

# 98<sup>th</sup> Annual Meeting of the Pennsylvania Academy of Science

March 17-19, 2023  
Program Booklet



at



Sponsored by

Sanofi-Aventis



Regional Science  
Consortium



## **Welcome to Gannon University**

Gannon University, in Erie, Pennsylvania, is a four-year Catholic university, dedicated to providing a liberal arts education integrated with professional skills and faith-based learning. Founded in 1925, the urban campus is in the heart of downtown within walking distance to restaurants, shopping, entertainment, and Lake Erie. A total enrollment of over 4,000 undergraduate and graduate students pursue degrees across a wide range of disciplines with a focus on cybersecurity, engineering, and the health professions.



## **Tom Ridge Environmental Center**

The Tom Ridge Environmental Center (TREC) is an educational center dedicated to teaching visitors about the unique 3,200 acres of Presque Isle and the many different forms of life that inhabit the peninsula. TREC also serves as a center for research -- contributing to conservation efforts and promoting environmental awareness, helping to preserve the unparalleled beauty of Presque Isle, the site of Pennsylvania's only seashore. While some facilities along the Great Lakes offer environmental education and others do research, none offer research, education, and visitor services in one place, making TREC a unique destination for learning, wonder, and fun.



**Welcome Reception**  
**Friday, March 17 from 7:00–9:00 PM**  
**Tom Ridge Environmental Center**  
**Wine, Cheese, and Hors d'oeuvres served**

**Welcome remarks from:**

**Dr. André Walther**  
*President of PAS*



**Dr. Jeanette Schnars**  
*Regional Science Consortium*



## **Welcome Message from Dr. André Walther President, Pennsylvania Academy of Science**

On behalf of the Pennsylvania Academy of Science, it is my pleasure to welcome you to the 98<sup>th</sup> annual meeting. After a long absence, the Academy is excited to return to the western part of Pennsylvania with our meeting hosted by Gannon University. This meeting has a breadth of oral and poster presentations with presenters from across the state, and we encourage you to attend at least one talk or visit one poster that is in a field outside of your discipline, and the keynote presentation, *The Plastics Paradox* by Dr. Sherri Mason held following the Saturday evening banquet. In addition to attending the wonderful oral and poster sessions, we encourage our student participants to attend one of the offered panel discussions on either graduate school or for students considering careers in STEM fields during lunch on Saturday. Good luck to all of the students participating in the Anne Spychala Competition and the Women in Science Competition and a tremendous thank you to all of the volunteer judges for the event – we could not have this awards opportunity without your assistance.



As the Pennsylvania Academy of Science approaches its 100<sup>th</sup> year of existence, we have been actively working to increase the reach and impact of the society on scientists and non-scientists within the Commonwealth. I would like to encourage faculty and staff participants at the meeting to increase their involvement in the society by joining the PAS Board of Directors for our business meeting held during the Saturday lunch. We are always looking for more members to take leadership roles in the society. I would like to extend a special word of thanks to the faculty and staff at Gannon University for their roles in organizing the meeting this year. Please enjoy the meeting and I look forward to seeing you at next year's event at Messiah University, in Mechanicsburg, PA.

## 2023 Keynote Address Dr. Sherri Mason

**Saturday March 18, 2023 6:30-7:30 PM      Location: Yehl Ballroom**



*Plastic provides a real paradox in the world of material science. It is incredibly strong but without the mass that similar strength materials usually possess. In addition, it is very moldable so that you can contort it into a myriad of common place, super-utilitarian items. The versatility and durability of plastic allow it to be used in place of a myriad of natural materials, but these same features make it an environmental bane. Here we will explore this paradox and what it means for the waters we love so much. Much attention has been paid to plastic as an oceans issue, but increasingly we are finding that plastic flows through freshwater systems on its way from land to sea. Come hear from one of the foremost experts in the field of Freshwater Plastic Pollution.*

Dr. Sherri A. Mason (aka “Sam”) earned her bachelor’s degree from the University of Texas at Austin. She completed her doctorate in Chemistry at the University of Montana as a NASA Earth System Science scholar. While a Professor of Chemistry at SUNY Fredonia, her research group was among the first to study the prevalence and impact of plastic pollution within freshwater ecosystems.

Sam has been featured within hundreds of mass media articles including the BBC, The Guardian, the New York Times, the Huffington Post, and National Public Radio’s All Things Considered and Studio A1. Her work formed the basis for the Microbeads-Free Water Act, which was signed into law by President Obama in December 2015. Similar legislation has been approved or is being considered at various locations internationally. Among her accolades Dr. Mason has been awarded the EPA Environmental Champion in 2016; Excellence in Environmental Research by the Earth Month Network in 2017, Heinz Award in Public Policy in 2018, Great Lakes Leadership Award from the Great Lakes Protection Fund in 2021

She currently serves as the Director of Sustainability at Penn State Erie, The Behrend College

### Meeting Wireless Access

**Wireless Network: GUGuest**

**Please see the information sheets at registration for directions on  
accessing Gannon Guest WiFi.**

**Visit the PAS website for Conference information**  
**[Pennsci.org](http://Pennsci.org)**

**Student Lunch Panels**  
**Saturday, March 18 12:00-1:30PM**

**Panel I: *Careers in Science***

**Location: *Center for Advanced Engineering Room 201***

**Moderator: *Dr. Quyen Aoh, Gannon University***

Gannon University alumni, Penn State Behrend alumni, and local science experts employed in a variety of science-related fields will discuss their professional pathways and take questions from the audience.

