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 was selected.

**COLLEGE OF AGRICULTURE AND HUMAN ECOLOGY**

**School of Agriculture**

**Undergraduate**

Primary author: Brianah Castleberry

Co-author: Erik Koehler,

Title: Ovipositional Preference of Silverleaf Whitefly on Benchmark Acylsugar Tomato Breeding Lines

Research Advisor: Brian Leckie

External Collaborator: Martha Mutschler, Cornell University

**School of Human Ecology**

**Undergraduate (1st)**

Primary author: Madison Todd

Title: Sibling Relationships When One Sibling has Autism

Research Advisor: Rufaro Chitiyo

**Undergraduate (2nd)**

Primary author: Soyoung Choi

Title: Association Between a Healthy and Balanced Nutritional Intake in Relation to Self-Care and Depression

Research Advisor: Samantha Hutson
**Biology Department**

**Undergraduate**

*Primary author:* Charleston McCormick  
*Title:* Improved taxonomic identification techniques for cutaneous microbiota of salamanders  
*Research Advisor:* John Gunderson

**Graduate (Masters)**

*Primary author:* Morgan Michael  
*Title:* Spatial and temporal variation of uptake and retention rates of nitrogen and phosphorus in west Tennessee agricultural wetland  
*Research Advisor:* Justin Murdock

**Graduate (PhD)**

*Primary author:* Robert Brown  
*Co-authors:* Spencer Womble, Shrijana Duwadi  
*Title:* Nutrient Retention in a Reconnected Riparian Forested Wetland  
*Research Advisor:* Justin Murdock

*Non-student collaborators:* Jordan Evans

**Chemistry Department**

**Undergraduate (1st)**

*Primary author:* Wesley Wearing  
*Co-author:* Lillian Pipkin  
*Title:* Spectroscopic Characterization of Phenothiazine Co-crystals  
*Research Advisor:* O. Andrea Cojocaru

**Undergraduate (2nd)**

*Primary author:* Julia Vesely  
*Title:* Research and Development of High Protein Beer  
*Research Advisor:* Andrew Callender

**Graduate (Masters)**

*Primary author:* Zachary Gulledge  
*Title:* Cleavage of tert-Butoxycarbonyl (BOC) Groups from Indoles and Other Heterocycles Using an Addition-Elimination Strategy with 3-Methoxypropylamine  
*Research Advisor:* Jesse Carrick
### Earth Sciences

**Undergraduate**

**Primary author:** Allison Bohanon

**Title:** Rocking and Rolling Downhill: Boulder Distribution Patterns on a Martian Terraced Fan, Xanthe Terra

**Research Advisor:** Jeannette Wolak

### English

#### Undergraduate

**Primary author:** Rebecca Franey

**Title:** Making the Way to Marriage: Language and Love in Shakespeare's Plays

**Research Advisor:** Kristen Deiter

#### Graduate (Masters)

**Primary author:** Lauren Morgan

**Title:** Richard III’s Bestial Masculinity and the Rhetoric of Animality in Thomas More's History of Richard III and The True Tragedie of Richard the Third

**Research Advisor:** Kristen Deiter

### Foreign Languages

**Undergraduate**

**Primary author:** Allison Adams

**Title:** The Effects of Soviet Occupation on East German Children’s Literature

**Research Advisor:** Julia Gruber

### History

**Undergraduate**

**Primary author:** Mikayla Wood

**Title:** Historical and Sociological Impacts of the Duck River on Maury County, Tennessee Communities

**Research Advisor:** Megan Atkinson
**Mathematics**

**Undergraduate**

Primary author: Brelyn Grant

**Title:** A Longitudinal Study of Critical Asset Failures: Statistical Models and Inference

**Research Advisor:** Motoya Machida

**Physics**

**Undergraduate**

Primary author: Darsh Dinger

**Title:** Development of a sCMOS Position-Sensitive UCN Detector

**Research Advisor:** Adam Holley

**COLLEGE OF EDUCATION**

**Counseling and Psychology**

**Undergraduate**

Primary author: Rachel Pearson

**Title:** Background Music and Reading Comprehension: Musical Training Predicts Reading Comprehension Scores

**Research Advisor:** Matthew Zagumny

**Curriculum and Instruction**

**Undergraduate**

Primary author: Payton Womack

Co-authors/Collaborators: Mohera Narimetla, Kellie Malone, Pedro Arce, Stephanie Jorgensen, Robby Sanders

