

**21st Annual Berea
Undergraduate Research and Internship Symposium
October 15th, 2021**

Sponsored by Division I



Special Thanks

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BURIS
2021

Oral Research Session A – Room 356

Moderator – Dawn Anderson

Speakers indicated by bold typeface

- ~~2:40 PM~~ ~~**Hona Perler-Tomboly**, “Identification of hepatic PPAR α as a regulator of inflammation and liver triglyceride accumulation by $^1\text{H-NMR}$ in mice”, Vanderbilt University; Mentor – Donald Stee & Paul Voziyan (talk withdrawn)~~
- 3:00 PM **Younos Gad**, “Deletion of Cyp2c44 in Mice Induces Insulin Resistance and Promotes Hepatic Lipid Accumulation”, Vanderbilt University Medical Center; Mentor – Ambra Pozzi
- 3:20 PM **Sharon Lee**, “SETD2 Mutations Decrease Methylation of eEF1A and Dysregulate Protein Synthesis in Kidney Cancer”, Vanderbilt University; Mentor – Scott Haake
- 3:40 PM **Takudzwa Mabvuta**, “Knockout of LRRC8 Volume-Regulated Anion Channels (VRAC) Protects Against Zinc Pyrithione-Induced Apoptotic Cell Death”, Gates Center for Regenerative Medicine, Vanderbilt University Medical Center; Mentor – Jerod Denton
- 4:00 PM **Matthew Woodward**, “Creating a EDC-crosslinked Alginate-Gelatin Hydrogel with Cell-Adhesion and Modular Viscoelastic Properties”, University of Kentucky; Mentor – Ramkumar T. Annamalai
- 4:20 PM **Tenzin Wangmo**, “Investigating the Phagocytic Role of Jedi-1 in the Meninges”, Vanderbilt University; Mentor– Sungjong Oh & Bruce Carter
- 4:40 PM **Amro Abd**, “The Impact of Prebiotic Supplementation and Aerobic Exercise on Uremic Toxins in Chronic Kidney Disease Patients”, Vanderbilt University; Mentor – T.A. Ikizler

Oral Research Session B – Room 357

Moderator – Anes Kovacevic

Speakers indicated by bold typeface

- 2:40 PM **Godwin Emeka-Ibe**, “Wound implications of barbed sutures in fascial closures of elective cervical spine surgeries”, Vanderbilt University Medical Center; Mentor – Kimberly Vinson, Amir Abtahi, & Scott Zuckermann
- 3:00 PM **Yessica Lopez Valdez**, “Analysis of Proline 137 within Subunit a of *E. coli* ATP Synthase”, Berea College; Mentor – Rashmi Shrestha
- 3:20 PM **Yogesh Budhathoki**, “Does the Flash Effect Depend on Oxygen Concentration?”, Perelman School of Medicine, University of Pennsylvania; Mentor – Denisa Goia, Costantinos Koumenis
- 3:40 PM **Valeria Bellido Campos**, “ ^{17}O Natural Abundance Solid-State NMR Signal Enhancement”, Berea College; Mentor – Jay Baltisberger
- 4:20 PM **Faisal Kimbugwe**, “Mapping Thermal Signatures from Infrared Data of Laser Powder Bed Fusion (L-Pbf) Using Similarity Analysis”, The University of Tennessee Oak Ridge Innovation Institute; Mentor – Suresh Babu
- 4:40 PM **Maria Alejandra Diaz**, “Regulation of cyclin dependent kinase inhibitors by PTHrP in breast cancer”, Vanderbilt Center for Bone Biology, Vanderbilt University Medical Center; Mentor – Rachelle Johnson & Courtney Edwards

Oral Internship Session C – Room 355

Moderator – **Linda Wray**

Speakers indicated by bold typeface

- 2:40 PM** **Obinna Ilochonwu**, “Barriers to holistic nursing care within the ICU and some proposed remedies”, University of Pittsburgh Medical Center, Pittsburgh, PA; Mentor – Samuel Clinger
- 3:00 PM** **Jocelyn de la Cruz Martinez**, “What is Gabapentin and What Is It Being Used For?”, Cardinal Hill Hospital, Lexington, KY
- 3:20 PM** **Isaac Humarang**, “Encouraging the use of non-pharmacological interventions in managing pain of patients”, Cardinal Hill Rehabilitation Hospital, Lexington, KY
- 3:40 PM** **Alysa Weaver**, “Bed Alarms Compliance at MedStar Georgetown Hospital”, Georgetown Hospital, Georgetown, KY
- 4:00 PM** **Grayson Collier**, “Animal Care Internship at Creation Kingdom Zoo”, Creation Kingdom Zoo, Gate City, VA; Mentor – Marc Bradley
- 4:20 PM** **Bryan Antonio Gonzalez Ortiz**, “Envision Cayce”, Vanderbilt University Medical Center, Nashville, TN; Mentor – Kimberly Vinson, Kevin Griffith, and Carrie Fry
- 4:40 PM** **James Johnson**, “Medicine for The Greater Good HHT”, Johns Hopkins, Baltimore, Maryland; Mentors – Panagis Galiatsatos