**Tim Bruno**

Chief, Office of the Great Lakes  
PA Dept of Environmental Protection

**Emily Pritchard**

Environmental Education Specialist  
PA Dept of Conservation and Natural  
Resources

**Matthew Dilts**

Senior Research Technician  
Northeast Ohio Medical University

**Ashlyn Kelly**

Quality Chemical Engineer  
Accudyn Plastics

**Panel II: *Graduate Schools***

**Location: *Center for Advanced Engineering Room 202***

**Moderator: *Dr. Chris Dempsey, Gannon University***

Gannon University alumni previously or currently enrolled or applying to graduate programs will discuss their educational trajectories and take questions from the audience.

**Austin Hertel**

Graduate Program in Microbiology  
and Immunology  
University of Pittsburgh

**Alex Stauff**

Genetic Counseling Assistant  
Applying to graduate schools in  
genetic counseling

**A free boxed lunch will be provided for students that attend the panel.**

## Presentations at the 98<sup>th</sup> Annual Meeting of the PAS

<b>School/Organization</b>	<b>Number of Presentations</b>
Cedar Crest College	12
Mercyhurst University	12
Gannon University	11
Messiah University	10
Lafayette College	9
DeSales University	7
Immaculata University	7
Wilson College	7
Harrisburg University of Science and Technology	6
Misericordia University	5
Albright College	4
Penn State University-Altoona	4
Georgetown University	3
York College of Pennsylvania	3
Lebanon Valley College	2
Penn State University-Harrisburg	2
University of Pittsburgh at Greensburg	2
Arizona State University	1
Butler University	1
East Stroudsburg University	1
Emory University	1
Lake Erie Environmental Services	1
Marywood University	1
National Audubon Society	1
Penn State University	1
Smithsonian's National Zoo and Conservation Biology Institute, George Mason University	1
Susquehanna University	1
University of Minnesota	1
University of Pennsylvania	1
USDA Forest Service, Northern Research Station	1
Wilkes University	1

**Presentations sponsored by 31 Pennsylvania colleges and universities,  
and additional institutions.**



# 98<sup>th</sup> Annual Meeting of the Pennsylvania Academy of Science

All events held on the Gannon University campus

Campus map on back cover

## SCHEDULE OF ACTIVITIES AT A GLANCE

### Friday, March 17

5:00-6:45 PM	PAS Board Meeting and Dinner	Tom Ridge Environmental Center, Room 112
7:00-8:00 PM	Meeting Check-In	Tom Ridge Environmental Center
7:00-9:00 PM	Reception	Tom Ridge Environmental Center
	<b>Welcome Remarks:</b> <i>Dr. Andre Walther, President PAS</i> <i>Dr. Jeanette Schnars, Director for the Regional Science Consortium</i>	

### Saturday Morning Sessions, March 18

8:00-9:00 AM	Meeting Check-In	Yehl Ballroom
8:00-8:30 AM	<i>Continental Breakfast Bar</i>	Yehl Ballroom
8:30-9:00 AM	Opening Remarks	Yehl Ballroom
	<b>Dr. Walter Iwanenko</b> , Provost Gannon University	
	<b>Dr. Sarah Ewing</b> , Dean Morosky College of Health Professions and Sciences	
	<b>Dr. Andre Walther</b> , President PAS	
9:30-11:00 AM	<i>Coffee Break</i>	Haggerty
9:15-10:15 AM	Oral Presentations I: Aquatic Ecology	CAE 201
9:15-10:30 AM	Oral Presentation II: Microbiology	CAE 202
9:45-11:45 AM	Poster Session I (Poster set-up 9:00-9:45 AM): Molecular Biology, Genetics, Neuroscience, and Other	Waldron 219

### Saturday Lunch Sessions, March 18

12:00-1:30 PM	PAS Business Meeting/Lunch (Open to all members)	Z 104
12:00-1:30 PM	Student Lunch Panel: <i>Career Panel</i>	CAE 201
12:00-1:30 PM	Student Lunch Panel: <i>Graduate School Panel</i>	CAE 202

\* Business Meeting Election slate found [here](#).

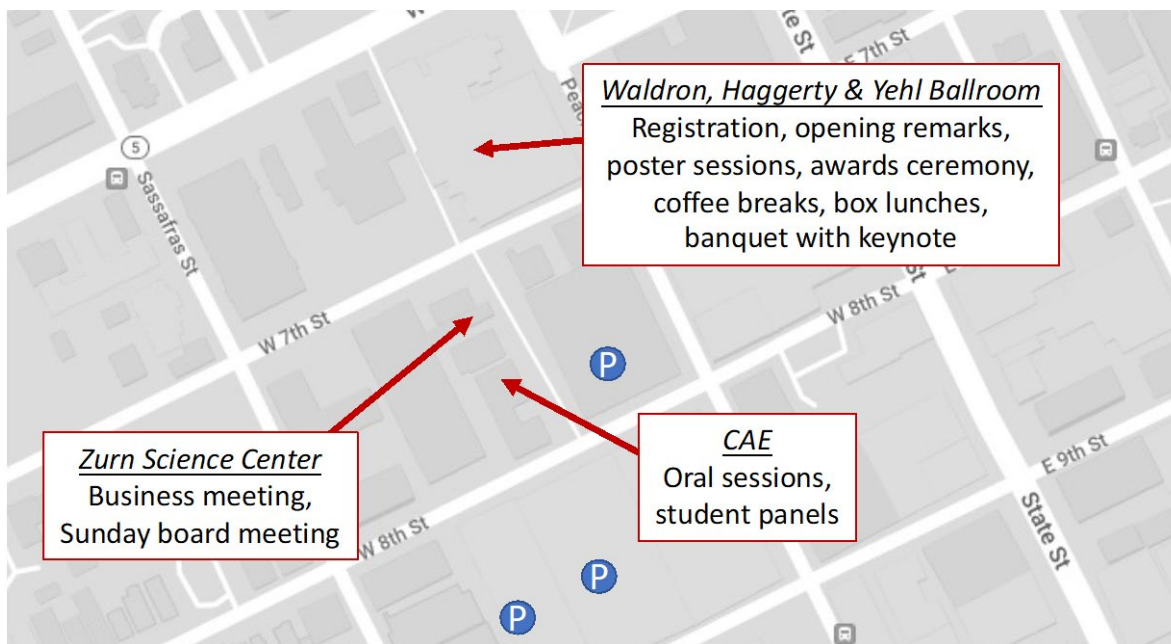
### Saturday Afternoon, Evening Sessions, March 18

