cell to Observe Treatment of Antibiotic Resistant Biofilms***
**Lexie Young*, Bailey Sobolewski, & Meghan Blackledge**
Mentor: Keir Fogarty, Chemistry
Biofilms, bacterial communities inside protective extracellular matrices, are a common source of hospital-acquired infections. A 3D-printed flow cell was designed to mimic environments that are conducive to biofilm formation. We want to assess how flow conditions alter biofilm growth. Future work aims to explore the treatment of biofilms with antibiotics.

## Criminal Justice

***(27) How Abrahamic-Faith Based Reentry Programs Approach Offender Rehabilitation***
**Kamryan Collis***
Mentor: Preston Davis, Chapel & Religious Life
Religion-influenced reentry programs are fairly common. This study focused on three reentry programs, each representing one of the Abrahamic religions. Through a comprehensive literature review, we found that each program offered similar aid, despite differing belief systems. Each worked with participants to help correct behavior through religious teachings coupled with evidence-based approaches.

## Economics

***(28) Asset Returns Effect On Economic Inequality***
**Ryan Walter***
Mentor: Peter Summers, Economics
This study investigates the relationship between rates of return for major asset classes and economic inequality. The relationship is examined across 18 different countries from 1913 to 2020. Return data along with other macro variables come from the MacroHistory database. Measures for inequality come from the World Inequality Database.

## Electrical Engineering

***(29) Using MATLAB to Optimize the Energy Bands and Electric Fields of a n-i-p-i-p Nanowire Structure***
**Brett Sykes***
Mentor: Sean Johnson, Electrical & Computer Engineering
Avalanche photodiodes absorb photons, creating an electron-hole pair, and use impact ionization to collide with more electrons, creating an avalanche effect. Utilizing strong electric fields and amplification through doping, predicting the electric field and energy band is possible, revealing the separation-absorption-charge-multiplication process, creating an easy design for optimizing nanowire configurations.

***(30) Using COMSOL Multiphysics to Simulate Photodetector Nanowires to Obtain IV Curves, Electric Field, and Carrier Concentration***
**Levi Wenger***
Mentor: Sean Johnson, Electrical & Computer Engineering
Nanowires are a novel innovation that has been optimized to provide superior performance in photodetectors. In this study, COMSOL's semiconductor module was explored and manipulated to effectively model different types of GaAs and GaAsSb Nanowire structures to obtain data on carrier concentration, electric field, electric potential, and I-V curves.

## Event & Sport Management

***(31) Beauty Beyond Boundaries: Where Beauty Meets Inclusivity and Artificial Intelligence***
**Cydney Lafore*, Katie Messick, Annika Waguespack*, Ana Wein*, & Kailey Wrege***
Mentor: Brianna S Clark, Event Management
Beauty Beyond Boundaries: Where Beauty Meets Inclusivity and Artificial Intelligence is a hypothetical conference that showcases how AI technology can revolutionize the event industry. Discover how an event can embrace inclusivity using AI technology in all aspects of the pre-event planning phase as well as during the event program.

## Exercise Science

***(32) Quantifying Training Loads by Position in Collegiate Women's Soccer Players.***
**Lindsay A. Bonsall***
Mentor: Brett Pexa, Exercise Science
Quantifying training loads during athletic activities, specifically across positions, can provide objective data for managing athletic performance and aiding in injury prevention. The purpose of this study was to compare training loads, across specific positions, in women's collegiate soccer athletes using a wearable tracking system.

***(33) SARS-COV-2 Infection Does Not Alter Cellular Stress Response During Prolonged Exertional Heat Stress***
**Nathan Conrad***
Mentor: Matthew Kuennen, Exercise Science
To determine if persons with a prior clinical diagnosis of SARS-CoV-2 infection exhibit differences in their cellular stress response following 60min of cycling exercises in hot, dry conditions. We found no evidence of greater thermal or cardiovascular strain during 1hr of exertional heat stress in persons with prior SARS-CoV-2 infection.

