

**91st Annual Meeting of
the Pennsylvania Academy of Science**



<http://www.pennsci.org>

**Lebanon Valley College
April 10 – 12, 2015**



Please join us Friday evening for our opening night reception at the Antique Automobile Club of America (AACA) Museum in Hershey.

The museum is dedicated to the preservation and presentation of motor vehicle history in a way that both educates and entertains. This Smithsonian Affiliate museum provides a world class automotive experience through innovative and interactive exhibits that appeal to all ages and illustrate the historical evolution and potential future impacts of one of the most culturally defying innovations of modern times.

In addition to the hundred or so cars on display, the AACA Museum houses the Museum of Bus Transportation, which includes a floor full of buses, and more than 30 motorcycles, motorbikes and Cushman scooters. During your visit you'll also see the world's largest collection of Tucker automobiles and a special exhibit featuring Lotus street and racecars.



The museum is located just off of Route 39 at 161 Museum Drive in Hershey. To learn more about the museum or for detailed directions, go to www.aacamuseum.org

2015 Keynote Address ***Caught in the SNOWstorm*** **Scott Weidensaul**

The winter of 2013-14 saw the largest invasion of snowy owls into the eastern United States in perhaps a century -- and marked an unprecedented opportunity to learn more about these mysterious Arctic hunters. Author and researcher Scott Weidensaul will share the story of Project SNOWstorm -- how a huge, collaborative research effort focused on snowy owls came together in a few frantic weeks, funded with the help of people from around the world, and continues to make discoveries and unexpected insights into the life and ecology of this great white raptor.

Weidensaul is the author of more than two dozen books on natural history, including the Pulitzer Prize finalist "Living on the Wind," about bird migration, "Return to Wild America," and "The First Frontier: The Forgotten History of Struggle, Savagery and Endurance in Early America." His newest book, "The Peterson Reference Guide to Owls of North America and the Caribbean," will be published in 2015. He is a contributing editor for Audubon and writes for a variety of other publications; he lives in Schuylkill County, where he studies the migration of owls and hummingbirds.



Saturday April 11, 2015 following the dinner beginning at 6:00PM in Lehr Dining Room, Mund College Center

Welcome to Lebanon Valley College

Lebanon Valley College's Master of Science in Education Program is pleased to host the 91st Annual Meeting of the Pennsylvania Academy of Science. Lebanon Valley College is a private, coeducational college founded in 1866 and dedicated to the Liberal Arts. Its mission arises directly from its historical traditions and a relationship with the United Methodist Church. The College offers 36 undergraduate majors as well as graduate degrees in athletic training, business administration, music education, physical therapy, and science education.

The Master of Science in Education Program provides educators at all grade levels with scientific understanding and pedagogical strategies through quality graduate-level courses that are grounded in the latest state and national standards, as well as relevant research-based methods, so that they become more effective communicators, mentors, and leaders in the ever-changing field of science education.



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

Welcome to the 91st annual meeting of the Pennsylvania Academy of Science on the beautiful campus of Lebanon Valley College! An exciting program has been organized for everyone, including a field trip to the Rare Regal Fritillary Butterfly Habitat and the opportunity to make your own chocolate treat in Hershey. We have students and faculty from thirty different organizations presenting at this meeting, with Lafayette, Cedar Crest, Misericordia, Elizabethtown, and Susquehanna sponsoring the greatest number of presentations. I look forward to learning more about everyone's scientific discoveries at the poster and talk sessions and hearing which students will be honored with an Anne Sychala Student Presentation Award. Special thanks go to Greg Czarnecki for his excellence in organizing the conference.



Enjoy your weekend!

Description of Field Trips

Registration for these events is required at the time of Meeting registration.

Guided Tour of Rare Regal Fritillary Butterfly Habitat

When: Saturday April 11 from 1:00-3:30

Where: Fort Indiantown Gap (10 miles north of Lebanon Valley College)

Cost: Free

Departure from the Meeting: Participants will meet in the Mund Lobby at 1:00 and carpool to Fort Indiantown Gap.

Participants will have the opportunity to visit the habitat of the only Pennsylvania population of rare Regal Fritillary butterflies, which are found at Fort Indiantown Gap. The tour also will include information about restoring native grassland habitat across Pennsylvania and current efforts to raise Regal Fritillary caterpillars from eggs in the laboratory in partnership with ZooAmerica North American Wildlife Park and Temple University.

