



The Ohio Academy of Science 130th Annual Meeting Program April 15, 2023



Edison State Community College has followed in the footsteps of its namesake, Thomas Alva Edison, by earning a reputation for being an innovator in providing accessible, quality education and training opportunities for students. The college has grown from modest beginnings in 1973, when it offered 30 courses in a rented facility, to serving more than 4,000 students enrolled today in over 100 degree, certificate, and short-term technical certificate programs.

In addition to the 131 acres of rolling green space the Piqua Campus sits on, Edison State has locations in Greenville, Eaton, and Troy. Each regional location focuses on specific programs, with Greenville and Eaton being home to the college's agriculture programs and Troy positioned to be the center of healthcare education in the Upper Miami Valley.

Edison State continues to thrive, experiencing growth in enrollment while adding to an already robust catalog of academic offerings. Today, students can attend classes and receive support services at one of the college's four convenient locations, as well as online. Learn more about Edison State by visiting www.edisonohio.edu.

Thank you to the Edison State Community College planning committee for helping to make this a successful meeting:

- **Dr. Paul Heintz, Dean, Arts and Sciences**
- **Helen Willcox, Administrative Assistant for Finance & Institutional Effectiveness**
- **Don Walters, Edison State Chef and Julie Walters, AVI Food Systems, Inc.**
- **Tom Burelison, Maintenance Supervisor, and all of the Edison maintenance personnel**
- **Amy Crow, Chief Information Officer, and her IT team**

The Ohio Academy of Science
5930 Wilcox Place Ste F
Dublin OH 43016

The Ohio Academy of Science
Annual Meeting General Schedule
Saturday, April 15, 2023

7:30 to 10:00am	Registration in the North Hall
7:30 to 9:00am	Breakfast in the Cafeteria
8:45am	Welcome in the Robinson Theatre
9:00 to 10:00am	Poster Presentations
10:00 to 11:00am	Panel Discussion in the Robinson Theatre <i>Workforce Development in Ohio... Where do YOU fit in?</i>
11:00am to 12:00pm	Oral Presentations <i>-Auxiliary Gym and Room 020</i>
12:00 to 1:30pm	Lunch in the Cafeteria and Keynote in the Robinson Theatre Dr. Rosalyn (Roz) Hobson Hargraves, Division Director for the Division of Undergraduate Education for the National Science Foundation (NSF)
1:30 to 2:30pm	Oral Presentations <i>-Auxiliary Gym and Room 020</i>
2:30 to 3:30pm	Poster Presentations

Workforce Development in Ohio...

Where do YOU fit in?

Panel Discussion—10:00 to 11:00 am—Robinson Theatre

The Workforce Development panel is composed of experts from the fields of energy, law, and manufacturing. Moderated by OAS staff, the panel aims to highlight the investment in Ohio's future labor and trends of growth across industries. Topics will aim to feature the promotion of entrepreneurial efforts, as well as educational and career tools. With their diverse work histories, the panelists will share their perspective on Ohio's most valuable resource: its people!

Panelists:

- Jane Harf, Green Energy Ohio
- Suzanne Sumner, Taft Law Firm
- Tony George, Techmetals Inc.
- Scott Koorndyk, Entrepreneurs' Center

Thank you to the Academy's Board of Trustees members Halle Miller, Martin English and Bill Beagle as well as OAS staff for organizing this panel.

Notes:

11:00 AM – 12:00 PM - Room: Auxiliary Gym
Podium Session 1
Mathematics, System Software

11:00am IMPLEMENTATION OF ALGEBRAIC STRUCTURES IN CRYPTOGRAPHY

First Author: **Yalcin Karatas** - University of Cincinnati Blue Ash College karatazy@ucmail.uc.edu