2:00-4:00 PM	<i>Coffee Break</i>	Haggerty
2:00-3:30 PM	Oral Presentations III: Human Health	CAE 201
2:00-3:30 PM	Oral Presentations IV: Plant Biology	CAE 202
3:45-5:00 PM	Oral Presentations V: Environmental Science	CAE 201
3:30-5:00 PM	Oral Presentations VI: Terrestrial Ecology and Technology	CAE 202
5:30-7:30 PM	Dinner	Yehl Ballroom
6:30-7:30 PM	Keynote Speaker: <i>The Plastics Paradox</i>	



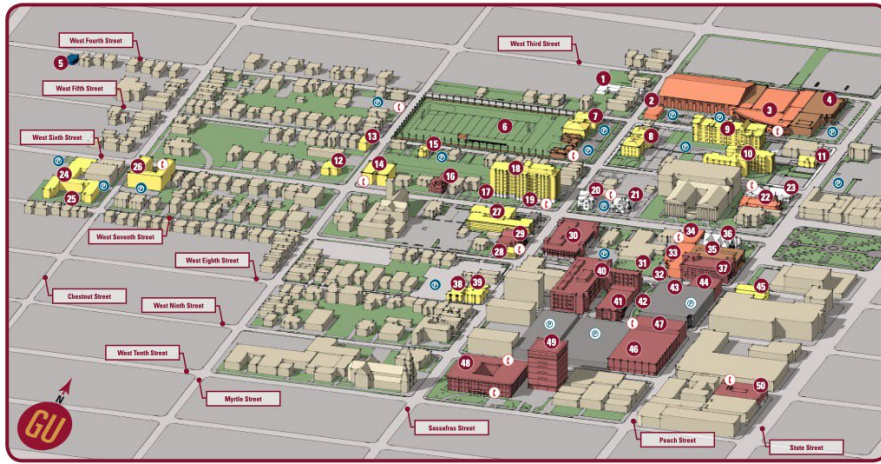
Sunday, March 19

7:30–8:30 AM	Meeting Check-In	Yehl Ballroom
7:30–8:30 AM	Continental Breakfast Bar	Yehl Ballroom
8:00–9:15 AM	PAS Board Meeting	Zurn 229
9:30–11:30 AM	Coffee Break	Haggerty
9:30–10:45 AM	Oral Presentations VII: Cancer	CAE 201
9:30–10:45 AM	Poster Session II (Poster set-up 8:00–9:00 AM): Ecology and Microbiology	CAE 201
9:30–11:00 AM		Waldron 219



Public parking decks are adjacent to campus. Hourly and daily rates are available.

# GANNON UNIVERSITY CAMPUS MAP



## ADMINISTRATION

- 37 Admissions- Global (International)
- 21 Admissions- Graduate
- 29 Admissions- Undergraduate
- 17 Campus Police & Safety
- 43 Campus Services
- 21 Cashier
- 21 Courthouse Commons
- 50 Erie Technology Incubator (ETI)
- 29 Glinik Manse
- 29 Human Resources
- 36 Old Main
- 1 Physical Plant
- 21 Registrar
- 50 Small Business Development Center (SSDC)

## STUDENT SERVICES

- 19 Health & Counseling Services
- 2 The Knight Club
- 34 Kalm Commons
- 22 Mary, Seat of Wisdom Chapel
- 3 Recreation & Wellness Center
- 23 Student Services Building
- 47 University Bookstore
- 33 Waldron Campus Center

## ACADEMIC

- 46 A.J. Palumbo Academic Center
- 37 Beyer Hall
- 41 Center for Advanced Engineering
- 50 Center for Business Ingenuity
- 44 Center for Communication and the Arts
- 16 Forensic Investigation Center
- 49 Knight Tower
- 30 Nash Library
- 48 Robert H. Morosky Academic Center
- 29 Schuster Theatre/Scottino Hall
- 40 Zum Science Center

## ATHLETIC FACILITIES

- 4 Carneval Athletic Pavilion
  - 35 Hammermill Center
  - 8 McConnell Family Stadium
- ## COMMUNITY
- 25 Gannon Goodwill Garden
  - 5 St. Joseph House of Faith in Action
- ## LANDMARKS
- 42 A.J. Way
  - 31 Friendship Green
  - 32 Gannon Arch

