2021 RESEARCH & CREATIVE INQUIRY DAY

List of Winners – by College and Department

In each category, posters/papers were grouped in categories for undergraduate, graduate Masters, and graduate PhD and a winner was selected based on the highest average score. In categories with more than 10 entries, an additional winner(s) was selected.

COLLEGE OF AGRICULTURE AND HUMAN ECOLOGY

School of Agriculture

Undergraduate winner

Primary author: Lisa Ellis

Project title: The Impact Social Capital has on Communication within Extension Education

Research advisor: Dr. Dennis Duncan

School of Human Ecology

Undergraduate (1st)

Primary author: Lydia Smith

Project title: Reducing Textile Water Waste

Co-authors: Emily Price
Research advisor: Dr. Hannah Upole

Undergraduate (2nd)

Primary author: Kaylee Case

Project title: The Benefits of Increased Funding for the National School Lunch Program in Elementary Schools

Research advisor: Dr. Rufaro Chitiyo

Undergraduate (3rd)

Primary author: Aston Brown

Project Title: Food Insecurity on Adolescent Development

Research advisor: Dr. Rufaro Chitiyo

COLLEGE OF ARTS AND SCIENCES

Biology Department

Undergraduate

Primary author: Salem Sullivan

Project title: The Impact of a Large Surface Rock on Temperature and Decay Rate
Faculty Collaborator: Dr. Lauren Michel (Earth Science)

Research Advisor: Dr. David Beck

Graduate (Masters - TIE)

Primary author: Morgan Michael

Project title: Spatial Variation of Nutrient Uptake in a Restored Agricultural Wetland

Research Advisor: Dr. Justin Murdock

Graduate (Masters - TIE)

Primary author: Adam Walker

Project title: Development of an environmental DNA (eDNA) assay to delineate the distribution of the imperiled Striated Darter (Etheostoma striatulum, Page and Braasch 1977) in the Duck River, Tennessee
Co-authors/faculty collaborators: Emma Barnett, Connor Lee, Dr. Kit Wheeler

Research Advisor: Dr. Carla Hurt

Graduate (PhD)

Primary author: Shrijana Duwadi

Project title: The relation of microbial biomass carbon with denitrification and nutrient retention in restored floodplain wetlands

Co-authors: Spencer Womble, Robert Brown

Research Advisor: Dr. Justin Murdock

Chemistry Department

Undergraduate (TIE)

Primary author: Allison Adams

Project title: Computational Design of Novel Inhibitors of Dihydrofolate Reductase in Three Bacterial Species

Research advisor: Dr. Derek Cashman

Undergraduate (TIE)

Primary author: Shawna Grey Coulter

Project title: Creating Color Flame Candles as an Alternative to the Rainbow Flame Test

Research advisor: Dr. Amanda Carroll

Undergraduate (TIE)

Primary author: Bailey Talent

Project title: Synthesis of INAP-ETSC and INAP-tButyl

Research advisor: Dr. Ed Lisic

Graduate (Masters)

Primary author: Zachary Gulledge

Project title: Metal-free, microwave-assisted oxidative cyclization of 2-pyridyl N-tosylhydrazones toward unsymmetric 1,2,3-triazole complexants

Research advisor: Dr. Jesse Carrick

Graduate (PhD)

Primary author: Lesta Kocher

Project title: A study on the Spectrophotometric Analysis of Hg(II) using Dithizone under Conditions Pertinent to Hg(II) Reduction in Aquatic Systems

Collaborator: Stephen Okine

Research advisor: Dr. Hong Zhang

Earth Sciences

Undergraduate

Primary author: Jason Gentry

Project title: Flash Flooding Prediction of Cummins Falls State Park.