11:15am DETECTION OF ANOMALOUS AIRCRAFT STATE VIA LIVE+SIMULATED FLIGHT MACHINE LEARNING MODELS

First Author: **Ahmad Waseem Ghauri** - Ohio University ag592521@ohio.edu

Advisor: Chad Mourning - mourning@ohio.edu

11:30am CONVOLUTIONAL DEEP LEARNING FOR ATMOSPHERIC VISIBILITY ESTIMATION ON LOW COST DEVICES

First Author: **Justin Murray** - Ohio University jm104018@ohio.edu

Advisor: Chad Mourning - mourning@ohio.edu

11:45am NATURAL LANGUAGE APPROACH TO REGRESSION TEST GENERATION IN AVIATION VERIFICATION SOFTWARE: OUNPPM

First Author: **Jacob Schaupp** - Ohio University js400421@ohio.edu

Advisor: Chad Mourning - mourning@ohio.edu

12:00pm BEATMAP GENERATION

First Author: **Bradey Lounsbury** - Ohio University bl396918@ohio.edu

Advisor: Chad Mourning - mourning@ohio.edu

11:15 AM – 12:00 PM - Room: Robinson Theatre
Podium Session 2
Chemistry, Physics, Engineering Technology

11:15am QUANTUM CHEMISTRY STUDY OF THE DECARBOXYLATION REACTION OF AMINOMALONIC ACID

First Author: **Da Gao** - Central State University drgao8901@gmail.com

11:30am (PHENYLIODOSYL)BENZENE TOSYLATE DIHYDRATE—A λ 5-PERIODINANE SALT

First Author: **TJ Smith** - Walsh University tsmith@walsh.edu

11:45am CLASSICAL COSMOLOGY AND THE PROBLEM OF TIME IN QUANTUM GRAVITY

First Author: **Mohannad Islaieh** - Columbus State Community College mislaieh1@student.csc.edu

12:00pm DETECTION OF DENIAL-OF-SERVICE ATTACKS USING MACHINE LEARNING MODELS

First Author: **Alexander Nemecek** - OHIO UNIVERSITY nemoouacc21@gmail.com

Advisor: Chad Mourning - mourning@ohio.edu

11:15 AM – 12:00 PM - Room: 020
Podium Session 3
Earth and Environmental Sciences

11:00am ASSESSMENT OF CORN ROOT LODGING USING RGB AND MULTISPECTRAL AERIAL IMAGERY

First Author: **Barry Allred** - USDA - Agricultural Research Service (Retired) allred.13@osu.edu

11:15am GROWING SEASON MAPPING OF SUBSURFACE DRAINAGE SYSTEMS WITH RGB AND MULTISPECTRAL AERIAL IMAGERY

First Author: **Barry Allred** - USDA - Agricultural Research Service (Retired) allred.13@osu.edu

11:30am COLDWATER CREEK CHLORIDE, HIGH CONCENTRATIONS IN A TRIBUTARY TO GRAND LAKE ST. MARYS

First Author: **Doug Kane** - Heidelberg University dkane@heidelberg.edu

11:45am CONCENTRATION AND DISTRIBUTION OF MICROPLASTICS IN WETLANDS OF WEST-CENTRAL OHIO

First Author: **Mitchell Link** - Wright State University Link.73@wright.edu

Advisor: Katie Hossler - katie.hossler@wright.edu

1:30 PM – 2:00 PM - Room: Auxiliary Gym
Podium Session 4
Earth and Environmental Sciences

1:30pm QUANTITATIVE ASSESSMENT OF WETLAND SOIL CONDITION: A COMPARISON OF ACCURACY AND EFFICIENCY

First Author: **James Retherford** - Wright State University retherford.12@wright.edu

Advisor: Katie Hossler - katie.hossler@wright.edu

2:00pm CORRELATION BETWEEN WATER DEPTH AND DIVERSITY OF SHOREBIRDS AT STOPOVER HABITATS IN OHIO

First Author: **Taylor Shimek** - Muskingum University tshimek@muskingum.edu

Advisor: James Dooley - jdooley@muskingum.edu

1:30 PM – 2:15 PM - Room: 020
Podium Session 5
Animal Sciences, Behavioral and Social Sciences,
and Biomedical and Health Sciences

1:30pm THE NATURE OF SHRUB CHARACTERISTICS THAT INFLUENCE GRASSLAND BIRD RESPONSES ON A RECLAIMED MINE

First Author: **William Kline** - Muskingum University wkline1@muskingum.edu

Advisor: Danny Ingold - ingold@muskingum.edu

1:45pm THE DIVERSITY AND ABUNDANCE OF GRASSLAND AND FOREST-EDGE BIRDS ON A PARTIAL RECLAIMED SURFACE MINE

First Author: **Emma Jimison** - Muskingum University ejimison1@muskingum.edu

Advisor: Danny Ingold - ingold@muskingum.edu

2:00pm OBLIGATE GRASSLAND BIRDS PRESENCE/ABSENCE TRENDS ON RECLAIMED SURFACE MINE LANDS

First Author: **Alexis Sharb** - Muskingum University asharb1@muskingum.edu

Advisor: Danny Ingold - ingold@muskingum.edu

2:15pm MONARDA SUPPRESSES LPS-INDUCED INFLAMMATION IN MOUSE GRANULOSA CELLS

First Author: **Makkenzi Converse-Olson** - Ohio Northern University m-converse-olson@onu.edu

