

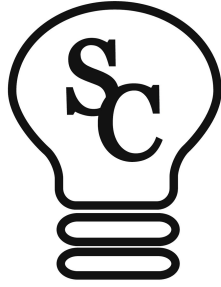
RESEARCH & CREATIVITY SYMPOSIUM

Honoring Excellence in Research and Creativity



April 18, 2024

SIMPSON COLLEGE



RESEARCH & CREATIVITY SYMPOSIUM

It is my pleasure to welcome you to Simpson's 14th Undergraduate Symposium. There is no better marker of excellence in undergraduate education, than the relationships formed between students and faculty that lead to these accomplishments. Today, as you attend these sessions, you will see the results of the hard work and collaboration from our amazing students and faculty.

Please join me in congratulating all of today's participants, both students and faculty.

Sincerely,

John W. Woell, Ph.D.

Senior Vice President and Academic Dean

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Keynote Presentation

The 14th annual Research and Creativity Symposium will be held on Thursday April 18, 2024. This year's keynote speaker is Dr. Christina Johnson, a curator with the NASA Open Science Data Repository, contracted through KBR. The title of her talk is, "Space Crops, NASA, and You."

In this talk Dr. Johnson will inspire you as she shares about the unique problems faced in Space Crop Development research, and current opportunities for you to get involved and contribute to NASA's research goals. For more information about Open Science for Space Biology at NASA, visit the repository: <https://osdr.nasa.gov/bio/>



Abstract:

Dr. Christina Johnson is passionate about advancing the science of growing crops for Space and on Earth through Open Science principles. Dr. Johnson's work with the Open Science Data Repository focuses on releasing the data from space plant biology research to the public. A botanist passionate about Space, she was part of a team that grew *Arabidopsis thaliana* on the Space Shuttle Discovery in 2010 and explored many unique stresses experienced by those plants in spaceflight in her subsequent publications. Continuing that work, she completed a postdoctoral fellowship with Kennedy Space Center's Space Crop Production team. There, she worked alongside a team of engineers and scientists at NASA and the USDA to develop hardware for a specialty crop category called microgreens for its eventual use in Space. It takes many years for a plant to pass through NASA's Crop Readiness Levels, and along the way, the hardware that will grow those crops in Space must pass through the Technology Readiness Levels. To meet these goals, she flew alongside the hardware she helped develop to harvest microgreens in microgravity in a Zero-Gravity parabolic research campaign. Dr. Johnson left her microgreen research with her capable colleagues at KSC and took her expertise in space plant biology research with her to the repository. There, she works alongside data scientists, developers, and archivists to accurately represent the data provided by NASA-funded Principal Investigators so it can be used by researchers worldwide, including YOU!

8:00-9:00 A.M. - Registration, Kent Campus Center, Atrium**Oral Presentations**

Each student's oral presentation will last between 12 and 15 minutes, with five minutes for a Q&A session. Please note that this time limit does not apply to individual presentations within a class panel.

9:00-10:00 A.M. – Concurrent Oral Presentations and Performances I**Nature, Health, and Wellness, Carver 205**

LARA KALLEM, MATTHEW DIETRICH, and JASON WHITE, Optimized Work-to-Rest Schedule for Construction Workers

SAM DERNING, OLIVIA HEERKES, AVERY PLATHE, COLIN HUBBELL, and PAYTON SEO, Application of Covalent Warhead Inhibitors for Improved Cancer Therapy

JARED OOSTERHUIS, Simpson College Trees: A scientific and historical approach

Fear and Horror: media and music, Carver 231

LYZA CUE, Music and the Uncanny Valley: Soundtrack Dissonance

WENDY MONCERRAT SOTO, The Satanic Panic Epidemic in the 1980's: Media Influence

Class Panel: Welcome to the Era of Swiftie-nomics: Are You Ready For It?, Jordan Lecture Hall, Carver 215

Claire Hughes, Anna Schewe, Dylan Holland, Madison Wiertzema, and Macy Gaskill

10:15-11:15 A.M. – Concurrent Oral Presentations and Performances II**AI and Machine Learning, Carver 205**

KAYLA JENSEN, DREW KLEIN, and ADAM GRUHN, Analyzing Bias in Large Language Models

LARA KALLEM, Optimization of EMS Vehicle Location Using a Single Objective Model

CHRISTINA DIETRICH, GABE HADLEY, and PARKER LEE, Optimizing Valve Response for Enhanced Autosteering Precision: A Case Study with AgLeader

Women in media, Carver 231

KACIE EISENTRAGER, History of Women's Sports in the Media

Class Panel: Let's "Tok" Shop: From Social Media Juggernaut to Online Megamall, TikTok Marches On, Jordan Lecture Hall, Carver 215

Hailey Cooper, Brenden Godbout, JR Knauss, and Will Paech

Graphic Design Seminar, Kent Campus Center, Gallery (Second floor)

