97th Annual Meeting of the Pennsylvania Academy of Science

March 25-27, 2022

Established 1924

Pennsylvania Academy of Science

at

DeSales University

Program Booklet

Welcome to DeSales University

DeSales University, in Center Valley, Pennsylvania, is a private, coeducational, four-year liberal arts university affiliated with the Roman Catholic Church. Founded by the Oblates of Saint Francis de Sales in 1965, the 550-acre suburban campus is located 50 miles north of Philadelphia and about 90 miles south of New York City. A total enrollment of nearly 3,000 includes undergraduate day and evening students and graduate students. DeSales has approximately 130 full-time faculty members and offers more than 35 bachelor's degrees and 13 graduate programs in a wide range of disciplines.

Gambet Center for Business and Healthcare

The Gambet Center for Business and Healthcare is a showcase of green architecture featuring environmentally advanced design consistent with the Leadership in Energy and Environmental Design (LEED) certification standards of the U.S. Green Building Council. The 77,000 sq. ft. facility includes state-of-the-science simulation laboratories to replicate clinical scenarios specific to adult, pediatric and birthing care, as well as globally integrated classrooms and administrative operations for undergraduate and graduate health care and business degree programs.

Welcome Reception
Friday, March 25 from 7:00–9:00 PM, Gambet Center
Wine, Cheese, and Hors d'oeuvres served

Welcome remarks from:

Susan Wild
United States House of Representatives, 7th Congressional District

Rev. James J. Greenfield, OSFS, Ed.D.
President of DeSales University

Mathew Wallace, Ph.D.
President of PAS

Welcome Message from Dr. Matthew Wallace
President, Pennsylvania Academy of Science

Welcome to the 97th Annual Meeting of the Pennsylvania Academy of Science! We are extremely excited to host our first in-person since 2019, at DeSales University in Center Valley PA. A special thanks to the faculty, students, and staff at DeSales for making this meeting a reality! One of our most important missions is to support student research, and we are excited to announce our continued expansion of funding opportunities in the form of student research grants and travel grants to the meeting. I want to thank all of the student presenters and faculty sponsors for their hard work and continued perseverance in pursuit of their research goals.

Some items of note:

- On Saturday afternoon at 2:15, we are hosting a symposium on *Snapshots of a Superfund Site: An Interdisciplinary Approach To Ecological Restoration*. The symposium will be chaired by Dr. Diane Husic and will feature six presentations.
- We will have two Student Lunch Panels on Saturday, both featuring DeSales alumni, on *Careers in Science* and *Graduate Schools*. Student attendees will receive a free boxed lunch. Thank you to the panelists!
- Please plan to attend our noon business meeting to learn more about the Academy and the Board of Directors. We encourage our members to take on leadership roles in the Academy!
- Our traditional keynote address will take place at 1PM on Saturday. *Please note the change from our traditional keynote time on Saturday evening*. Dr. Karen Goldberg from the University of Pennsylvania will examine the current energy landscape and discuss her research on alternative fuels.
- We are excited for the return of the Anne Spychala Student Award Competition for this year's meeting! Good luck to all students that entered the competition and thank you to the volunteer judges!

Enjoy the meeting!

Matt Wallace, President of PAS

2022 Keynote Address

Dr. Karen Goldberg

Saturday March 26, 2022 1:00-2:00PM Location: DUC Commonwealth Room

The call for reducing CO_2 emissions and moving to renewable energy sources has never been louder than it is today. Yet shifting energy production completely to renewable sources will require identifying new feedstocks for our carbon materials. Petroleum is not only the source of our fuels, but is also the source of the chemicals that we use to make most all of the consumer goods that we have come to rely on. Our medicines, detergents, paints, plastics, fibers, fabrics, and almost everything we use on a daily basis, are currently derived from petroleum. The carbon-based building blocks used to make all these consumer goods have been available in sufficient supply and at low cost due to the economy of scale of the enormous oil refining industry. Fundamentally new pathways, from new sources, to the chemicals and liquid fuels that we depend on must be developed to successfully transition to a sustainable future. In this presentation, we will look at our current energy landscape, projections on where we are going, and then look more closely at some of the exciting strategies that our research group and others are pursuing to allow the use of natural gas and carbon dioxide to sustainably prepare our chemicals and fuels.

Karen Goldberg is the Vagelos Professor in Energy Research and Chemistry at the University of Pennsylvania (UPenn). She also serves as Director of the Vagelos Institute of Energy Science and Technology, which focuses its research efforts on providing sustainable solutions to the world's present and future needs for energy. Goldberg earned her A.B. from Barnard College and her Ph.D. in chemistry from the University of California, Berkeley. After postdoctoral study at The Ohio State University, she served on the faculty of Illinois State University, a primarily undergraduate institution, and the University of Washington, before moving to UPenn in 2017. Professor Goldberg is best known for her work developing mechanistic understanding of fundamental organometallic reactions and for application of that knowledge to the creation and optimization of new catalytic systems. She is an elected Fellow of the American Association for the Advancement of Science, and a member of the American Academy of Arts and Sciences and the National Academy of Sciences.

Meeting Wireless Access

Wireless Network: DeSales Guest

Visit the PAS website for Conference information

Pennsci.org

Student Lunch Panels

Saturday, March 26 12:00-12:45PM

Panel I: *Careers in Science*
Location: *Gambet 153*
Moderator: *Austen Barnett, DeSales University*

DeSales University alumni employed in a variety of science-related fields will discuss their professional pathways and take questions from the audience.