## RESIDENCE

- 15 253 W. Fifth St.
- 13 301 & 305 W. Fifth St. Apartments
- 28 632 Sassafras
- 39 Alpha Sigma Tau House
- 12 Catholic House
- 11 Delta Kappa Epsilon House
- 10 Finegan Hall
- 7 Freeman Hall
- 18 Harborview Apartments
- 26 Kenilworth Apartments
- 8 Lubiak Apartments
- 9 North Hall
- 45 Walker Building
- 27 Wehrle Hall
- 38 W. Eighth St. Apartments
- 24 West Hall
- 14 Wickford Apartments

- Gannon Assigned Parking
- Ⓟ Public Parking
- ⓘ Emergency Call Box

Revised 10/2015

# 98<sup>th</sup> Annual Meeting of the Pennsylvania Academy of Science

## GENERAL PROGRAM SESSIONS

ALL Abstracts are available in the Abstract Booklet located at

<https://pennsci.org/schedule2023/>

Program Co-Chairs: Jennifer Hayden and Rachael Zhu

### Saturday, March 18 MORNING SESSIONS

#### ORAL SESSION I: Aquatic Ecology

Saturday March 18 9:15-10:15 AM Location: **CAE 201**

Session Chair: **Dr. David Foster**

- |             |   |
|-------------|---|
| 9:15-9:30   | 1. <i>The underappreciated role of biotic factors in controlling potentially harmful algal blooms in the Hudson-Raritan Bay.</i> - <b>Flint, Evan*</b> , and <b>Megan Rothenberger</b> Lafayette College.   |
| 9:30-9:45   | 2. <i>Identifying critical thresholds for crown of thorns starfish concentration in reefs.</i> - <b>Hoitt, Julianna*</b> , and <b>Daniel Strombom</b> Lafayette College.  |
| 9:45-10:00  | 3. <i>Preliminary implementation of a multiplex quantitative PCR (qPCR) analysis to detect environmental DNA (eDNA) from chytrid fungus and ranavirus at Michaux State Forest, Pennsylvania.</i> - <b>Lopez-Soliz, Maurice*</b> , <b>Jordan Mears*</b> , and <b>Bernardo Mesa Cruz</b> Harrisburg University. |
| 10:00-10:15 | 4. <i>Aquaponics for education and research using a novel biodigester employing terrestrial earthworms <u>Eisenia fetida</u> in water.</i> - <b>Jahraus, Tyler*</b> , and <b>David Foster</b> Messiah University.   |

#### ORAL SESSION II: Microbiology

Saturday March 18 9:15-10:30 AM Location: **CAE 202**

Session Chair: **Dr. Rajinikanth Mohan**

- |             |  |
|-------------|--|
| 9:15-9:30   | 6. <i>Generation of bacteriophage T4-neutralizing antibodies using monoclonal technology.</i> - <b>Lin, Wei-Jin (Michael)*</b> , and <b>Lawrence Mylin</b> Messiah University.   |
| 9:30-9:45   | 7. <i>Finding the amino acids within members of the <u>Candida glabrata</u> PMU gene family that confer phosphatase activity.</i> - <b>Tulio, Dominic *</b> , and <b>Kelly Orlando</b> Immaculata University.                              |
| 9:45-10:00  | 8. <i>Psychrophilic and chitinolytic fluorescent <u>Pseudomonas</u> species are endomycic inhabitants of a clavarioid coral mushroom.</i> - <b>Hill, Kara*</b> , <b>Sydney Rager</b> , and <b>Rajinikanth Mohan</b> Mercyhurst University. |
| 10:00-10:15 | 9. <i>Isolation and characterization of sucrotolerant bacteria from honey and high sugar media.</i> - <b>Rettger, Jason*</b> , <b>Rajinikanth Mohan</b> , and <b>Kaitlyn Strosio</b> Mercyhurst University.                                |
| 10:15-10:30 | 10. <i>Prevalence of Caseinase Enzyme in Bacteria.</i> - <b>Rager, Sydney*</b> , <b>Marcie Hricovec</b> , and <b>Rajinikanth Mohan</b> Mercyhurst University.  |

**POSTER SESSION I: Molecular Biology, Genetics, Neuroscience, and Other**  
**Saturday March 18 9:45-11:45 AM      Location: Haggerty**  
**Session Chair: TBD**