Research advisor: Dr. Evan Hart

English

Undergraduate

Primary author: Linda Stegall

Project title: Sharing Stories: Recording Stories that Change in Tracks

Research advisor: Dr. Brian Williams

Graduate (Masters)

Primary author: Lalonie McCarter

Project title: The Mirrored Self: Fragmented Narrative in Tim O'Brien's In the Lake of the Woods

Research advisor: Dr. Brian Williams

Foreign Languages

Undergraduate (1st)

Primary author: Lena Albro

Project title: Communicating Corona: How Science Can Harness New Media during a Pandemic

Research advisor: Dr. Martin Sheehan

Undergraduate (2nd - TIE)

Primary author: Lena Hildebrand

Project title: 'Hansel & Gretel' and 'Gretel & Hansel' - A comparison of the Brothers Grimm fairytale and Oz Perkins movie

Research advisor: Dr. Julia Gruber

Undergraduate (2nd - TIE)

Primary author: Jordan Wright

Project title: Public Health, Private Data, and the International Economy: A German Perspective

Research advisor: Dr. Martin Sheehan

Physics

Undergraduate

Primary author: Chris Swindell

Project title: Further Optimization of an Ultracold Neutron Spin Dynamics Simulation Code

Research advisor: Dr. Adam Holley

Sociology and Political Science

Undergraduate

Primary author: Grady Hicks

Project title: Examination of a Bottle Bill in Tennessee

Research advisor: Dr. Lachelle Norris

Women and Gender Studies

Undergraduate

Primary author: Katrina Mauk

Project title: Saint Radegund: The Portrayal of a Female Saint's Body

Research advisor: Dr. Nicole Cook

College of Business

Accounting

Undergraduate

Primary author: Kassaundra Copas

Project title: The Economic Effects of COVID-19 on Medical Research

Co-authors: Jeel Patel

Research advisor: Dr. Sid Bundy

Graduate (Masters)

Primary author: McKenzie Viau

Project title: Car Crash: The effect of COVID-19 on Supply and Demand in the Automotive Industry

Co-authors: Neal Reagor, Ting Lu

Research advisor: Dr. Sid Bundy

College of Education

Counseling and Psychology

Undergraduate

Primary author: Nooshin Younesi

Project title: Stress Resistance As a Potential Mediator for the Effect of Self-Efficacy on Depression

Research advisor: Dr. Nicole Henniger

Graduate (PhD)

Primary author: Corrin Brown

Project title: Complex Trauma and Attachment: Patterns Associated with Maladaptive Development in Adulthood

Research advisor: Dr. Tony Michael

Curriculum and Instruction

Graduate (Masters)

Primary author: Goodson Dzenga

Project title: Special Education Teachers' Perspectives on Leisure Activities Participation by Adults with Developmental Disabilities

Research advisor: Dr. Holly Anthony

Graduate (PhD)

Primary author: Marlana Smith

Project title: The Relationship Between Physical Abuse and Childhood Problem Behaviors, Moderated by Gender and Ethnicity

Research advisor: Dr. George Chitiyo

Exercise Science, Physical Education and Wellness

Undergraduate

Primary author: Mikayla Lovin

Project title: What is the Relationship Between Balance and Core Strength?

Co-authors: Molly Topping, Katelyn Lancaster

Research advisor: Dr. Michael Phillips

College of Engineering

Chemical Engineering

Undergraduate (1st)

Primary author: Chase Yancey

Project title: Structure and Dynamics of hBD-2 mimetic Interaction with CoV-2 RBD

Research advisor: Dr. Liqun Zhang

Undergraduate (2nd)

Primary author: Phoebe Dawson

Project title: Electrotherapeutic Assisted Wound Healing: Modelling of the Electrostatic Field in a Porous Gel or Healing Media

Co-author/collaborators: Steffano Oyanader, Dr. Stephanie Jorgensen and Dr. Robby Sanders

Research advisor: Dr. Pedro Arce

Graduate (Masters)

Primary author: Varsha Balram

Project title: Modeling the Removal of Cosmetic Dyes by Using Hydrogel Materials in a CSTR

Research advisor: Dr. Pedro Arce

Graduate (PhD)

Primary author: Abdul Salam Mohammad

Project title: Computational printing of rheological changes with setting time of cement-based pastes in 2D geometry

Research advisor: Dr. Joseph Biernacki

Civil and Environmental Engineering

Undergraduate

Primary author: Hugh Harris

Project title: Assessing the Impact of Different Inoculum Sources on Specific Methane Yield of Biomethane Potential Tests