Christy Carbonaro
Senior Quality Engineer
Avantor Sciences

Janalyn Frederick
Associate Scientist
Charles Rivers Laboratories

Kelsey Elliott
Supervisor, Molecular Laboratory
St. Luke's University Health Network

Brian Wehby
Global Operations Specialist
Merck

Panel II: *Graduate Schools*
Location: *Gambet* 155
Moderator: *Alexander Krupka, DeSales University*

DeSales University alumni previously or currently enrolled in post-baccalaureate programs will discuss their educational trajectories and take questions from the audience.

Emily Esquea
Molecular and Cell Biology and
Genetics Graduate Program
Drexel University

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

Presentations at the 97th Annual Meeting of the PAS

School/Organization	Number of Presentations
Lafayette College	18
Cedar Crest College	12
DeSales University	9
Wilson College	9
Lycoming College	7
York College of Pennsylvania	7
Gannon University	6
Immaculata University	6
Messiah University	6
Elizabethtown College	5
King's College	4
Mercyhurst University	4
Penn State University-Altoona	3
Albright College	2
Cabrini University	2
East Stroudsburg University	2
Muhlenberg College	2
Wilkes University	2
Bloomsburg University	1
California Institute of Technology	1
Conservation Ecology Center, Smithsonian Conservation Biology Institute, Front Royal VA	1
Delaware Valley University	1
Drexel University	1
Georgetown University	1
Harrisburg University of Science and Technology	1
Lebanon Valley College	1
Lehigh Gap Nature Center	1
Marywood University	1
Moravian University	1
New Mexico Water Science Center, U.S. Geological Survey	1
Penn State University-Harrisburg	1
Somerset Physical Therapy, Princess Anne, MD	1
University of Oregon	1
University of Texas Rio Grande Valley	1

Presentations sponsored by 30 Pennsylvania colleges and universities, and additional institutions.

97th Annual Meeting of the Pennsylvania Academy of Science

All events held on the DeSales University campus
Campus map on back cover

SCHEDULE OF ACTIVITIES AT A GLANCE

Friday, March 25		
5:00-6:30 PM	**PAS Board Meeting**	**Gambet Center 232**
6:00-7:00 PM	**PAS Board Dinner**	**Gambet Center 232**
7:00-8:00 PM	**Meeting Check-In**	**Gambet Center Atrium**
7:00–9:00 PM	**Reception**	**Gambet Center Atrium**
7:30 PM	**Welcome Remarks:** *Fr. James Greenfield, Dr. Matthew Wallace, United States Representative Susan Wild*	**Gambet Center 153/155**

Saturday Morning Sessions, March 26		
8:00–9:00 AM	**Early Meeting Check-In**	**DeSales University Center (DUC) Reception Gallery**
8:55–9:10 AM	**Welcome:** *Dr. Robert Blumenstein, Dean of Undergraduate Education*	**DUC Commonwealth Room**
9:30–11:00 AM	**Meeting Check-In**	**DUC Reception Gallery**
9:30–11:30 AM	***Coffee Break***	**DUC Reception Gallery Gambet Center Atrium**
9:15–10:15 AM	**Oral Presentations I:** *Aquatic Ecology*	**Gambet Center 206**
9:45–11:00 AM	**Oral Presentations II:** *Terrestrial Ecology*	**Gambet Center 153**
10:00–11:15 AM	**Oral Presentations III:** *Cancer I*	**Gambet Center 155**
10:00–12:00 PM	**Poster Session I (Poster set-up 9:00-10:00 AM)** *Genes, Proteins, Cells, and Disease*	**DUC Wood and Heritage Rooms**

Saturday Lunch Sessions, March 26		
11:45–1:00 PM	**Lunch: Pick up outside Lunch panels/Business Meeting**	
12:00-12:45 PM	**Student Lunch Panel:** *Career Panel*	**Gambet Center 153**
12:00-12:45 PM	**Student Lunch Panel:** *Graduate School Panel*	**Gambet Center 155**
12:00-1:00 PM	**PAS Business Meeting/Lunch (Open to all members)***	**Hurd Auditorium**
1:00-2:00 PM	**Keynote:** *Dr. Karen Goldberg*	**DUC Commonwealth Room**

