



2ND ANNUAL STUDENT RESEARCH SYMPOSIUM APRIL 18, 2024

WELCOME GREETINGS!



Greetings from Arkansas Tech!

Arkansas Tech University welcomes you to our annual Research Symposium. At Arkansas Tech, we are committed to creating a place where innovation thrives. The Research Symposium will demonstrate this commitment as our students showcase their spirit of innovation. Their works evidence of a critical mind at work - a mind that is able to overcome obstacles, a mind that is prepared to solve problems, and a mind that is ready to make important contributions to society.

Our students' creative spirit will demonstrate itself in their good works. We hope that these works contribute to the body of knowledge. We hope that creative contributions inspire thought, discussion, and inspiration. And we hope that participation in this annual Research Symposium will inspire others to make their own contributions.

A very special thank you to the wonderful faculty, staff, and mentors who provided guidance and assistance to our students. Their contributions are also reflected in the works showcased at the Research Symposium.

Once again, welcome to Arkansas Tech University, where students succeed, innovation thrives, and communities flourish.

DR. ADOLFO SANTOS

EXECUTIVE VICE PRESIDENT FOR ACADEMIC AFFAIRS AND PROVOST PROFESSOR OF POLITICAL SCIENCE

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POSTER PRESENTATION



In Person (9 AM)

Time/ Room	College	Title	Authors
9 am RCB 435	STEM	Illegal Trade of Endangered Animals and Wildlife Trafficking	Haley Schulten
9 am RCB 435	Education & Health	Healthy Management Practices That Can Minimize the Negative Outcomes of Ecotourism at Yellowstone National Park	George Morgan
9 am RCB 435	Arts & Humanities	Fisheries and Population	Mason Ray
9 am RCB 435	STEM	Prescribed Fire Implications on Wildlife in Glade Habitat	Jackson Brown
9 am RCB 435	STEM	Sustainable Management Techniques of Green Tree Reserviors (GTRs) for Ecosystem Health and Wintering Waterfowl Habitat Seth Ho	
9 am RCB 436	STEM	Investigating the Effectiveness and Feasibility of Carbon Sequestration in Arkansas to Mitigate Climate Change	Katelyn Williams
9 am RCB 436	Business & Economic Development	Fishing Management and Overfishing Concerns	Konnor Barnes
9 am RCB 436	STEM	Carbon Sequestration and its Role in Mitigating Climate Change	Mallory Woodward
9 am RCB 436-4	STEM	Conservation Strategies for Red Cockaded Woodpeckers	Lincoln Hale
9 am RCB 446	Business & Economic Development	Economic Metz's Farm Swine Production	
9 am RCB 446	STEM	Nudibranchs in Peril: Combatting Pollution for Marine Conservation	Madison Ward
9 am RCB 446	STEM	Conservation Strategies of Endangered Species	JD Martin
9 am RCB 446	STEM	Enhancing Disease Detection in South Asian Freshwater Fish Aquaculture Through Convolutional Neural Networks	Hayin Tamut

POSTER PRESENTATION



In Person (10 AM)

Time/ Room	College	Title	Authors
10 am RCB 435	STEM	Multi-Rotor Hexicopter	Corbin Beard, John Washburn, Nate Burckhartzmeyer, Alejandro Gamez and Payton Riddle
10 am RCB 435	Arts & Humanities	Women and Food in World War I Era Arkansas	Emily Stolp
10 am RCB 435	Education & Health	Ethical and Legal Dimensions of Emergency Management: Navigating Challenges Across the Four Phases	John Hiland and Cody Neal
10 am RCB 435	STEM	Characterization of the pH Structural Properties of the C- Type Cytochrome at Gene Position Ga0077840_111766	Dylon Pettigrew
10 am RCB 435	Arts & Humanities	The Examination of the Relationship Between Algorithmic Social Media Use and Self-Diagnosis of Mental Disorders	Felicity West
10 am RCB 436	STEM	Hybrid PV-TEG System	Paige Woolheater, Anna- Marie Pesaresi, Chance Eoff and Nicholas Colburn
10 am RCB 436	STEM	Changes in Animal Vocalization in Response to a Total Solar Eclipse	Colton Morris
10 am RCB 436	Education & Health	Improving Reading Comprehension in 5th Grade Students Through Autonomy	Haylie Gibby
10 am RCB 436	Business & Economic Development	Lonoke County Park Suggestions	Rayna Van Keuren
10 am RCB 446	Arts & Humanities	Capitalism in Europe vs. Latin America	Lucas Mainhart, Caleb Edwards, Jesus Herrera- Herrera, Dayton Lamb and Brandi Mace
10 am RCB 446	STEM	Characterization of a C-Type Cytochrome From Yersinia	Tawni Bacorn
10 am RCB 446	STEM	Chemistry of Bixa Orellana's Berries Using GC-MS and Their Antibacterial Activity	Allison Norton
10 am RCB 446	Education & Health	2024 Total Solar Eclipse: Examining the Preparedness and Risk Communication Strategies of EM Stakeholders	Andrew Rafferty and William Sappington

