

An Exposition of Student and Faculty Research, Scholarship, and Creativity

MAY 6, 2023 | 1-3 P.M. | TARC Field House

Faculty Research, Scholarship, and Creativity Committee

Katherine Hilson Kim Instenes John Kirk Nora Nickels Tony Pustina Jun Wang



Scan for full abstracts and project details.





CELEBRATION OF SCHOLARS



Dear Carthage Community,

Congratulations to our student presenters! I know how you got here today, and I know the word "easily" does not accurately describe it.

As even the ancients observed, learning most often involves frustration. Learning begins when we encounter something we do not understand and may feel like we can never understand. Yet somehow — maybe because others are encouraging us — we push ahead and seek to understand. At the level of complexity reflected in these projects, the road to understanding is long and difficult. Typically there are false moments of understanding, which lead to new frustrations ... which then lead to new and mostly arduous efforts. But with diligence and the help of others, including the professors sponsoring each of these research and creative works, you were able to reach the moment or moments of discovery that signal understanding and learning.

These experiences provide learning beyond the essay, the science discovery, the social science study, the performance, or the application project. We learn about ourselves and our ability to persist through the frustration of misunderstanding and confusion, about the needed effort that is always more than anticipated, and about the disappointments of false discoveries that do not pan out. There is also deep and enduring satisfaction for the completed project, both at the time and beyond it.

We also learn about our ability to benefit from others, whether that is someone who is guiding us in the work (like a Carthage professor) or a peer collaborator (like a fellow Carthage student). In fact, the quickest and most productive way I have found to get past a research dead end or writer's block is a conversation with another person. I first remember learning this when faced with the task of writing a sermon every week as a pastor, but the same has held true with every research project since — and most other efforts I have engaged in as well. Talking with those friends and mentors about things that have you stumped is a superpower you must continue to utilize.

Your professors, your family and friends, and this College are proud of you today. You are some Firebirds!

David Timmerman

Provost and Chief Operating Officer

- **26** Coping with Disasters: Meaning-Making among Religious Leaders in Puerto Rico in Response to Crises **Alfaro, Camila**
- 47 What is the Effect of Breathing Room Air With and Without a Breathing Valve on HRV in BI and NBI College Age Females?

 Apostoli, Giana | Rynders, Ali | Harshberger, Beth Wolf, Olivia | Wiseman, Connor | Saperston, Callie Ehlert, Luke | Eickstead, Cameryn | Labriola, Grace Shilts, Meghan | Force, Sophia | Kozmer, Zach Horutz, Mackenzie | Poff, Hannah | Talens, Katie Massari, Jack | Haske, Sebastian
- 19 A Head for Business and a Heart for the World: The Enactus Approach to Poverty Alleviation through Entrepreneurship Arbeiter, Jillian
- **18** Labor Market Outcomes of LGBTQ+ People **Baumeister, Megan**
- 10 Instances of Song in The Odyssey and their Meaning Brown, Aubrey
- **2** Working to Improve the Well-Being of Special Education Teachers **Brulz, Melissa**
- 14 "Killing the Indian Within the Child": Native Canadian Cultural Conversion and Forceful Assimilation Chiodi, Malena
- **36** Radical Fluorination of an Ibuprofen Derivative **Coolidge, Angelina**
- 5 Kenosha Verbatim Project Craft, Rayven | Layendecker, Katherine

- **28** Grandparenting and the Statistical Analysis of its Effect on the Psychological Development of College-Aged Grandchildren **Del Alcazar, Ryan**
- **37** Investigating Drug Interactions with Transthyretin using Molecular Dynamics Simulations **DeSalvo, John**
- **44** Spotlight on Light Sheet Fluorescence Microscopy **Dowe, Rebecca**
- **13** The Woman's Building at the 1893 Chicago World's Fair: Feminizing Progress, Freedom and Modernity **Doyle, Kailyn**
- **16** The Role of Flags and Symbols During the Fall of the Communist Regime in 1989 Romania **Drimboi, Dorin**
- 1 Visualizing Literacy Processes: Representing Literacy Concepts through Collage Easley, Jacqueline
- **48** The Effects of Behavioral Inhibition on Stress Reactivity to Psychosocial Stressors in Human Participants **Eickstead, Cameryn**
- **21** An Examination of Lake Erie's "Western Basin Occupying" Yellow and White Perch Populations from a Graph Theory Perspective **Feldpausch, Caitlyn**
- 53 The Understanding of Janus 167: Identification and Characterization of the Bacteriophage Janus 167