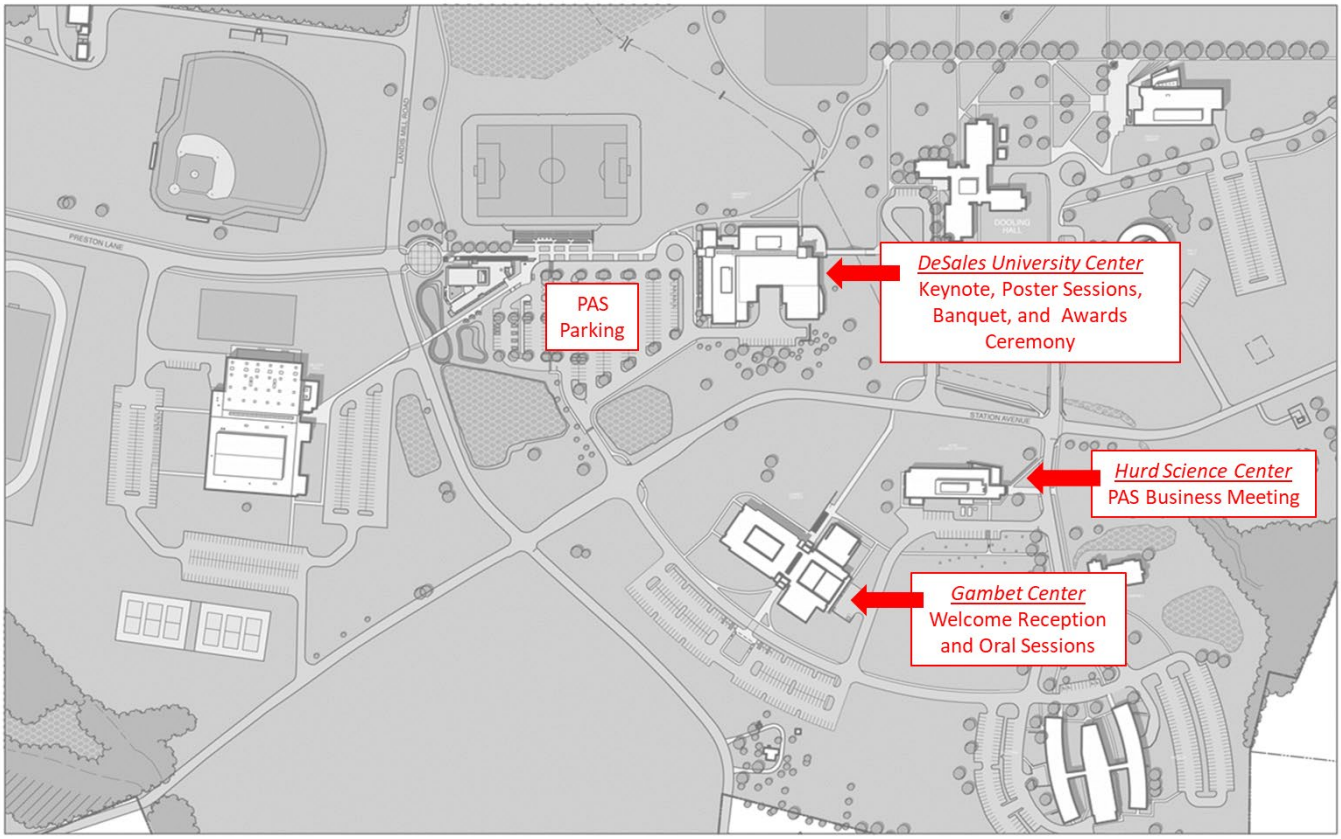
*** Business Meeting Election slate found at pennsci.org.**

Saturday Afternoon, Evening Sessions, March 26		
2:15–3:15 PM	**Oral Presentations IV:** *Cancer II*	**Gambet Center 153**
2:15–3:15 PM	**Oral Presentations V:** *Microbiology*	**Gambet Center 155**
3:30–5:00 PM	**Oral Presentations VI:** *Human Health*	**Gambet Center 206**
2:15–4:55 PM	**Symposium:** *Snapshots of a Superfund Site: An Interdisciplinary Approach to Ecological Restoration*	**Gambet Center 232**

2:00–4:00 PM	***Coffee Break***	**Gambet Center Atrium**
5:30 PM	**Dinner**	**DUC Commonwealth Room**

Sunday, March 27

7:30–8:30 AM	**Meeting Check-In**	**DUC Reception Gallery**
8:00-9:30 AM	**PAS Board Meeting**	**Gambet Center 232**
9:00–11:00 AM	***Coffee Break***	**DUC Reception Gallery Gambet Center Atrium**
9:45–11:15 AM	**Oral Presentations VII:** *Molecular Biology/Biochemistry*	**Gambet Center 153**
9:45-11:45 AM	**Poster Session II (Poster set-up 8:00-9:45 AM)** *Chemistry, Ecology, Developmental Biology, and Behavior*	**DUC Wood and Heritage Rooms**
11:45-12:30 PM	**Closing Remarks and Awards Ceremony**	**DUC Commonwealth Room**



97th Annual Meeting of the Pennsylvania Academy of Science Symposium

Snapshots of a Superfund Site: An Interdisciplinary Approach to Ecological Restoration

Symposium Chair: Dr. Diane Husic

SPECIAL SYMPOSIUM

Saturday March 26 2:15-4:55 PM Location: **Gambet Center 232**

2:15-2:25	*Introduction and Welcome* **Dr. Diane Husic**, Moravian University
2:25-2:43	*The Ore Minerals and Mines that Supplied the Smelters at Palmerton* **Dr. Dru Germanoski**, Lafayette College
2:43-3:01	*The Toxicity of Heavy Metals and Their Impact at the Lehigh Gap Area* **Dr. H. David Husic**, Lafayette College
3:01- 3:19	*Turning to Nature-based Solutions to Restore Habitat* **Dan Kunkle**, Emeritus Director, Lehigh Gap Nature Center
3:19-3:29	Q & A
	Short Break
3:40-3:45	*Introduction to Session* – Part II (Indicators, the value of research and partnerships)
3:45-4:03	*The Behavior of Metals in Groundwater and Surface Water Adjacent to the Former Zinc Smelter* **Johanna Blake**, New Mexico Water Science Center, U.S. Geological Survey (virtual contributor)
4:03-4:21	*Birds of Lehigh Gap, Pennsylvania: Indicators of Damage and Recovery* **Corey Husic**, California Institute of Technology (virtual contributor)
4:21-4:39	*Analyzing the Success of Restoration and Adaptative Management Strategies* **Dr. Diane Husic**, Moravian University
4:39-4:49	*Q & A*
4:49-4:55	*Closing Remarks* **Dr. Diane Husic**, Moravian University

