

*14<sup>th</sup> Annual*



STUDENT  
SCHOLARS  
SYMPOSIUM

April 16-17, 2025



## From the Provost of Lipscomb University

Dear Student Scholars,

Welcome to the 14th Annual Student Scholars Symposium at Lipscomb University! It is a true joy to celebrate this milestone with each of you—a gathering that honors the curiosity, creativity, and commitment you bring to your academic journey.

This symposium is a reflection of who we are as a learning community—deeply invested in discovery, dialogue, and the meaningful pursuit of knowledge. As student scholars, your work matters. You are asking questions that shape our future, exploring ideas that challenge and inspire, and stepping boldly into conversations that make our university—and our world—better.

The courage it takes to share your research, to present your process, and to invite feedback is no small thing. It's the mark of a true scholar. I hope you will see today not just as a moment to showcase your achievements, but as an opportunity to listen, to grow, and to encourage others in their work as well.

I'm grateful to the Student Scholars Symposium Committee for creating this space for academic celebration and connection. A special thank you to Dr. **Josh Owens** and Dr. **Jan Harris** for their thoughtful leadership and tireless work in guiding this event, and to **Andrea Davis** and **Kristen Thompson** for their work with the Student Scholar Symposium program.

To each of you presenting today: I am so proud of what you've accomplished. May this experience be a meaningful step in your journey—not just as a student, but as a scholar, a creator, and a contributor to the common good.

With admiration,



Lipscomb University Provost  
*Dr. Jennifer Shewmaker*

**Opening Session:** *Doris Swang Chapel, Ezell 241*

**Chair:** *Dr. Josh Owens, Assistant Professor of Biology*

- |                   |   |
|-------------------|---|
| 12:00 - 1:00 p.m. | <b>Registration, Ezell Lobby</b>  |
| 1:00 - 1:05 p.m.  | <b>Welcome</b><br>Dr. Florah Mhlanga, Interim Vice Provost              |
| 1:05 - 1:10 p.m.  | <b>Opening Remarks</b><br>Dr. Jennifer Shewmaker, Provost               |
| 1:10 p.m.         | <b>Opening Prayer</b><br>Dr. Josh Owens, Assistant Professor of Biology |

**1:10 - 2:40 p.m.**

**FOCUS • First-Year Student Presentations**

**FOCUS:** *Doris Swang Chapel, Ezell 241*

**Chair:** *Dr. Josh Owens, Assistant Professor of Biology*

- |           |   |
|-----------|---|
| 1:10 p.m. | <b>From Oral Traditions to Digital Screens: The Evolution of Folklore in the Modern Age</b><br>Echo Padgett and Bethy Butler, English |
| 1:25 p.m. | <b>“In a relationship”: Can AI take the place of a human relationship?</b><br>Hannah Smith and Alan Bradshaw, Honors College          |
| 1:40 p.m. | <b>The Impact of p53 in Cervical Cancer</b><br>Isabella English, Elijah Chism, and Josh Owens, Biology                                |
| 1:55 p.m. | <b>Ramifications of HER2 Amplification in Breast Cancer</b><br>Emerald Cole, Zoe Grace Brigance, and Josh Owens, Biology              |
| 2:10 p.m. | <b>Myocardial PI3K-AKT Pathway and Cardiovascular Disease Etiology</b><br>Bryson Lovorn, Brennan Kaplan, and Josh Owens, Biology      |
| 2:25 p.m. | <b>BCL-2 Regulation in Alzheimer’s Disease</b><br>Whitley Whitehead, Joseph Marek, Parker Shirley, and Josh Owens, Biology            |

**2:45 - 3:45 p.m.**  
**Creative Writing Performances**

**Performances I: Poetry,** *Doris Swang Chapel, Ezell 241*

**Chair:** *Dr. Jan Harris, Professor of English and Modern Languages*

- 2:45 p.m.      **Presenting**  
Camille Floyd and Jan Harris, English and Modern Languages
- 2:55 p.m.      **Hollywood Honey**  
Faith Adams and Jan Harris, English and Modern Languages
- 3:05 p.m.      **Change Over Time**  
Seth Wright and Jan Harris, English and Modern Languages
- 3:15 p.m.      **The Star Compass**  
Megan Gables and Jan Harris, English and Modern Languages
- 3:25 p.m.      **when it calls you**  
Layla Al Sadoon and Jan Harris, English and Modern Languages
- 3:35 p.m.      **Embers of Hesitation**  
Alexandro Salas Rosales and Jan Harris, English and  
Modern Languages

**4:00 - 6:00 p.m.**  
**Musical and Theatrical Performances**

**Performances II: Musical & Theatrical,** *Collins Alumni Auditorium*

**Chair:** *Dr. Jennifer Snodgrass, Professor of Music Theory and Director, School of Music*

*Anthony Cirone*

Caden Brasser, Taylor Reed, Ethan Marshall, Gordie Molin

*Beatrice and Benedick from Much Ado about Nothing*

Claire Pals and Nathan Mann

***Will There Really Be A Morning* by Richard Hundley**

Naomi Hollans

***Der Hölle Rache* from *The Magic Flute* by Mozart**

Angelli Antonio

***Talking to a Mirror* by Lilli Grace Barden**

Lilli Grace Barden

***“The Great STAR Caper”* An animated short film by Riley Housden, Abbi Pokone, and Jordan Roberts**

Riley Housden, Jordan Roberts and Abbi Pokone

***Ballers* by the Lipscomb Jazz Combo**

Titus Thomas (Piano), Gordie Molin (Drums), Isaac Biver (Guitar), Aidan Spiva (Bass), and Jamin Stolze (Tenor Saxophone)

***Whatever Happened To My Part* by John Du Prez and Eric Idle**

Allie Andres (with Matthew Oden, Accompanist)

