

**92nd Annual Meeting of
the Pennsylvania Academy of Science**



<http://www.pennsci.org>

April 1 – 3, 2016



DELAWARE VALLEY
UNIVERSITY

Welcome to Delaware Valley University

Delaware Valley University, located in picturesque Doylestown, Pa., is an independent, interdisciplinary college featuring individualized attention, small class sizes and an applied as well as theoretical approach to learning.

Founded in 1896, DelVal has grown from an agricultural school to an academically rigorous institution dedicated to the sciences and liberal arts. In the words of our founder, Joseph Krauskopf, we take “science with practice” seriously. Today, we use our more than one thousand acres of beautifully maintained land as a functional learning environment, creating a real-life, open-air classroom for many of our disciplines.



Students, faculty and staff energize one another to tackle the most important issues of our time, both in the classroom and in the real world with hands-on experiences. Our entire community cultivates inspiration, intelligence and imagination to motivate new thinking, debate new options and create new initiatives. Because of our 15:1 student-faculty ratio, there is no room for anonymity. Our faculty know our students by name, developing strong mentoring relationships with them.

DelVal offers more than 25 undergraduate majors in the life, physical and agricultural sciences, humanities and business; six master's programs; a doctoral degree; and a variety of adult education courses.

Welcome Message from Dr. K. Joy Karnas President, Pennsylvania Academy of Science

Welcome to the 92nd annual meeting of the Pennsylvania Academy of Science. Special thanks to Gregory George for organizing this year's conference on the beautiful Delaware Valley University campus. I am looking forward to hearing about all of the scientific discoveries that have been made in the past year. Discussing research with the students of Pennsylvania is always a highlight for me, and I enjoy seeing who is honored with an Anne Spychala Student Presentation Award at the end of the conference. This meeting is always a great opportunity to learn more about STEM activities occurring around the state. I encourage everyone to meet someone new at this conference, begin to network, and think about possible synergies for collaborations in the classroom, laboratory, or field.

Enjoy your weekend!



2016 Keynote Address

From Superfund to Superhabitat: How Science, Citizen Involvement, and Lessons from Nature can Restore a Landscape

Diane White Husic

D. Husic has a B.S. and Ph.D. in Biochemistry (from Northern Michigan University and Michigan State University, respectively). She is chair of Biological Sciences at Moravian College where she teaches courses on environmental science, conservation biology, nutrition, biochemistry, sustainability, and climate change. Her research focuses on a contaminated site (the Palmerton Superfund site) examining heavy metal impacts on plants and the effectiveness of ecological restoration work. She monitors habitat for climate change impacts along a portion of the Appalachian Mountains, and serves as the coordinator of the Eastern Pennsylvania Phenology Project. She is an Audubon *TogetherGreen* Fellow in Conservation Leadership.

She is an author on over 50 publications and has contributed to several reports – including a 200 page ecological assessment for a Superfund site and the 2011 PA Climate Change Adaptation report. She was also a contributor to the NGO CSW outcome document for the North America and European region for CSW 58: “*Challenges and Achievements in the Implementation of the Millennium Development Goals (MDGs) for Women and Girls*”



She has attended the international meetings as a credentialed observer for the U.N. Framework Convention on Climate Change since 2009. She serves as a member of the steering committee for the Research and Independent NGOs constituency group, and has worked with the Women's Major Group on the post-2015 Sustainable Development Goals.

**Saturday April 2, 2016 following the dinner beginning at 6:00PM
in the Student Center Auditorium**

Participants at the 92nd Annual Meeting of the PAS

School/Organization	Number of Presentations
Lafayette College	21
Misericordia University	14
Cedar Crest College	13
East Stroudsburg University	13
York College of Pennsylvania	10
Elizabethtown College	8
Kings College	8
Messiah College	6
Susquehanna University	6
Mercyhurst University	5
Cabrini College	4
Marywood University	4
Delaware Valley University	3
Lycoming College	3
Penn State University-Abington	3
Penn State University-Altoona	3
Wilson College	3
Albright College	2
Bloomsburg University	2
Bucknell University	2
Gettysburg College	2
Indiana University of Pennsylvania	2
Rosemont College	2
Temple University	2
Wilkes University	2
California University of PA	1
Immaculata University	1
Kutztown University	1
Monmouth University	1
Harrisburg University of Science and Technology	1

92nd Annual Meeting of the Pennsylvania Academy of Science

SCHEDULE OF ACTIVITIES AT A GLANCE

Friday, April 1

4:00-6:00 PM	PAS Board Meeting	Levin Dining Hall Conf. Room
6:00-7:00 PM	PAS Board Dinner	Levin Faculty Dining Room
6:30-7:30 PM	Meeting Check-In	Krauskopf Library
7:00-9:00 PM	Reception	Krauskopf Library

Saturday, April 2

7:30-10:30 AM	Meeting Check-In	Life Science Building (LSB)
8:45-9:10 AM	Introduction and Welcome	LSB Auditorium
9:15-10:15 AM	Oral Presentations	
	I Animal and Plant Pathogens	LSB 102
	II Invasive species and Plant Biology	LSB 104
10:00-11:00 AM	Coffee Break	LSB Atrium
10:00-12:00 PM	Poster Session I: Cancer Biology, Cell signaling, Genomics, and Chemistry (Poster set-up 8:00-10:00 AM)	LSB Atrium Mezzanine
10:30-12:00 PM	Oral Presentations	
	III Immunity and Neuroscience	LSB 102
	IV Aquatic Ecology	LSB 200/201
11:45-1:15 PM	Lunch	Food trucks outside LSB
12:00-1:00 PM	PAS Business Meeting (All members welcome)	LSB 200/201
1:00-2:30 PM	Oral Presentations	
	V Human impacts on habitats; Chemistry	LSB 200/201
	VI Genes, Genetics, and Evolution	LSB 104
1:00-3:00 PM	Poster Session II: Neuroscience, Immunity, and Microbiology (Poster set-up 12:00-1:00 PM)	LSB Atrium Mezzanine
2:00-3:00 PM	Coffee Break	LSB Atrium
2:30-4:15 PM	Oral Presentations	
	VII Ecology and Behavior of Terrestrial and Avian animals	LSB 200/201
6:00-9:00 PM	Dinner and Keynote Address: Diane White Husic <i>From Superfund to Superhabitat: How Science, Citizen Involvement, and Lessons from Nature can Restore a Landscape</i>	Student Center Auditorium

