

Undergraduate Research Day – 2018

The 9th Annual CNAS Undergraduate Research Day was held on Thursday, May 3. There were 52 poster presentations in a variety of categories. Pictures and abstracts of all presentations will be posted at <http://science.missouristate.edu/Undergraduate-Research-Day.htm> The following CNAS Faculty mentored the student projects this year:

- Yungchen Chen (MTH)
- Erica Cox (BIO)
- Toby Dogwiler (GGP)
- Rohit Dua (EGR)
- Paul Durham (BIO)
- Krista Evans (GGP)
- Katye Fichter (CHM)
- Razib Iqbal (CSC)
- Yoshimasa 'Nancy' Kageyama (HL)
- Kyoungtae Kim (BIO)
- La Toya Kisson-Charles (BIO)
- Christopher Lupfer (BIO)
- Matt McKay (GGP)
- Judy Meyer (GGP)
- Gary Michelfelder (GGP)
- Babur Mirza (BIO)
- Tayo Obafemi-Ajayi (EGR/CSC)
- Theresa Odun-Ayo (EGR)
- David Osborne (CHM)
- Bob Pavlowsky (GGP)
- Xiaomin Qiu (GGP)
- Emmett Redd (PAMS)
- Michael Reed (PAMS)
- Les Reid (MTH)
- Cyren Rico (CHM)
- Jamil Saquer (CSC)
- Alan Schick (CHM)
- Matt Siebert (CHM)
- Adam Wanekaya (CHM)
- Keiichi Yoshimatsu (CHM)
- Steven Younger (PAMS)

Biology: Ecology, Conservation and Wildlife

1st Place: John Kincaid

BACTERIAL SOURCE TRACKING OF HUMAN, BOVINE, DOG, AND GOOSE FECAL CONTAMINATION IN THE LITTLE SAC WATERSHED

Faculty Advisor: Babur Mirza

Co-authors – Marc Owen and Bob Pavlowsky

2nd Place: Trang Tran

ACCUMULATION OF LEAD IN SYCAMORE TREES ON A MINING-CONTAMINATED GRAVEL BAR IN BIG RIVER, MISSOURI

Faculty Advisor: La Toya Kisson-Charles

Co-authors – Jordan Heiman and Bob Pavlowsky

Biology: Cellular, Microbiology and Genetics

1st Place: Meagan D. Rippee-Brooks

INVESTIGATING THE ROLE OF INFLAMMATORY CYTOKINES DURING INFLUENZA A VIRUS AND *ASPERGILLUS FUMIGATUS* COINFECTIONS *IN VITRO*

Faculty Advisor: Christopher Lupfer

2nd Place: Harlee Kelley

SECONDARY TRAUMATIC STRESS INDUCES GREATER INCREASE IN ERK LEVELS IN FEMALE TRIGEMINAL NEURONS: POTENTIAL RISK FACTOR FOR OROFACIAL PAIN CONDITIONS

Faculty Advisor: Paul Durham

Co-Authors: Orion Peterson and Lauren Cornelison

Chemistry

1st Place: Megan Prado

QUANTUM YIELD DETERMINATION OF NITROGEN-DOPED CARBON DOTS AND FLUORESCENCE DEPENDENCE ON PH

Faculty Advisor: Adam Wanekaya

2nd Place: Carajill Campbell

INVESTIGATION OF THE THERMORESPONSIVE PROPERTIES OF TRI-BLOCK COPOLYMER SOLUPLUS®

Faculty Advisor: Alan Schick

Computer Science

1st Place: Jeff Dale

MULTI-OBJECTIVE OPTIMIZATION TO FIND BICLUSTERS IN GENE EXPRESSION DATA

Faculty Advisor: Tayo Obafemi-Ajayi

2nd Place: Jamie Johnson

TOWARDS AN EASY-TO-USE MICROPLATE IMAGE READING SOLUTION FOR CHEMISTRY EDUCATION

Faculty Advisor: Razib Iqbal

Engineering

1st Place: Keegan Allen, Dersham Schmidt, Konstantin Dashkevich

MODEM MADNESS

Faculty Advisor: Rohit Dua

2nd Place: Joe Minner and Ryan Kiesling

PLC DISCOVERY STATION USING PROGRAMMABLE LOGIC CONTROLLER SYSTEM TO HELP PEOPLE LEARN AND UNDERSTAND DIGITAL LOGIC

Faculty Advisor: Rohit Dua

GGP - Geology

1st Place: Brooke Benz

U-PB ZIRCON GEOCHRONOLOGY OF RHYOLITE TUFFS FROM THE BELL TOP FORMATION, SOUTHWEST NEW MEXICO

Faculty advisor: Gary Michelfelder

Co-authors: James Quick, Tyler Sundell

2nd Place: Mackenzie Wegmann

THE PETROLOGY AND GEOCHEMISTRY OF A MIOCENE UNDIFFERENTIATED DACITE IN THE MOGOLLON-DATIL VOLCANIC FIELD, NEW MEXICO

Faculty Advisor: Gary Michelfelder

Co-author: Conor O'Dowd

GGP - Geography, Geospatial and Planning

1st Place: Madeline Behlke-Entwisle

SPATIAL VARIABILITY ON SEDIMENT SIZE AND LEAD CONCENTRATIONS ON A MINING-CONTAMINATED RIVER BAR IN BIG RIVER, SOUTHWESTERN MISSOURI