SYMPOSIUM Description

In 1897, the New Jersey Zinc Company decided to build a smelting plant near the Lehigh River and Lehigh Gap of the Kittatinny Ridge where there was ready access to sources of zinc ores, coal, and rail lines. This decision led to the creation of the town of Palmerton, Pennsylvania and the company, as noted by historian Sally McMurray, “exemplified an important Progressive-era corporate response to the social problems created by industrial capitalism, a set of practices that historians loosely call ‘welfare capitalism’.” However, decades of smelter release of sulfur dioxide and heavy metals took a toll on the landscape. In 1982, the U.S. Environmental Protection Agency (US EPA) named Palmerton and the surrounding area as a Superfund site and added it to its National Priorities List for Superfund in 1983. The site is the largest Superfund site east of the Mississippi River. Although the U.S. EPA is the lead federal agency in the process to remediate the site, several other stakeholders have been involved in the restoration, research, and adaptive management of the site. Today, the Lehigh Gap is an exemplary story of recovery, partnerships, and community engagement, as well as the application of nature-based solutions – a long and complex story that is being pulled together in a book to be published by the Pennsylvania Academy of Sciences. In 2021, the United Nations launched the Decade on Ecosystem Restoration, and thus, it seemed appropriate to share a sampling of the scholarship that is to be a part of that book in a PAS mini-symposium.

97th Annual Meeting of the Pennsylvania Academy of Science

GENERAL PROGRAM SESSIONS

ALL Abstracts are available in the Abstract Booklet located at
https://pennsci.org/schedule2022/

Program Chair: Rachael Zhu

Saturday, March 26 MORNING SESSIONS

ORAL SESSION I: Aquatic Ecology

Saturday March 26 9:15-10:15 AM Location: **Gambet Center 206**
Session Chair: **Dr. Chris Dempsy**

9:15-9:30 **1**. *Effect of road proximity and habitat fragmentation on the dispersal and genetic diversity of the wood frog (Rana sylvatica) in natural and created vernal pools*.- **Wilson, Emily*, and Megan Rothenberger** Lafayette College.

9:30-9:45 **2**. *Characterization of Phytoplankton and Bacterioplankton Communities in the Eutrophic Raritan Bay*.- **Best, Austin*, and Megan Rothenberger** Lafayette College.

9:45-10:00 **3.** *A five year (2016-2021) summary of water quality, zooplankton, and fish community changes in Presque Isle Bay, Erie Pennsylvania*.- **Dempsey, Chris*, Michelle Kuns, and Greg Andraso** Gannon University.

10:00-10:15 **4.** *A survey of Hydra species in selected south central Pennsylvania lakes, and differences between species in dispersal-related behavior*.- **Morrill, Kayla*, Riley Moore*, Katie Hollen, Alexandra Gates, and Diane Bridge** Elizabethtown College.

ORAL SESSION II: Terrestrial Ecology

Saturday March 26 9:45-11:00 AM Location: **Gambet Center 153**
Session Chair: **Dr. Valbona Hoxha**

9:45-10:00 **5**. *The influence of alcohol after traumatic brain injury in Drosophila melanogaster*.- **Buia, Ainsley*, Nayab Baloch*, Macey Eberly, and Valbona Hoxha** Lebanon Valley College.

10:00-10:15 **6**. *Collective motion from attraction and burst-and-glide dynamics*.- **Tulevech, Grace*, and Daniel Strömbom** Lafayette College.

10:15-10:30 **7**. *Use of camera collars to monitor reintroduction risks to Oryx dammah, scimitar- horned oryx*.- **Klopp, Elijah*, M. Dana Harriger, Sonny Bleicher, and Katherine Mertes** Wilson College.

10:30-11:00 **8**. *Responses from bees, butterflies, and ground beetles to different fire and site characteristics: A global meta-analysis*.- **Mason, Stephen*, Vaughn Shirey, Lauren Ponisio, and Jon Gelhaus** Immaculata University.

ORAL SESSION III: Cancer I

Saturday March 26 10:00-11:15 AM Location: **Gambet Center 155**
Session Chair: **Dr. Khadijah Mitchell**

10:00-10:15 **9**. *Exploring the relationship between ClearCode34 gene expression, race, and genetic ancestry as risk factors for racial disparities in renal cell carcinoma survival*.- **Greenberg, Samantha*, and Khadijah Mitchell** Lafayette College.

10:15-10:30 **10**. *African American-enriched loss of heterozygosity on chromosome 3q24 impacts scramblase tumor suppressor genes in kidney cancer patients*.- **Bart, Alex*, and Khadijah Mitchell** Lafayette College.

10:30-10:45 **11**. *Comparing the association between genetic ancestry, DNA methylation, and patient survival in African Americans and European Americans with lung cancer*.- **Osei-Gyening, Isaiah*, and Khadijah Mitchell** Lafayette College.

10:45-11:00 **12**. *Comparing active DNA demethylation in lung cancer patients with high and low west african ancestry*.- **Marks, James*, and Khadijah Mitchell** Lafayette College.

11:00-11:15 **13**. *Somatic copy number variation in African Americans and European Americans with renal cell carcinoma*.- **Ortiz Fernandez, Destiny *, and Khadijah Mitchell** Lafayette College.

POSTER SESSION I: Genes, Proteins, Cells, and Disease

Saturday March 26 10:00-12:00 PM Location: **DUC Conference Rooms**
Session Chair: **Dr. Chris Brey**

14. *The combinatorial effects of lumefantrine and tetrandrine on the radiation sensitivity of U-87 glioblastoma cells*.- **Vargas, Shaylene*, Brad Engle, and Kathryn Sarachan** Wilson College.