***(34) Prior SARS-CoV-2 Infection Does Not Reduce Immunocompetence in Humans Challenged with Exertional Heat Stress***
**Emerson P. Heckler*, Nathan J. Conrad, & Matthew R. Kuennen**
Mentor: Matthew R. Kuennen, Exercise Science
This study investigated immunocompetence in individuals with prior SARS-CoV-2 infection exposed to exertional heat stress. Participants underwent cycling in hot conditions, revealing elevated IFN-$\gamma$ and IL-1RA levels in the SARS-CoV-2 group. Despite these differences, no significant disparities in physiological responses were observed, suggesting maintained immunocompetence post-exertional heat stress.

***(35) Test-Retest Reliability and Precision of Force Platform Outcomes***
**Sydney Litwiller*, Ava Taylor, & Brett Pexa**
Mentor: Brett Pexa, Exercise Science
Force Platform testing is used by clinicians on athletes and non-athletes to analyze performance, injury risk, and return to activity. Reliability measurements of data are necessary to track changes over time. The purpose of this study was to determine test-retest reliability, precision, and minimal detectable change of force platform outcomes.

***(36) Near-infrared Spectroscopy More Accurate Than Heart Rate For Monitoring Intensity During Cycling Sprints: Pilot Data***
**Millicent R. Tysinger*, Sydney L. Chretien*, Chris W. Benoit, Sonia M. Piombino*, Braden H. Romer, James M. Smoliga, & Colin R. Carriker**
Mentor: Colin Carriker, Exercise Science
Cardiorespiratory, metabolic and muscle oxygen response were investigated during a series of cycling sprints. In the absence of a method to measure intensity via metabolic data or power, tissue-saturation index via near-infrared spectroscopy may be a better predictor of intensity than heart rate monitoring during short duration cycling sprints.

## History

***(37) No Easy Task: The Desegregation of High Point College***
**Mara Cooper* & Emma Scrivo***
Mentor: Paul Ringel, History
A documentary project by High Point University students explores how integrating athletics influenced college integration in the 1960s-70s. They interviewed Black alumni athletes and the first Black student about their experiences. The initial film focuses on 3 athletes and plans to expand with funding. The project aims to understand why High Point integrated through athletics compared to other schools.

## Honors

***(38) The Public Perception of War Depictions in American Films and Historical Texts***
**Bayli Alley*, Danny Dwyer*, Riley Maldonado*, & Charlotte Miller***
Mentor: Timothy O'Keefe, English
This research explores the relationship between war depictions and public perception of the military. Focusing on WWI, WWII, and the wars in Vietnam and Afghanistan, we analyzed data from two surveys—one based on films and one on historical texts—to investigate how media representations shape student attitudes towards military involvement.

***(39) Burgers Beyond Borders: Fast Food Disparities Around the Globe***
**Autumn Bryan*, Isabella Edwards*, Kamryn Eller*, Lacey Falloon*, & Nate Hohensee***
Mentor: Virginia Leclercq, English
This study examined consumer perceptions of American fast food restaurants using comparative analysis of customer evaluations of fast food locations both in America and abroad, using a combination of survey and interview responses. Specifically, it assessed the effectiveness of fast food companies' product presentation from the perspective of the consumer.

***(40) Social Interactions within Elevators***
**Caroline Field*, Megan McCambridge*, Eliana Reed*, & Emmi Yates***
Mentor: Silvana Rosenfeld, Sociology & Anthropology
Social Interactions within Elevators aims to discover socialization habits that occur in elevators and to draw conclusions from both observational and survey data regarding the extent to which individuals interact with others in these spaces. The results could motivate further research on social interaction in a larger population.

***(41) The Effect of Live-Action Disney Channel Original Movies on Relationship Satisfaction and Expectations for Generation Z***
**McKenzie Kauffman*, Elizabeth Ring*, Taylor Galavotti*, Alexandra N Zimmerman*, & Lauren Shinn***
Mentor: Stacy Lipowski, Psychology
This research examined the impact of Disney Channel Original movies (DCOMS) on young adults in the dating world. DCOMs may impact young adults' expectations of their romantic relationships. It was hypothesized that these unrealistic expectations created by DCOMs are related to lower levels of relationship satisfaction later in life.