 Gómez-Solis, Juan | Firkin, Leanna | Walker, Ethan

- **31** Tool Development for Detection of Potato Virus Y **Gonzalez, Vanessa**
- **55** THE AGE OF BLAGE: Characterization and Genome Analysis of Bacteriophage Blage **Grimm, Logan | Hartman, Jr., Edward**
- Passive Acoustic Monitoring of Cao Vit Gibbons (Nomascus Nasutus) and Individual Mapping Utilizing Multilaterations Groszek, Abigail | Menendez, Alexis
- Synthesis of Amino Acid Surfactants to Examine Antimicrobial Properties **Hanson, Cole**
- **46** The Effect of 7% CO₂ on Salivary Cortisol and Amylase in Behaviorally Inhibited Individuals **Harshberger, Mary**
- Determination of the Factors Predicting Burnout in College Athletes **Koehlert, Hannah**
- Avoidance Expression of Wistar-Kyoto and Sprague-Dawley Rats Following Overnight Fast **Kozmer, Zach | Apostoli, Giana | Rynders, Ali**
- Creamy's Quest to Conquer Antibiotic Resistance **Krzewinski, Myles**
- Creating an Enzyme-Based Fluorogenic Reporter for Potato Virus Y **Leja, Damian**
- NMR Spectroscopy of Glutamic Acid Containing Surfactant Micelles **Mayer, Jacob**
- Design of the 2024 Celebration of Scholars Logo Miller, Aiden | Robinson, Max

- Measures of Odor Discrimination in College Students **Mills, Nicole**
- Cultural Repatriation: The Concept of Ownership **Ott, Brennan**
- Facultative Interactions Between Ants, Aphids, and Black-Eyed Pea **Owens, Julia**
- 51 Phages Out of This World: The Effects of Microgravity on Mycobacterium Smegmatis Lysogens

Pacocha, Alli | Leo, Jessica

- A Manipulation of PVY to Examine Pathogenesis in Potatoes and Tobacco **Papiez, Alex**
- An Investigation of Disagreement Between Kohai and Senpai by Japanese Youth Living in the United States **Parker, Mira**
- 23 Understanding Income Inequality Through Statistical Modeling Rahmel, Elizabeth
- Investigating the Eviction Crisis in Wisconsin Through Statistical Analysis **Rehder, Lydia**
- Coincidence Isometries of 3D Lattices **Reimer, Theodore**
- 25 Effects of Self-Monitoring and Visual Feedback on Mathematical Frustration with a Neurodiverse Learner Saperston, Callie
- **4** "It is Not Time that Passes": "Memento Mori" and Maurice Maeterlinck **Scharnick, Neil**

- **38** A Molecular Dynamics Study of Electrostatic and Hydrophobic Interactions between Transthyretin and Model Drug Molecules **Schneider, Lucus**
- **8** The Cost of Greatness **Schroeder, Autumn**
- **52** Combating Antibiotic Resistance: The Antimicrobial Properties of Amino-Acid Based Surfactants **Schultz, Jessica | Deanparvar, Iman**
- **34** Impact of Deposition Conditions on the Quality of Silica Nanoparticle and Gold Nanoparticle Crystalline Structures **Thomas, Rachael | Figgins, Bailey | Alcala, Marissa**
- 9 Is it Really Just a Name? Traxel, Lisa
- 22 Measuring Quasinormal Modes of Simulated Binary Black Hole Mergers in the SXS Catalog Valentini, Andrew | Hoskinson, Chance Prokup, Kaitlyn | Dowe, Becca
- 11 How Religion Can Both Uplift and Oppress Van Dixhorn, Emily
- 15 Chicano Student Protests in the Southwest: Denver West High School Walkout of 1969 Villa, Luis
- **17** Illinois on the Move: An Economic Development Plan for a Growing Illinois **Villalobos, Daniel**
- **42** Immunofluorescence Staining of Zebrafish Retinal Ganglion Cells **Vitek, Natalie | Drake, Frannie**

- **32** NMR Investigation of Micelle Formation by Phenylalanine-Based Biosurfactants **Williams, Lauren**
- **49** Effect of Central Ghrelin Receptor Signaling on Avoidance Behavior in Wistar-Kyoto and Sprague-Dawley Rats **Wolf, Olivia | Eickstead, Cameryn**
- **50** Exploring CO₂ Sensitivity in Behaviorally Inhibited Humans and Rats Wolf, Olivia
- **43** Tracking Regeneration of the Zebrafish Optic Nerve Using the Optokinetic Response **Young, Sarah | Wulf, Claire | Horutz, Mackenzie**
- **45** Reducing the Incidence of Central Line Bloodstream Infections (CLABIS) **Zielinski, Taylor**





PRESENTER LOCATIONS



50 49 48 47 46 45 44 43 42 41 40 39

 38
 37
 36
 35
 34

 33
 32
 31
 30
 29

28 27 26 25 24 23 22 21 20 19 18 17

6 5 4 3 2 1

→ N

Entrance/Stairs