***Slippery Wet Things* by Guthrie Govan**

Ethan Marshall and Braxton Algood

***Antigone in Munich* Scene Performance**

Sofia Hernandez, Emma Ramsey and Rachel Penner

***“bloom”* by Cassidy Decker**

Cassidy Decker, Allister Griffin and Caleb Galbraith

***Improvisation No. 15* by Francis Poulenc**

Elena Perigo

***Violin Sonata No. 1 in G minor, BWV 1001: I. Adagio* by J.S. Bach**

Camille Schmitz

***“in between”* by Kate Schiavi**

Kate Schiavi

***Love on Top* by Beyoncé and *Evergreen* by Yebba**

Emma Moore, Spencer Lund, Ethan Marshall, Braxton Algood, Josh Kato, Alexa Margolius, Roni Bates, Abbi Bowen, Kate Wyse and Grace Jester

***Etude de Concert, Op.35: No.1, Automne* by Cecile Chaminade and *September, Das Jahr*, by Fanny Mendelssohn-Hensel**

Ana Manning

**Thursday, April 17 • 8:30 – 10:00 a.m.**  
**Undergraduate Students Oral Presentations**

**Oral Presentation I: Ward Hall**

**Chair:** *Dr. Bonny Millimaki, Professor of Biology*

- 8:30 a.m.      **Indole Treatment of *C. elegans* Rescues *Cronobacter sakazakii* Induced Illness**  
Joshua Asselin and Kyle Brawner, Biology
- 8:45 a.m.      **Early Intervention in Helminth Infections: Investigating Albendazole's Effects on *C. elegans* Egg Hatch Rate and Health**  
Giselle Domingo Diaz and Brian Ellis, Biology
- 9:00 a.m.      **Investigating the Potential Ability of the TLR4-NF- $\kappa$ B Axis to Reduce Aryl Hydrocarbon Receptor Expression in Intestinal Epithelial Cells**  
Gabriella Longoria and Kyle Brawner, Biology
- 9:15 a.m.      **Exploring the Functional Role of Neprilysin in PI3K/AKT1 Signaling in Triple-Negative Breast Cancer**  
Ariadna Daniela Menjivar and Beth Conway, Biology
- 9:30 a.m.      **Impact of ZAR1L Expression on Drug Response in Breast Cancer Cells**  
Maryam M. Gerges and Smita Misra, Ward Research Fellowship
- 9:45 a.m.      **Investigating Carnitine-Dependent Mechanisms of Valerobetaine in Breast Cancer Migration**  
Audrey Birdwell and Josh Owens, Biology

**Oral Presentation II: Ezell 147**

**Chair:** *Dr. Brandi Kellett, Associate Professor and Chair of English and Modern Languages*

- 8:45 a.m.      **The “No Best World” Argument: A Strong Or Weak Objection to the Possibility of Perfect Goodness**  
Hudson Tucker and Caleb Clanton, History, Politics and Philosophy
- 9:00 a.m.      **Harmony of the Swine: An Analysis of Circe in Homer's *The Odyssey***  
Layla Al Sadoon and Willie Steele, English and Modern Languages

9:15 a.m.      **Discussion of the Collatz Conjecture**  
Morgan Hayes and Gary Hall, Mathematics

**Oral Presentation III: *Doris Swang Chapel, Ezell 241***

**Chair:** *Lily Corley, Assistant Director, Career Development Center*

8:45 a.m.      **Swan Lake: Tchaikovsky's Lasting Influence in Ballet**  
Keely Hudspeth and Donna King, Music

9:00 a.m.      **Little Women Dramaturgical Research Packet**  
Elanah Bruce and Beki Baker, Theatre

9:15 a.m.      **From Concept to Stage: The Creation of Costumes for Cats**  
Joylin Lescalleet and Beki Baker, Theatre

9:30 a.m.      **Archival Fashion: Commodification, Education, and the History of Halston**  
Arianna Miller, Kayna Bowman and Charlotte Poling, Fashion and Design

**Oral Presentation IV: *Ezell 301***

**Chair:** *Dr. Kyle Brawner, Assistant Professor of Biology*

8:30 a.m.      **Making Robotic Reinforcement Learning More Efficient: Analyzing the SERL Framework**  
Faris Jugovic, Cleiver Ruiz-Martinez, Ryan VanderStelt and Juan Rojas, Electrical and Computer Engineering

8:45 a.m.      **Analysis of Solutions to Research Methods: Navigating the Infinite Content of Mathematics**  
Jesus Navarro and Gary Hall, Mathematics

9:00 a.m.      **Elucidating the Mechanism of Nepriylisin-Regulated Triple-Negative Breast Cancer Invasion**  
Kai Lam, Ellie Griner and Beth Conway, Biology

9:15 a.m.      **Integrating Multimodal Analysis for Chemical Detection in Victorian Bookcloth: Correlations, Advantages, and Limitations**  
Leila Ais, Abigail Hoermann, Jafer Aljorani and Joseph Weinstein-Webb, Chemistry

9:30 a.m.      **Structural basis of a class II ribonucleotide reductase found in *Mycobacterium tuberculosis***  
Leah Jacob and Jamaine Davis, Ward Research Fellowship

9:45 a.m.      **Fermented Foul Play: A Real-World Forensic Scenario to Enhance Student Engagement and Understanding of Instrumentation and Analytical Data Analysis**  
Abigail Hoermann, Laci Joy Walmer, Matthew J. Goss and  
Matthew Vergne, Pharmaceutical Science

**Performances III: Poetry, Beaman Library, East Wing**

**Chair:** *Dr. Jan Harris, Professor of English and Modern Languages*

8:30 a.m.      **like a sweet beast**  
Luke Holloway and Jan Harris, English and Modern Languages

8:40 a.m.      **Message in a Bottle**  
Ellie Harwood and Jan Harris, English and Modern Languages

9:00 a.m.      **Divinely Woven**  
Lily Robinette, Morghan Morris and John Smith,  
Chemistry and Biochemistry

9:10 a.m.      **Things That Just Happen**  
Naomi Hollans and Jan Harris, English and Modern Languages

9:20 a.m.      **Every Drop and Every Breath**  
Isabella Gautsche and Jill Kirby, Biology

9:30 a.m.      **Pain Is A Gift**  
Hannah Fritsch and Jan Harris, English and Modern Languages

9:40 a.m.      **Why the Dancer Laughs**  
Anna Summerville and Jan Harris, English and Modern Languages