**Title:** SMARTS - STEM, Multiculturalism, and the Arts: A framework for the integration of cultural inclusivity in educational outreach utilizing the Renaissance Foundry Model

**Research Advisor:** Andrea Arce-Trigatti

**Graduate (PhD/EdS)**

Primary author: Bobby Adams

Co-author/collaborator(s): Stephanie Jorgensen, Pedro Arce

**Title:** Chemical Engineering Laboratory Curriculum Redesign Through Application of an Inquiry-guided Laboratory Manual

**Research Advisor:** Andrea Arce-Trigatti
Exercise Science, Physical Education and Wellness

**Undergraduate (TIE)**

- **Primary author:** Kelsey Sanders
- **Co-authors:** Maddie Ramsaur, Chalice Ledford
- **Title:** Is there a relationship between BMI and grip strength?
- **Research Advisor:** Michael Phillips

**Undergraduate (TIE)**

- **Primary author:** Mary Walker
- **Co-author:** Thomas Carver
- **Title:** Is There a Relationship Between BMI and Blood Pressure
- **Research Advisor:** Michael Phillips

**College of Engineering**

Chemical Engineering

**Undergraduate (TIE)**

- **Primary author:** Steven Lam
- **Title:** Optimization of Mass Transport within Direct Formic Acid Fuel Cell Catalyst Layer via Pore Formers
- **Research Advisor:** Cynthia Rice

**Undergraduate (TIE)**

- **Primary author:** Nutchanok Keerakiatwong
- **Title:** Structure and Dynamics of Human Beta Defensin Interacting with Bacterial Lipid Membranes
- **Research Advisor:** Liqun Zhang

**Graduate (Masters)**

- **Primary author:** Jackson Penfield
- **Title:** Molecular dynamics simulation on human beta defensin type 3 binding with CXCR4 receptor
- **Research Advisor:** Liqun Zhang

**Graduate (PhD-1st)**

- **Primary author:** Sabrina Buer
- **Co-authors:** Sunil Rawal
- **Title:** Modeling a Photocatalytic Reactor: Water Contaminant Degradation, Energy Production, and the Radiation Field
- **Research Advisor:** Pedro Arce

**Graduate (PhD-2nd)**

- **Primary author:** Jonathan Garvin
- **Co-author/collaborator:** Dennis Piercy, Stephanie Jorgensen
- **Title:** Rheological and Turbidimetric Characterization of Early-phase Wound Gels
- **Research Advisor:** Robby Sanders
Civil and Environmental Engineering

**Undergraduate**

Primary author: Maci Arms

Co-author: Kalei Hair

**Title:** Data Collection towards Understanding Stormwater Management and Flooding Issues in the Town of Gainesboro, Jackson County, TN