Advisor: Jill Bennett-Toomey - j-bennett-toomey@onu.edu

Poster Sessions

9:00 – 10:00 AM and 2:30 – 3:30 PM

Note: All posters will be displayed in both morning and afternoon sessions.

Poster 01 ANALYSIS OF THE PORTRAYAL OF SCIENCE AT THE CREATION MUSEUM (PETERSBURG, KY)

First Author: **Lydia Adejumo** - Capital University ladejumo@capital.edu

Advisor: Dr. Kerry Cheesman - kcheesma@capital.edu

Poster 02 EXPLORING THE EFFECTS OF MIR-379-5P ON BREAST CANCER CELLS

First Author: **Fernanda Aiala** - Denison University aiala_f1@denison.edu

Advisor: Dr. Lina Yoo - yool@denison.edu

Poster 03 CANCER CELL COMPETITION PROJECT

First Author: **Mason Boatwright** - University of Findlay boatwrightm@findlay.edu

Advisor: Dr. Michael Edelbrock - edelbrock@findlay.edu

Poster 04 WHAT A WASTE: NITROGEN RUNOFF IN THE MAUMEE RIVER

First Author: **Ryanne Cimatu** - Wright State University Cimatu.2@wright.edu

Advisor: Silvia Newell - silvia.newell@wright.edu

Poster 05 MINERALOGICAL TRENDS IN THE UTICA SHALE AND POINT PLEASANT FORMATION, APPALACHIAN BASIN, OHIO

First Author: **Caleb Coppess** - Miami University coppescn@miamioh.edu

Advisor: Mark P. Krekeler - krekelp@miamioh.edu , Brian S. Currie - curriebs@miamioh.edu

Poster 06 EFFECT OF LOW SALINITY ON SEA URCHIN DEVELOPMENT

First Author: **Serina Dweh** - Denison University dweh_s1@denison.edu

Poster 07 DO ENVIRONMENTAL CUES AFFECT SOCIAL AND AGNOSTIC BEHAVIORS OF RED-BACKED SALAMANDERS?

First Author: **Courtney Fouke** - Denison University fouke_c1@denison.edu

Advisor: Geoff Smith - smithg@denison.edu

Poster 08 ANALYSIS OF RESULT CONSISTENCY OF DIRECT-TO-CONSUMER ANCESTRY REPORTS FOR IDENTICAL TWINS

First Author: **Katherine Freeland** - Capital University kfreeland2@capital.edu

Advisor: Kerry Cheesman - kcheesma@capital.edu

Poster 09 OPTIMIZING DASHBOARD DESIGN TO IMPROVE STUDENTS' MOTIVATION IN ONLINE LEARNING

First Author: **Fei Gao** - Bowling Green State University gaof@bgsu.edu

Poster 10 EFFECTS OF HUMAN FOOT TRAFFIC ON ENVIRONMENTAL TETRACYCLINE RESISTANCE LEVELS

First Author: **Nathan Gibbs** - Capital University ngibbs629@gmail.com

Advisor: Kerry Cheesman - kcheesma@capital.edu

Poster 11 DETERMINATION OF ALTERED SOX7 VARIANT V379A C-TERMINAL PROTEIN-PROTEIN INTERACTIONS

First Author: **Elena Gioiello** - Walsh University egioiell1@walsh.edu

Advisor: Dr. Adam Underwood - aunderwood@walsh.edu

Poster 12 THE EFFECT OF WASTEWATER TREATMENT ON DISSEMINATION OF ANTIBIOTIC RESISTANT BACTERIA

First Author: **Hannah Houseknecht** - Wilmington College hannah.j.houseknecht@wilmington.edu