**10:00 - 10:55 a.m. • Allen Arena**  
**Undergraduate Students Poster Presentations**

**Chair:** *Dr. Brandon Banes, Associate Professor of Mathematics*

**Group I**

**Chair:** *Dr. Autumn Marshall, Professor and Chair of Nutrition*

1. **How OT is Improving Aspects of Daily Living In Children with ASD: An Integrated Review**  
Elizabeth Mearse, Reagan McGee, Elshaday Solomon, Zoe Curtis, Lareissa Brooks and Jennifer Hicks, Nursing
2. **The Treatment of Polycystic Ovary Syndrome (PCOS) Using Synthetic Hormone Therapy Versus Holistic Approaches: An integrative review**  
Sarah Mullin, Olivia Matis, Olivia Fair, Emma Joy Dolan and Jennifer Hicks, Nursing
3. **Emergence delirium in post-op pediatric patients with pharmacological and non-pharmacological care: An integrative review**  
Ava Yune, Chloe Renaldi, Morgan Taylor, Jennarose Rangel, Alysa Penicaro and Jennifer Hicks, Nursing
4. **Neonatal immune system development and infection susceptibility within the first 6 months after vaginal versus cesarean section delivery: An integrative review**  
Lauren Ford, Jordan Lanham, Itzel Romo, Kelsey Olson, Leydi Ortiz-Barcenas and Jennifer Hicks, Nursing
5. **Mitral valve surgery outcomes, post-robotic assisted surgery, compared to traditional surgical procedures: An integrative review**  
Joshua Laborete, Jenna Grace Young, Hannah Fitzgerald, Dylan Crowder, Madelyn Lam, Presely Radar and Jennifer Hicks, Nursing

**Group II**

**Chair:** *Dr. Brian Ellis, Associate Professor of Biology*

6. **Levels of Beta Catenin with Treatment of HD5 in IEC-6 Rat Cells**  
Audrey Birdwell, Josiah Stafford, Obaid Ashari, Emily Powell, Maryam Gerges, Maryam Mina and Amanda Williams, Biology

7. **Investigating the Effects of HD5 on IEC-6 Small Intestinal Epithelial Cells on Wound Healing and E-Cadherin Expression**  
Brady Dunn, Braxton S. Ivie, Ben J. Bolz, Cayden Durrough and Amanda Williams, Biology
8. **Elucidating the Effects of HD5 on ACTC1 Expression in Crohn's Disease**  
Carolyn Tran, Sohir Abdelnour, Joyce Lawson, Ellis Puscas and Amanda Williams, Biology
9. **Elucidating the Role of HD5 in Colonic Wound Healing**  
Lavin Radiro and Amanda Williams, Biology
10. **The Effect of HD5 on Colonic Wound Healing**  
Kaitlyn Sneed and Amanda Williams, Biology
11. **Understanding the role of HD5 in Colonic Epithelial Cell Death**  
Maryam M. Gerges and Amanda Williams, Biology

### **Group III**

**Chair:** *Prof. Monica Sartain, Assistant Professor of Civil Engineering*

12. **What are the global differences in air quality due to the Covid-19 pandemic?**  
Jude Spencer, Ian McGee, Brandon Solis-Martinez, and Emily Stutzman, Biology
13. **How does vertical hydroponic farming compare to traditional soil farming in terms of crop yield, energy efficiency, and cost?**  
Grace Morgan, Grace Henry, Rebecca Meenach, Jeana Odom and Emily Stutzman, Biology
14. **How do more diverse plantings lead to more Carbon accrual in soil?**  
Haley Rose Wills, Kaylee Grace Duncan, Alexander Constantin Mazareanu and Emily Stutzman, Biology
15. **To what extent do urban planning practices impact climate change in Latin America?**  
Oliver Orellana, Mitchell Roberts, and Emily Stutzman, Biology
16. **Questioning the effectiveness of environmental policy implementation related to ocean pollution.**  
Lydia Knobloch and Scott Bledsoe, Law, Justice and Society

## Group IV

**Chair:** *Dr. Sarah Collier, Assistant Professor of Pharmaceutical Science*

17.  **$\delta$ -valerobetaine as a Novel Inhibitor of Breast Cancer Cell Migration: Hinders Cellular Migration of MCF-7 Cells Through Reducing ATP Concentrations and FAK Activation**  
Braxton Ivie, Lincoln Brown, Bryson Lovorn and Josh Owens, Biology
18. **The Effects of Emodepside on L1 *C. elegans***  
Mehrael Louza, Ismail Mustafa, Judiah Ward, Marina Khalif and Brian Ellis, Biology
19. **Indole improves outcomes of *Cronobacter sakazakii* infection in *C. elegans* through *ahr-1***  
Cayden Durrough and Kyle Brawner, Biology
20. **Effects of Valerobetaine in Fatty-Acid Induced Breast Cancer Cell Proliferation**  
Carolyn Tran, Maryam Mina, Diyar Fadhil, and Josh Owens, Biology
21. **Investigating the Effects of Albendazole on the Hatch Rate and Motility of *C. elegans* Eggs**  
Jennifer Domingo Diaz, Emma Duerson and Brian Ellis, Biology
22. **Investigating the Role and Mechanism of *Faecalibacterium prausnitzii* in Fatty Acid Metabolism and Obesity**  
Jackson Head, Whitley Whitehead and Josh Owens, Biology

## Group V

**Chair:** *Dr. Jordan Wilson, Assistant Professor of Civil Engineering*

23. **Nashville Bus System Efficiency**  
Koryn Harms and Monica Sartain, Civil Engineering
24. **Gaylord Opryland Congestion Reduction**  
Kennedy Case and Monica Sartain, Civil Engineering
25. **Smart Traffic Lights**  
Roa Ghanem and Monica Sartain, Civil Engineering
26. **Xibalbay, Guatemala Water Distribution System Design**  
Nolen Ritzel, Lauren Baker, Robert Trey Owen, Jessamine Reckard, Joelle Noble, Sara Berry-Brown and Kevin Colvett, Civil Engineering
27. **LEED Certified Building Remodel and Addition**  
Ruth Fesschaye, Elizabeth Fulton, Roa Ghanem, Samuel C. Gilbert, Juan Henriquez-Hernandez, Jackson Stephens and Monica Sartain, Civil Engineering