11. *Comparison and extension of interrater agreement statistics under the two-rater dichotomous-response case with correlated decisions.*- **Tian, Zizhong\***, and **Shouhao Zhou** Penn State University.
12. *Role of SCAMP3 regulating CXCR4 trafficking.*- **Ordoñez Siza, Catalina\***, and **Quyen Aoh** Gannon University.
13. *Creatine upregulates the expression of anchoring proteins and creatine kinase in S16 Schwann cells.*- **Kimmel, Peyton\***, **Caitlyn Henry**, and **Angela Asirvatham** Misericordia University.
14. *MTHFR Genetic Variant.*- **Acey, Cassandra\***, and **Steve Ropski** Gannon University.
15. *Interrogating the role of retinal determination genes in the eyeless arachnid, Archegozetes longisetosus.*- **Joyce, Isabella\***, and **Austen Barnett** DeSales University.
16. *Erie's total solar eclipse 2024: education and engagement in the shadow of the moon.*- **Horne, David\*** Gannon University.
17. *Creatine reduces the effect of LPS-treated immortalized Schwann cells.*- **Wilcox, Mackenzie\***, **Caitlyn Henry**, **Peyton Kimmel**, and **Angela Asirvatham** Misericordia University.
18. *The Yellowstone earthquake of 1959.*- **McGarity, Kendall\***, and **Steven Ropski** Gannon University.
19. *circRNA expression in differentiating SH-SY5Y cells.*- **Kent, Tristan\***, and **Sean Georgi** York College of Pennsylvania.
20. *Comparative study of genetic mutations observed in independently isolated triclosan-resistant strains of Cronobacter muytjensii.*- **Jones, Sydney\***, and **K. Joy Karnas** Cedar Crest College.
21. *Production of nano-structured materials for use in hydrogen fuel cells.*- **Levri, Joseph\***, and **Richard Bell** Penn State University-Altoona.
22. *The impact of diabetes mellitus pathology and treatment on development of neurological and psychiatric disorders.*- **Kelly, Olivia\***, **Samantha Geci**, **Natalie Carris**, **Jillian Sullivan**, **James Colvin**, **Athena Martinez**, **Varvara Liashenko**, and **Emily Misko** Gannon University.
23. *Development of a cell-based vaccine against pancreatic cancer.*- **Bath, Sarah\***, **Daniel Guevin**, **John Harms**, and **Lawrence Mylin** Messiah University.
24. *The role of Tau protein in traumatic brain injury and alcohol sensitivity.*- **Collevecchio, Sara\***, **Ainsley Buia\***, **Raegan Lasczyck**, and **Valbona Hoxha** Lebanon Valley College.
25. *Examining Replication Protein A interactions with the cancer-associated proteins Ddc2p and Mec1p using the budding yeast Saccharomyces cerevisiae.*- **Bonser, Hannah\***, **Alison Edwards\***, and **André Walther** Cedar Crest College.
26. *Influence of social group size and habitat density on the development of Rocio octofasciata (Jack Dempsey) cichlid fish behavior.*- **Spagnola, Lily\***, and **Audrey Ettinger** Cedar Crest College.
27. *In vivo silencing of SWRI and NuA4 complex members in embryo and larval stages of Drosophila melanogaster.*- **Guillen-Hernandez, Nicholas\***, and **Matthew Johnson** University of Pittsburgh at Greensburg.
28. *Mapping the chromatin architecture of the larval salivary gland, polytene chromosomes in Bradysia coprophila.*- **Steppic, Gabrielle\***, **Jack Carone**, **Bailee Werner**, **Skyler Speciale**, and **Michael Foulk** Mercyhurst University.
29. *Changes in microbial populations and volatile organic compounds in an isolated decomposing tissue sample.*- **Krall, Colleen\***, **Sheana Ramcharan\***, **Michael Foulk**, **Jack Williams**, and **Luis Cabo-Perez** Mercyhurst University.
30. *Brain morphology and gene expression changes of Drosophila melanogaster in the brain and nervous system resulting from misregulation of Jazf-1.*- **Smith, Laila\***, **Oanh Nguyen\***, and **Matthew Johnson** University of Pittsburgh at Greensburg.

31. *Assessing the metastatic potential of a murine pancreatic cancer cell line and the effect of anti-fibrotic treatment on disseminated disease.*- **Lapp, Sean\***, and **John Harms** Messiah University.
32. *Optimizing a PCR-based technique to examine telomerase regulation in Saccharomyces cerevisiae.*- **Wolfinger, Madison\***, **Khushali Vyas**, and **Andre Walther** Cedar Crest College.
33. *DNA barcoding and spectroscopic analysis of the medicinal supplement Serenoa repens.*- **Townsley, Taylor\***, **Kelly Orlando**, and **Jiangyue Zhang** Immaculata University.
34. *Analysis of Lck expression and function in cultured rat microglia.*- **Morgan, Abigail\***, and **Jennifer Ness-Myers** Messiah University.
35. *Using quantitative PCR with high resolution melt analysis for rapid genotyping of brewery yeasts.*- **Large, Ashley\***, **Reagan O'Donnell\***, and **Andre Walther** Cedar Crest College.
36. *Analysis of myelination deficits in a zebrafish developmental hypoxia model.*- **Barr, Kelly\***, and **Jennifer Ness-Myers** Messiah University.
37. *Nicotine stimulates the expansion of trinucleotide repeats in Saccharomyces cerevisiae.*- **Cino, Anthony\***, **Angelique Bauer\***, **Joseph Colosi**, and **Lara Goudsouzian** DeSales University.
38. *Characterization of novel Drosophila Egf receptor signaling targets with roles in eggshell structure and morphology.*- **DeMelfi, Nickerson\***, **Sarah Stanski\***, **Cayla Stiles\***, and **Lisa Kadlec** Wilkes University.
39. *Circular RNA expression in immune cells following chemical stimulation.*- **Reid, Jonathan\***, **Mackenzie Tewksbury\***, **Kate Greenwood\***, and **Brian Gray** York College of Pennsylvania.
40. *Development of a Python GUI tool to study the atmosphere in the Arctic.*- **Chen, Tianjie\***, **Abu Asaduzzaman**, and **Jose Fuentes** Penn State University.
41. *Sodium fluoroacetate shows trends of dose- and age-dependent effects on citrate synthase and aconitase enzymes in zebrafish (Danio rerio).*- **Truong, Amy\***, **Carly Clayman**, **Piel Sarah**, and **Kilbaugh Todd** University of Pennsylvania.
42. *Crime scene saliva: distinguishing human vs canine contributors.*- **Lay, Nancy\***, **Joy Karnas**, and **Lawrence Quarino** Cedar Crest College.
43. *A study of musculoskeletal symptoms experienced by Lyme disease patients.*- **Alleman, Alexis\***, **Deborah Austin**, and **Kathryn Sarachan** Wilson College.
44. *A qPCR-based method to differentiate impact and expired blood spatter using the human oral microbiota.*- **Bratis, Audra\***, and **K. Joy Karnas** Cedar Crest College.
45. *Optimization of protein miraculin for use as a sweetener in soft drinks.*- **Rose, Emily\***, and **Monique Rogals** Marywood University.
46. *The effect of Dunc-13 during acute alcohol use post-traumatic brain injury.*- **Lasczyck, Raegan\***, **Gina Natale\***, and **Valbona Hoxha** Lebanon Valley College.
47. *Ground-Penetrating Radar to Measure Bathymetry and Sediment load of Halfway Dam, PA.*- **Brought, Charles\***, and **Ahmed Lachhab** Susquehanna University.