BETHANY LACHONA-LUDA, Women's Health and Wellness Magazine: Editorial Layouts

11:30 AM-12:30 PM – Keynote Address. Kent Campus Center, Black Box Theater

Oral Presentations

1:45-2:45 P.M. – Concurrent Oral Presentations and Performances III

Gender roles in societies, Carver 205

KATHERINE HENDRICKSON, Gender, Class, and Filicide in Victorian England

KATIE CHRISTENSEN, Women and Medical Professionalization in 19th and early 20th c. Iowa

HANNAH CURTIS, Domestic Homicide and Wife Beating in Nineteenth Century Victorian England

International economic issues, Carver 231

ALLISON YOUNG, Modeling Global Food Security with Agent Based Modeling

SCOTT KRUEGER, The Sinews of War: Loose Monetary Policy and Propensity for International Conflict

Class Panel: Attack of the Bots: ChatGPT and Its Contemporaries Rage On, Jordan Lecture Hall, Carver 215

Tenley Schroeder, Kegan Trebilcock, Max Trembly, and Juan Zamora

Poster Sessions

10:15-11:15 A.M. – Human Physiology Class Panel Session, Carver Atrium

1. MADDIE WILLIAMSON, LILI DUCKMANN, and EMILY ESCOTO, Music Tempo and Time to Fatigue with Running Activity

2. HAYDON MEAD and JERAD FISCHER, Effect of Auditory Distraction on Voluntary Reaction Response
3. MACY KUHN and BREANNA BENGE, Music Tempo and Time to Fatigue with Bicycle Activity
4. PAUL LLAMAS and JAKE GIOFFREDI, Alpha Wave Activity in Chess Matches Against Beginner and Master AI
5. GABRIELA GARCIA MEDINA, LEXI FEHL, KEELIN CURLEY, and JENNA DUCETT, Motor Reflex Time of Drivers with Auditory Distractions

1:45-2:45 P.M. – Wesley Service Scholars Session, Black Box Theater

1. CAMERON RAE MARTIN, Espresso Yourself!
2. ADRIANNA RUBLE, Non-Profit Organization
3. ABBY POPE, EMILY WILSHUSEN, and KATIE HARRYMAN, Tie Blankets
4. FINLEY HALL and ELLIE FINA, Cookies for a Cause - WSS Volunteering Cookies for a Cause - WSS Volunteering
5. SYDNI POWELL, Broadening Societal Understanding through Volunteering
6. KATE HUISINGA, Hunger & Food Insecurity
7. AUDREY GORDON, Small Acts that Create a Big Impact
8. PEYTON ROBERTSON, We Lift
9. KARISSA STEINKE, WSS
10. JADE TEJADA, Salvation Army
11. KACIE COWMAN, Ronald McDonald House Charities
12. EMMA WINTERBOER, WSS Poster - Nonprofits Helping Combat Childhood Sickness
13. ANGEL SCHEWE, Supporting the Minds of the Simpson Community
14. LUIS TRIGUEROS, The power of teaching
15. MORGAN KERKMAN, Need Volunteers?: Lessons from Planning a Massive Volunteer Event
16. ALYSSA BECKWITH, The Power of Volunteering
17. MADELINE PETERSEN, Importance of Giving Back
18. ELLA PIPPERT, WSS

19. BREE TENGES, WSS
20. KYLIE RAE TORRES, What's Going on in Palestine & What can we do to help
21. DENISE ALVARADO LOPEZ, Giving back
22. KASSIDEE SAVARIA, Animal Rights
23. GABRIELA GARCIA MEDINA, Buddy Programs are Beneficial for All Parties
24. GRACE PORATH, The Impact of Summer Camp
25. EMMA LAFAVE, Pawsitive Impact: Volunteering at Animal Shelters
26. CAROLINE WHITE, WSS Hospice Volunteer
27. BLU MOO, Open eyes
28. MEREDITH DOWNS, WSS Volunteering
29. JERI EISBRENNER, Animal Abuse In The Modern World
30. CALEB GEER, My Year as a Wesley Service Scholar
31. ELISE BOULTON, A Career-Oriented Volunteering Experience
32. EMMA SUMP, How did the Pandemic Impact the Younger Generation?
33. MYA WHITAKER, Empowering Communities Through Volunteering
34. BAILEY PETERSEN, Wesley Service Scholars Impact
35. MADISON WIERTZEMA, Pages of Change: Combating Illiteracy Through Volunteerism
36. HAILEY COOPER, WSS Research & Creativity - Many Hands Thrift Market
37. BRETT VANSTRIEN, Food Insecurity in Warren County
38. KEIRI HOLMQUIST, Beauty Of Volunteering
39. LANDEN SIMPSON, Volunteer experience
40. KAYLIN LONG, Volunteer experience
41. ERIC REINES-SCHMIDT, The Importance of Communication
42. TAYLOR BUSHO, Veteran's confidence off the battlefield