15. *The roles of lipopolysaccharide and flagellin in the TLR4 and TLR5 signaling cascades*.- **Newman, Thalia*, Annarose Taylor*, Liew Chun Wai, and Robert Kurt** Lafayette College.

16. *Characterizing ferroptosis in the model invertebrate Hydra vulgaris*.- **Dardis, Jackson*, Darci Ott, Victor Witkofski*, and Diane Bridge** Elizabethtown College.

17. *Correlating in vitro matrix deposition and COL1A expression with tumor fibrosis in human pancreatic cancer*.- **Buckwalter, Silas*, Courtney Williams, and John Harms** Messiah University.

18. *The Role of SCAMP3 in CXCR4 Trafficking*.- **Ordoñez, Catalina*, Mikyung Jang, and Quyen Aoh** Gannon University.

19. *Identification of horizontal gene transfer between Caudovirales bacteriophages and bacteria for the hemolysin-coregulated protein*.- **Monostra, Megan*, and Vinayak Mathur** Cabrini University.

20. *Molecular genetic evidence for the existence of a hybrid cross between Largemouth bass, Micropterus salmoides, and Smallmouth bass, Micropterus dolomieui*.- **King, Erin*, and Ann Yezerski** King's College.

21. *Chromatin Protects DNA from Alkylation Damage*.- **Rotondo, Julianna*, and Daniel Ginsburg** Immaculata University.

23. *Chemotaxis as a novel paradigm for assessment of mutant behavior*.- **Matthews, Mikayla*, John Minora, and Christopher Brey** Marywood University.

24. *Alterations in the non-coding transcriptome of glucose-stressed human glomerular epithelial cells may indicate novel biomarkers associated with early diabetic kidney disease*.- **Castaneira, Ryan*, Daniel Morris, Josie Rice, Savannah Kreiser, and Nik Tsotakos** Penn State University-Harrisburg.

2**5**. *The evolution of resistance: how quickly do bacteria evolve antibiotic resistance?*- **Masters, Ashlynn*, and Cynthia Keler** Delaware Valley University.

26. *Flow cytometric and microscopic analyses of antimicrobial properties exhibited by protein extracts purified from Eisenia hortensis*.- **Mazza, Samantha*, and Sheryl Fuller-Espie** Cabrini University.

27. *Phenotypic and genomic characterization of a novel Pedobacter recovered from a freshwater creek in Northcentral Pennsylvania*.- **Davila, Juan*, and Jeffrey Newman** Lycoming College.

28. *Metagenomic analysis of contaminated soils near Erie Coke Corporation in Erie, PA*.- **Kowalski, Rae Ann*, Jared Fagan*, Colin Olson, Zachary Buchman, Nicole Schwab, Jenna Kunst, Rajinikanth Mohan, and Michael Foulk** Mercyhurst University.

29. *An evaluation of Salmonella spp. and Escherichia coli in feline commercial raw meat-based diet and kibble*.- **Cook, Brandi*, Adam Cooke, and Deborah Austin** Wilson College.

30. *A time-course comparison of bacterial communities in different soil environments using next-generation sequencing*.- **Brown, Thomas*, Hannah Laughner*, Allison Mattern*, Joseph Colosi, and Lara Goudsouzian** DeSales University.

31. *Generating neutralizing monoclonal antibodies against bacteriophage T4: designing a screening assay*.- **Zondory, Hunter*, Lily Velazco*, and Lawrence Mylin** Messiah University.

32. *Genomic comparisons between yellow and pink Pedobacter species*.- **Branigan, Carter*, James Johnson*, and Jeff Newman** Lycoming College.

33. *Phenotypic and genomic characterization and comparison of two novel Pedobacters recovered from a freshwater creek in Central Pennsylvania*.- **Davila, Dayana*, and Jeffrey Newman** Lycoming College.

34. *The compost project*.- **Panetta, Sydnie*, and Susan Cronin** Immaculata University.

35. *Testing antiviral activity of baicalin against the mouse hepatitis virus protease*.- **Franges, Jared*, and Dia Beachboard** DeSales University.

36. *Coronavirus cleavage of host proteins using the nsp5 protease*.- **Kumar, Nidhi*, Brennan Gerancher, Jared Franges, and Dia Beachboard** DeSales University.

37. *Identifying novel antibiotics from soil bacteria*.- **Armstrong, Alexis*, Alexandra Kroznuskie, Ryan Stackhouse, Brennan Gerancher, Nidhi Kumar, Jared Franges, and Dia Beachboard** DeSales University.

38. *Impacts of e-liquids upon macrophage phagocytosis of Escherichia* coli.- **Shah, Raivat*, Emily Luo*, and Giancarlo Cuadra** Muhlenberg College.

39. *Comparison of AutoMLST, GTDB, rpoB, and 16s trees in evaluating the position of novel Pedobacter species, as well as known Pedobacter species, in a potential reclassification*.- **Saar, Lily*, Kiyah Bell , Dayana Davila, and Jeffrey Newman** Lycoming College**.**

40. *Secretory carrier membrane protein 3's (SCAMP3) role in β-amyloid production and secretion*.- **Zarilla, Alexandria*, Daniel Oar*, Joshua Nel*, and Quyen Aoh** Gannon University.

41. *The detection of SARS-CoV-2 RNA in wastewater to estimate COVID-19 occurrence at York College of Pennsylvania*.- **Keller, Caleb*, and Meda Higa** York College of Pennsylvania.

42. *The Role of trans-Golgi Network and Endosomal Adaptors in Growth of Saccharomyces cerevisiae*.- **Madden, Ellen*, Mia Krevh*, and Quyen Aoh** Gannon University.