POSTER PRESENTATION



In Person (11 AM)

Time/ Room	College	Title	Authors
11 am RCB 435-1	STEM	Hydrogen Fuel Cell Vehicle for the Shell Eco-Marathon Urban Concept Competition	Kobe Fitts, Maiko Soken, Azariah Wood, Franco Valenzuela, Josiah Mpasa and Jose Navarrete
11 am RCB 435-2	Arts & Humanities	Alcohol Regulations in Arkansas: Is Alcohol a Prime Determinant in County-Level Arrest Rates?	Aidan Grimes
11 am RCB 435-3	STEM	Investigating the Chemical Profile of Different Salvia Officinalis Extracts Using GC-MS	Caitlin Drake
11 am RCB 435-4	STEM	Estimation of Sportfish Populations in an Unmanaged Farm Pond in Arkansas	Karson Hamilton
11 am 435-5	STEM	Restoration Ecology and Rewilding Efforts	Madison Kersten
11 am RCB 436	Education & Health	From Assignment to Advancement: A Deep Dive Into Tech 1013 & 1001 Success and Retention	Hannah Pate and Joyrion Chase
11 am RCB 436	STEM	Design and Analysis of a Roller Coaster Car	Brayden Hersh, Mason Blaty and Tucker Tompkins
11 am RCB 436	STEM	Ambulatory Electrocardiographic Monitoring	Genesis Garay and Arath Sanchez
11 am RCB 436	Business & Economic Development	Urbanization and its Effects on Natural Environments	Christopher Redwine
11 am RCB 446	STEM	Semi-Autonomous Trash Collector	Dylan Bradford
11 am RCB 446	Business & Economic Development	What Are We Teaching Our Nation's Ag Teachers? A Synthesis of Agriculture Content Courses in All U.S. Agricultural Education Bachelor's Degree Programs.	Alex Jennings
11 am RCB 446	STEM	Evaluating Reclaimed Mines and Heavy Metal Soil Contamination	Torin Matthews
11 am RCB 446	STEM	Feral Hog Assessment and Eradication Using Remote Sensing	Benjamin McDonald

POSTER PRESENTATION



In Person (1 PM)

		/	
Time/ Room	College	Title	Authors
1 pm RCB 435	Business & Economic Development	Keeping it Cool with Coping Skills	Ashlie Sparks, Pearl McGowan-Hanna and Chloe Lemley
1 pm RCB 435	STEM	Metabolic Approach to Comparison of the Chemical Space of Medicinal Plants Using LC-MS	Elizabeth Martin
1 pm RCB 435	Business & Economic Development	Exploring The Possible Mental Health and Wellbeing Benefits of Video Games for Adult Players	Rayna Van Keuren
1 pm RCB 435	STEM	Length-Weight Relationship of Flier (Centrarchus Macropterus) in Moro Creek	Jeffrey Phillips
1 pm RCB 436	STEM	Eclipse Shadow Bands	Riley Lane
1 pm RCB 436	STEM	Alleviating Environmental Stresses in Native Arkansas Plants by Arbuscular Mycorrhizal Fungi Inoculation	Rebecca Morse
1 pm RCB 436	Education & Health	Faculty Perceptions in Working With Students With Disabilities Who Have Accommodations	Blakely Baker
1 pm RCB 436	Arts & Humanities	Unveiling Perspectives: Mainstream Media's Framing of Race and Internal Bias	Madison Starks
1 pm RCB 446	STEM	A Survey of Mussels in Small Tributaries of the Ouachita River Headwaters	Aaron Huckeba
1 pm RCB 446	Business & Economic Development	Wildfire Mitigation Tactics	Allen Terrell
1 pm RCB 446	Arts & Humanities	How Do Differences in Sexual Education Alter Perception of Consent?	Hannah Stone