*(42) The Effect of the NFL On The Culture of Host Cities*
**Jeremy Maas*, Regan Stillman*, Ashley Spreng*, & Elijah Foggie***
Mentor: Stacy Lipowski, Psychology
We have researched the effect that NFL sports teams can have on the culture of host cities. Through interviews, surveys, and personal research, we uncover to what degree the effect that the NFL has on these cities, with the focus being on the Philadelphia Eagles and the Carolina Panthers organizations.

*(43) Generational Perceptions of Cheating in Romantic Relationships*
**Justus Ullman*, Nico Esposito*, Maddie Litvan*, Ash Corcoran*, & Eli Lemons***
Mentor: Virginia Leclercq, English
This study investigates perceptions of infidelity in committed relationships such as dating and marriage. This study will see if there is a significant difference in how members of different age groups regard infidelity in romantic relationships to provide valuable insight into how romantic relationships are defined over time.

## Interior Design

*(44) Green City Solution*
**Keelin Gallagher***
Mentor: Jane Nichols, Interior Design
For this project, I used precedent studies on sustainable apartment-style buildings and sustainable cities to inform the design of a green apartment building located in Portland, Oregon. Through the sustainability of this building, I created an example of how to execute a project that adds to the city's green space.

*(45) Adaptive Reuse Sustainable Boutique Hotel*
**Alexia Kallaur***
Mentor: Jane Nichols, Interior Design
District Hotel reimagines the historic Dolley Madison House into a contemporary and sustainable boutique hotel. It presents a range of spaces offering a unique D.C. experience while incorporating comforting textures, pops of color amidst a natural palette, and materials that evoke both international influences and the beauty of nature.

## Mathematics

*(46) Peer Review Process: AI Generated vs Student Generated Proofs*
**Abby Hyatt***
Mentor: Jenny Sharpe, Mathematics
When completing an introductory proof-writing course, students often engage in peer review to practice critical reading. We used ChatGPT to create multiple peer-review activities, some containing intentional logical errors. Students compared their experiences critiquing AI-generated proofs and peer generated proofs. We also discuss the learning curve associated with prompting ChatGPT.

## Neuroscience

***(47) Rate of Improvement While Learning Novel Cognitive Tasks as a Potential Identifier of Preclinical Alzheimer's Disease***
**Lena Hetrick*, Haiying Chen, & Lisa Zukowski**
Mentor: Lisa Zukowski, Physical Therapy
Preclinical Alzheimer's disease is typically detected via expensive and invasive procedures. More accessible tools, such as cognitive assessments, are needed. This analysis examines how age, practice, and neuropsychological tests predict rate of improvement while learning cognitive tasks and if preclinical Alzheimer's disease pathology impacts rate of improvement in older adults.

***(48) Lack of Neuroprotection in Delta-8 THC Against In Vitro Oxidative Stress Injury***
**Allison Reed***
Mentor: Michael Grider, Neuroscience
With the legalization of cannabinoids expanding and known antioxidant properties, their effectiveness in treating neuronal injuries was studied. We tested the effectiveness of Delta 8 THC in preventing injury in Hydrogen Peroxide exposure and energy deprivation models. We found that Delta 8 did not significantly affect cell viability.

***(49) Distortion Product Otoacoustic Emissions in Ears with Hearing Instability***
**Cameron Siler-Nixon*, Julie Christensen, Jennifer Chisholm, Shoujun Gu, Hui Cheng, Talah Wafa, Brandie Mack, Noelle Allemang, Chris Zalewski, Carmen C. Brewer, & Michael Hoa**
Mentor: Michael Hoa, Audiology
Previous literature identified that the phase of distortion product otoacoustic emissions (DPOAEs), generated by the cochlea's outer hair cells, changes with intracranial and intralabyrinthine pressure. The pathophysiology of hearing instability and Meniere's disease, characterized by hearing fluctuations, remains undefined. We are investigating the viability of DPOAEs as a diagnostic tool.