## **Group VI**

**Chair:** *Dr. Brandon Banes, Associate Professor of Mathematics*

### **28. Lipscomb University Parking Garage Analysis**

Morgan Hayes, Reagan Maxwell, Daniel Diaz Tortolero, Dominick Dingus, Michael Ent, and Gary Hall, Mathematics

### **29. Mathematical Developments in American Spacecraft Technology**

Tylah Grace Lynn, Lauren Reece Terry, and Gary Hall, Mathematics

### **30. Complex Numbers and Phone Signals**

Ava Barrett, Rebecca Brazeal, Javier Gutierrez and Gary Hall, Mathematics

### **31. Using Feynman's Technique to Evaluate Non-elementary Integrals Used in Physics**

Dominick Dingus, Christopher Wengert, Madouna Barsoum and Randy Bybee, Physics

## **Group VII**

**Chair:** *Dr. Joseph Weinstein-Webb, Assistant Professor of Chemistry and Biochemistry*

### **32. AI in Construction**

Samuel Gilbert and Todd Lynn, Civil Engineering

### **33. Long term financial analysis for Opry mills hotel and resort**

Eli Lockert and Monica Sartain, Civil Engineering

### **34. Evaluation of Financial Toxicity Among Inherited Cancer Gene Carriers**

Morgan Anthony and Josh Owens, Biology

### **35. How to Trade Memecoins**

Antoine Testaud de Marchain and Han Sheng Chen, Accounting, Finance and Economics

## **Group VIII**

**Chair:** *Dr. Stephen Opoku-Duah, Langford Professor of Chemistry and Biochemistry*

### **36. Have you had your vitamins today? Development of an LC-MS/MS method with 100% aqueous gradient to simultaneously measure B vitamins in plasma from study participants in a "greens" nutritional supplement clinical trial.**

Kennedy Brothers, Abigail Davis, Anna Losher, Yusra Ahmed, Sora Ghanem, and Matthew Vergne, Pharmaceutical Science

37. **Heavy Metal Thunder: Nashville's Lakes and Streams Bring the Noise**  
Deron Young, Leila Ais, Leah Jacob and Matthew Vergne, Pharmaceutical Science
38. **6PPD-Quinone in Middle Tennessee Waters: Assessing Ecological Impact**  
Andrew Davis Todd, Raphael Marquise Chandler, Kerolos Gerges Basalos, Denise Lori Loewinger and Matthew Vergne, Pharmaceutical Science
39. **Unmasking Metals: ICP-OES Detection of Toxins in Costume Jewelry**  
Bailee Kirk, Sierra Beck, Jesse Lampley and Matthew Vergne, Pharmaceutical Science
40. **Spilling the Tea: Effects of UV Disinfection on Bioactive Compounds in South African Rooibos Tea**  
Sora Ghanem, Leah Ankiah, Yusra Ahmed and Matthew Vergne, Pharmaceutical Science
41. **The Fast and the Nutritious: Rapid LC-MS/MS Analysis of Vitamin B Complex Pharmacokinetics**  
Anna Loshier, Abigail Davis, Yusra Ahmed, Sora Ghanem, Laurel Littlefield, Kinesiology and Matthew Vergne, Pharmaceutical Science

## **Group IX**

**Chair:** *Dr. Josh Owens, Assistant Professor of Biology*

42. **Investigating the Efficacy of Mebendazole on *C. elegans*: Implications for Anthelmintic Drug Development**  
Brooke Brewer, Saja Al-saweily and Brian Ellis, Biology
43. **Expression and Characterization of C-Terminus 6-His-Tagged PapG Adhesin in *Escherichia coli*: A Molecular Approach to Biofilm Disruption**  
Andrew Davis Todd, Laci Joy Walmer, Deron Young and Brian Cavitt, Chemistry and Biochemistry
44. **The Loss of Meg3 Causes Abnormal Alveolar Epithelial Progenitor Cell Differentiation**  
Arlo Colvard, Gianluca DiGiovanni, Isabella Gaona, Sergey S. Gutor, Ujjal Singha, Taylor P. Sherrill, David S. Nichols, Yunli Zhou, Jonathan A. Kropski and Jason J. Gokey, Ward Research Fellowship
45. **Isolation and Scale-Up of FimH**  
Audrey Cox, Kerolos Ghobrial, Caroline King and Brian Cavitt, Chemistry and Biochemistry

## **Group X**

**Chair:** *Dr. Megan Parker Peters, Associate Dean, College of Education*

46. **Sisterhood: Fostering solidarity, well-being, and advocacy for women**  
Mallory Syvertson, Ann Sowell, Y'Alexia Robinson, Monroe McCoury and Lois Jones, Communication
47. **Sincerely Yours: A Therapeutic Writing Approach to Grief**  
Raegyn Oliver (in absentia) and Jaclyn Spivey, Psychology
48. **Exploring the Effects of Indoor Plants on Executive Function**  
Jose Romero and A. J. Heritage, Psychology
49. **The Decline of Public Trust in the Federal Government: Causes, Consequences & Restoration**  
Shythaly Herrera and Susan Haynes, History, Politics and Philosophy
50. **Challenges and Opportunities in Adult Group Piano Pedagogy**  
Sarah Faulk, Jenny Snodgrass and Donna King, Music
51. **The Influences of Giovanni Gabrieli of the Music of Heinrich Schütz**  
Caleb Taylor and Donna King, Music

## **Group XI**

**Chair:** *Dr. Lonnie Cochran, Assistant Professor of Education*

52. **Theological Perspectives on Faith and Science: Insights from Protestant Ministers in the Southeastern U.S.**  
Joyce Lawson, Emmalyn Browns and Josh Owens, Biology
53. **Prosperity Gospel Orientation Interacts with Life Stress to Impact Religious Doubt and Psychological Well-being**  
Ellie Stork, Grace Henry, Haley Rose Wills, Joanna Jernigan, Peyton Smith, Josephine Magar, Rachel Russell and Jonathan Miller, Psychology
54. **Predicting Religious Doubt and Psychological Well-being Using Religious Orientation, Religious Coping, Prosperity Gospel Orientation, and Life Stress**  
Haley Wills, Joanna Jernigan, Ellie Stork, Grace Henry, Josephine Magar, Rachel Russel, Peyton Smith and Jonathan Miller, Psychology