43. *Exploring differential circRNA expression in a model T cell line*.- **Greenwood, Kate*, Gabriel Castro*, Alexia Williams*, and Brian Gray** York College of Pennsylvania.

44. *Roscovitine and Antimetabolites Inhibition of CDK5 Activates a Potential PI3K Involvement in Cancer Progression and Aggression*.- **Nguyen, Tiffany*, Bianca Caresosa*, and Ronald Kaltreider** York College of Pennsylvania.

45. *The search for a more specific histone deacetylase Inhibitor*.- **Pezak, Corey*, James Murray, and Daniel Ginsburg** Immaculata University.

46. *How important are the different DNA double strand break repair pathways?*- **Terry, Madeline*, and Daniel Ginsburg** Immaculata University.

47. *Optimizing a PCR-based technique to measure telomerase regulation in the yeast Saccharomyces cerevisiae*.- **Wolfinger, Madison*, Khushali Vyas*, and André Walther** Cedar Crest College.

48. *Examining the role of Replication Protein A in the cellular response to chemotherapeutic drugs in Saccharomyces cerevisiae*.- **Franzone, Katherine*, and André Walther** Cedar Crest College.

49. *FabI G93V substitution as one mechanism for triclosan resistance*.- **Jaber, Khoula*, Sydney Jones*, and K. Joy Karnas** Cedar Crest College.

50. *Optimization of a novel qRT-PCR assay for relative quantification of CCK2R splice variants in pancreatic cancer*.- **Johnston, Natalie*, and John Harms** Messiah University.

51. *Identification of key amino acid substitutions between members of the Candida glabrata PMU gene family, and their role in conferring phosphatase activity*.- **Tulio, Dominic*, and Kelly Orlando** Immaculata University.

52. *Loop-mediated isothermal amplification (LAMP) assay development for the detection of Frog Virus 3 (FV3)*.- **Prematta, Spencer R.*, and Jeffrey P. Thompson** York College of Pennsylvania.

53. *Novel CRISPR-Cas9 visualization system for the functional removal of IL13α1 receptor and analysis of cell behavioral changes*.- **Skirboll, Sydney*, and Jeffrey Thompson** York College of Pennsylvania.

54. *Identification of Replication Protein A phosphorylation dependent protein-protein interactions via Yeast Two Hybrid system*.- **Dias, Kathlyn*, and André Walther** Cedar Crest College.

55. *Examining growth rate and capsule formation in mutant strains of the oleaginous yeast Cryptococcus neoformans to be used in biodiesel production*.- **Silva, Nicole*, Zahaira Velasco*, and André Walther** Cedar Crest College.

60. *Effects of virgin coconut oil on oral commensal bacterial species Streptococcus oralis*.- **Wong, Felicia*, and Giancarlo Cuadra** Muhlenberg College.

85. *Development of a naturally derived hydroponic nutrient solution from recirculating aquaculture system effluent using batch vermifilter reactors*.- **Lopez-Soliz, Maurice*, Ashly Ramos*, Stephanie Soto Mangandi*, Joseph Tetreault, and Rachel Fogle** Harrisburg University of Science and Technology.

87. *Effects of Diameter and Crown Class on Ash (Fraxinus spp.) Mortality from Agrilus planipennis (Emerald Ash Borer) in Northwestern Pennsylvania*.- **Petrick, Hayden*, and Christopher Dolanc** Mercyhurst University.

Saturday, March 26 AFTERNOON SESSIONS

ORAL SESSION IV: Cancer II

Saturday March 26 2:15-3:15 PM Location: **Gambet Center 153**
Session Chair: **Dr. Lawrence Mylin**

2:15-2:30 **56**. *The Mechanisms Involved in the Development of Vemurafenib Resistance in Human Melanoma Cells*.- **Finniff, Bridget*, and Angela Hess** Bloomsburg University.

2:30-2:45 **57**. *Development of a cell-based vaccine against pancreatic cancer*.- **Guevin, Daniel*, and Lawrence Mylin** Messiah University.

2:45-3:00 **58**. *Identifying Population-Specific UGT and CYP mRNA Isoform Expression upon Menthol Exposure in Lung Cancer Among African Americans and European Americans*.- **Shrestha, Adina*, and Khadijah Mitchell** Lafayette College.

3:00-3:15 **59**. *Exploring The Relationship Between Telomere Lengthening Pathways And Genetic Ancestry In African-American And European-American Patients with Non-Small Cell Lung Cancer*.- **Acheampong, Kwabena*, and Khadijah Mitchell** Lafayette College.

ORAL SESSION V: Microbiology

Saturday March 26 2:15-3:15 PM Location: **Gambet Center 155**
Session Chair: **Dr. Joseph Colosi**

2:15-2:30 **61**. *The effectiveness of sulfuretin as an antifungal chemical compound compared to clotrimazole on Trichophyton rubrum*.- **Holzinger, Shealyn*, Kathryn Sarachan, and Adam Cooke** Wilson College.

2:30-2:45 **62**. *Quantifying the contact-independent inhibitory effect of cinnamon bark oil on the fungal pathogen Pseudogymnoascus destructans*.- **Slifka, Jacob*, Brad Engle, and Sonny Bleicher** Wilson College.

2:45-3:00 **63**. *Determining the impact of pollution from Bethlehem Steel on the microbial communities of nearby soil*.- **Brown, Thomas*, Hannah Laughner*, Joseph Colosi, and Lara Goudsouzian** DeSales University.