Fort Indiantown Gap is the only live-fire, maneuver military training facility in Pennsylvania. It balances one of the region's most ecologically diverse areas (with more than 118 species of concern) with a military mission that annually supports 19,000 Pennsylvania National Guard personnel and more than 130,000 other states' Guard, military, law enforcement, and civilian personnel each year.

Make Your Own Chocolate in the Chocolate Lab

When: Friday April 10 from 3:00-4:30

Where: Meet at the Hershey Story Museum, downtown Hershey

Cost: \$8.50

The Chocolate Lab at the Hershey Story Museum has put together a special class for PA Academy of Science members. In order for liquid chocolate to harden at room temperature, it must be tempered. You will learn how to hand temper chocolate and create your own chocolate bar, all while learning about crystal formation and the physical chemistry involved. The fee also includes admission to Hershey Story museum, so come early and learn all about the history of chocolate as well as Milton Hershey and the company, town, and world-renowned school that bears his name.

WiFi access at Lebanon Valley College

To join the LVC Wireless Network, choose the **GUEST (UserName/Password)** option and click on the link. Enter the username and password.

Username: science Password: science

Participants at the 91st Annual Meeting of the PAS

<u>School/Organization</u>	<u>Number of Presentations</u>
Lafayette College	15
Cedar Crest College	13
Misericordia University	12
Elizabethtown College	11
Susquehanna University	10
King's College	7
Lycoming College	7
East Stroudsburg University	6
Marywood University	6
Mercyhurst University	6
York College of Pennsylvania	6
Lebanon Valley College	5
Wilson College	5
Cabrini College	4
Saint Vincent College	4
Immaculata University	3
Eastern University	2
Widener University	2
Wilkes University	2
Bloomsburg University	1
Delaware Valley University	1
Lacawac Sanctuary Field Station	1
Messiah College	1
Middle Tennessee State University	1
Penn State Abington	1
Penn State Altoona	1
Rosemont College	1
Saint Leo University	1
Shippensburg University	1
Tufts University	1

91st Annual Meeting of the Pennsylvania Academy of Science

SCHEDULE OF ACTIVITIES AT A GLANCE

Friday, April 10

4:00-6:00 PM	PAS Board Meeting	AACA Museum
6:00-7:00 PM	PAS Board Dinner	AACA Museum
6:30-7:30 PM	Meeting Check-In	AACA Museum
7:00-9:00 PM	Reception	AACA Museum

Saturday, April 11

7:30-10:30 AM	Meeting Check-In	Lobby, Mund
8:45-9:10 AM	Introduction and Welcome	Leedy Theater, Mund
9:15-10:30 AM	Oral Presentations	
9:30-10:30 AM	I Plants, Agriculture, and Biotechnology	Room 203, Neidig-Garber
9:15-10:30 AM	II Animal Ecology	Leedy Theater, Mund
10:15-10:45 AM	Coffee Break	Intermezzo, Lynch
10:00-12:00 PM	Poster Session I: Biology and Ecology of Bacteria, Plants, and Fungi; Animal Behavior, Ecology, and Neuroscience (Poster set-up 8:00-10:00 AM)	Syndoninos Commons, Lynch
10:45-12:15 PM	Oral Presentations	
	III Animal Models of Human Disease	Leedy Theater, Mund
12:00-1:00 PM	Lunch	Lehr Dining Room, Mund
12:00-1:00 PM	PAS Business Meeting (Open to all members)	Lehr Dining Room, Mund
1:00 PM	Regal Fritillary butterfly field trip departure	Lobby, Mund
1:00-2:00 PM	Oral Presentations	
	IV Gene Expression and Genomics	Leedy Theater, Mund
2:00-2:30 PM	Coffee Break	Intermezzo, Lynch
2:15-4:00 PM	Oral Presentations	
	V Animal Pathogens	Leedy Theater, Mund
	VI Microbial Ecology followed by Science Education	Room 203, Neidig-Garber
1:00-3:00 PM	Poster Session II: Aquatic Ecology and Water Quality; Education (Poster set-up 12:00-1:00 PM)	Syndoninos Commons, Lynch
6:00-9:00 PM	Dinner and Keynote Address: Caught in the SNOWstorm – Scott Weidensaul	Lehr Dining Room, Mund

Sunday, April 12

7:30-8:30 AM	Meeting Check-In	Lobby, Mund
8:00-9:00 AM	PAS Board Meeting	Tweedy Board Room, Mund
9:30-10:00 AM	Coffee Break	Intermezzo, Lynch
9:45-11:00 AM	Oral Presentations	
	VI Aquatic Ecology	Leedy Theater, Mund
9:45-11:45 AM	Poster Session III: Health and Disease (Poster set-up 8:00-9:30 AM)	Syndoninos Commons, Lynch
11:45-12:30 PM	Lunch	Lehr Dining Room, Mund
12:30-1:00 PM	Awards Ceremony	Leedy Theater, Mund