**11:00 a.m. – 12:20 p.m. • Shinn Center**  
**Lunch and Keynote**

**Chair:** *Dr. Florah Mhlanga, Interim Vice Provost*

11:00 a.m.      **Lunch**

**Prayer:** **Dr. Jan Harris, Professor of English and  
Modern Languages**

11:30 a.m.      **Keynote Presentation: Think Big!: Creativity & Human  
Centered Research**

*Dr. Nicole Molumby, Graduate Program Director for Interdisciplinary  
Studies and Professor of Flute, Boise State University*

Dr. Nicole Molumby is the Graduate Program Director for Interdisciplinary Studies and Professor of Flute at Boise State University. She is a respected leader in the music community, holding prominent roles in the National Flute Association and the College Music Society, where she has spearheaded strategic planning initiatives and facilitated creative sessions for redesigning 21st-century music curricula. She currently serves as the 2025 College Music Society Conference Program Chair in Spokane, Washington, and is a 2025 National Association of Music Merchants Faculty Fellow.



At Boise State University, Dr. Molumby collaborates with the Division of Research and Economic Development on “Think Big!,” an innovative program that equips graduate students and faculty with skills to co-design human-centered research. Through this initiative, she fosters cross-disciplinary collaborations, enabling researchers to apply evidence-based, user-focused methodologies to tackle contemporary grand challenges.

**12:30 – 1:30 p.m. • Allen Arena**  
**Undergraduate Students Poster Presentations**

**Chair:** *Dr. Brandon Banes, Associate Professor of Mathematics*

**Group XII**

**Chair:** *Prof. Tamera Klingbyll, Assistant Professor of Biology*

55. **Sugar Sweetened Beverages and Dental Caries Prevalence in Children: An Integrative Review**  
Caroline Carr, Hailey Servin, Jada DaVita, Addie Clementz, Bekah Doolittle, and Jennifer Hicks, Nursing
56. **Association Between the Diet of Adolescents in America and the Prevalence of Depression Found Within This Population**  
Mary Hoffman, Belinda Asamoah, Fadeyemi Okewusi and Jennifer Hicks, Nursing
57. **Effect of Sugar Alternatives in Dairy Free Coconut Milk Based Ice Cream on Sensory Characteristics and Acceptability**  
Maggie Hegg, Remi Petty, Jay Edwards, and Autumn Marshall, Nutrition
58. **Effects of Plant Based Egg Replacers on Flavor and Sensory Characteristics of Banana Bread**  
Daniela Mason, Sarah Harris, Anniston Drummonds, and Autumn Marshall, Nutrition
59. **The Effects of Added Xanthan Gum on the Acceptability of Gluten-Free Shortcake**  
Samuel Garrett, Seth Beach, Maiya Zepeda, and Autumn Marshall, Nutrition
60. **Effect of nutritional guidance and intervention on maternal and fetal health outcomes**  
Kaitlyn Boyer, Meagan Enbody, Mallye Merritt, Ainsley Cash, and Jennifer Hicks, Nursing

**Group XIII**

**Chair:** *Dr. Autumn Marshall, Professor and Chair of Nutrition*

61. **The Effects of Probiotics and the Low-FODMAP Diet on Symptoms of Irritable Bowel Syndrome**  
Charlotte Renfrow, Carsyn Wharton, Jordan Overstreet, Jordyn Munch and Jennifer Hicks, Nursing



62. **3D Modeling of Brain Removal with Cranial Nerve Preservation**  
Lauren Blank, Sophi Cox, Jill Kirby, Mike Meredith, Charles Long and  
Cynthia Wingert, Biology
63. **Neurofeedback: An Emerging Contender in the Treatment of Mental and Behavioral Disorders**  
Makayla Fisher and Jill Kirby, Biology
64. **Dietary Supplementation in Lambs: Evaluating the Effects of Depth Charge on Meat Composition**  
Alianna Koesel, Brian Cavitt and Beth Conway, Biology

## **Group XIV**

**Chair:** *Dr. Kirsten Dodson, Associate Professor and Chair of Mechanical Engineering*

65. **Blast Resistant Structure**  
Juan Henriquez-Hernandez, David Davidson, Civil Engineering
66. **Evaluating the Impact of Precast vs. Cast-in-Place Concrete: A Life Cycle Assessment of a Parking Garage in Nashville**  
Robert Owen and Monica Sartain, Civil Engineering
67. **Traffic Study**  
Kennedy Case, Koryn Harms, Min Kaung, Abel Assefa, Eli Lockert, DJ Church and David Elrod, Engineering
68. **Green roof**  
Elizabeth Fulton and Monica Sartain, Civil Engineering
69. **Wind Tunnel Instrumentation and Testing**  
Nicholas Marek, Abraham Mezera, Laura Jin, Hayden Smith, Curtis Cook and David Collao, Mechanical Engineering

## **Group XV**

**Chair:** *Dr. David Collao, Assistant Professor of Mechanical Engineering*

70. **Improving Home Affordability in Greater Nashville Through Construction Efficiency and Innovations**  
Nate McLain, Monica Sartain and Richard Pearce, Engineering
71. **P.L.O.P.S. — An Automatic Latte Art Machine**  
Gracelyn Grant, Aidan Lovelace, Nate McLain, Kris Pesnell, Caleb Pilafas and John Hutton, Electrical and Computer Engineering

- 72. AI Photography-Based Gradation Feasibility Study for Streams and Rivers in Davidson County, TN**  
Nolen Ritzel, Lauren Baker, and Jordan Wilson, Civil Engineering
- 73. Exoskeleton Senior Design Project**  
Joel Isaacson, Josh Brake, Barre Seguin, Lydia Tollerson, Rachel Mayhugh and Richard Pearce, Mechanical Engineering
- 74. Investigating the Impact of Humanitarian Engineering Projects Across Demographic Groups**  
René Marius, Ruth Fessehayee and Kirsten Dodson, Mechanical Engineering