3:00-3:15 **64**. *Isolation and characterization of carotenoids in Pedobacter and Roseopedobacter gen. nov.*.- **Bell, Kiyah*, and Jeff Newman** Lycoming College.

ORAL SESSION VI: Human Health

Saturday March 26 3:30-4:45 PM Location: **Gambet Center 206**
Session Chair: **Dr. M. Dana Harriger**

3:30-3:45 **65**. *Genomic surveillance of Sars-CoV-2 variants enhances mitigation strategies and reveals viral evolution in a university campus context*.- **Hertel, Austin, Madison Heeter*, Mara Bestram, Ross Gibson, Gwendolyn Ciletti-Dougherty, and Steven Mauro** Gannon University.

3:45-4:00 **67**. *Analysis on the outcomes of physical therapy on patients with shoulder injuries in different age groups*.- **Whittington, Jacob*, M. Dana Harriger, Tonia Hess-Kling, and Rebecca Thomas** Wilson College.

4:00-4:15 **68**. *Effects of post-treatment Lyme disease syndrome and potential causes*.- **Howells, Joshua*, Kathryn Sarachan, and Brad Engle** Wilson College.

4:15-4:30 **69**. *Generation of neutralizing monoclonal antibodies against bacteriophage T4*.- **Velazco, Lily*, Hunter Zondory, and Lawrence Mylin** Messiah University.

4:30-4:45 **74**. *Examining the mechanism of Replication Protein A regulation of telomere length in Saccharomyces cerevisiae using a PCR amplification-based protocol*.- **Vyas, Khushali*, and André Walther** Cedar Crest College.

Sunday, March 27 MORNING SESSIONS

ORAL SESSION VII: Molecular Biology/Biochemistry

Sunday March 27 9:45-11:15 AM Location: **Gambet Center 153**

Session Chair: **Dr. André Walther**

9:45-10:00 **70**. *Increased expression of SAM68 in SV40 transformed human diploid fibroblast cells and the effect on downstream splicing targets*.- **Caroland, Kailey*, John Hanson, and Jane Cavender** Elizabethtown College.

10:00-10:15 **71**. *SV40 T-antigen sensitization of human cells to erastin and cisplatin-induced death: apoptosis or ferroptosis?*- **Hanson, John*, Kimberly Manning, and Jane Cavender** Elizabethtown College.

10:15-10:30 **66**. *The effect of Poly(I:C) and IFN-α on the immune system as Observed through IL-12 production in dendritic cells*.- **Kleb, Sarah*, and Jodi Lancaster** Elizabethtown College.

10:30-10:45 **72**. *Studying the impact of lactate on the metabolic stress response in macrophages*.- **Esposito, Abigail*, and Robert Kurt** Lafayette College.

10:45-11:00 **73**. *Targeting altered metabolism in tumor associated macrophages*.- **Chang, Musea*, and Robert Kurt** Lafayette College.

11:00-11:15 **75**. *Use of cylindrical topology self-organizing maps for reference-free rotational image alignment and classification*.- **Dempster, Ruth-Ann*, Keyanna Safforld, and Christopher Kavanau** East Stroudsburg University.

Poster Session II: Chemistry, Ecology, Developmental Biology, and Behavior

Sunday March 27 9:45-11:45 AM Location: **DUC Conference Rooms**

Session Chair: **Dr. Sean Georgi**

76. *Effects of Microcystis aeruginosa on the Reproduction and Development of Capitella teleta*.- **Wynings, Rachel*, Alyson Grindall, Nathan Hendel, Nicole Wartella, and William Biggers** Wilkes University.

77. *Microbial associations with Metcalf's Tryonia, Tryonia metcalfi (Gastropoda: Cochliopidae), an imperiled ciénega endemic*.- **Minton, Russell*, and Kathryn Perez** Gannon University.

78. *Coliform Trends in Urban Streams Receiving Stormwater within Lycoming County MS4 Area*.- **Odoemena, Sofia*, and Leslie Rieck** Lycoming College.

79. *A test of the enemy release hypothesis in the New Zealand mud snail, Potamopyrgus* antipodarum.- **Harlow, Gracie*, and Edward Levri** Penn State University-Altoona.

80. *The effect of the pesticide malathion on the mortality of the invasive New Zealand mud snail*.- **Wright, Kara*, and Edward Levri** Penn State University-Altoona.

81. *The effect of heat stress on invasive New Zealand mud snail mortality*.- **Wallace, Kaylee*, and Edward Levri** Penn State University-Altoona.

83. *Analysis of polycyclic aromatic hydrocarbon pollution in Erie*.- **Mitchell, Michaela*, Collin Olson, Nicole Schwab, Jenna Kunst, Zach Buchman, and Rajinikanth Mohan** Mercyhurst University.

84. *An interdisciplinary approach for establishing baseline conditions prior to dam removal in Bushkill Creek, PA*.- **Hanna, Donna*, and Megan Rothenberger** Lafayette College.

86. *A comparative study of primary land use and microplastic concentrations of sediment in the Conococheague Creek*.- **Villeda, Blanca*, Adam Cooke, M. Dana Harriger, and Deborah Austin** Wilson College.

88. *A transcription factor involved in growth repression is a positive regulator of senescence in plants*.- **Rager, Sydnie*, Kaitlyn Stroscio, Olivia Pericak, Zach Buchman, Colin Olson, Christina Judy, and Rajinikanth Mohan** Mercyhurst University.

89. *The effects of leaf litter depth on seed germination of Oriental bittersweet (Celastrus orbiculatus)*.- **Bui, Theresa*, and Amy E. Faivre** Cedar Crest College.