POSTER PRESENTATION



In Person (2 PM)

Time/ Room	College	Title	Authors
2 pm RCB 435	STEM	STEM Shell Eco-Marathon Ecocar Cl	
2 pm RCB 435	Business & Economic Development	Comparison of Revenue by Gender for Arkansas Tech's 2020 Plant Sale	Kyley Stone, Breanna Irvine and Amanda Skuban
2 pm RCB 435	STEM	Predicting Flight Time in Small Drones: A Supervised Machine Learning Approach Considering Air Density Factors	Seyed Sanjari Pirmahalleh
2 pm RCB 435	STEM	Coordination Complex as a Catalyst: The Oxidation of Anthracene by Hydrogen Peroxide in the Presence of VO(acac)2	Isabel Baker
2 pm RCB 435	Business & Economic Development	What Is The Optimal Marketing Method For The ATU Spring Plant Sale?	Jacob Mapes and Zach Lynn
2 pm RCB 436	Business & Economic Development	nomic Angus Beef Commercial Cattle	
2 pm RCB 436	Business & Economic Development	Evaluating the Importance of Biosecurity in Swine Operations	Lindsey Lemley, Lilly Rogers and Austin Calhoun
2 pm RCB 436	Business & Economic Development	A Comparative Study on the Effects of Meishan and Duroc Teaser Boars on Farrowing Rates of Two Individual Swine Operations	Allie Shewmake and Payton Ham
2 pm RCB 446	STEM	Microhabitat Use of the Highland Darter in the Illinois Bayou Watershed	Colton Morris
2 pm RCB 446	STEM	Use of Deep Learning in Content-Based Image Retrieval (CBIR)	Angelina Das
2 pm RCB 446	STEM	Mussel Communities of Two Impacted Tributaries in the Arkansas South Central Plains Ecoregion	Jimmy Hall

POSTER PRESENTATION



In Person (3 PM)

Time/ Room	College	Title	Authors
3 pm RCB 435	Business & Economic Development	Soil Erosion and Conservation Methods in Arkansas Ornamental Landscapes	Abby Cutsinger
3 pm RCB 435	STEM	Agroforestry Management Tactics and its Effect on Sustainable Wildlife Habitats	William Camplain
3 pm RCB 435	STEM	Wildlife Corridors and Their Importance for Habitat Connectivity in Arkansas	Daniel Geels
3 pm RCB 435	STEM	Wildlife Trafficking and Illegal Trade in Endangered Species	CJ Kump
3 pm RCB 435	The Role of Non-Governmental Organizations (NGOs) in Conservation		Blake Williamson
3 pm RCB 436	STEM	Wildlife Corridors and Their Importance for Habitat Connectivity	Michael Kalkbrenner
3 pm RCB 436	STEM	Fisheries Management and Overfishing Concerns	Garrett Green
3 pm RCB 436	Business & Economic Development	Assessing the Effectiveness of Environmental Education Programs in Urban Youth	Haylee Ledford
3 pm RCB 436	Education & Health	Indigenous Knowledge & Practices	Kristin Melville
3 pm RCB 446	STEM	ASNE Promoting Electric Propulsion for Small Craft Competition	Robert Manatt, Brad Fletcher, Johnathon Poindexter, Hector Campos and Quinn Reynolds
3 pm RCB 446	Business & Economic Development	Ecosystem Restoration Projects and Their Effectiveness	Alex Davis
3 pm RCB 446	STEM	Biodiversity Hotspots and Conservation Priorities	Ryan Mahoney
3 pm RCB 446	STEM	Conservation Strategies for Endangered Species in Arkansas	Weston Carroll

POSTER PRESENTATION



In Person (4 PM)