Advisor: Amanda Rollins - amanda_rollins@wilmington.edu

Poster 13 ASSESSING GENETIC VARIATION IN ASARUM ROSEI USING ISSR

First Author: **Jenna Howard** - Otterbein University howard3@otterbein.edu

Advisor: Brandon T. Sinn - sinn1@otterbein.edu

Poster 14 A SHORT-TERM WATER QUALITY ASSESSMENT OF THE UPPER MAUMEE RIVER WATERSHED UTILIZING DIATOM FRUSTULES

First Author: **Michaela Hunt** - Defiance College mhunt002@defiance.edu

Advisor: Sabrina Brown - sabrown@defiance.edu

Poster 15 NUTRIENT REDUCTIONS OF RESTORED GRAND LAKE ST MARYS WETLANDS

First Author: **Stephen Jacquemin** - Wright State University - Lake Campus

stephen.jacquemin@wright.edu

Poster 16 ALPHAFOLD PROTEIN STRUCTURES COMPARED TO HUMAN-CURATED HOMOLOGY MODELS

First Author: **Dustin Kreiner** - Walsh University dkreiner1@walsh.edu

Advisor: Thomas M. Freeland - tfreeland@walsh.edu

Poster 17 CONSERVATION GENETIC ASSESSMENT OF DECLINING GRAY FOXES (UROCYON CINEREOARGENTEUS) IN OHIO

First Author: **Megan Lenoy** - Capital University mleoy@capital.edu

Advisor: Christine Anderson - canders2@capital.edu

Poster 18 DIET COMPOSITION OF YELLOW PERCH AND WHITE PERCH IN THE CENTRAL BASIN OF LAKE ERIE

First Author: **Sawyer Lorentz** - Thomas More University sqlore32@thomasmore.edu

Advisor: Doug Kane - dkane@heidelberg.edu

Poster 19 THE EFFECTS OF AMPICILLIN ON THE GUT MICROBIOME OF LABORATORY MICE, MUS MUSCULUS

First Author: **Destiny Martin** - Wilmington College destiny.d.martin@wilmington.edu

Advisor: Amanda Rollins - amanda_rollins@wilmington.edu

Poster 20 WGA LECTIN STAINING IN SKELETAL MUSCLE AFTER SIMULATED PARTIAL GRAVITY

First Author: **Nate Mazza** - Xavier University mazzan1@xavier.edu

Advisor: Kelly Crowe - crowek7@xavier.edu

Poster 21 HOW QUICKLY DERMESTID BEETLES (DERMESTES FRISCHII) CONSUME DESICCATED CHICKEN UNDER DIFFERENT DAYLIGHT CYCLES

First Author: **Kelsey Merriman** - Wilmington College kelsey.l.merriman@wilmington.edu

Advisor: Amanda Rollins - amanda_rollins@wilmington.edu

Poster 22 A DATA MINING METHOD FOR FINDING HUMAN GENE VARIANTS CONTRIBUTING TO DISEASE CONDITIONS

First Author: **Clare Mewhinney** - Walsh University cmewhinn1@walsh.edu

Advisor: Thomas M. Freeland - tfreeland@walsh.edu

Poster 23 CHANGING CARDIOVASCULAR AND RESPIRATORY RESPONSES TO VARYING ALTITUDE CONDITIONS IN ECUADOR

First Author: **Christina Mickelson** - Capital University cmickelson2@capital.edu

Advisor: Dr. Kerry Cheesman - kcheesma@capital.edu

Poster 24 EXPRESSION OF NATIVE AND VARIANT SOX18 PROTEINS FROM PH6HCT-HALOTAG T7/SOX18 PROKARYOTIC CONSTRUCTS

First Author: **Mike Mitchell** - Walsh University mmitchel2@walsh.edu

Poster 25 ASSESSING NUTRIENT LOAD REDUCTION IN A CONSTRUCTED WETLAND: A CASE STUDY FROM BROOKS PARK

First Author: **Justin Myers** - Wright State University justin.myers@wright.edu

Poster 26 UNDERSTANDING THE STRUCTURE OF GATA-2 AND ITS L359V VARIANT WITH RESPECT TO CHRONIC MYELOID LEUKEMIA

First Author: **Martin Nadwodney** - Walsh University mnadwodn1@walsh.edu

Advisor: Thomas M. Freeland - tfreeland@walsh.edu

Poster 27 ALGAL ABUNDANCE AND TOXIN CONCENTRATIONS IN GRAND LAKE ST. MARYS

First Author: **Silvia Newell** - Wright State University silvia.newell@wright.edu

