

2024 CNAS UNDERGRADUATE RESEARCH SYMPOSIUM WINNERS WITH FACULTY ADVISORS

Biology: Ecology, Wildlife and Conservation

1st Place: *Tabitha Moul, Moth Castagna, Maggy Mayberry, Krista Cockrum, Kendra Edge, James Bynum, Avery Russell*

YOU'RE POLLEN MY LEG! POLLEN SPECIALIZATION VARIES LITTLE ACROSS BUMBLE BEE SPECIES AND PRAIRIES

Faculty Advisor: Avery Russell

2nd Place: *Leo Carpenter*

A NEW SPECIES OF HESPEROCHERNES (PSEUDOSCORPIONES: CHERNETIDAE) IN OREGON FROM BURROWS OF MOUNTAIN BEAVER (MAMMALIA: APLODONTIDAE: APLODONTIA RUFA)

Faculty Advisor: Charles D. R. Stephen

Biology: Cellular, Microbiology and Genetics

1st Place: *Emma Goodwyn, Sophia Antonopoulos*

IDENTIFICATION OF SPRING SEASON FRESHWATER BIOFOULING ORGANISMS ON FLEXIBLE SENSOR SUBSTRATES

Faculty Advisor: Paul Durham

2nd Place: *Daniela Silva Torres, Sophia Antonopoulos*

METHOD FOR CRYOPRESERVATION OF SPINAL CORD TISSUE FOR ESTABLISHING PRIMARY CULTURES OF NEURONS AND GLIA

Faculty Advisor: Paul Durham

Chemistry and Biochemistry

1st Place: *Victoria Ogbeifun, Caitlin M. Padgett & Natasha DeVore*

PROTEIN CHARACTERIZATION AND CRYSTAL STRUCTURE OF YELLOW THERMOSTABLE PROTEIN (YTP) Q66E E148D

Faculty Advisor: Natasha DeVore

2nd Place: *Clayton Frazier, Santimukul Santra, Paris Yates, Elizabeth Bowie, Megan Liermann, David Johnson and Tuhina Banerjee*

MEMBRANE FUSION INTERACTIONS OF ENVELOPED VIRUSES USING MAGNETICALLY-

LABELED LIPOSOMES

Faculty Advisor: Tuhina Banerjee

Computer Science

1st Place: *Tony Enrique Astuhuaman Davila*

INCREASING EXPLAINABILITY OF DIMENSION REDUCTION METHODS FOR MACHINE LEARNING OUTCOMES

Faculty Advisor: Dr. Tayo Obafemi-Ajayi

2nd Place: *Dorian Morrissey*

UAV ATTACKS DETECTION USING DEEP LEARNING

Faculty Advisor: Dr. Mohammed Yassine Belkhouche

Cooperative Engineering

1st Place: *Jack Stone, Braxton Hall, Nicholas Winn, Nicholas Stogsdill*

AUTOMATED LOAD FRAME

Faculty Advisors: Dr. Matthew Pierson and Dr. Rohit Dua

2nd Place: *Nathaniel Van Devender, Michael Hardesty, Aaron Frater, Gabriel Fedynich*

PADDLE OBSOLESCEMENT NOVELTY KNOCK-OFF (PONK)

Faculty Advisor: Dr. Rohit Dua

Geology

1st Place: *Madalyn Bass*

EVOLUTION OF PLANT HARDINESS ZONES IN MISSOURI 1946 – 2015

Faculty Advisor: Toby Dogwiler

Geography, Geospatial and Planning

1st Place: *Sarah Tuck*

NOT TOO SMALL TO MAKE A DIFFERENCE: NATURAL RESOURCE EDUCATION IN ZAMBIAN PRIMARY SCHOOLS

Faculty Advisor: Asif Ishtiaque

2nd Place: *Ryan Griffin, Morgan Harriman, Ben Holland*

NAVIGATING CHANGE: UNDERSTANDING PUBLIC PERCEPTION OF URBAN REDEVELOPMENT AT A BUSY STREET CORNER OF A HISTORIC NEIGHBORHOOD

Faculty Advisor: Ron Malega

Mathematics

1st Place: *Rachel Lee*

THE PRODUCT OF THE CHROMATIC NUMBER AND INDEPENDENCE NUMBER OF A GRAPH

Faculty advisor: Dr. Les Reid

2nd Place: *Christopher Housholder*

EXPLICIT REPEATED DOT PRODUCT TREE CONSTRUCTIONS

Faculty Advisor: Steven Senger

Physics, Astronomy and Materials Science

1st Place: *Simarpreet K. Girn, Sarah J. Morrison, Caroline Witt, Mateo E. Guerra Toro*

OUTCOMES OF SUPER-EARTH FORMATION IN THE PRESENCE OF A JUPITER-LIKE PLANET

Faculty Advisor: Sarah Morrison

2nd Place: *Yashasvi Moon*

SOUTH POLE TELESCOPE'S DUTY CYCLE FOR TRANSIENT SCIENCE

Faculty Advisor: Prof. Joaquin Vieira (University of Illinois at Urbana-Champaign)