Sunday, April 3

7:30–8:30 AM	Meeting Check-In	Life Science Building (LSB)
8:00–9:00 AM	PAS Board Meeting	LSB 205
9:00–9:30 AM	Coffee Break	LSB Atrium
9:45–11:30 AM	Oral Presentations	
	VII Microbes, Antimicrobials, and and Bacteriophages	LSB 102
	IX Cancer Biology	LSB 200/201
9:45–11:45 AM	Poster Session III: Terrestrial and Aquatic Ecology, Invasive species and Conservation Biology (Poster set-up 8:00–9:30 AM)	LSB Atrium Mezzanine
11:45–12:30 PM	Lunch	Levin Dining Hall
12:30–1:00 PM	Awards Ceremony	LSB Auditorium

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**92nd Annual Meeting of the Pennsylvania Academy of Science
Delaware Valley University
April 1 – 3, 2016**

GENERAL PROGRAM SESSIONS

Program co-Chairs: Tammy Tintjer, André P. Walther

Saturday, April 2 MORNING SESSIONS

ORAL SESSION I: Animal and Plant Pathogens

Saturday April 2 9:15-10:15 AM Location: **Life Science Building 102**

Session Chair: Dr. Lawrence Mylin

- 9:15-9:30 1. *The Prevalence of Borrelia burgdorferi in Ixodes scapularis on Presque Isle.* **De Salle, Samantha***, **Thomas Kelly**, and **Sara Turner** Mercyhurst University.
- 9:30-9:45 2. *Prevalence of toxoplasma gondii in the Environment.* **Raymond, Jacqueline***, **Margaret Matthews**, **Sara Turner**, and **Thomas Cook** Mercyhurst University.
- 9:45-10:00 3. *Capacity Building: Establishing Laboratory Culture of Plasmodium falciparum Laboratory Strain NF54 and Patient Isolates at the Macha Research Trust/ Malaria Institute at Macha, Choma, Zambia.* **Mylin, Lawrence***, **Lauren Wilson**, **Ben Katowa**, **Saidon Mbambara**, **Natasha Laban**, **Mwiche Siame**, **Jennifer Stevenson**, and **Philip Thuma** Messiah College.
- 10:00-10:15 4. *Comparison of Expression Profiles during Colonization of Resistant and Susceptible Hosts by Phytophthora sojae Race 5.* **Ross, Brandon***, and **Manuel Ospina-Giraldo** Lafayette College.

ORAL SESSION II: Invasive species and Plant Biology

Saturday April 2 9:15-10:15 AM Location: **Life Science Building 104**

Session Chair: Dr. Mel Zimmerman

- 9:15-9:30 5. *Using Pollen-Tube Growth to Examine the Incompatibility System of Schlumbergera xbuckleyi var. Magenta.* **Ferguson, Briana***, and **Amy Faivre** Cedar Crest College.
- 9:30-9:45 6. *Protein Signatures of Wild-Type and Reduced Genomic Complements of Rhizoctonia solani.* **Birch, James***, **N. Bharathan**, and **Seema Bharathan** Indiana University of Pennsylvania.
- 9:45-10:00 7. *Investigation of the Ecological Impact of Japanese Knotweed (Polygonum cuspidatum) on the Riparian Plant Community and its Potential Use as a Food Source for Macro-invertebrates.* **Monico, Jennifer***, and **Mel Zimmerman** Lycoming College.
- 10:00-10:15 8. *The Distribution of the Invasive New Zealand Mud Snail (Potamopyrgus Antipodarum) in Central Pennsylvania.* **Sirnic, Teresa***, **Rebecca Luft**, **Bryce Brindle**, and **Edward Levri** Penn State University-Altoona.

POSTER SESSION I: Cancer Biology, Cell signaling, Genomics, and Chemistry Saturday April 2 10:00-12:00 AM Location: **LSB Atrium Mezzanine**
Session Chair: Dr. Anastasia Thevenin