Time/ Room	College	Title	Authors
4 pm RCB 435	STEM	Evaluation of Interior Least Tern (Sterna Antillarum Anthalassos) Colony Success Rate and Distance Upstream on the Arkansas River	Coley Turner
4 pm RCB 435	STEM	Spatial Assessment of Slender Madtom (Noturus Exilis) Diets Within the Illinois Bayou	Brendon Mitchell
4 pm RCB 435	STEM	ATUM RTS	Luke Hartman, Andrew Hilsdon, Kyle McMillan, Jacob Crawford, Samuel Allen and Anthony Knudson
4 pm RCB 435	Education & Health	Social Media Risk Messaging during the March 2023 Arkansas Tornadoes: A Qualitative Approach	William Sappington and Andrew Rafferty
4 pm RCB 435	Arts & Humanities	Sustainability in Cattle Farming	Emily Joshlin
4 pm RCB 436	STEM	Automated Bolt Stamping Machine	Logan Ward, Jackson Homan, Dalton Robinson and Eli Crutchfield
4 pm RCB 436	STEM	Electric Bike	Jeffery Scott, Cole Huddleston, Reuben Eye, Ethan Ridenour and Cade Lewis
4 pm RCB 436	STEM	The Ethics of Wildlife Management and Conservation	Catie Graham
4 pm RCB 446	STEM	IEEE Robotics Senior Design Project	Genesis Garay, Emily Webb, Caleb Bynum, Brandon Bunton and Arath Sanchez
4 pm RCB 446	STEM	Breast Cancer Classification with Machine Learning	Rahanuma Tarannum
4 pm RCB 446	STEM	Adapt Laser Shaping	Quinlin Reynolds
4 pm RCB 446	STEM	Thermo-Chemical Comparison of PAHs, Carbohydrates, and Fatty Acids	Kohl Kervin

POSTER PRESENTATION



Virtual (All Day)

Room	College	Title	Authors
RCB 253	Education & Health	Energy and Speed, a 4th Grade Multidisciplinary Lesson	Balee Amerson
RCB 253	Business & Economic Development	Measures of Central Tendency of Categorical Data Contributed to SHARE by Arkansas Facilities	Connie Mayfield
RCB 253	Education & Health	Student Engagement and Learning Theories in a Low- income Middle School Classroom	JoDee Smith
RCB 253	Education & Health	Improving Throughput in a Pediatric ED by Designating a Fast-Track Area	Blythe Long
RCB 253	Business & Economic Development	Would It Be More Cost Effective for Arkansas Tech to Plant Winter Crop to Extend Grazing Periods Using No-Till Practices?	Dalton Greene, Tanner Broyles and Dillon Pearson
RCB 253	Education & Health	A Comprehensive Analysis of Explainable Artificial Intelligence (XAI) Methods in Cardiology and Neuroscience: A Systematic Review	Sailaja Pidugu
RCB 253	Business & Economic Development	Regulations at Large Events	Lauren Moseley
RCB 253	Arts & Humanities	The Religious and Political Background of Romeo and Juliet: A Unit Plan	Emily Nye
RCB 253	STEM	Artificial Intelligence in Education	Priyanka Reddy Nalla
RCB 253	STEM	Anomaly Detection with Spiking Neural Networks (SNN)	Shruti Bhandari and Vyshnavi Gogineni
RCB 253	Arts & Humanities	Tornado Preparedness	Trayson Hicks

ORAL PRESENTATION



In Person

Time/ Room	College	Title	Authors
9:00-9:30 RCB 134	STEM	Spot On	Caleb McClure, Chase Tallon, Holden O'Neal and Corey Naegle
9:00-9:30 RCB 147	Arts & Humanities	María Grever: Influence Through Mexican Folk and Classical Romantic Techniques and Ideals In "A Una Ola"	Alexandria Ellis
9:00-9:30 RCB 148	STEM	Techniques to Detect Fake Profiles on Social Media Using the New Age Algorithms: A Survey	A K M Rubaiyat Reza Habib
9:40-10:10 RCB 134	STEM	The Wick Programming Language	Braden Pierce, Evan Keathley, Lisset Luna and Evelin Cerros Patricio
9:40-10:10 RCB 147	STEM	Optimizing Campus Chat-bot Experience Integrating Large Language Model (LLM) Into University AI Assistants	Sijan Panday, Clayton Jensen and Zurab Sabakhtarishvili
9:40-10:10 RCB 148	Education & Health	Chromebook Charging: Motivation Through Personification	Emma Helmuth
10:20-10:50 RCB 134	STEM	JSPER (Just Stablediffusion Plus Easy Retraining)	Adam Rusterholz, Zachary Judy, Meg Finn and Zach Zolliecoffer
10:20-10:50 RCB 147	STEM	Analyzing the Impact of Socioeconomic Factors on Cancer Clinical Trials Accessibility in the U.S. Using Machine Learning	Krysta Ray and Hiromi Hond
10:20-10:50 RCB 148	Arts & Humanities	Harmony Across Continents: Exploring the Intersection of India and Russia in the Solo Clarinet Repertoire	Tess Butler