## Saturday, March 18 AFTERNOON SESSIONS

### ORAL SESSION III: Human Health

Saturday March 18 2:00-3:30 PM Location: **CAE 201**

Session Chair: **Dr. Dia Beachboard**

2:00-2:15

**48. Forskolin-mediated cAMP activation upregulates AKAP95 and TNF- $\alpha$  expression despite NF- $\kappa$ B downregulation in LPS-treated Schwann cells.**- **Henry, Caitlyn\***, and **Angela Asirvatham** Misericordia University.

- 2:15-2:30 **49. Baicalin shows antiviral activity in against HCoV-OC43 and HCoV-HKU1 nsp5 protease.- Franges, Jared\*, Alexis Armstrong\*, Morgan Thomas, Christopher Stobart, and Dia Beachboard** DeSales University.
- 2:30-2:45 **50. The effect of vaping coil temperature on the viability of oral bacteria.- Aluko, Marvelous\*, Erica Ward, and Catherine Santai** Harrisburg University of Science and Technology.
- 2:45-3:00 **51. A novel, minimally invasive, paper-based biomarker assay for molecular diagnosis of preeclampsia.- Taiwo, Oluwatomilola\*, and Leena Pattarkine** Harrisburg University of Science and Technology.
- 3:00-3:15 **52. Enterobacteriaceae species and antibiotic resistance: enhanced expression of efflux pump genes.- Jaber, Khoula\*, and K. Joy Karnas** Cedar Crest College.
- 3:15-3:30 **53. Use of circular arrays of Kohonen self-organizing maps for reference-free rotational alignment of photographs.- Wood, Britney\*, and Chris Kavanau** East Stroudsburg University.

### ORAL SESSION IV: Plant Biology

Saturday March 18 2:00-3:30 PM Location: **CAE 202**

Session Chair: **Dr. Megan Rothenberger**

- 2:00-2:15 **54. Species status assessment and seed bank analysis of the federally endangered northeastern bulrush (*Scirpus ancistrochaetus*).- Sterantino, Olivia\*, and Megan Rothenberger** Lafayette College.
- 2:15-2:30 **55. Venus flytraps are anesthetized with sevoflurane in a dose dependent manner.- Ajana-Adegboro, Okiki\*, Erica Ward, and Richard Jackson** Harrisburg University of Science and Technology.
- 2:30-2:45 **56. Optimizing the distance between tomato plants to limit aphid infestations through volatile compound.- Ball, Mary\*, and Daniel Strömbom** Lafayette College.
- 2:45-3:00 **57. Tissue culture propagation of Virginia bluebells, *Mertensia virginica*.- Jahraus, Tyler\*, and David Foster** Messiah University.
- 3:00-3:15 **58. Comparing the effects of multiple disturbances on deer browsing impacts of understory plant communities within Eastern deciduous forests.- Kulp, Noah\*, Nicholas Griffith, and Dr. David Osgood** Albright College.
- 3:15-3:30 **59. Making plant-pollinator data collection cheaper for restoration and monitoring.- Bruninga-Socular, Bethanne\*, Eric Lonsdorf, Ian Lane, Zachary Portman, and Daniel Cariveau** Albright College.

### ORAL SESSION V: Environmental Science

Saturday March 18 3:45-5:00 PM Location: **CAE 201**

Session Chair: **Dr. Steve Ropski**

- 3:45-4:00 **60. Population and genetic consequences of habitat fragmentation in wood frogs (*Lithobates sylvaticus*).- Winters, Declan\*, and Megan Rothenberger** Lafayette College.
- 4:00-4:15 **61. When a duck nests on your green roof.....again!- Mamani, Della\*, and Steve Ropski** Gannon University.
- 4:15-4:30 **62. Tree-rings reflect the impact of climate change on high elevation *Pinus albicaulis* (whitebark pine) in Northern California.- Porter, Savannah\*, and Christopher Dolanc** Mercyhurst University.
- 4:30-4:45 **63. Bioremediation of acid mine drainage using *Pleurotus ostreatus* (oyster mushroom) mycelium.- Lazar, Michael\*, Jacquelyn Maddox, and Akeisha Belgrave** Harrisburg University of Science and Technology.

- 4:45-5:00 **64. A census of the bat population of Gannon University, Erie, PA.- Till, Sarah\*, Rebekah Hollenbeck, and Steven Ropski** Gannon University.