9. *n*-Hexane Increases Blood Vessel Formation in a Human U87 Glioblastoma *in vivo* Chicken Chorioallantoic Membrane (CAM) Culture System. **Carter, Ryan***, and **Ron Kaltreider** York College of Pennsylvania.
10. The Effect of Grape Extracts and Their Component, Resveratrol, on the Population Growth of A2780 Human Ovarian Tumor Cells in Culture. **Bocetti, Julie***, **Breanna Lincoski**, and **Paula Caffrey** California University of PA.
11. Ascorbate Decreases Proliferation of Breast Epithelial Cells and Acts Through a Pro-Oxidant Mechanism. **Wilkes, David***, **Robert Martin***, and **Thomas McGuire** Penn State University-Abington.
12. Examining the Role of Replication Protein A Phosphorylation in Regulating the Cellular Response to Chemotherapeutic Drugs in *Saccharomyces cerevisiae*. **Namous, Fadia***, **Briana Hill**, and **Andre Walther** Cedar Crest College.
13. Identification of Proteins That Interact with Replication Protein A in a Phosphorylation-Dependent Manner Using Yeast Two Hybrid Analysis. **Smith, Jasmine***, **Donna Sarara**, **Sarah Jane Groves**, **Micahela Ortiz**, and **Andre Walther** Cedar Crest College.
14. Expression of Matrix Metalloproteinase mRNAs in Breast Epithelial Cells. **Thomas, Sneha A.***, and **Eric P, Ingersoll** Penn State University-Abington.
15. Immunolocalization and Detection of Matrix Metalloproteinases in Breast Epithelial Cells. **Alkurdi, Eman***, **Kateryna Popluzhna***, and **Eric P. Ingersoll** Penn State University-Abington.
16. Studying Transcriptional Regulation of CCL2 in Murine Mammary Carcinoma. **Villaverde, Leslie***, **Tasnia Hassan***, **Carli Jones**, **Chun Wai Liew**, and **Robert Kurt** Lafayette College.
17. The Concentration of CXCL10 (IP-10) Impacts Whether CD8+ T Cells Proliferate Or Go Through Apoptosis. **Thomas, Xaviera***, **Chun Wai Liew**, and **Robert Kurt** Lafayette College.
18. Telomere Length and Telomerase Expression Prior to and Following Regeneration in *Lumbriculus variegatus*. **Thompson, Cody***, and **Ron Kaltreider** York College of Pennsylvania.
19. Use of CRISPR/Cas9 to Alter PTEN Expression in *Hydra vulgaris*. **Morgan, Brady***, **Sarah McCarron**, and **Diane Bridge** Elizabethtown College.
20. Examination of Homologous Recombination in *Saccharomyces cerevisiae* Using Quantitative PCR. **Pecko, Katherine***, **Rebecca Grady**, and **Andre Walther** Cedar Crest College.
21. Analysis of the Role of KU70, CDC5, and RPA in the Cell Cycle Adaptation to Unrepairable DNA Damage. **Namous, Nadia***, and **Andre Walther** Cedar Crest College.
22. A Functional Analysis of the 5' Regulatory Region of the *Aspergillus nidulans* *snxA* Inhibitor of Cell Division. **Dunworth, Matthew***, and **Steven James** Gettysburg College.

23. *The Effect of pH on the Expression of the TDAG8 GPCR, Which Produces cAMP*. **Wadja, Julie***, **Chun Wai Liew**, and **Robert Kurt** Lafayette College.
24. *Analyzing Levels of Perforin Produced by the CXCR4-CXCL12 Signaling Cascade*. **Steinitz, Lauren***, **Chun Wai Liew**, and **Robert Kurt** Lafayette College.
25. *Expression and Purification of Gap Junction Protein Cx43 C-Terminal Domains for in vitro Binding Studies with Zona Occludens 1 (ZO-1)*. **Levy, Morgan***, **Meagan McGurl**, **Aubrey Jones**, and **Anastasia Thevenin** Lafayette College.
26. *Expression and Purification of Zona Occludens (ZO-1) from E.coli for Binding Experiments with Gap Junction Protein, Connexin 43 (Cx43)*. **Wamser, Nicole***, **Aubrey Jones**, and **Anastasia Thevenin** Lafayette College.
27. *Annotation and Discovery of a Transcription Start Site in Contig 17 of the L Arm of Chromosome 3 in Drosophila elegans*. **Cohen, Ethan***, and **Leocadia Paliulis** Bucknell University.
28. *Mutations in the Nsr1/Nucleolin RNA-Binding Protein Suppress Defects in the Snxahrb1 RNA-Binding Protein in Aspergillus nidulans*. **Titchen, Breanna***, **Steven James**, **Andrew Mahoney**, and **Alecia Achimovich** Gettysburg College.
29. *Neofunctionalization of Candida glabrata Pmu3 and the Newly Discovered Importance of Region 2 in the Pmu Gene Family*. **Myers, Pam**, **Ashley Gonzalez***, **Katelyn Starr***, and **Kelly Orlando** Immaculata University.
30. *Genomics of Sexual Isolation in Drosophila melanogaster*. **Kessler, Lyanna***, **Colleen Donnelly***, **Craig Stanley**, and **Rob Kulathinal** Temple University.
31. *qPCR Assay for Rapid Sexing of Avian Species*. **Gerhard, Emily***, **Gabrielle Montone**, and **Darl Swartz** Delaware Valley University.
32. *Induction of Metamorphosis of the Polychaete Capitella teleta by Phylloquinone and Reactive Oxygen Species*. **Brune, Brian***, **Justin Hunter**, **Victoria Ditchkus**, **Robert Burns**, and **William Biggers** Wilkes University.
33. *Exploration of the Fluorescence Properties of the Hydrophobic Probe N-phenyl-1-naphthylamine (NPN) in Mixed Solvent Systems*. **Belanger, Julie**, and **Thomas Reidy*** Kings College.
34. *Investigating the Thermoreversible Gelation of Polycaprolactone using Differential Scanning Calorimetry*. **Conway, John***, and **Isaac VonRue** Kings College.
35. *Analysis of Products From the Liquid Phase Reaction of Furfural Under Reducing Conditions*. **Ogozaly, Susanna***, and **Lindsey Welch** Cedar Crest College.
36. *Determination of Thermodynamic Parameters for the Hydrolysis of PNPP Using the van't Hoff*. **Rabon, Meghan***, **Ayatt Damra**, and **T. Michelle Jones-Wilson** East Stroudsburg University.
37. *Illustrating pH Dependent Hydrophobic Behavior of Small Biological Molecules – an Experiment for Biochemistry Laboratories*. **Rabon, Meghan***, **Lian Mlodzienski**, and **T. Michelle Jones-Wilson** East Stroudsburg University.