***(50) Testing the Neuroprotective Effects of Ashwagandha***
**Anaiya Whitaker***
Mentor: Micheal Grider, Biology
Withaferin A (WFA) an active ingredient of Ashwagandha, plays a role in reducing inflammation and oxidative stress. Therefore, we modeled TBI by generating H2O2-induced oxidative stress, resulting in neuronal dysfunction and cell death. Cells were incubated in a range of concentrations or absent of WFA and cell viability was assessed.

## Pharmacy

***(51) Evaluation of Novel Therapeutics for the Treatment of Peripheral Nerve Sheath Tumors***
**Owen Hunter*, Heather Duensing*, Jalen Dixon, Nicolina Graves, & Cale Fahrenholtz**
Mentor: Cale Fahrenholtz, Pharmaceutical Sciences
Neurofibromatosis type 1 (NF1) is a common neurogenic disease. Half of all NF1 patients develop debilitating tumors called plexiform neurofibroma which can progress to deadly malignant peripheral nerve sheath tumors. Here we evaluate novel therapeutics for NF1-associated tumors to address significant unmet clinical need.

***(52) Oxa-noribogaine, a Newly Synthesized Iboga Alkaloid, Produces Long-lasting Reductions of Heroin Self-administration in Rats***

**Andrea Zaglin*, Isabella Maldonado*, Dalibor Sames, Valcav Havel, Scot McIntosh, & Scott E. Hemby**

Mentors: Scott E. Hemby and Scot McIntosh, Pharmaceutical Sciences

Ibogaine is a psychedelic alkaloid from *Tabernanthe iboga* that reduces intake and craving for opiates in humans. Oxa-noribogaine is a newly synthesized iboga-type alkaloid designed to reduce ibogaine's toxic side effects while enhancing anti-addictive properties. We compared oxa-noribogaine with ibogaine and noribogaine in reducing heroin self-administration in rats.

## Physics

***(53) Exploring Biomimetic Patterned Surfaces to Combat Bacterial Biofilm Growth***

**Jenna Mastropolo***

Mentors: Pamela Lundin & Briana Fiser, Physics

When bacteria adhere to surfaces inside the human body, such as indwelling medical devices, they build up and form biofilms, leading to serious infection and possible death. We have investigated how varying physical patterns on surfaces can affect this growth. This may provide a pathway toward reducing bacterial adhesion.

## Psychology

***(54) Furniture Design Exhibit in Kids Point: A Comprehensive Exploration of Developmental Alignment, Interactive Learning, and Inclusivity Considerations***

**Lily Grace Foister***

Mentor: Daniel Krenzer, Psychology

This project examined a local children's museum exhibit in High Point, NC, blending the city's culture with educational experiences. After providing an overview of the exhibit, the presentation discusses how it simulates a Furniture Design Studio while aligning with developmental stages and theories. The presentation highlights inclusivity in its design.

***(55) Are the Benefits of Production Enhanced After a Delay? Examining the Impact of Encoding and Memory in Children***

**Catherine Gallagher* & Genna Manger***

Mentor: Stacy Lipowski, Psychology

Producing a target item by saying it aloud or writing it down leads to enhanced memory compared to passive studying strategies. The goal of this project was to investigate effects of a delay on the recall of produced items in elementary school children, expecting the benefit to increase over time.

***(56) Trust at First Sight? Exploring the Relationship Between Theory of Mind and Perception of Safety***

**Caitlin McCray***

Mentor: Stacy Lipowski, Psychology

The goal of this study was to examine the relationship between two variables: theory of mind and perception of safety. The theory of mind is the ability to understand the mental states of others. Safety perception includes beliefs about well-being when facing potentially dangerous situations. Gender differences will also be discussed.