## **Group XVI**

**Chair:** *Dr. Shanna Ray, Executive Associate Dean of College of Liberal Arts and Sciences*

- 75. Tracking in the Fast Lane: Are License Plate Readers an Invasion of Privacy?**  
Lorelai Kline, Madelyn Paul, Catherine Scott, Tessa Mullinix and Sarah Gibson, Communication
- 76. A Teacher, Medical Advisor, and a Comedian Walk into a Bar: Table for one, Everything AI can do**  
Lorelai M. Kline and Sarah Gibson, Communication
- 77. Muted or Moderated: The Fight Over Free Speech**  
Ashlen Jones, Madaha Lewis, Sophia Shear, Lydia Scoper and Sarah Gibson, Communication
- 78. AI on Trial: Facial Recognition in Law Enforcement**  
Mallory Renee Syvertson, Morgan Marie Juillerat, Elijah Wilson Ranck, Hayden Joseph Cassetto and Sarah Gibson, Communication
- 79. A Design of Our Own: Legal ramifications of progressing our own replacements one face at a time**  
Katlin Thorpe and Sarah Gibson, Communication
- 80. Human Moderators behind the AI: Unseen Costs and Hidden Consequences**  
Jacy Stricker and Sarah Gibson, Communication
- 81. Do Sports League Rules Outweigh The First Amendment?**  
Kaina Cesar, Tyler Jorden, Cole Murphy, Stockton Webb, and Sarah Gibson, Communication

## Group XVII

**Chair:** *Dr. Sarah Collier, Assistant Professor of Pharmaceutical Science*

### 82. Quantum Rings Simulations of Cisplatin

Clinton Hutchins, Laci Walmer and Joseph Weinstein-Webb, Chemistry and Biochemistry

### 83. Exploration of Euclidean Distances in Five-Dimensional Color Space as Proof-of-Concept for Identification of Promising Alternatives to Platinum-Based Cancer Drug Candidates

Kiomi Tanakura, Elena G. Harvey, John Smith, and Morghan Morris, Chemistry and Biochemistry

### 84. Unveiling Hidden Hazards: A Complementary Approach to Affordable Non-Destructive Heavy Metal Detection

Mario Faragalla, Gulsin Barwari, Mackenzie Brinkoeter, Eimy Lozano-Fuentes, Isabelle Riera and Joseph Weinstein-Webb, Chemistry and Biochemistry

### 85. Intersecting Physics and Medicine Through Computed Tomography

Christopher Wengert, Madouna Barsoum, Jacqueline Ceballos, Dominick Dingus, Gary Hall and Randy Bybee, Physics

### 86. Assessing the Electrical Efficiency of the Thompson Coil

Christopher Wengert, Dominick Dingus, Michael Ent, Jackson Stephens and Randy Bybee, Physics

## Group XVIII

**Chair:** *Dr. Jon Lowrance, Professor and Chair of Biology*

### 87. Heat Waves and Heart Rates: Exploring the Correlation Between Temperature and Anxiety

Deinise Lori Loewinger, Laci Joy Walmer and Roletha Pillow, Nursing

### 88. The Metabolic Effects of Carbon-Plated Shoes on D1 Runners

Bingham Hudson, Cole Kimmel, James Schmidt, Adam Macleod and Libby McCurley, Kinesiology

### 89. Stretching the Limit: A Comparative Study on the Various Stretching Modes and their Effects on Hip Mobility

James Wheeler, Michelle Wolford, Ashlyn Pollock, Kaitlyn Ellis and Libby McCurley, Kinesiology

### 90. Exploring the Role of *Faecalibacterium prausnitzii* in Modulating Fatty Acid Metabolism and Protection during Steatosis

Morgan Martin, Emerald Cole and Josh Owens, Biology

## **Group XIX**

**Chair:** *Dr. Jennifer Shewmaker, Provost*

91. **Middle Tennessee Rhetoric about Immigration**  
Rachael Ferguson and Kristin Baese, Education
92. **Increasing the Educational Attainment of Youth in Extension of Foster Care Through Positive Youth Development Centered Programming**  
Julia Rossmiller and Erica Vasquez, Social Work
93. **Understanding Urban Homelessness: A Comparative Analysis of NYC, LA, and Seattle**  
Mia Gregory and Susan Haynes, History, Politics and Philosophy
94. **Syllabus Tone and Student Self-Efficacy**  
Natalia Calderon-Hernandez, Alan Avila and Jaclyn Spivey, Psychology

## **12:30 – 1:30 p.m. • Allen Arena**

### **Graduate Students Poster Presentations**

## **Group XX**

**Chair:** *Dr. Josh Owens, Assistant Professor of Biology*

95. **The Correlation of Fat Mass and Hourly Energy Balance in Male and Female Collegiate Basketball Players**  
Lily Rogers, Avery McKinney and Ann Toy, Dietetics
96. **Assessing Malnutrition in a Clinical Setting Using Hand Grip Strength**  
Rachel King, Annie Sternbergh and Tracy Noerper, Dietetics
97. **Using Technology to Boost Grocery Shopping Skills in Students with Intellectual Disabilities**  
Angela Richardson, Kim Pierson, Elise Shewmaker and Tracy Noerper, Dietetics
98. **Comparing Student-Athletes' Macronutrient Intake to Recommendations for Pre-Workout Fuel**  
Amelia Valdez, Macy Holloway, Hannah Settle, and Ann Toy, Nutrition
99. **Investigating the Effects of Body Composition Assessment on Dietary Intake in Division I Football Players**  
Cameron Nill, Nicole DiCicco, and Ann Toy, Nutrition

## **Group XXI**

**Chair:** *Dr. Jill Kirby, Senior Executive Director, Lipscomb Learning Commons, and Associate Professor of Biology*

### **100. Developing NLP-Based Open-Source Tools to Improve Medication Order Interpretation in EHR Systems**

Preslie Breton and Jay Dorris, Pharmacy Practice

### **101. Developing NLP-Based Open-Source Tools to Improve Titratable Infusion Order Interpretation in EHR Systems**

Benjamin Brewer and Jay Dorris, Pharmacy Practice

### **102. The Effects of a Stimulant and Non-Stimulant Pre-workout Supplement on Sprint Performance**

Macie Reagan and Laurel Littlefield, Kinesiology

### **103. Exploring therapeutic frontiers: The BEEP regimen in breast and brain metastases**

Destiny Carroll and Angie Maynard, Pharmacy Practice

### **104. Validating Pharmacogenomics Generative Artificial Intelligence Query Prompts using Retrieval-Augmented Generation (RAG)**