ORAL SESSION III: Immunity and Neuroscience

Saturday April 2 10:30-12:00 PM Location: **Life Science Building 102**

Session Chair: Dr. Sheryl Fuller-Espie

- 10:30-10:45 **38.** *Development of a Combined Boyden-Flow Cytometry Protocol to Investigate Cell Migration in Eisenia hortensis in response to chemotactic agents.* **Daly, Jennifer***, **Juliann Jakeman**, and **Sheryl Fuller-Espie** Cabrini College.
- 10:45-11:00 **39.** *Pathogen-Associated Molecular Patterns Induce Chemotaxis in Coelomocytes of the Earthworm Eisenia hortensis.* **Jakeman, Juliann***, **Jennifer Daly**, and **Sheryl Fuller-Espie** Cabrini College.
- 11:00-11:15 **40.** *An Analysis of Histamine Intolerance and its Correlation to Diet and Daily Activity.* **Clement, Amadea***, **Deborah Austin**, **Christine Proctor**, and **M. Dana Harriger** Wilson College.
- 11:15-11:30 **41.** *Exploring Potential Protective Properties of Biliverdin during Immune Challenges in Northern Bobwhite.* **Baylor, Jessica***, and **Michael Butler** Lafayette College.
- 11:30-11:45 **42.** *The Relationship Between Oral Anticoagulant Apixaban and Fish Oil Supplementation in a Stroke-Prone Animal Model.* **Tafesh, Ghada***, **Brad Engle**, and **Rebecca Smith** Wilson College.
- 11:45-12:00 **43.** *Reciprocal Connections Between the Mediodorsal Thalamic Nucleus and Somatosensory and Posterior Parietal Cortices in the Macaque Monkey.* **Evans, Erica***, and **Darlene Melchitzky** Mercyhurst University.

ORAL SESSION IV: Aquatic Ecology

Saturday April 2 10:30-12:00 PM Location: **Life Science Building 200/201**

Session Chair: Dr. Barbara J. McCraith

- 10:30-10:45 **44.** *Ecological Study of Temperate and Tropical Anuran Breeding Pools.* **LaDuke, Thomas** East Stroudsburg University.
- 10:45-11:00 **45.** *Repeated Social Interactions Decrease Aggression but do Not Stabilize Social Hierarchy in the Crayfish Orconectes obscurus.* **Powers, Ellen***, and **Any Goldina** Elizabethtown College.
- 11:00-11:15 **46.** *A Living Shoreline Approach to Erosion Prevention and its Effect on Fiddler Crab (Uca spp.) Burrow Densities on Mordecai Island, Barnegat Bay, and Money Island, Cumberland County, New Jersey.* **Pates, Hunter***, and **Barbara McCraith** Misericordia University.
- 11:15-11:30 **47.** *Feeding Preference of Fish in Two Mountain Streams in Northeastern Pennsylvania.* **Pheasant, Michael S.***, **Timothy A. Kennedy**, and **Barbara J. McCraith** Misericordia University.
- 11:30-11:45 **48.** *Growth patterns of Channel Catfish in the Susquehanna River.* **Isenberg, Daniel***, **Jon Niles**, and **Geoffrey Smith** Susquehanna University.
- 11:45-12:00 **49.** *Interactive Effects of Human and Climatic Disturbance on Water Quality and Fisheries in An Urban Estuary.* **Spitz, Mia***, and **Megan Rothenberger** Lafayette College.

Saturday, April 2 AFTERNOON SESSIONS

ORAL SESSION V: Human impacts on habitats; Chemistry

Saturday April 2 1:00-2:30 PM Location: **Life Science Building 200/201**

Session Chair: Dr. Robin Ertl

- 1:00-1:15 **50.** *Temperature Dependence of Viscosity and Polarity of Phosphonium Based Ionic Liquids.* **Sutton, Lindsey***, **Deborah Austin**, and **Rebecca Smith** Wilson College.
- 1:15-1:30 **51.** *Development of An Environmental Health Indicator Database Combining the EPA's toxic Release Inventory with County, State and Other Federal Data Sources.* **Helms, Margaret***, and **Thomas Cook** Mercyhurst University.
- 1:30-1:45 **52.** *A SENCER Approach to Environmental toxicology: Preparing Students the Real World.* **Ertl, Robin P.*** Marywood University.
- 1:45-2:00 **53.** *Contribution of Lycoming College Clean Water Institute to PFBC Unassessed Waters Project,2010-2015.* **Zimmerman, Mel*** Clean Water Institute.
- 2:00-2:15 **54.** *An Integrative Approach to Predicting Ecosystem Responses to Dam Removal on the Bushkill Creek, PA.* **Hoyt, Virginia***, and **Megan Rothenberger** Lafayette College.
- 2:15-2:30 **55.** *Adaptation of Phytoplankton to Ocean Acidification.* **Dolcemascolo, Leigha***, **Justin Liu**, **Bridgette Sission**, and **Robin P. Ertl** Marywood University.

ORAL SESSION VI: Genes, Genetics, and Evolution

Saturday April 2 1:00-2:15 PM Location: **Life Science Building 104**

Session Chair: Dr. Leocadia Paliulis

- 1:00-1:15 **56.** *Caenorhabditis elegans Krüppel-like Transcription Factor Family Genetic Analysis: Examining klf-2/klf-3 double mutant.* **Kraycer, Paul***, and **Christopher Brey** Marywood University.
- 1:15-1:30 **57.** *Molecular Characterization of Krüppel-like Transcription Factor, klf2, Expression in Caenorhabditis elegans.* **Sheagley, Jordan***, and **Christopher Brey** Marywood University.
- 1:30-1:45 **58.** *Characterizing the Molecular Function of the Ihx1a Transcription Factor.* **Keshari, Vishal***, **Noriko Mikeasky**, and **Cuong Diep** Indiana University of Pennsylvania.
- 1:45-2:00 **59.** *Coordinated Movements of X1 and X2 Chromosomes in the Absence of Physical Connection in Spider Spermatocytes.* **Felt, Kristen***, **Alexander Nedo**, **Ryan Doan**, **Cassandra Andreychik**, and **Leocadia Paliulis** Bucknell University.
- 2:00-2:15 **60.** *Genetic Architecture of Rapidly Evolving, Sexually Dimorphic Networks in Drosophila melanogaster.* **Gilvary, Coryander***, **Nichole Rigby**, and **Rob Kulathinal** Temple University.