## **ORAL SESSION VI: Terrestrial Ecology and Technology**

Saturday March 18 3:30-5:00 PM Location: **CAE 202**

Session Chair: **Dr. Steve Mech**

- 3:30-3:45 **65. Development of a method for rapid boldness scoring of individual swift fox (*Vulpes velox*) during pen husbandry visits and assessment of its application across varying populations.- Runyan, Rose\*, Sherri Buerdsell, Deborah Austin, Kimberly R. Todd, Nucharin Songsasen, and Hila Shamon** Wilson College.
- 3:45-4:00 **66. Flat physics in the laboratory: generation and study of flow patterns in a 2-D Soap Film.- Horne, David\*, and Lily Zheng** Gannon University.
- 4:00-4:15 **67. Prescribed fire severity changes ground beetle (Coleoptera: Carabidae) taxonomic and functional community composition.- Mason, Jr., Stephen C.\*, Vaughn Shirey, Evan S. Waite, Michael R. Gallagher, and Nicholas Skowronski** Immaculata University.
- 4:15-4:30 **68. Frequency of ticks on *Peromyscus* variation by year and habitat.- Mech, Stephen\*** Albright College.
- 4:30-4:45 **69. Passive acoustic monitoring using artificial intelligence (AI) reveals daily flight activities of roosting *Chaetura pelagica* (Chimney swifts) at Mercyhurst University in Erie, PA.- Campbell, J. Michael\*, and John Otto Campbell** Mercyhurst University.
- 4:45-5:00 **70. Teaching R to undergraduate ecology students: lessons learned and recommendations.- Auker, Linda\*** Misericordia University.

## **Sunday, March 19 MORNING SESSIONS**

### **ORAL SESSION VII: Cancer**

Sunday March 19 9:30-10:45 AM Location: **CAE 201**

Session Chair: **Dr. Brad Engle**

- 9:30-9:45 **71. Analyzing the effect of RPA phosphorylation on genetic and physical interactions with DNA repair proteins in *Saccharomyces cerevisiae*.- Franzone, Katherine\*, and Andre Walther** Cedar Crest College.
- 9:45-10:00 **72. Effects of the beta blocker propranolol on human glioblastoma migration and cytotoxicity.- Wineburg, Morgan\*, Kathryn Sarachan, and Brad Engle** Wilson College.
- 10:00-10:15 **73. Effects of combination treatments of epigenetic inhibitors (belinostat and 5-azacytidine) on human glioblastoma cells.- Lepouski, Kelly\*, Brad Engle, and Kathryn Sarachan** Wilson College.
- 10:15-10:30 **74. miR-1307 isoforms, novel population-specific oncomiRs, are associated with survival in African American and European American kidney cancer patients.- Bart, Alex\*, and Khadijah Mitchell** Lafayette College.
- 10:30-10:45 **75. Investigating differentially expressed genes, functional immunobiology differences, and survival in African Americans and European Americans with distinct renal cell carcinoma subtypes.- Greenberg, Samantha\*, and Khadijah Mitchell** Lafayette College.



**Poster Session II: Ecology and Microbiology**  
**Sunday March 19 9:30-11:00 AM    Location: Haggerty**  
**Session Chair: Dr. Michael Ganger**

5. *Testing for the presence of Batrachochytrium dendrobatidis and B. salamandrivorans in a local population of Eurycea longicauda.*- **Jerome, Evan\***, **Michael Shin**, and **Erik Lindquist** Messiah University.
76. *Predator-prey relationships within natural, restored, and created vernal pools.*- **Lebish, Madison\***, and **Megan Rothenberger** Lafayette College.
77. *Establishing baseline conditions prior to dam removal in Bushkill Creek, PA.*- **Kelshaw, Charles\***, and **Megan Rothenberger** Lafayette College.
78. *Cactus roots harbor an endophytic growth promoting Pseudomonas species.*- **Foriska, Isabella\***, **Collin Olson**, and **Rajinikanth Mohan** Mercyhurst University.
79. *The effect of acidification on the mineralization rate of RAS effluent in anaerobic batch reactors for reuse of a naturally-derived hydroponic fertilizer.*- **Biever, Brent\***, **Maurice Lopez-Soliz\***, **Ashly Ramos\***, **Joseph Tetreault**, and **Rachel Fogle** Harrisburg University of Science and Technology.
80. *Young-of-year Lepomis macrochirus (bluegill) and Lepomis gibbosus (pumpkinseed) show significant differences in their gut microbiome and pharyngeal apparatus.*- **Borowicz, Michael\***, **Weston Hrin**, **Angela Vicini**, **Greg Andraso**, **Russell Minton**, and **Michael Ganger** Gannon University.
81. *Soil bacteria affect rhizoid development in the fern Ceratopteris richardii: initial investigations of the patterns and potential mechanisms.*- **Samuels, Andrew\***, **Erin Renwick**, and **Michael Ganger** Gannon University.
82. *Dragonflies and damselflies from Franklin Parker Preserve in the New Jersey Pinelands.*- **Steinbicker, Mary\***, **Chip Krilowicz**, and **Stephen C. Mason, Jr.** Immaculata University.
83. *Yearly variation in the population density and reproduction of an aquatic invader, Potamopyrgus antipodarum.*- **Bailey, Nicole\***, and **Edward Levri** Penn State University-Altoona.
84. *Using the oleaginous fungus Cryptococcus neoformans as a source of lipids for the production of biodiesel fuel.*- **Delgado, Juliana\***, **Kendall Heiney\***, **Andre Walther**, and **Lindsey Welch** Cedar Crest College.
85. *Isolation of antibiotics producing bacteria from soil.*- **Kroznuskie, Alexandra\***, **Phoenix Marr-Jones\***, **Kayleigh LeDouaron\***, **Alexis Armstrong**, **Morgan Thomas**, and **Dia Beachboard** DeSales University.
86. *Cloning and expression of potential innate immune targets of coronavirus nsp5 protease.*- **Kumar, Nidhi\***, **Jared Franges**, **Brennan Gerancher**, and **Dia Beachboard** DeSales University.
87. *The effects of a model invasive epibiont on the anchoring and burrowing rates of freshwater unionids.*- **Raczkowski, Alyssa\***, and **Linda Auker** Misericordia University.
88. *Avian predation of insects on corn (Zea mays): effects of general herbivore induced plant volatiles and weather conditions.*- **Dotta, Austin\***, **Alex Huynh**, **Caitlin McNamara**, **Mercille Nguyen**, **Johnathan Kratzenmoyer**, and **Francesca Sagarese V** DeSales University.
89. *Post fire effects on plant vigor in the New Jersey Pinelands National Reserve.*- **Wolfgang, Jessica\***, **Vaughn Shirey**, and **Stephen C. Mason, Jr.** Immaculata University.
90. *A test of the enemy release hypothesis using the invasive New Zealand mud snail.*- **Suter, Gavin\***, and **Edward Levri** Penn State University-Altoona.
91. *Extraction of antibiotic producing bacteria from soil sample.*- **Adesola, Opeoluwa\***, and **Meda Higa** York College of Pennsylvania.
92. *Digitizing the lost biological collections at Hog Island Audubon Camp, Maine.*- **Dougherty, Alice\***, **Eric Snyder**, **Vaughn Shirey**, and **Stephen C. Mason, Jr.** Immaculata University.
93. *Stream chemistry and New Zealand mud snail density and reproduction.*- **Harlow, Gracie\***, and **Edward Levri** Penn State University-Altoona.
94. *Influence of microbiomes between humans and pet cockatiels.*- **Crowell, David\***, and **Kelly Orlando** Immaculata University.