Oral Internship Session D – Room 306

Moderator – **Jay Baltisberger (2-4 PM) & Rashmi Shrestha (4-5 PM)**

Speakers indicated by bold typeface

- 2:20 PM** **Quinn Cummins-Lune**, “Agriculture and Forest Management”, Berea College; Mentor – Clint Patterson
- 2:40 PM** **Ozemeyi Egure**, “Cardinal Hill Rehab Internship”, Cardinal Hill Rehabilitation Center, Lexington, KY; Mentor – Valerie Jones
- 3:00 PM** **Amy Ginter**, “UK Healthcare Presentation”, University of Kentucky Healthcare, Lexington, KY
- 3:20 PM** **Melissa Vega Alvarado**, “Effective Chronic Pain Management”, Cardinal Hill Rehabilitation Center, Lexington, KY
- 3:40 PM** **Darius Morton**, “John Deere Internship Presentation”, John Deere, Waterloo IA
- 4:00 PM** **Siarra Minton**, “The Intersection of HIV and the Opioid Epidemic”, Cone Health System, Regional Center for Infectious Disease, Greensboro, NC; Mentor – Jeffrey Hatcher
- 4:20 PM** **Stephanie Itumba**, “Mental Health Initiative in Faith Based Organizations: Completing an Internship with Medicine for the Greater Good”, Johns Hopkins School of Medicine; Mentor – Panagis Galiatsatos
- 4:40 PM** **Bianca Saucedo**, “Physical Therapy Internship”, Frazier Rehabilitation Institute, Louisville, KY; Mentor – Ricky Seither

Oral Internship Session E – Room 455

Moderator – Martin Veillette

Speakers indicated by bold typeface

- 2:40 PM** **Abby Camp**, “Cardinal Hill Healthcare Presentation”, Cardinal Hill, Lexington KY
- 3:00 PM** **Diana Hernandez**, “Language Barriers in Health Care”, Mentor – Rachel Waller
- 3:20 PM** **Ruth Ikpe**, “Smoking Cessation and Community engagement through Medicine for the Greater Good”, Johns Hopkins University, Baltimore, MD; Mentor – Panagis Galiatsatos
- 3:40 PM** **Darya Likhacheva**, “Social Buffering Within Sibling Relationships”, University of Denver, Denver, CO; Mentor – Jenalee R. Doom & Deborah Seok
- 4:00 PM** **CJ Verbeeck**, “St. Elizabeth Internship”, St. Elizabeth, Edgewood, KY; Mentor – Erin Pittman
- 4:20 PM** **Cyan Marie Almodovar**, Zoo Knoxville, Knoxville, TN
- 4:40 PM** **Catherine Harris**, “Therapy South: 2021 Summer Physical Therapy Internship”, Therapy South Lakeview, Birmingham, AL

Poster Session – MAC Atrium

Odd-numbered posters will present from 3:00 to 4:00 PM,

Even-numbered posters from 4:00 PM to 5:00 PM

- Poster 1** Victor Faluyi, “Climate Impact of High-Tunnel Cucumbers: A Life Cycle Assessment on the Berea College Farm”, Berea College Farm; Mentor – Sean Clark
- Poster 2** Hallie Whitehead, “The environmental impact of high-tunnel tomatoes, *Solanum lycopersicum* L. (*Solanaceae*): A Life Cycle Assessment (LCA) of tomato production on the Berea College Farm”, Berea College Farm; Mentor – Sean Clark
- Poster 3** Zen Dean & Mack Winspore, “Effects of Feeding Haylage on the Reproductive Performance of 2-Year-old Beef Cattle Raised in a Sustainable Production System at Berea College Farm”, Berea College; Mentor – Quinn Baptiste
- Poster 4** Ana Thompson, “Generating Molecular Tools for Dissecting DNA Mismatch Repair Sub pathways”, University of Kentucky; Mentor – Eva Goellner (PI), Kathy O'Connor (Program Director), & Erin Oakley (Program Director)
- Poster 5** Gustavo Mendez Luna, “Vision: An Optometry Internship”, King's Eye Care, Berea, KY; Mentor – Shelly Webb
- Poster 6** Hayle Mack & Jennifer Sales, “Experiential Learning in a Regeneration Biology Laboratory Working with Recovered from African Spiny mice (*Acomy*) and Axolotls”, University of Kentucky; Mentor – Ebenezer Aryee, Joshua Sarli, Robyn Allen, Andre Prins, Katarina Medger, Sandeep Saxena, & Ashley Seifert
- Poster 7** Jatea Saunders, “Experimental Tests of Food Supplementation Approaches in Biological Pest Control”, Clarkson University, Potsdam, NY; Mentor – Susan Bailey
- Poster 8** Osman Bin Aamir Abu Nasr & Gage Cousineau, “Three Years of the Economic Impact of the Pinnacles”, Berea College; Mentor – Louisa Summers
- Poster 9** Chipo Kambarami, “Extended Echo-Train and Other Pulse Sequences in Solid-State NMR Spectroscopy”, Berea College; Mentor – Jay Baltisberger