ORAL PRESENTATION



In Person

Time/ Room	College	Title	Authors
11:00-11:30 RCB 134	STEM	Binder	Tyler Peaster, Madelyn Little, Lindsey Davenport and Alex Bales
11:00-11:30 RCB 147	STEM	League of Learning: Deep Learning for Soccer Action Video Classification	Musfikur Rahaman
11:00-11:30 RCB 148	STEM	The RSA Algorithm	Evalisbeth Garcia Diazbarriga
11:40-12:10 RCB 134	STEM	ATU Nav	Jeffrey Hough, Jacob Williford and Curtis Short
11:40-12:10 RCB 147	Arts & Humanities	The Viking Warrior Woman?: Birka Chamber Grave Bj 581	Emily Stolp
11:40-12:10 RCB 148	Arts & Humanities	Chaconnes, Sonatas, and Fugues, Oh My: A Study of the Influence of Baroque, Classical, and Romantic Musical Forms on Today's Media	Cadence Graves
1:00-1:30 RCB 134	STEM	Pet Care App	Ricardo Rivera and Jeffrey Cardinale
1:00-1:30 RCB 147	Arts & Humanities	"When White Men and Indians United Shall Praise:" Indigenous Inclusion in the Hartford Music Company	Savannah Faux
1:00-1:30 RCB 148	Arts & Humanities	How I Broke This: A Use-Wear Analysis of Dalton Assemblages from the Ozark-St. Francis National Forest	Mackenzie Waldrup

ORAL PRESENTATION



Time/			
Room	College	Title	Authors
1:40-2:10 RCB 134	STEM	ATU Events Application	Victoria McNully and Kyle Rachel
1:40-2:10 RCB 147	Arts & Humanities	Hedonism and the Journey of Enlightenment	Mami Inthirathvongsy
1:40-2:10 RCB 148	STEM	Idea Guys	Timothy Johnson, Parker Padgett and Derek Thompson
2:20-2:50 RCB 134	STEM	BazToGo	Alexander Mccutcheon, Braden Prather and Nathan Gilbert
2:20-2:50 RCB 147	Arts & Humanities	Faunal Analysis of a Historic Hearth Feature From the Chism House	Riley Chronister
2:20-2:50 RCB 148	STEM	The Four Rusketeers	Spencer Anderson, Nathan Doyle, Wilson Escobar and Devin Sandlin
3:00-3:30 RCB 134	STEM	Residence Life Maintenance Management Software Suite	Zurab Sabakhtarishvili, Saori Kojima and Hiromi Honda
3:00-3:30 RCB 147	Arts & Humanities	Analysis of the Site 3J049 Assemblage	James Alumbaugh
3:00-3:30 RCB 148	STEM	Applications of Supercapacitors in Powering Robotics	Zachary Giese, Avery Mahan, Sam Grisham, Charles Davis and Joseph Gober
3:40-4:10 RCB 134	STEM	River Valley Art Center Overhaul	Patrick Freeman, Nathan Spears, Edgar Gonzalez and Meghan Bledsoe
3:40-4:10 RCB 147	Education & Health	Temporal Assessment of Fish Communities in the Headwaters of a South Central Plains Ecoregion Watershed	Tara Schnelting
3:40-4:10 RCB 148	Arts & Humanities	A Diverse and Inclusive Way to Teach Art	Kennedi Richards

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VIRTUAL POSTER PRESENTATION

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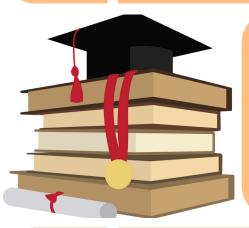
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Deadline - Friday, April 26th at 5 PM

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