POSTER SESSION II: Neuroscience, Immunity, and Microbiology

Saturday April 11 1:00-3:00 PM Location: **LSB Atrium Mezzanine**

Session Chair: Dr. Brian Gray

61. *TOR Complex and Neurogenesis in Hydra*. **Schwark, Ryan***, and **Diane Bridge** Elizabethtown College.
62. *Withdrawn*
63. *Phosphodiesterase 7A Expression and Location within Immortalized Schwann Cells*. **Mondulick, Noelle***, **Shawna Stevens**, and **Angela Asirvatham** Misericordia University.
64. *A-Kinase Anchoring Proteins, Phosphodiesterase 4A: Players in Schwann Cell Proliferation*. **Stevens, Shawna***, **Noelle Mondulick**, and **Angela Asirvatham** Misericordia University.
65. *The Effect of Nicotine on Anchoring Proteins and Phosphodiesterases in Rat Pheochromocytoma Cells*. **Erney, Tiffany***, and **Angela Asirvatham** Misericordia University.
66. *Effects of Retinol on Neuronal Phenotype, Morphology, and TrkB.T1 Expression in SH-SY5Y Cells*. **Fisher, Andrew***, and **Barbara Fenner** Kings College.
67. *The Effects of Glutamate on Calcium Release in SH-SY5Y cells*. **Perez, Alexis***, and **Barbara Fenner** Kings College.
68. *The Effects of Ethanol on Undifferentiated and Differentiated SH-SY5Y Cells*. **Marvin, Joelle***, and **Barbara Fenner** Kings College.
69. *The Effects of Oxidative Stress on the Heteroplasmic Regions of Mitochondrial DNA in SH-SY5Y cells*. **Cooney, Deirdre***, and **Barbara Fenner** Kings College.
70. *Neuroprotective Effects of Crocin on Hydrogen Peroxide-Induced Apoptosis on *Gallus gallus* Bursal Lymphoblasts*. **Cuadrado, Venesa***, **K. Joy Karnas**, and **Audrey Ettinger** Cedar Crest College.
71. *An-Over-the-Counter *Ginkgo biloba* Extract Impedes Cell Death via Gene Regulation in the Apoptotic Pathway*. **McIntyre, Kelcy***, **Francesca Prendes***, **Audrey Ettinger**, and **K. Joy Karnas** Cedar Crest College.
72. *Sleep Deprivation and Spatial Memory in Mice (*Mus musculus*): Does Exercise Help?*. **Milway, Samantha***, **Brad Rehnberg** York College of Pennsylvania.
73. *Determining the Effect of CD40 Stimulation and Corticosterone on Pro-Survival Protein Expression in Murine BMDCs*. **Reed, Morgann***, **Keira McGrath***, and **Jodi Yorty** Elizabethtown College.
74. *The Effects of Vitamin D Treatment on Dendritic Cell Maturation and Signaling*. **Staniforth, Stephany***, and **Jodi Yorty** Elizabethtown College.
75. *CXCR3 and CXCL11 Interactions Provide Insight for CD4+ T Cell-Associated Inflammatory Responses*. **Zamichieli, Ashley***, **Chun Wai Liew**, and **Robert Kurt** Lafayette College.
76. *Antibacterial Properties of *Felis catus* Saliva*. **Balascio, Joseph***, and **Brian Gray** York College of Pennsylvania.
77. *Using Essential Oils to Combat the Threat of Multidrug Resistant Bacteria, *Pseudomonas aeruginosa**. **Mack, Dr. James**, and **Jenies Grullon*** Monmouth University.
78. *Bactericidal Effect of Clove and Tea Tree Essential Oils and Development of Resistance Against Tea Tree Oil in *Escherichia coli* and *Staphylococcus epidermidis**. **Hutchison, Robbie***, and **Stephanie Justice-Bitner** Kings College.

79. *Prevalence of Salmonella typhimurium in House Sparrows on DVU Campus and Antibiotic Resistance Profiles.* **Dochat, Clare***, **Georgie Scott***, **Dr. Cynthia Keler**, and **Dr. Gregory George** Delaware Valley University.
80. *Detection of Coliform Bacteria in the Rosemont College Campus Ponds.* **Shupp, Brittney***, **Nisha Pradhan**, **Krista Vadaketh**, **Jeannette Dumas**, and **Aikaterini Skokotas** Rosemont College.
81. *Expressing Fluorescence in Phalaenopsis equestris by Means of Agrobacterium tumefaciens Ti Plasmid.* **Lutte, Kate***, and **Brian Gray** York College of Pennsylvania.
82. *Development of Molecular tools for Rapid Genotyping of Yeast Strains Used in Beer Production.* **Reichard, Elizabeth***, **Molly Schnaubelt**, **Kristina Cramp**, **Magdalena Dammer**, and **Andre Walther** Cedar Crest College.
83. *Analysis of Mutant Cryptococcus neoformans Strains as a Viable, Renewable Biodiesel Source.* **Morrison, Megan***, **Shannon McGee***, **Constance Selinsky**, **Hadley Wellen**, **Amy Reese**, **Lindsey Welch**, and **Andre Walther** Cedar Crest College.
84. *The Role of Glutamic Acid Residue E133 in the Catalytic Activity of Yeast Cytochrome c Heme Lyase.* **Rimal, Abhimannu***, **GuoZhi Zhang***, **Matthew Junker***, and **Carsten Sanders*** Kutztown University.
85. *Designing a Soluble Hantavirus Glycoprotein Construct as a tool for Investigating Viral Entry in Host Cells.* **Essick, Benjamin***, and **Meda Higa** York College of Pennsylvania.
86. *Investigating Potential Differences in Interferon Regulation by the Zaire and Reston Strains of Ebola VP35 Protein.* **Redline, Matthew***, and **Meda Higa** York College of Pennsylvania.
87. *The Prevalence of Kozak Sequence in Mammalian Viruses.* **Cobb, Jacquelyn***, **Stephan Geneus***, and **Eric Ho** Lafayette College.
88. *An Annotated Geminivirus Database.* **Newsom-Stewart, Catherine***, **Caroline McCauley***, **Lysa Diarra***, and **Eric Ho** Lafayette College.
89. *Is the Prevalence of Type 2 Diabetes Related to Income in PA Counties?* **Greene, Katie***, **Iane Charles**, **Hayley Sparks**, and **Cynthia Surmacz** Bloomsburg University.
90. *Geodemography of Type 2 Diabetes in Pennsylvania.* **King, Andrew***, **Rebecca Price***, and **Cynthia Surmacz** Bloomsburg University.
91. *Effects of Exercise on Whole Gut Transit Time of Adult CD-1 Male Mice.* **Glaser, Patrick***, and **Brad Rehnberg** York College of Pennsylvania.
92. *Comparison of Individual Recognition Between Native and Invasive Crayfish, Orconectes obscurus and Orconectes rusticus.* **Balasundram, Miriam***, and **Anya Goldina** Elizabethtown College.