Lebanon Valley College

BUILDINGS AND FACILITIES

Academic and Administrative Buildings

1. Carnegie Building: Admission and Financial Aid
2. Humanities Center and Administration Building: Academic Departments: English Department, Languages Department, History and Political Science Department, Religion and Philosophy Department, Sociology and Criminal Justice Department
3. Blair Music Center: Music Department, Lutz Recital Hall, Music Recording Technology Studios
4. Miller Chapel: Chaplain's Office, Chapel, Classrooms
5. Lynch Memorial Hall: Art & Art History Department and Gallery Offices, Art Studios, Business and Economics Department, Digital Communications Department, Education Department, Emmett C. Roop Management Department Wing, Information Technology Services, Psychology Department, William H. Lodge Mathematical Sciences Center
6. Fencil Building: Art Studios
7. Neidig-Garber Science Center: Biology Department, Chemistry Department, Physics Department
8. Vernon and Doris Bishop Library
9. Laughlin Hall: Advancement Office: Alumni Programs, Annual Giving, Development, Leadership Gifts, Planned Giving
10. Wagner House: Marketing and Communications

Residential Life Buildings

11. Allan W. Mund College Center: Career Services, LVC College Store, Conference Services, Dining Halls, Leedy Theater, Multicultural Affairs Office, Student Affairs Offices, Study Abroad Office, WLCV Radio, The Underground
12. Mary Capp Green Residence Hall
13. Vickroy Residence Hall
14. Keister Residence Hall
15. Hammond Residence Hall
16. Funkhouser Residence Hall
17. Marquette Residence Hall
18. Dellinger Residence Hall
19. Silver Residence Hall
20. North College Residence Hall
21. Shroyer Health Center: Counseling Services, Health Services
22. Sheridan Avenue Residence Hall
23. Centre Residence Hall
24. Weimer Residence Hall
25. Friendship House Residence Hall
26. Reber Residence Hall
27. Derickson Hall A: Student Apartments
28. Derickson Hall B: Student Apartments
29. Yuhus Commons
30. Stanson Residence Hall
31. Student Housing

Lou Sorrentino '54 Athletic Complex

32. Edward H. Arnold Sports Center: Indoor Track & Field, Intercollegiate Athletics, Pool, Recreational Facilities
33. Helman Center: Athletic Training Facilities, Classrooms, Fitness Center, Physical Therapy Program, Wellness Pool

34. LVC Gymnasium: Basketball, Volleyball
 35. Henry and Gladys Arnold Field: Field Hockey, Football, Lacrosse, Track & Field
 - 36-37. Intramural Fields
 38. Tennis Courts
 39. McGill Baseball Park
 40. Herbert Soccer Field
 - 41-42. Practice Soccer Fields
 43. LVC Softball Park
 - 44-48. Rohland Fields
- Other Facilities and Landmarks**
49. Suzanne H. Arnold Gallery: Suzanne H. Arnold Art Gallery, Zimmerman Recital Hall
 50. Kreiderheim: President's Residence
 51. Benjamin Cantor Entrance

52. East Gate Entrance
53. Bollinger Plaza
54. Heating Plant
55. Facilities Services Offices
56. Receiving and Maintenance Shops
57. 50 North College
58. Annullville Center Plaza
59. Allen Theatre and MJ's Coffeehouse
60. Carmean Plaza
61. Peace Garden
62. Faskick Bridge
63. Pedestrian Bridge
64. Wetlands/Environmental Study Area
65. Williams Woods
66. Annullville United Methodist Church
67. Public Safety Office

PARKING

Visitors

- V Admission Lot
- A Red Lot A
- B Red Lot B
- K Silver Lot K
- E Silver Lot E
- N Gold Lot N

Commuter/Part-time

- I Green Lot I

Students

- L Soccer/Baseball Lot L
- M Soccer Practice Lot M

Unrestricted

- EP Emergency Phone
- EB Blue Light and Emergency Phone

Staff & Visitors

- C Silver Lot C
- D Silver Lot D
- F Silver Lot F
- G Silver Lot G
- H Silver Lot H
- O Silver Lot O
- P Silver Lot P
- Q Silver Lot Q