Co-author: Tyler Wright

Research advisor: Dr. Tania Datta

Computer Science

Undergraduate (TIE)

Primary author: Jeffrey Kimmell

Project title: Analyzing Machine Learning Approaches for Online Malware Detection in Cloud

Co-author: Andrew McDole
Collaborator: Mahmoud Abdelsalam (Manhattan College)

Research advisor: Dr. Maanak Gupta

Undergraduate (TIE)

Primary author: Maddison Davenport

Project title: Sentiment Analysis Using Google's Word2Vec Machine Learning Method

Co-authors: Kaitlyn Carroll, Alison Rust, and Sina Sontowski

Research advisor: Dr. William Eberle

Graduate (Masters)

Primary author: Kendall Land

Project title: Farm-to-Fork Supply Chain Tracking using Blockchain

Research advisor: Dr. Ambareen Siraj

Graduate (PhD)

Primary author: Md. Ahsan Ayub

Project title: Understanding Ransomware Behavior using Time Series Analysis for Early Detection

Research advisor: Dr. Ambareen Siraj

Electrical and Computer Engineering

Undergraduate

Primary author: Weston Beebe

Project title: Optimal Fredkin Gate Designs for Logical Operations with Two and Three Inputs

Research advisor: Dr. J.W. Bruce

Graduate (Masters)

Primary author: Deborah Afolayan

Project title: Modeling and Implementation of LQR controller for Efficient EV Suspension Energy Harvesting

Research advisor: Dr. Satish Mahajan

Graduate (PhD)

Primary author: Webster Adepoju

Project title: Novel Ferrite-core Metamaterial and AI-based Coil Parameter Optimization for Efficient Wireless Power Transfer

Co-author: Muhammad Bima

Research advisor: Dr. Indranil Bhattacharya

Graduate (PhD)

Primary author: Mahmoud Badr

Project title: Efficient and Privacy-Preserving Contact Tracing System for Covid-19 using Blockchain

Collaborators: Seham Alansari

Research advisor: Dr. Mohamed Mahmoud

Manufacturing and Engineering Technology

Undergraduate

Primary author: Ethan Guinn

Project title: Decarbonization of Transport Sector Using Hydrogen Fuel – An Overview

Co-authors: Dillon Cranford, Ryan Benton

Research advisor: Dr. Avinash Paruchuri

Graduate (Masters)

Primary author: Tyler Edwards

Project title: Efficiency and Print Quality Benchmarking Between Fused Filament Fabrication and Stereolithography Processes

Co-authors/Collaborators: Sorayo Olvera, Justin Willingham, and Dr. Avinash Paruchuri

Research advisor: Dr. Ismail Fidan

Graduate (PhD)

Primary author: Seymour Hasanov

Project title: Experimental and numerical characterization of functionally graded materials fabricated by the fused filament fabrication process

Research advisor: Dr. Ismail Fidan

Mechanical Engineering

Undergraduate

Primary author: Andrew Gothard

Project title: Dynamic Characterization of Fully 3D Printed Capacitive Sensors for Footbed Pressure Sensing Applications

Research advisor: Dr. Steve Anton

Graduate (Masters)

Primary author: William Rogers

Project title: Investigation of Coinciding Orthogonal Two-Dimensional Structure-borne Traveling Waves

Research advisor: Dr. Mohammad Albakri

Graduate (PhD)

Primary author: Peter Oyekola

Primary title: Impedance-based NDE through Instrumented Fixtures; Effects of Clamping Force on Defect-detection Capabilities

Co-author: Mehedi Barkat

Research advisor: Dr. Mohammad Albakri

College of Interdisciplinary Studies

Environmental Studies

Undergraduate

Primary author: Mikayla Wood

Project title: Providing Resources for Female Forestland Owners

Co-authors/Collaborators: Caroline Curtis, Jamie Ownby, Kitty Philips, and Kyle Evans

Research advisor: Dr. Steven Sharp

Whitson-Hester School of Nursing

Undergraduate

Primary author: Alison Bean

Project title: Would Annual A1C Testing Decrease Mortality in Undiagnosed Type 1 Diabetic Children?

Research advisor: Dr. Dolores Bowman