Ashley Rector, Beth Breeden and Jay Dorris, Pharmacy

### **105. Investigation of Aldehyde Oxidase Inhibition by Clopidogrel and its Thiol Metabolite**

Merna Kamal, Hilina Woldeamanuel, and Rachel Crouch, Pharmaceutical Science

### **106. Pharmacokinetic-guided optimization of high dose oral montelukast in children with acute asthma exacerbations**

Dana Dishman, W. Scott Akers, Pharmaceutical Science

## **Group XXII**

**Chair:** *Dr. Laura Morrow, Senior Director, Center for Teaching and Learning*

### **107. Exploring Mental Health and Spirituality**

Eden Lathem, Olivia Blakely, Hunter Stanfield and Allan Heritage, Psychology

### **108. Examining the Influence of Mapped Bloom's Taxonomy Items on the Student Pharmacist Experience**

Annaston Young, and Sarah Collier, Pharmaceutical Science

### **109. Importance of Sustainability within Children's Hospitals**

Ashley Newby and Dodd Galbreath, Sustainable Practice

### **110. The Inverted Golden Rule: The Perpetuation and Cessation of Learned Dysfunctional Behaviors**

Hunter Schlueter and Damian McClintock, Psychology

**1:45 – 5:00 p.m. • Concurrent Sessions**  
**Undergraduate Students Presentations II**

**Oral Presentation V:** *Doris Swang Chapel, Ezell 241*

**Moderator:** *Prof. Beki Baker, Associate Professor and Chair of Theatre*

- 1:45 p.m.      **Antigone in Munich Design/Vision**  
Sofia Hernandez and Beki Baker, Theatre
- 2:15 p.m.      **Visualizing Religion in American Culture: Comics as Tools for Deep Learning in the Lipscomb LIFE Program**  
Kynneddy Gilbert, Sierra Chagnon French, Cindy Valentine, Robbie Spivey and Josh Fleer, Life Program

**Oral Presentation VI:** *Ezell 363*

**Chair:** *Dr. Willie Steele, University Research Professor, Department of English and Modern Languages*

- 1:45 p.m.      **The Impact of Name, Image and Likeness on the Decision Making Process of Student-Athletes**  
Joey Shulam and Scott Bledsoe, Law, Justice and Society
- 2:00 p.m.      **Driving Social Revolutions in 20th Century Latin America**  
Oliver Orellana and Susan Haynes, History, Politics and Philosophy
- 2:15 p.m.      **Understanding the Relationship of Culture and Language with HIV**  
Cora Coletti and Jan Harris, English and Modern Languages
- 2:30 p.m.      **The Penumbra: Religious Entities, Economic Stagnation, & Covid-19**  
Alitrise Soderstrom Theodoriches and Susan Haynes, History, Politics and Philosophy

**Oral Presentation VII:** *Ezell 147*

**Moderator:** *Samira Grayson, Director, Writing Studio, Department of English and Modern Languages*

- 1:45 p.m.      **Etymology and Phallogentrism**  
Renae Redling and Jan Harris, English and Modern Languages
- 2:00 p.m.      **The Creation and Continuation of the Elvish Language**  
Megan Gables and Jan Harris, English and Modern Languages

- 2:15 p.m.      **English Loanwords and their Sociolinguistic Impact on the Japanese Language**  
Zoe Macgill and Jan Harris, English and Modern Languages
- 2:30 p.m.      **Texas German and Cajun French: Decay, Death, and Preservation**  
Seth Wright and Jan Harris, English and Modern Languages
- 2:45 p.m.      **Esperanto: A Universal or Minority Language**  
Anna Summerville and Jan Harris, English and Modern Languages

### **Oral Presentation VIII: Ezell 363**

**Moderator:** *Jan Cobu, Librarian, Beaman Library*

- 3:15 p.m.      **Domination, Limitation, and Liberation in Gilman's Herland**  
Ella Cauley and Brandi Kellett, English and Modern Languages
- 3:30 p.m.      **A Quest for Identity**  
Josephine Magar and Brandi Kellett, English and Modern Languages
- 3:45 p.m.      **Painting the Past: Trauma and Identity in The Best We Could Do**  
Ellie Heslon and Brandi Kellett, English and Modern Languages
- 4:00 p.m.      **Animal Man: Morrison's Reflection on the Author**  
Ellie Harwood and Brandi Kellett, English and Modern Languages
- 4:15 p.m.      **A Small Red Flame: Negative Theology and Divine Presence in Brideshead Revisited**  
Camille Floyd and Jan Harris, English and Modern Languages
- 4:30 p.m.      **Victims Playing Villains: Subjects of Blame in Elie Wiesel's "Night"**  
Naomi Hollans and Willie Steele, English and Modern Languages

### **Oral Presentation IX: Ezell 301**

**Moderator:** *Dr. Autumn Marshall, Professor and Chair of Nutrition*

- 3:15 p.m.      **Rethinking Music Theory Pedagogy**  
Kathryn Williamsen and Jenny Snodgrass, Music
- 3:30 p.m.      **New Music and New Instruments: The Development of the Electric Bass Guitar**  
Braxton Algood, Donna King and Jenny Snodgrass, Music
- 3:45 p.m.      **The "Perfect" Embouchure**  
Elizabeth Lundy and Donna King, Music

- 4:00 p.m.      **From Cathedral to Concert Hall: The Evolution of the Requiem Mass**  
Thomas Butler and Donna King, Music
- 4:15 p.m.      **I Know that Song! Ten Centuries of Songwriting**  
Hannah Grace Kerr and Donna King, Music
- 4:30 p.m.      **Developing Christian Artists: the Live Music Sphere**  
Camille Crites and Jenny Snodgrass, Music