- Poster 10** Blake O Day, Ke'Shay M. Sampson, Evelyn E. Schroeder, & Aimee L. Ninahaza, "Naphthalenemonoimide based fluorescent chemosensors for detection of Copper (II) ion", Berea College; Mentor – Erendra Manandhar
- Poster 11** Kingsley O. Basoah, Lauren R. Braswell, & Marlene A. Michel, "Understanding the role of periplasmic loop residues of *E. coli* ATP synthase", Berea College; Mentor – Rashmi Shrestha
- Poster 12** Brandon Atu, Gabriella Cime, Benjamin Maynard, & Timothy O'Doherty, "Travelling Artists of the Global South: Using Digital Humanities to Visualize Patterns of Movement and Connectivity", Berea College; Mentor – Eileen McKiernan Gonzalez
- Poster 13** Jimmy Rajeh, "Recognition of emotions in a newly created diverse database of facial and vocal emotions", Berea College; Mentor – Alison Heck
- Poster 14** Joshua Ames, "Oxygen Fugacity of Peridotites from the Vema Fracture Zone", Berea College; Mentor – Suzanne Birner
- Poster 15** Dalton Harris & Immanuel Darling, "A Comparison of the Electromyographic properties of the Hex bar Deadlift and the Conventional Deadlift", Berea College; Mentor – AJ Mortara & Kyle Leyshon
- Poster 16** Immanuel Darling & Dalton Harris, "Comparison of Force, Velocity, and Power across Straight Bar, Hex Bar, and Inverted Hex Bar Deadlift Variations", Berea College; Mentor – AJ Mortara & Kyle Leyshon
- Poster 17** Maribel Vergara & Zoe Moore, "Examining psychological factors with academic performance among undergraduate students at a liberal arts college in Appalachia in phasing out of COVID-19", Berea College; Mentor – Ram Lakhan
- Poster 18** Cletus Bijalam Mbalida, "Modeling Amino Acid Stereoselectivity by Use of A Type-1 Polyketide Synthase Ketoreductase", University of Tennessee, Knoxville; Mentor – Constance Bailey
- Poster 19** Brady Bateman, "Area-Selective Growth of Metal Oxides on Graphene Flakes", University of Missouri, Columbia, MO; Mentor – Matthias Young & Matthew Maschmann
- Poster 20** Adrienne Beggs, "Future of Heat Waves in Seattle, Washington Based on the Weather Research Forecast Model", University of Washington Bothell, Bothell, Washington; Mentor – Eric Salathé
- Poster 21** Leopoldo Tapia-Aracayo, "Antibody-Based Tumor Cell Capture", ECM Biosciences, Versailles KY; Mentor – Mark Wilson
- Poster 22** Emily Dillingham, "Final State of Neutron Star-Mirror Neutron Star Mergers", University of Illinois at Urbana-Champaign; Mentor – Jacquelyn Noronha-Hostler
- Poster 23** Victor Peñaloza, "Southern Grassroots Immigrant Justice Organizing in Times of Crisis", Berea College; Mentor – Gwendolyn Ferreti
- Poster 24** Joana Medina Vega, "Emotion perception and expression based on biological sex: Validation data from the Berea Emotional Faces and Voice Database", Berea College; Mentor – Alison Heck
- Poster 25** Kate Lovins, "Evaluating the dimensional model of affect in a newly created diverse, dynamic emotion database", Berea College; Mentor – Alison Heck
- Poster 26** Hannah Jackson, "Determining tumor growth kinetics of human ovarian cancer cell line OV81.2-luc in Sprague-Dawley Rag2 null Il2rg null SRG™ rat (OncoRat®) with

bioluminescence imaging”, University of Kentucky, Lexington, KY; Mentor – Diane Begemann

Poster 27 Jacob Bledsoe, Hunter Bellamy, Maddie Hoffman, & Cameron Stites-Stevens, “Exploring Home: Spicy Baxter & Family”, Berea College; Mentor – Broughton Anderson

Plenary Talk Planetarium (MAC 402) at 5:15 PM

Dr. Jessica Price Sutton – “Water: A Renewable and Non-Renewable Resource”

Assistant Professor of Environmental Science
Berry College, GA

Jessica Price Sutton was a 2009 Berea College graduate with a major in field biology. She then pursued her master’s degree at Yale in New Haven, CT in Environmental Science and then earned her doctorate at the University of South Carolina in Geological Sciences. With this diverse background, she started teaching at Berry College in the Environmental Science program in 2017. Jessica Sutton (she/her) is an Assistant Professor of Environmental Science and Studies at Berry College. She teaches an assortment of courses in environmental science including Methods, Case Studies, and Advanced Methods. Jessica also spends time mentoring her undergraduate students through her research. She is currently focused on utilizing remotely sensed precipitation datasets to better understand precipitation during typhoons in the northwestern pacific. Jessica currently is a Community Science Fellow with the AGU Thriving Earth Exchange. She is happily married with a five-year-old daughter and a 19-month-old son. At home, she loves playing with her kids and enjoying their chickens, ducks, bunnies, dogs, and cats.

