

2025 Winners

Biology: Ecology, Wildlife and Conservation

1st Place: *Jaslyn Johnson and Anna Faust*

EXPOSURE TO VARYING TEMPERATURES INFLUENCES AZOLLA GROWTH

Faculty Advisor: Dr. La Toya Kissoon-Charles

2nd Place: *Jaycie Balkenbush and Jordan Porsch*

HEALTH AND BIODIVERSITY IN A JAMAICAN REEF INCLUDING STATUS OF INVASIVE LIONFISH

Faculty Advisor: Dr. Alexander Wait

Biology: Cellular, Microbiology and Genetics

1st Place: *Daniel Kim, Abhishu Chand, Emma Braun, Nhi Le, Kyoungtae Kim*

AMMONIUM AND PHOSPHONIUM CHITOSAN POLYELECTROLYTES FOR GENE DELIVERY

Faculty Advisor: Dr. Reza Sedaghat-Herati

2nd Place: *Emma Goodwyn and Nicole Nalley*

COMPARISON OF GENE EXPRESSION IN RAT TRIGEMINAL GANGLION AND PRIMARY CULTURES OF TRIGEMINAL GANGLION USING QPCR

Faculty Advisor: Dr. Paul Durham

Chemistry and Biochemistry

1st Place: *Abby Teitelbaum, Rahab Kanogo, Eniola Arogunyo, Mitchell Kim, Alexis Holyfield, Trishna Timalsena, Fei Wang, Santimukul Santra and Tuhina Banerjee*

REDOX-ACTIVE NANOSTRUCTURES WITH ULTRAHIGH CATALYTIC ACTIVITY FOR COLORIMETRIC APPLICATIONS

Faculty Advisor: Dr. Tuhina Banerjee

1st Place: *James Speake*

DOXORUBICIN PRODRUG ENCAPSULATED ACTIVATABLE MR NANOPROBE FOR THE THERANOSTIC TREATMENT OF CANCER

Faculty Advisor: Dr. Santimukul Santra

2nd Place: *Tim Howard*

REPRESENTATIONAL DETERMINISM IN NUCLEOPHILIC ALIPHATIC SUBSTITUTION AND ELIMINATION REACTIONS

Faculty Advisor: Dr. Gautam Bhattacharyya

Computer Science

1st Place: *Christopher Housholder, Zelun He, and Vivian Ning*

ARCHITECTURAL REDUNDANCIES IN THE DOZERFORMER ATTENTION MODEL ON TIME-SERIES PREDICTIONS

Faculty Advisor: Dr. Yifan Zhang

2nd Place: *Keegan Spell, Santimukul Santra, and Tuhina Banerjee*

IMAGE PROCESSING PIPELINE FOR QUANTIFICATION OF TEST LINE INTENSITY IN LATERAL FLOW ASSAY STRIP IMAGES

Faculty Advisor: Dr. Mukulika Ghosh

Cooperative Engineering

1st Place: *Benjamin Cuebas and Justin Fausto*

DiSeCT (DISCRETE SEMICONDUCTOR CURVE TRACER)

Faculty Advisors: Dr. Rohit Dua

2nd Place: *Preston Carroll, Nathan Swan, Ben Alexander*

SILICON SIGNALS (SiGNAL): A MODULAR SYNTHESIZER FOR INTUITIVE SOUND DESIGN

Faculty Advisor: Dr. Rohit Dua

School of Earth, Environment and Sustainability: Geology

1st Place: *Grace Chalfant*

REPLICATING THE USDA/PRISM METHOD OF MAPPING PLANT HARDINESS ZONES IN ALASKA

Faculty Advisor: Dr. Toby Dogwiler

2nd Place: *Noah Short*

A CONTINUED RESEARCH ON EXAMINING PUMICES AND LAVA FLOWS FROM SOCOMPA VOLCANO

Faculty Advisor: Dr. Gary Michelfelder

School of Earth, Environment and Sustainability: Geography, Geospatial and Planning

1st Place: *Kayla May, Dr. Bob Pavlowsky, Marc Owen, Josh Hess, and Brianne Edwards*

IN-CHANNEL SEDIMENT DEPOSITION PATTERS ALONG 424 KM OF THE GASCONADE RIVER IN MISSOURI

Faculty Advisor: Marc Owen

Mathematics

1st Place: *Christopher Housholder and Layna Mangiapanello*
VC-DIMENSIONS OF SUBSETS OF THE HAMMING GRAPH
Faculty advisor: Dr. Steven Senger

2nd Place: *Christopher Housholder*
CONVERGENCE OF CLASSICAL AND NONLOCAL ATMOSPHERIC AND SEA
HARZARDS
Faculty Advisor: Dr. Animesh Biswas

Physics, Astronomy and Materials Science

1st Place: *Simarpreet K. Girn*
THE MYSTERIOUS FATE OF EXOMOONS AROUND WARM-JUPITERS
Faculty Advisor: Dr. Sarah Morrison

2nd Place: *Lana Janson, Wade Van Riessen, Markos A. Georgy*
CHITOSAN NANOPARTICLES INCORPORATED WITH VARIOUS SURFACTANTS
FOR OPTIMAL CANCER DRUG DELIVERY
Faculty Advisor: Dr. Robert A. Mayanovic