3:00-4:00 P.M. – General Session, Kent Campus Center, Hubbell Hall

1. SYDNI POWELL, History of Media in the Commercialization of College Athletics
2. BAILEY PETERSEN, Quantifying Tannic Acid in Acorns
3. PAUL LLAMAS, KAYLA JENSEN, and JACE HOWARD, Has Access Improved? Geospatial Analyses of Virtual and In-Person Down Syndrome Specialty Program
4. KEITH DITTMER, Technical Director for Menotti Double Bill
5. PAUL LLAMAS, Identification of Number of Layers in Graphene Using RGB-Based Algorithm
6. ABBY LUDWIG, Legends in Harmony: The Timeless Influence of 1960s Black Female Soul Singers on Contemporary Pop Music
7. WENDY MONCERRAT SOTO, Telephone and the Medium Set Design
8. AUDREY ARNOLD, Impacts of Dietitian Consult on Eating Habits of Patients in Cardiac Rehab
9. OLIVIA HEERKES, SAM DERNING, COLIN HUBBELL, PAYTON SEO, and AVERY PLATHE, Improving Cancer Therapy Through the Use of Covalent Warhead Inhibitors
10. KATHERINE ROBEY, Bridging the Gap Between Creative Writing and Writing Centers
11. JAKE GIOFFREDI and PAYTON SEO, Evaluating Disparities of Prevalence and Severity of Diabetic Retinopathy in the State of Iowa
12. DORIAN BURKE, Good Kids Stage Management
13. BAILEY DOSTAL, Diversity of Odonata and Papilionoidea in the Simpson College Entomology Collection
14. KACIE COWMAN, Validation of a female rat voluntary wheel running model for the identification of candidate genes promoting physical exercise.
15. SPENCER KRANTZ, How Does “Promise Scholarships” Affect Diversity on Campus
16. MASUMO MWENYI, Sound Designer/Engineer - A Beautiful Day in November on the Banks of the Greatest of the Great Lakes
17. AUDREY GORDON, Breaking Barriers: Female Professors in Academia
18. HAYLEE KING and LAYNA DEPPING, Creating a Motor Protein Mutation in *Tetrahymena thermophila*
19. THOMAS GRIEGO, Inclusive Sexual Education: Preventing LGBTQ+ Harassment in Schools

20. KASEY CARTER and SAM CAMPIN, NCAA Division III & The Addition of Athletic Programs
21. REAGAN MCFARLAND, MACY EMGARTEN, and RYLEE PURVIS, NCAA Division III Conference Realignment
22. JENNA NORRIS and ALAINA STEMSRUD, Communication Board
23. KENNETH NORRIS, Lighting Design - A Beautiful Day in November on the Banks of the Greatest of the Great Lakes
24. MADISON LUDERMAN, Social Comfort with Prerecorded and Zoom Interactions
25. JERAD FISCHER, BO LEE, AARON WILKINS, MATT SCHUBERT, and PAUL TIEDEMANN, Social entrepreneurship, UN sustainable goal-Good Health and Well Being
26. LAUREN WILGENBUSCH and LUKE MAYER, Social entrepreneurship, UN sustainable goal-Quality Education
27. MICHAEL MADEIRA, CHRIS MARTINEZ, and CODY DURBIN, Social entrepreneurship, UN sustainable goal-Decent Work and Economic Growth
28. JOANN MARTIN and CAMDEN GANZVELD, Social entrepreneurship, UN sustainable goal-Sustainable Cities and Communities
29. SOPHIE WAUGH and AUSTIN FOSTER, Social entrepreneurship, UN sustainable goal-Life Below Water
30. WYATT SHOAF, SAL FRATINI, and JACK PERKINS, Social entrepreneurship, UN sustainable goal-Life on Land
31. PIPER JACKMAN, Final Touch-Up: Designing Hair and Makeup for the Menotti Double Bill

4:00-4:15 PM – Awards and Remarks. Kent Campus Center, Hubbell Hall

Acknowledgements

The 2024 Simpson College Research and Creativity Symposium was organized by the Undergraduate Research and Creativity Committee, including Aswati Subramanian, Director and Chair of the committee; Judex Hyppolite, committee secretary; Jed Forman, committee member, and student representative Sam Dering. The committee would like to thank Dr. Christina Johnson for delivering the keynote lecture. We also thank the faculty session moderators and evaluators for sharing their expertise and time.

The organizing committee acknowledges Justin Nostrala and his entire graphic design class, who participated in designing the T-shirt for this event. We want to congratulate and thank Jay Lee, whose design was chosen for the symposium T-shirt, inspired by this year's keynote address, 'Space crops, NASA, and You.'

We are grateful to Simpson College's Office of Marketing and Strategic Communication, Conferences Office, and Information Technology Services for their support. Additionally, we would like to thank the following faculty members who mentored members who mentored one or more research projects for this year's symposium: Adam Brustkern, Adrienne Gathman, Aswati Subramanian, Brian Steffen, Colin Payton, Derek Lyons, Don Evans, Heidi Berger, Jackie Brittingham, John Walker, Justin Nostrala, Kara Raphaeli, Kathryn Duffy, Katie Smith, Lauren Points, Mark Green, Matthew Garrett, Nick Proctor, Rachel Terlop, Rebecca Livingstone, Tayler Keitzer, and Timothy Luttermoser. Finally, we thank all the students who participated in this year's Symposium. Thanks for making this event successful!

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