DIRECTIONS

- From Allentown:** Route 22 west and/or I-78 west, I-81 south to Indiantown Gap exit (Route 934 south, Exit 85); 6 miles to Annville.
- From Baltimore:** I-83 north to Harrisburg, follow signs to Hershey, Route 322 east to Route 422 east through Hershey to Annville.
- From Hagerstown:** I-81 north to the Annville exit (Exit 85); Route 934 south into Annville.
- From Harrisburg:** Follow signs to Hershey, Route 322 east to Route 422 east through Hershey to Annville.
- From Lancaster:** Route 72 north through East Petersburg and Manheim; Route 322 west to Route 934 north into Annville.
- From New York City:** I-80 west or I-78 (Route 22) west to I-81 south to the Annville exit (Exit 85); Route 934 south into Annville.
- From Philadelphia:** Pennsylvania Turnpike west to exit 286; Route 72 north to Route 322 west to Route 934 north into Annville.
- From Pittsburgh:** Pennsylvania Turnpike east to exit 266; Route 72 north to Route 322 west to Route 934 north into Annville.
- From Reading:** Route 422 west through Lebanon into Annville OR Pennsylvania Turnpike west to exit 266; Route 72 north to Route 322 west to Route 934 north into Annville.
- From York:** I-83 north; Route 322 east; follow Route 422 east into Annville.

A complete list of directions and accommodations can be found at www.lvc.edu/admission/visit.

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April 10 – 12, 2015**

GENERAL PROGRAM SESSIONS

Program Chair: André P. Walther

Saturday, April 11 MORNING SESSIONS

ORAL SESSION I: Plants, Agriculture, and Biotechnology

Saturday April 11 9:30-10:30 AM Location: **Room 203, Neidig-Garber Science Center**
Session Chair: Dr. Dana Harriger

- 9:30-9:45 1. *Comparing the Viability of the Black Soldier Fly and Darkling Beetle Pupae as Sustainable Feed Alternatives in Indoor Production Systems.* **Surgener, Trevor*** Mercyhurst University.
- 9:45-10:00 2. *A Comparative Study of Three Protocols Used to Analyze Pollen Viability in Christmas Cactus (*Schlumbergera xbuckleyi* var. *Magenta*).* **Godbolt, Courtney B.*, Abigail I. Casey, Taylor P. Doran, Briana N. Ferguson, Mehveen R. Qureshi, and Amy E. Faivre** Cedar Crest College.
- 10:00-10:15 3. *Comparative Analysis of Milk Replacers on Holstein Bovine Serum Protein Concentration and Development.* **Mellott, Martina R.*, M. Dana Harriger and Deborah S. Austin** Wilson College.
- 10:15-10:30 4. *Rational Design of a Structure-Switching DNA Aptamer for Potassium Ions.* **Catherine, Andrew T., Stephanie N. Shishido, Gregg A. Robbins-Welty, and Amy Diegelman-Parente*** Mercyhurst University.

ORAL SESSION II: Animal Ecology

Saturday April 11 9:15-10:30 AM Location: **Leedy Theater, Mund College Center**
Session Chair: Dr. Tanya Matlaga

- 9:15-9:30 5. *Niche partitioning by shelter site selection in lowland tropical treefrogs of northeastern Costa Rica.* **Cannon, Stefani*** East Stroudsburg University.
- 9:30-9:45 6. *Modeling bistability and switching behavior in moving animal groups.* **Strömbom, Daniel*, James E. Herbert-Read, David J.T. Sumpter, and Kolbjørn Tunstrøm** Lafayette College.
- 9:45-10:00 7. *A Survey of Moths (Insecta: Lepidoptera) of the Delaware Water Gap National Recreation Area.* **Kloiber, Stephen*, Blaine Rothausser, and Matthew S. Wallace** East Stroudsburg University.
- 10:00-10:15 8. *Temporal Variation in Leaf Litter Invertebrates Available to *Plethodon cinereus*.* **Barker, Zachary*, Dr. Tanya Matlaga, Dr. Carlos Iudica, and David Muñoz** Susquehanna University.
- 10:15-10:30 9. *Winter roosting behavior of American crow (*Corvus brachyrhynchus*) in Erie Pennsylvania.* **Campbell, John M.* and John O. Campbell** Mercyhurst University.