Poster 29 UTILIZING PARALLELISM AND MULTITHREADING FOR ITERATIVE REFINEMENT OF ANTENNA PATTERN VISUALIZATION

First Author: **Brady Phelps** - Ohio University bp309420@ohio.edu

Advisor: Dr. Chang Liu - liuc@ohio.edu

Poster 30 USING MACROINVERTEBRATES AS BIODINDICATORS OF WATER QUALITY IN CAESAR CREEK AND ITS SURROUNDING TRIBUTARIES TO ANALYZE THE EFFECTS OF ANTHROPOGENIC ACTIVITY ON STREAM HEALTH

First Author: **Taylor Powell** - Wilmington College taylor.r.powell-abbinante@wilmington.edu

Advisor: Amanda Rollins - amanda_rollins@wilmington.edu

Poster 31 EMERALD ASH BORER (AGRILUS PLANIPENNIS) LARVAE INFESTATION ASSESSMENT IN A NORTH CENTRAL OHIO WETLAND

First Author: **Jessi Raubenolt** - Ashland University jessiraubenolt@gmail.com

Advisor: Patricia Saunders - psaunder@ashland.edu

Poster 32 CAPTURE AND EVALUATION OF FREE-FLOATING MICROPLASTICS IN THE UPPER MAUMEE WATERSHED, OHIO

First Author: **Autumn Saddler** - Defiance College asaddler001@defiance.edu

Advisor: Sabrina Brown - sabrown@defiance.edu

Poster 33 MISSION REBUILD WORKFORCE IN OHIO THROUGH ADV. MANUFACTURING RESEARCH & TRAINING OF K14 TEACHERS

First Author: **MD Sarder** - Bowling Green State University msarder@bgsu.edu

Poster 34 CHARACTERIZATION OF THE FIRST COMPLETE ASARUM (ASARACEAE) PLASTOMES

First Author: **Cassidy Shaver** - Otterbein University shaver1@otterbein.edu

Advisor: Brandon Sinn - sinn1@otterbein.edu

Poster 35 ESTABLISHING A LONG-TERM ASSESSMENT STUDY ON WATER QUALITY OF THE RIVERS AROUND DEFIANCE, OHIO USA

First Author: **Mollie Sorrell** - Defiance College msorrell@defiance.edu

Poster 36 LONICERA MAACKII INCREASES ABUNDANCE AND DIVERSITY OF SHRUB-DWELLING ARTHROPODS AND BIRDS

First Author: **Linda Tucker Serniak** - Defiance College ltuckerserniak@defiance.edu

Poster 37 EVALUATING SITES FOR THE PRESENCE OF SPOTTED LANTERNFLY INFESTATION IN THE NORTHERN OHIO VALLEY

First Author: **Melody Vetrovec** - Franciscan University of Steubenville mvetrovec001@student.franciscan.edu

Advisor: Dr. Chris Payne - cpayne@franciscan.edu

Poster 38 ANALYZING DIATOM COMMUNITIES ACROSS DIFFERENT COASTAL ENVIRONMENTS OF LAKE ERIE

First Author: **Hallie Webb** - Defiance College hwebb001@defiance.edu

Advisor: Sabrina Brown - sabrown@defiance.edu

Poster 39 COMPARISON OF INSECT AND SPIDER BIODIVERSITY BETWEEN TWO SOLAR ARRAYS

First Author: **Sophia Yager-Motl** - Denison University yagerm_s1@denison.edu

Poster 40 A COMPARATIVE STUDY OF THE ACCURACY OF GLUTEN-FREE FOOD PRODUCT LABELING OF EUROPEAN AND MIDDLE EAST

First Author: **Daryna Zaitseva** - Capital University dzaitseva@gmail.com

Advisor: Kerry Cheesman - kcheesma@capital.edu

Poster 41 A LATE CARBONIFEROUS MARINE VERTEBRATE FAUNA OF THE PORTERSVILLE SHALE (CONEMAUGH GROUP) OF OHIO

First Author: **Daniel Cline** - Wright State University cline.74@wright.edu

Advisor: Charles Ciampaglio - chuck.ciampaglio@wright.edu

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