ORAL SESSION VII: Ecology and Behavior of Terrestrial and Avian animals

Saturday April 2 2:30-4:15 PM Location: **Life Science Building 102**

Session Chair: Dr. Terry Master

- 2:30-2:45 **93.** *Stress-Induced Pigment Levels in the Feces, Liver, and Spleen of the European Starling (*Sturnus vulgaris*).* **Little, Aaron***, and **Michael Butler** Lafayette College.
- 2:45-3:00 **94.** *Determining Population Densities of the Cerulean Warbler (*Setophaga cerulea*) in the Delaware Water Gap National Recreation Area.* **George, Gregory**, and **Scott Godshall*** Delaware Valley University.
- 3:00-3:15 **95.** *Migration and Habitat Use of Migrating Broad-winged Hawks (*Buteo platypterus*).* **McCabe, Rebecca***, **Laurie Goodrich**, **David Barber**, **Keith Bildstein**, and **Terry Master** East Stroudsburg University.
- 3:15-3:30 **96.** *Application of Geographic Information Science in Long-term Population Monitoring of the Timber Rattlesnake (*Crotalus horridus*) in Pennsylvania.* **La Duke, Thomas** , **Nikolai Kolba***, and **Shixiong Hu** East Stroudsburg University.
- 3:30-3:45 **97.** *Niche Partitioning by Shelter Site Selection in Neotropical Tree Frogs of Northeastern Costa Rica.* **Cannon, Stefani***, and **Thomas LaDuke** East Stroudsburg University.
- 3:45-4:00 **98.** *Effect of Road Proximity and Canopy Cover on Reproductive Effort and Movement Patterns of Salamanders.* **Broholm, Tessa***, and **Megan Rothenberger** Lafayette College.
- 4:00-4:15 **99.** *Modeling Self-Organization and Escape Waves in Moving Animal Groups.* **Nickerson, Stephanie***, and **Daniel Stroembom** Lafayette College.

Sunday, April 3 MORNING SESSIONS

ORAL SESSION VIII: Microbes, Antimicrobials, and Bacteriophages

Sunday April 3 9:15-11:00 AM Location: **Life Science Building 102**

Session Chair: Dr. Abdalla Aldras

- 9:15-9:30 **100.** *The Effects of Artificial Sweeteners and Probiotic on the Gut Microbiome and the Mucosal Immune Responses.* **Bischer, Andrew***, and **Abdalla Aldras** East Stroudsburg University.
- 9:30-9:45 **101.** *in vitro Study of the Effects of Vitamin B-12 on *Propionibacterium acnes* and its Production of Porphyrin.* **Lollis, Eric***, **Danielle Prestifilippo**, and **Abdalla Aldras** East Stroudsburg University.
- 9:45-10:00 **102.** *The Isolation and Characterization of Arthrobacter Bacteriophage Species From Soil Sample Isolates.* **Conboy, Andrew***, **Mireille Atoulelou***, and **David Dunbar** Cabrini College.
- 10:00-10:15 **103.** *The Isolation and Characterization of Two AK Cluster Arthrobacter Bacteriophages Huntingdon and Suppi From Soil Sample Isolates.* **Schmidt, Robert***, **Ugo Uguru***, and **David Dunbar** Cabrini College.
- 10:15-10:30 **104.** *Extraction Method Effects on Antibacterial Properties of Essential Oils.* **Ward, Erica***, **Richard Jackson**, and **Catherine Santai** Harrisburg University of Science and Technology.
- 10:30-10:45 **105.** *Examining Antimicrobial Efficiency of Antibiotics Coupled with Polyphenol Extracts from Fermented Foodstuffs.* **Wood, Robert*** Mercyhurst University.
- 10:45-11:00 **106.** *A Study on the Long-Term Performance of the Sawyer PointONETM filter in the Developing World.* **Nevin, Andrew***, **Holly Ross**, **Daniel Yeisley**, **Thomas Soerens**, **Erik Lindquist**, and **Lawrence Mylin** Messiah College.

ORAL SESSION IX: Cancer Biology

Sunday April 3 9:15-11:00 AM Location: **Life Science Building 200/201**

Session Chair: Dr. John Harms

- 9:15-9:30 **107.** *Cannabinoid Receptor 2 Expression and Its Role in Tumorigenesis.* **Fry, Andrew***, **Williams Nathaniel***, and **Cavender Jane** Elizabethtown College.
- 9:30-9:45 **108.** *Characterizing Monoclonal Antibodies Against the Cholecystokinin 2 Receptor and a Splice Variant for Use in Pancreatic Cancer Studies.* **Ritenour, Laura***, and **John Harms** Messiah College.
- 9:45-10:00 **109.** *Cloning the Full-Length Gastrin Gene for Up-Regulation in Pancreatic Cancer Studies.* **Koehler, Victoria***, and **John Harms** Messiah College.
- 10:00-10:15 **110.** *Quantifying an Increase in the Stability and Expression of Green Fluorescent Protein in Pancreatic Cancer Cells.* **Ross, Holly***, and **John Harms** Messiah College.