**Research Advisor:** Tania Datta

**Graduate (PhD)**

Primary author: Prince Turkson

**External Collaborator:** Elizabeth Boeglin

**Title:** Unsaturated soil model effects on the propagation of the saturated zone in levees during flooding

**Research Advisor:** Daniel VandenBerge

Computer Science

**Undergraduate (1st)**

Primary author: Melissa Grier

Co-author: Kristen Forte, Dylan Bush, Jarod Teague

**Title:** Caribbean Delphinidae Click Classifications

**Research Advisor:** William Eberle

**Undergraduate (2nd)**

Primary author: Austin Brown

Co-author: Kendall Land, Andy Brown, Jarod Teague

**Title:** Detecting Illegitimate Use of Legitimate Credentials

**Research Advisor:** Maanak Gupta

**Graduate (Masters)**

Primary author: Debolina Halder Lina

Co-author: Dipayan Banik

**Title:** Lake Storage Observation by Citizen and Satellite

**Research Advisor:** Sheikh Ghafoor

**Graduate (PhD)**

Primary author: Ibrahim Yilmaz

**Title:** Use of Adversarial Machine Learning for Avoiding Occupancy Detection from Smart Meter

**Research Advisor:** Ambareen Siraj
### Electrical and Computer Engineering

#### Undergraduate

**Primary author:** Eungkyun Kim  
**Title:** Adaptive Step Size Incremental Conductance Based Maximum Power Point Tracking  
**Research Advisor:** Indranil Bhattacharya

#### Graduate (Masters)

**Primary author:** Jacob Nelson  
**Co-author:** Tolulope Odetola  
**Title:** WORDA: A "6/3" Winograd Offline-Runtime Decomposition Algorithm for Faster Inference  
**Research Advisor:** Syed Rafay Hasan

### Graduate (PhD)

**Primary author:** Muhammad Bima  
**Title:** Layered DD Coil: An Improved Coil Structure For Wireless Power Transfer  
**Research Advisor:** Indranil Bhattacharya

### Manufacturing and Engineering Technology

#### Undergraduate

**Primary author:** Soraya Olvera-Barrious  
**Co-author/Collaborator(s):** Lizzy Zink, Billy Lian, Evan Kixmiller, Hunter Hinshaw, Terry Guo  
**Title:** Additive Manufactured Dinosaur Skeleton Repair and Upgrade  
**Research Advisor:** Ismail Fidan

#### Graduate (Masters)

**Primary author:** Hao Lu  
**Co-author/collaborator(s):** ZhiCheng Zhang, Andy Pardue  
**Title:** Mechanical Characterization of Low-Cost Metal Material Extrusion  
**Research Advisor:** Ismail Fidan

#### Graduate (PhD)

**Primary author:** Ankit Gupta  
**Collaborator:** Frank Alifui-Segbaya, Griffith University  
**Title:** Development of methacrylate-based denture reinforced with short glass fibers using the fused filament fabrication process  
**Research Advisor:** Ismail Fidan
**Mechanical Engineering**

**Undergraduate**

Primary author: Logan Unser

Title: Simulation and Optimization of Wind Turbine Geometries

Research Advisor: Ahmad Vaselbehagh

**Graduate (Masters)**

Primary author: Mohammad Alshaikh Ali

Co-author: Eric Nolan

Title: Electromechanical Impedance Based Structural Health Monitoring During a Dynamic Event

Research Advisor: Steven Anton

**Graduate (PhD)**

Primary author: Reza Nouri

Co-author/Collaborator: Cristina L. Archer, University of Delaware

Title: Wind farm yaw control: Why positive yaw angles can enhance the production, while negative angles lead to an overall loss of power?

Research Advisor: Ahmed Vaselbehagh

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**College of Interdisciplinary Studies**

**Environmental Studies**

**Undergraduate**

Primary author: Rachel Baker

Co-author: Chioma Ekechi

Title: Determination of Microplastic Content in Western Tennessee Lakes

Research Advisor: Tammy Boles

**Graduate (PhD)**

Primary author: Chioma Onwuchekwa

Title: Evaluation of Microplastic Load in a Waste Water Treatment Plant

Research Advisor: Tammy Boles
**Undergraduate**

**Primary author:** Jacqueline Flowers

**Title:** MesoAmerican Nephropathy: A Growing Problem in Central America

**Research Advisor:** Susan Piras

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**Graduate (D.N.P.)**

**Primary author:** Kassie Barnes

**Title:** Implementation of an Adverse Childhood Experiences Questionnaire in the Pediatric Primary Care Setting

**Research Advisor:** Bedelia Russell