***(57) Investigating how Difficulties Regulating Emotions Affect the Relationship Between Borderline Personality Disorder and Nonsuicidal Self-Injury***
**Kelly Polk*, Jane Thompson*, & Shira Gold***
Mentor: Laura Nagy, Psychology
Nonsuicidal self-injury (NSSI) and borderline personality disorder (BPD) have been found to be highly comorbid. Emotion dysregulation as a whole has been found to mediate this relationship. This study looked at how different facets of emotion dysregulation can affect this relationship and what it could mean for future studies and therapy.

***(58) Factors Influencing Memory Recall, Recognition, and Suggestibility***
**Ashley Tarjick* & Gabriella Korb***
Mentor: Kelly Curtis, Psychology
This study examines the effects of personality on memory recall and suggestibility. Participants completed the online questionnaires measuring the Big Five traits and memory self-efficacy. Participants also answered memory questions based on a vignette provided to them. Statistical analysis will be performed to determine the statistical relationship between these variables.

***(59) How's the Weather Up There: Perceptions of Tall Women in the Context of a Potential Dating Scenario***
**Catherine Waldeck* & Mackenzie Kraras**
Mentor: Kirsten Li-Barber, Psychology
Current study examined the relationship between height on perceptions of gender typicality, introversion, and date-ability. No significant relationships were found, which go against previous literature on the role of height in influencing perceptions of others but indicate a shift in norms surrounding gender and gender stereotypes, particularly those surrounding height.

***(60) Psychological Factors That Influence Physical Health Habits in College Students***
**Margaret Weinbaum*, Regan Jordan*, & Cora Hicks***
Mentor: Kelly Curtis, Psychology
Type D personality and alexithymia have been investigated for their impacts on physical health. Less research has been conducted concerning their combined influence on health habits and interoceptive awareness. A sample of college students completed questionnaires related to the variables above using Qualtrics. Correlations and hierarchical regressions will be analyzed.

## Sociology & Anthropology

***(61) A Comparative Analysis of Environmental Perceptions in Rural and Urban North Carolina***
**Catie McKinney***
Mentor: Silvana Rosenfeld, Sociology & Anthropology
The present study analyzes environmental perceptions between urban and rural North Carolina residents. Using a mixed-methods approach of questionnaires and interviews, participants' perceptions and valuation of nature were assessed and compared to better understand how relationships with the environment differ between groups.

## Strategic Communication

***(62) Socioeconomics and Science Involvement***
**Aidan Brooks***
Mentor: Sarah Vaala, Strategic Communication
This study examines connections between parents' and children's science perceptions, and children's engagement in science-themed activities and media. Boys consumed more science-related media than girls and were more involved in science-related activities. Relationships between science identity and interest and children's science behaviors were stronger among children of less-educated parents.

***(63) Scrolling to Shopping: An In-depth Analysis of Social Media Advertisements and Consumer Behavior***
**Karlee Sanderford***
Mentor: Matthew Ritter, Strategic Communication
Investigating the impact of repetitive advertising, personalized ads, and gender differences on consumer purchase intentions. Using the mixed-methods study, with 465 survey respondents and interviews, validates these insights. The results offer advertisers valuable insights for enhancing campaign success in the evolving landscape of social media and consumer behavior.

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# Technical Exhibits

1:30 pm – 2:30 pm

***(64) Traitors And Tornados***
**Shanice Gamble*, Jace Tensley*, Ryan Keenan*, & Jonathan Zettlemoyer***
Mentor: Brian Heagney, Game Design
In this game, players find themselves stranded on an island plagued by extreme and lethal weather conditions. This game concept merges survival, crafting, and strategic planning within a dynamic setting and lethal weather system, challenging players to adapt and overcome the extreme elements.

***(65) Capy-Park***
**Henry Wallace*, Bryant Nourse*, Ethan Harshbarger*, Ariel Escobar*, & Ashley Longbottom***
Mentor: Brian Heagney, Game Design
Capy-Park is a casual puzzle exploration game in which you play as a park ranger working with local wildlife to collect evidence against the evil businessman and save the park.

# Student Index

# Mentor Index

# Acknowledgments

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# Nido and Mariana Qubein Conference Center Map