- 10:15-10:30 **111.** *Effect of Palbociclib Treatment on Activity of CDK 4/6 kinases in MCF-7.* **Gannon, David*, and Kurt Robert** Lafayette College.
- 10:30-10:45 **112.** *A Computer Model of the TLR4-Myd88 Signaling Cascade with Negative Feedback to Predict Tumor Progression.* **Phuong, Tiffany*, Chun Wai Liew, and Robert Kurt** Lafayette College.
- 10:45-11:00 **113.** *Characterization of CD4+ T Lymphocyte Responses to the Simian Virus 40 Large Tumor Antigen (SV40 T ag) in C57Bl/6 Mice.* **Raugh, Arielle*, Matthew Lauver, Jeremy Haley, Todd Schell, and Lawrence Mylin** Messiah College.

POSTER SESSION III: Terrestrial and Aquatic Ecology, Invasive species and Conservation Biology

Sunday April 12 9:45-11:45 AM Location: **LSB Atrium Mezzanine**

Session Chair: Dr. Howard Whidden

- 114.** *Penn State Brandywine Tree Removal Eco-Services Impact Survey.* **Hand, Breath A.*, Laura A. Guertin, and Joshua D. Marquit** Penn State-Brandywine.
- 115.** *Vegetation assessment of the Transco pipeline right of way in Luzerne County Pennsylvania.* **Heid, Cassidy*, Angelena Campisi*, Fiana Fach, Claudia Nicolae*, Victoria Yeselevige-Rudovitz*, and Kenneth Klemow** Wilkes University.
- 116.** *Leaf-miners of Luzerne County, Pennsylvania.* **Corpus, Larry*** Misericordia University.
- 117.** *Using Morphology, Geography, and Seasonality to Help Distinguish Three "Entities" in the Treehopper Genus Telamona (Insecta: Hemiptera: Membracidae: Telamonini).* **Sarnese, Lauren*, and Matthew Wallace** East Stroudsburg University.
- 118.** *Protocol Development for DNA Extraction of Dried Plant Material of Clitoria fragrans (Fabaceae), for Future Microsatellite Analysis.* **Casey, Abigail*, and Amy Faivre** Cedar Crest College.
- 119.** *Variation in Pollen Viability at the Individual Plant Level Assessed in Christmas cactus (Schlumbergera xbuckleyi var. Magenta) Following Time Since Flower Anthesis.* **Doran, Taylor*, Courtney Godbolt, Kelcy McIntyre*, and Amy Faivre** Cedar Crest College.
- 120.** *The Influence of Seasonal Weather Patterns on Reproductive Effort in Mountain Laurel (Kalmia latifolia).* **Spagnoli, Angela*, Maureen Levri, and Edward Levri** Penn State University-Altoona.
- 121.** *Surveying Bat Populations in Southeastern Pennsylvania: Captures vs. Acoustic Monitoring.* **Hoffman, Justin*, Russell Leinbach*, Joshua Reeder*, and Karen Campbell** Albright College.
- 122.** *Continued Monitoring of Bat Populations in the Delaware Water Gap National Recreation Area.* **Laforgia, Michael*, Larry Laubach, Elizabeth McGovern, and Howard Whidden** East Stroudsburg University.
- 123.** *The Short and Long-Term Effects of Habitat Disturbances on Peromyscus leucopus.* **Frey, Tiffany*, Jordyn Sagner, Stephanie Dea, and Stephen Mech** Albright College.

124. *Analysis of the Relationships of Ambient Temperature and Food Presence to Winter Roost Site Occupation.* **Ki, Kwanho***, **Megan Mauriello***, **Erin Murray***, and **Michael Butler** Lafayette College.
125. *Surveying Disjunct Populations of Two Reptile Species in Northeast Pennsylvania.* **Adamski, Jonathan***, **Thomas LaDuke** East Stroudsburg University.
126. *Kin Recognition in the Leopard Gecko (Eublepharis macularius).* **Walker, Patrick***, **Bridgette Hagerty** York College of Pennsylvania.
127. *Incorporation of Citizen Science in the Conservation of the Red-bellied Turtle (Pseudemys rubriventris) in Lake Marburg in Hanover, PA.* **Middleton, Ashley***, and **Jessica Nolan** York College of Pennsylvania.
128. *Comparing the Growth Rates and Population Parameters of Salvelinus fontinalis of Hammersley Fork and Cross Fork in the Kettle Creek Watershed.* **Good, Clayton***, **Mel Zimmerman**, and **Shawn Rummel** Lycoming College.
129. *Predicting Water Temperatures of Head-Water Streams Within Brook Trout Habitat Without Visiting Them.* **Page, Natasha***, **Jonathan Niles**, and **Dan Ressler** Susquehanna University.
130. *Characterizing the Invasive New Zealand Mud Snail Population in Central Pennsylvania.* **Luft, Rebecca***, **Bryce Brindle**, **Teresa Sirnic**, and **Edward Levri** Penn State University-Altoona.
131. *An Interdisciplinary Approach to Bioinvasion in An Urban Estuary.* **Bae, Alex***, **Blossom Jiang***, and **Megan Rothenberger** Lafayette College.
132. *Effects of Japanese Knotweed (Fallopia japonica) Detritus on Benthic Macroinvertebrate Communities of the Susquehanna River Main Stem.* **Fogelman, Kaelyn***, and **David Matlaga** Susquehanna University.
133. *Water Quality Monitoring Using Macroinvertebrates as Biological Indicators in Pocono Mountain Creeks.* **Brennan, Lauren***, and **Paul Wilson** East Stroudsburg University.
134. *Macroinvertebrate Diversity and Sediment Composition in the Conewago Creek.* **Chausse, Amber***, **Kaitlin McDonald***, and **Thomas Murray** Elizabethtown College.
135. *Seasonal Variation of Benthic Macroinvertebrate Assemblages in Two Second-order Streams.* **Kennedy, Timothy***, **Michael Pheasant**, and **Barbara McCraith** Misericordia University.
136. *A Comparison of Decomposition Rates in Two Pocono Watersheds Using a Standardized Cotton Strip Assay.* **Collare, Mark**, and **Paul Wilson*** East Stroudsburg University.
137. *Wet and Dry Deposition of Inorganic Ions, Organic Acids, and total Organic Carbon.* **Wilson, Allenna***, **Derek Straub**, and **Dan Ressler** Susquehanna University.
138. *Effects of acid on chlorophyll production of common duckweed (Lemna minor L.).* **Breymeier, Corinne***, and **Cosima Wiese** Misericordia University.
139. *Effects of Acidification on Biomass and Rubisco Content of the Aquatic Plant Duckweed (Lemna minor).* **Eastgate, Danielle***, and **Cosima Wiese** Misericordia University.