90. *A comparative analysis of the trigeminal nerve in the orbits of predatory birds*.- **Amendano, Brigettte*, Suzanne Spriggs, and Ian Cost** Albright College.

91. *Spotted lanternfly infestation is associated with tree of heaven presence in the US*.- **Crocker, Amanda*, Grace Tulevech*, and Daniel Strömbom** Lafayette College.

92. *Modeling the local spread of the Spotted Lanternfly in the US*.- **Sands, Autumn*, Daniel Strömbom, Amanda Crocker, Grace Tulevech, Kelly Ward, and Cameron Cloud** Lafayette College.

93. *Five-year assessment of the effectiveness of the Forestry Reclamation Approach on an anthracite mine in northeastern Pennsylvania*.- **Everett, Fritz*, Julia Kobusky*, Allie Shulskie*, Alana Andreoli, Cheyenne Jenner, and Kenneth Klemow** Wilkes University.

94. *Acoustic analysis of changes in bat community composition along the Upper Delaware River from 2009-2020*.- **Munoz, Valerie*, Erica Spiess, and Howard Whidden** East Stroudsburg University.

95. *Establishing a developmental chemical hypoxia model in Danio rerio*.- **Johnston, Madeline*, Brittany Hayden, and Jennifer Ness-Myers** Messiah University.

96. *Synthesis of three putrescine analogs as possible antioxidants*.- **Gorecki, Shannon *, Abigail Stocker*, and Francis Mayville** DeSales University.

98. *Novel presumptive tests for drugs of abuse using chemiluminescence*.- **Romano, Giulia*, and Lindsey Welch** Cedar Crest College.

99. *Selective oxidation of naphthol derivatives with metal acetylacetonate catalysts*.- **Watson, Talia*, Lindsey Welch, and Audra Bratis** Cedar Crest College.

100. *Creating biodiesel using mutant versions of the oleaginous yeast, Cryptococcus neoformans*.- **Justice, Rachel *, Lindsey Welch, and André Walther** Cedar Crest College.

101. *Biodiesel production from aquatic fern Azolla caroliniana via hydrothermal liquefaction*.- **Assaf, Afaf*, and Lindsey Welch** Cedar Crest College.

102. *The comparative effects of a raw based diet versus a kibble diet on the reduction of dental calculus in dogs*.- **Wolfe, Calista*, M. Dana Harriger, Adam Cooke, and Deb Austin** Wilson College.

103. *A comparison of dental microwear between two cusps from M1 tooth of Mesodma (Mammalia: Multituberculata)*.- **Gilla, Trisha*, and Frank Varriale** King's College.

104. *Comparing Dental Measurement in North American Bats with Corresponding Diets*.- **Chau, Phuong*, and Ian Cost** Albright College.

105. *The expression of linear and circBANP in developing chicken (Gallus gallus) retinal tissue and human cell lines*.- **Landry, Alianna*, and Sean Georgi** York College of Pennsylvania.

106. *Expression of circPDE4B in human cell lines and chicken (Gallus gallus) retinal development*.- **Grenier, Jazzlyn*, and Sean Georgi** York College of Pennsylvania.

107. *Interrogating the roles of eye genes in an eyeless arachnid*.- **Joyce, Isabella*, and Austen Barnett** DeSales University.

108. *Examining the evolution of epidermal growth factor (EGF) pathway ligands in insects*.- **Giletto, Martha*, and Austen Barnett** DeSales University.

109. *The effect of lighting conditions on the ability to consistently determine presumptive drug test results*.- **Marrero, Zee*, Jeanne R. Berk, and Audrey J. Ettinger** Cedar Crest College.

110. *Parameter optimization of EthoVision XT® for automated quantification of spontaneous grooming behaviors in Drosophila melanogaster*.- **Mukherjee, Sohini*, and David Andrew*** Lycoming College.

111. *Development of a novel low-cost apparatus for assessing thermal nociception in the rat*.- **Martin, Ciara*, Coby Rush*, Carl Tyce*, and Alexander Krupka*** DeSales University.

List of Restaurants Near DeSales University Campus

Restaurants and Bars

Copperhead Grille – Sports bar with American pub fare
5737 Route 378, Center Valley
(610) 282-4600
www.copperheadgrille.com

White Orchids Thai Cuisine
2985 Center Valley Pkwy #200, Center Valley
(610) 841-7499
www.wohiteorchidsthaicuisine.com

Coopersburg Diner
336 N 3rd St, Coopersburg
(610) 282-1853
www.coopersburgdiner.com

Torre Restaurant – Modern Mexican fare
2960 Center Valley Pkwy, Center Valley
(610) 841-9399
www.torrerestaurant.com

Ye Olde Spring Valley Tavern – Classic American food in a historic inn setting
1355 Station Ave, Bethlehem
(484) 851-3594
www.oldespringvt.com

Ecco Domani Italian Restaurant – Informal pizza and pasta restaurant
216 E Fairmount St, Coopersburg
(610) 282-4589
www.eccodomanirestaurant.com

Eastern Gourmet – Chinese and Japanese cuisine
7001 N Route #309, Coopersburg
(610) 282-8988
www.easterngourmetpa.com

Fast Food

Subway
216 E Fairmount St, Coopersburg
(484) 863-9090
www.subway.com

McDonald's
14 S Main St, Hellertown
(610) 838-7578
www.mcdonalds.com

A very special thanks to Leah Alicea at DeSales University Conference Services, and the many, many DeSales University faculty, staff, and student volunteers who made this event possible!