95. *Pursuit of understanding the mystery of marcescence in American Beech trees.*- **Miller, John\***, and **Andrew Samuelsen\*** Albright College.
96. *Comparison of bacterial species in three diverse Lehigh Valley landscapes.*- **Glenn, Madeline\***, **Gabrielle Seagreaves\***, **Joseph Colosi**, and **Lara Goudsouzian** DeSales University.
97. *Preliminary study on hybridization and evaluation of spring varieties of flax (Linum usitatissimum) in South Central PA.*- **Boyce, Katelyn\***, and **Janet Matanguihan** Messiah University.
98. *Multifactor analysis of the spread of deer tick (Ixodes scapularis) borne diseases in Pennsylvania.*- **Wallace, Ryder\***, **Jeffrey Bardwell**, and **Brad Engle** Wilson College.
99. *Gypsy moths (Lymantria dispar) ovipatory in Michaux State Forest based on tree species and age.*- **Mountz, Camryn\***, **Jeffrey Bardwell**, and **Sherri Buerdsell** Wilson College.
100. *Exploration of antibiotic mechanism for Berberis spp. extracts and berberine.*- **Hart, Joel\***, **Abigail Casey**, and **David Foster** Messiah University.
101. *Evidence of the presence of Neotyphodium lolii in Northwestern Pennsylvania.*- **Curtiss, Katherine\***, and **John Campbell** Mercyhurst University.
102. *Comparative study of the effect of precipitation on microplastics in the Conococheague Creek.*- **Rosander, Kara\***, **Deborah Austin**, and **Sherri Buerdsell** Wilson College.
103. *Analysis of biodiversity within freshwater mussel populations inhabiting Conneaut Creek, Erie PA.*- **Shaw, Andrew\***, and **J. Michael Campbell** Mercyhurst University.
104. *The creation and testing of fungal based biomaterials for multipurpose use.*- **Rogers, Karina\***, **Rabab Alamaury**, **Sarah Dubrul**, **Keaton Bryson**, **Gary Vanderlaan**, **Davide Piovesan**, and **Matt Gacura** Gannon University.
105. *What's hiding on our lab floor? Student sourcing antibiotic discovery.*- **Nemec, Ryleigh\***, **Whitney Cabrera**, and **Jennifer Hayden** Cedar Crest College.
106. *Gamma proteobacteria are the dominant culturable endophytes in the stems and flowers of the ghost plant, Monotropa uniflora.*- **Flores, Maria\***, **Kaitlyn Strocio\***, and **Rajinikanth Mohan** Mercyhurst University.
107. *Testing the model: exploration of a predictive mathematical model for antibiotic resistance in bacteria.*- **Jaber, Khoula\***, and **K. Joy Karnas** Cedar Crest College.
108. *Implication of Carnobacterium species in the fermentation of indigenous yogurt.*- **Brown, Colin\***, and **Rajinikanth Mohan** Mercyhurst University.

## List of Restaurants Near Gannon University Campus

Flagship City Food Hall

22 N. Park Row, Erie

Vendors:

- Straw Hat
- Shawarma Station
- Taste of Love
- Noodlelove
- Jo's Brooklyn Bagel
- Dina's Dominican
- Taste & See
- Perry's Pizza
- North Row Philly

Voodoo Brewing Co.

101 Boston Store Place, Erie

El Amigo Mexican Grill

333 State Street, Erie

U Pick 6 Tap House

333 State Street #110, Erie

Habibi Mediterranean Cuisine

127 W 14<sup>th</sup> Street, Erie

Stevo's Pizza

1019 State Street, Erie

Chick-Fil-A

In the Gannon University

Waldron Student Center

Jimmy Johns

515 State Street #1, Erie

McDonalds

1115 Sassafras Street, Erie

*A very special thanks to Adam Bell, Robert Denham, A'Darius Porter, the GU printshop, and the Gannon University faculty, staff, student volunteers, and administrators who made this event possible!*



Please join us at the 99<sup>th</sup> Annual Pennsylvania Academy of Science meeting held at Messiah University