**Oral Presentation X: *McFarland 219***

**Chair:** *Dr. Florah Mhlanga, Interim Vice Provost*

- 3:15 p.m.      **The Nesting Behavior and Habitat Selection of Wood Thrushes**  
Amelia Browning, Alexandra Price and John Lewis, Biology
- 3:30 p.m.      **Utilizing hot water treatment methods on shallow rooted herbaceous invasive species in temperate deciduous forests**  
Ana Manning and John Lewis, Biology
- 3:45 p.m.      **Emodepside Exposure to Larval Stage One and Four *C. elegans* is Associated with Dose Dependent Motility Deficits and Increased Mortality Rates**  
Malia Bennie and Brian Ellis, Biology
- 4:00 p.m.      **Investigating the use of indole compounds as potential therapeutics for the treatment of necrotizing enterocolitis**  
Arlo Colvard and Kyle Brawner, Biology
- 4:15 p.m.      **Variations in Flexibility Across Menstrual Cycle Phases in Female College Students**  
Libby Steinhart, Avery Cox, Allyson Stallworth, Paige Archbold, Isabella Vinson and Libby McCurley, Kinesiology
- 4:30 p.m.      **Hyperbaric Chambers For College Athletes**  
Alex Pinkston and Andrew Mauldin, Kinesiology



## 1:40 – 4:40 p.m. • Concurrent Sessions

### Graduate Students Presentations

#### Graduate Oral Presentation I: *Ward Hall*

**Chair:** *Dr. Emily Stutzman, Associate Professor of Biology*

- 1:40 p.m.      **“You are the Potter I Am the Clay” ... Tracing Egyptian Creation, Cult, and Ritual Power motifs in the Pentateuch.**  
Christopher Jenkins and Mark Janzen, Archaeology
- 2:00 p.m.      **The Eastern Frontier: Border Forts of the Nile Delta and Sinai during the New Kingdom Period in Egypt**  
Andrew Cahill and Mark Janzen, Archaeology
- 2:20 p.m.      **Break**
- 2:30 p.m.      **Have you had your vitamins today? An LC-MS/MS method to simultaneously measure B vitamins in plasma from study participants in a “greens” nutritional supplement clinical trial.**  
Katelyn Covington, Joanna Cravens, Matthew Vergne and Scott Akers, Pharmaceutical Science
- 2:50 p.m.      **Innovation in Circular Products for Healthy People, Planet, and Profit**  
Allison Golata, Misty Newby, Audrey Roberts and Dodd Galbreath, Sustainable Practice

#### Graduate Oral Presentation II: *Ward Hall*

**Chair:** *Dr. Bonny Millimaki, Professor of Biology*

- 3:10 p.m.      **Pediatric Glioblastoma Molecular Mechanisms**  
Ariana Trabachino and Joshua Owens, Biology
- 3:30 p.m.      **Functionality of the Ryanodine Receptor Type 1 (RyR1) in the Development of Malignant Hyperthermia (MH)**  
Cesar Medina and Joshua Owens, Biology
- 3:50 p.m.      **The Role of Human Alpha Defensin 5 (HD5) in Disrupted Wound Healing Processes in Crohn's Colitis**  
Jafer Aljorani and Amanda Williams, Biology
- 4:10 p.m.      **In Vitro and In Vivo Preclinical Development of the Cyclopeptide Ent-Verticilide for the Treatment of Cardiac Arrhythmias**  
Kevin Wu and Scott Akers, Pharmaceutical Sciences

4:30 p.m.      **Pharmacokinetic Modeling and Allometric Scaling: Translating Preclinical Data to Human Simulation**  
Ashley Rector and Scott Akers, Pharmaceutical Sciences

**Graduate Oral Presentation III:** *Doris Swang Chapel, Ezell 241*

**Chair:** *Dr. Laura Morrow, Senior Director, Center for Teaching and Learning*

3:10 p.m.      **A Mixed-Methods Study on the Relationship Between Athletic Coaching Effectiveness, the Coach-Athlete Relationship, and Student-Athlete Academic Outcomes**  
Tabitha Graves, Angeline Hale, Megan Holloway and Emily Mofield, Education

3:30 p.m.      **Impact of an Educational Intervention on Pharmacy Students' Knowledge, Attitudes, and Confidence Regarding Alcohol and Substance Use Disorders**  
Lina Itenberg, Sarah Uroza and Justin Kirby, Pharmacy Practice

3:50 p.m.      **Environmental, Social, and Governance (ESG) Teaching Resources for Use in Any Accounting Class**  
Misty Newby and Susan Galbreath, Accounting

4:10 p.m.      **Executive Functioning and Reading Comprehension**  
Kenda Gatewood and Sarah Duncan, Education

4:30 p.m.      **Trauma Severity and Religious Detachment in Women who have Experienced Intimate Partner Violence within a Religious Context**  
Trevor Hulan and Shanna Ray, Psychology

## **5:00 – 6:00 p.m. • Shinn Reception and Awards Ceremony**

**Chair:** *Dr. Brandon Banes, Associate Professor of Mathematics*

**Presentation of Awards:** *Dr. Jennifer Shewmaker, Provost*

**Closing Remarks:** *Dr. Florah Mhlanga, Interim Vice Provost*

## Announcement of Outstanding Student Presenters

**FOCUS and Creative Arts:** *Dr. Josh Owens, Assistant Professor of Biology and Dr. Jennifer Snodgrass, Professor of Music Theory and Director, School of Music*

**Undergraduate Oral Presenters:** *Dr. Kirsten Dodson, Associate Professor and Chair of Mechanical Engineering*

**Undergraduate Poster Presenters:** *Dr. Kyle Brawner, Assistant Professor of Biology*

**Graduate Oral Presenters:** *Dr. Joseph Weinstein-Webb, Assistant Professor of Chemistry and Biochemistry*

**Graduate Poster Presenters:** *Dr. Brandon Banes, Associate Professor of Mathematics*

## Acknowledgments

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### Organizing Faculty and Staff

Dr. Florah Mhlanga • Dr. Josh Owens  
Dr. Jan Harris • Dr. Joseph Weinstein-Webb • Dr. Brandon Banes  
Dr. Kirsten Dodson • Dr. Jennifer Snodgrass • Dr. Kristin Baese  
Dr. Kyle Brawner • Kristen Thompson • Andrea Davis

### Faculty Mentors • Student Presenters

Symposium Sessions Chairs and Co-Judges • Sodexo and Lipscomb Dining Services  
Lipscomb University Entertainment and Technical Services  
Lipscomb University Office of Event Management  
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