Faculty advisor: Bob Pavlowsky

2nd Place: Bennett Conway

ASSESSMENT OF OBLIQUE PHOTOGRAPHY IN ENHANCING UAV-BASED PHOTOGRAMMETRY-DERIVED DEMs AND ORTHOPHOTOS

Faculty advisor: Toby Dogwiler

Hospitality Leadership

1st Place: Alex Baguio

AN ANALYSIS OF HOTEL ONLINE REVIEWS

Faculty Advisor: Nancy Kageyama

Co-authors: Matésja Daniel, Alex Birge, Guangyi Wang, Idalia Aguilar

2ND Place: Dallas Schneider

THE IMPACT OF HOTELS' GREEN PRACTICES ON GUEST SATISFACTION

Faculty Advisor: Nancy Kageyama

Co-authors: Madison Goodman, Chris Mills, Kennedy Powell, Jordan Moyer, Lindsey Gross

Mathematics

1st Place: Gabriel Wallace

THE AVERAGE NUMBER OF INTERSECTION POINTS OF A RANDOM POLYGON

Faculty Advisor: Les Reid

Physics, Astronomy and Materials Science

1st Place: John Crooke

SEISMIC ANALYSIS OF THE PULSATING SUBDWARF B STAR EPIC 212508753 USING DATA FROM NASA'S KEPLER SPACE TELESCOPE

Faculty Advisor: Mike Reed

Graduate Interdisciplinary Forum

62 graduate students from CNAS presented their results at the Graduate College Interdisciplinary Forum. All abstracts are posted at <http://graduate.missouristate.edu/currentstudents/IDF.htm> The following CNAS Faculty mentored student projects this year:

- Albert Barreda (HL)
- Eric Bosch (CHM)
- Paul Durham (BIO)
- Kevin Evans (GGP)
- Katie Fichter (CHM)
- Debra Finn (BIO)
- Kartik Ghosh (PAMS)
- Doug Gouzie (GGP)
- Brian Greene (BIO)
- Janice Greene (BIO)
- Reza Herati (CHM)
- Razib Iqbal (CSC)
- Kyoungtae Kim (BIO)
- Laszlo Kovacs (BIO)
- Day Ligon (BIO)
- Christopher Lupfer (BIO)
- Sean Maher (BIO)
- Alicia Mathis (BIO)
- Bob Mayanovic (PAMS)
- Matt McKay (GGP)
- Judy Meyer (GGP)
- Gary Michelfelder (GGP)
- Saibal Mitra (PAMS)
- Tayo Obafemi-Ajayi (EGR/CSC)
- Bob Pavlowsky (GGP)
- Cyren Rico (CHM)
- Ridwan Sakidja (PAMS)
- Jamil Saquer (CSC)
- Maria Stepanova (PAMS)
- Thomas Tomasi (BIO)
- Ryan Udan (BIO)
- Alexander Wait (BIO)
- Keiichi Yoshimatsu (CHM)

Outstanding Poster Presentation Awards to CNAS Students

Katy Reminga – GGP

Sediment Budget Approach to Evaluating Legacy Deposits on Missouri Ozarks Floodplains

Faculty Advisor – Bob Pavlowsky

Kayla King – BIO

Screening the effects of environmental contaminants on zebrafish embryonic development and viability

Faculty Advisor – Ryan Udan

JunHyeong Lee – CSC

Towards Natural Speech Analysis and Processing for Smart Homes

Faculty Advisor – Razib Iqbal

Sanchali Das – PAMS

Investigation of Electronic and Magnetic Properties Heterostructure of 2D Materials

Faculty Advisor – Kartik Ghosh

Outstanding Oral Presentation Awards to CNAS Students

Amber Clover – BIO

Behavioral plasticity of a parasitic ant (*Formica subintegra*) in the absence of its host (*Formica subsericea*)

Faculty Advisor – Alicia Mathis

Miranda Jordan – GGP

Stratigraphic Analysis and Environmental History of Legacy Floodplain Deposits, Lower Big River, Southeast Missouri

Faculty Advisor – Bob Pavlowsky

Kristen Sardina – BIO

Increasing Alligator Snapping Turtle Head-starting Success Through Captive Housing Enhancement

Faculty Advisor – Day Ligon

Natalie Smith – BIO

The Morphological and Transcriptional Impact of Silver Quantum Dots on *Arabidopsis thaliana* During Early Development

Faculty Advisors – Laszlo Kovacs and Alexander Wait

Tyler Sundell – GGP

Chemical imaging of diamonds by ToF-SIMS

Faculty Advisor – Gary Michelfelder

Other Awards to CNAS Students and Faculty

MSU Nomination for MAGS Distinguished TA Award 2018 – Colton Lynn (BIO)

MAGS Honorable Mention

Outstanding Graduate Mentor 2018 – Dr. Matt McKay (GGP)

Distinguished Thesis Advisor 2018 – Dr. Sean Maher (BIO)