140. *Effect of Copper Accumulation on Common Duckweed (Lemna minor)*. **Sabaday, Zachary***, and **Cosima Wiese** Misericordia University.
141. *Effects of Zinc Accumulation on Lemna minor*. **Figueroa, Sabrina***, and **Cosima Wiese** Misericordia University.
142. *Effects of Atrazine Exposure on Lemna minor*. **Glavich, Kelsey***, and **Cosima Wiese** Misericordia University.
143. *Age, Sex, Species, and Site Differences in total Mercury Content Among Riparian and Non-Riparian Wolf Spiders*. **Wilson, Derek***, **Hailey Shannon**, **Tara Barbarich**, **Brian Mangan**, and **Matthew Persons** Susquehanna University.
144. *The Physiological Effects of Ocean Acidification on Cephalopods*. **Cabrera, Cindy***, **John Cigliano**, and **Audrey Ettinger** Cedar Crest College.
145. *Flamingo tongue Snails Cyhoma Gibbosum Preference of Current Or Noncurrent Side of the Common Sea Fan Gorgonia ventalina from Alkumal Bay, South Alkumal Bay and Yal – Ku, Mexico*. **Womelsdorf, Alivia***, **Steve Johnson**, and **Larry Corpus** Misericordia University.
146. *Does Canis latrans' Winter Diet Show Similarities to That of Canis lupus?* **Metzger, Madeline***, and **Carlos Iudica** Susquehanna University.
147. *Dental Microwear as an Indicator of Diet in the Basal Ceratopsian Psittacosaurus (Dinosauria: Ornithischia)*. **Michno, Kassondra***, and **Frank Varriale** Kings College.
148. *Exploring the Effects of Neighbor Selection and (A)Synchrony in Models of Collective Motion*. **Seitz, Leslie***, **Luisa Filpo***, **Adam Bothwell***, and **Daniel Stroembom** Lafayette College.
149. *Developing a Switchable System to Induce Synchronous Meiosis in the Yeast, Saccharomyces cerevisiae*. **Vadaketh, Krista***, **Brendan Dougherty**, **Aaron Pinninti**, **Elizabeth Walton**, **Archana Ganta**, **Edward Winter**, and **Aikaterini Skokotas** Rosemont College.

Local Area Attractions

Mercer Museum

Doylestown Borough is home to three structures designed and built by Henry Chapman Mercer. The Mercer Museum, a structure built in poured concrete, is the home to Mercer's collection of early American artifacts. It also houses a collection known as "Tools of the Nation Maker", and is one of the most important collections of its kind in the world. The Bucks County Historical Society also maintains the Spruance Library, a research library, adjoining the museum. Fonthill (also known as "Mercer's Castle") was Mercer's home and houses his collection of artifacts from around the world.

<https://www.mercermuseum.org/>



James A. Michener Art Museum

The former prison, across the street from the Mercer Museum, has been converted into the James A. Michener Art Museum. In 1988, with the support of many dedicated citizens, the James A. Michener Art Museum opened as an independent, non-profit cultural institution dedicated to preserving, interpreting and exhibiting the art and cultural heritage of the Bucks County region. <http://www.michenerartmuseum.org/>





- 1. Main Entrance
- 2. Welcome Center (Public Safety)
- 3. Admission Entrance
- 4. Admission
- 5. Allman Building and Small Animal Center
- 6. Lasker Hall-Administrative Offices
- 7. Ida M. Block Chapel
- 8. Feldman Science Center
- 9. Knuskopf Library
- 10. Eisner Hall
- 11. South Hall
- 12. Berkowitz Hall
- 13. Samuel Hall
- 14. Goldman Hall
- 15. Elson Hall (Health Center)
- 16. Student Center
- 17. Miller Hall
- 18. Segal Hall
- 19. Uman Hall
- 20. James Work Hall
- 21. Admission Parking
- 22. Original Gate Entrance
- 23. Life Sciences Building
- 24. Athletic Fields
- 25. Centennial Hall
- 26. Cooke Hall
- 27. Barnes Hall
- 28. Ruddle Neumann Gymnasium
- 29. Student Center
- 30. Alumni House (Human Resources)
- 31. Lipinski Field at the James Work Memorial Stadium
- 32. SEPTA Railroad Station
- 33. Frank Wolfgang Baseball Field
- 34. Dairy Science Center
- 35. Apriary (beekeeping)
- 36. Equestrian Riding Ring
- 37. Equestrian Center
- 38. Arthur Poley Greenhouses
- 39. Herb Gardens
- 40. Research Greenhouses
- 41. Feldman Horticulture Science Center
- 42. Home Barn
- 43. Aarom Building
- 44. House #2 (Business and Finance)
- 45. House #1 (Marketing and Communications / Institutional Advancement)
- 46. Burpee House
- 47. Hope of the Harvest Garden
- 48. Facilities
- 49. Laboratory Buildings
- 50. Farm Market
- 51. South Entrance
- 52. Plant Science Area
- 53. Gemmill Animal Science Complex
- 54. Markovitz Breeding Center
- 55. *Schmidler Arboretum (Entire DeVal campus)*