ORAL SESSION III: Animal Models of Human Disease

Saturday April 11 10:45-12:15 PM Location: **Leedy Theater, Mund College Center**

Session Chair: Dr. Christopher W. Brey

- 10:45-11:00 **10. Investigating the Function of the Amyloid Precursor Protein in Hydra. Cliatt, Kendall A.* and Diane Bridge** Elizabethtown College.
- 11:00-11:15 **11. Real Time Analysis of Expression Levels of Krüppel-like Transcription Factor (KLF) 2 in *Caenorhabditis elegans*. Rosencranz, Samantha* and Christopher W. Brey** Marywood University.
- 11:15-11:30 **12. Overexpression of Krüppel-like transcription factor, KLF-2 maybe toxic to *Caenorhabditis elegans*. Jordan, Sheagley* and Christopher W. Brey** Marywood University.
- 11:30-11:45 **13. The Effects of Dietary Vitamin E on Colorectal Adenoma Formation, ROS Production, and p53 Activation in APC^{min}/APC⁺ Mice. Shastay, Allison*, Brad E. Engle, and Rebecca M. Smith** Wilson College.
- 11:45-12:00 **14. Pathogen-induced nitric oxide production in earthworm coelomocytes detected by flow cytometry: An innate immune response impeded by the nitric oxide synthase inhibitor aminoguanidine. Cook, Shannon*, Morgan Sperratore, and Sheryl Fuller-Espie** Cabrini College.
- 12:00-12:15 **15. The Efficacy of Zingerone and Curcumin in Inhibiting the NF- κ B Inflammatory Pathway in Mouse Macrophage Cells: A Comparative Study. Mangkalaphiban, Kotchaphorn*, Rebecca M. Smith, and Laura F. Altfeld** Wilson College.

POSTER SESSION I: Biology and Ecology of Bacteria, Plants, and Fungi; Animal Behavior, Ecology, and Neuroscience

Saturday April 11 10:00-12:00 AM Location: **Syndoninos Commons, Lynch Memorial Hall**

Session Chair: Dr. Cynthia Walter

- 38. The Effect of Nicotine on the Expression of A-Kinase Anchoring Proteins in Rat Pheochromocytoma Cells. Erney, Tiffany*, Jeremy Osko, Frank Yopez Castillo and Angela L. Asirvatham** Misericordia University.
- 39. The Role of Phosphodiesterases in Neonatal Rat Schwann Cell Proliferation. Mondulick, Noelle*, Stevens*, Shawna and Angela L. Asirvatham** Misericordia University.
- 40. Social Instability Stimulates Molting in the crayfish *Orconectes obscurus*. Dise, Kevin I.* and Anya Goldina** Elizabethtown College.
- 41. Identity and injury type influence post-injury decision making in collegiate athletes. Davis, Kristopher J.*, Marissa M. Sneeringer, Lynne C. Davies, and Anya Goldina** Elizabethtown College.
- 42. Past social experience influences the effect of pheromones on crayfish aggression. Del Gaudio, Marisa* and Anya Goldina** Elizabethtown College.

43. *How does education alter collegiate athletes' assessment of severity of sports-related injuries?* **Sneeringer, Marissa M.*, Kristopher J. Davis, Lynne C. Davies, and Anya Goldina** Elizabethtown College.
44. *The Effect of Enrichment Intervention on the Behavior of Shelter Dogs.* **Koshar, Jenna* and Cynthia Walter** Saint Vincent College.
45. *Exploring the effects of asynchrony in models of collective motion.* **Greis, W. Hunter*, Tasnia Hassan*, and Daniel Stroembom** Lafayette College.
46. *Opioid Growth Factor Affects Presentation of Conditioned Fear Response in Rats.* **Cartisano, Emma* and Jennifer Thomson** Messiah College.
47. *Behavior Patterns of Captive African Penguins (*Spheniscus demersus*) at the Lehigh Valley Zoo Compared to Those in the Wild.* **Snyder, Angela* and John A. Cigliano, Ph.D.** Cedar Crest College.
48. *Frontal lobe EEG and BIS/BAS activity in relation to symptoms of NPD, ASPD, and binge drinking behavior.* **Lazarski, Kathleen*, Nicole Nicholson, Spero Skarlatos, Caitlin Hutton, and Robert L. Hale.** Shippensburg University.
49. *The Effect of Theophylline on Anxiety in Zebrafish (*Danio rerio*).* **Conahan, Megan* and Wendy Boehmler** York College of Pennsylvania.
50. *Terrestrial Vertebrate Biodiversity along a Scale of Environmental Disturbance.* **Robinson, Joshua, A. Christy, and James Kellam** Saint Vincent College.
51. *Establishing a Protocol for DNA Extraction of Dried Plant Material of *Clitoria fragrans* (Fabaceae), a Federally Threatened Plant Endemic to the Lake Wales Ridge in Florida.* **Casey, I. Abigail* and Amy E. Faivre** Cedar Crest College.
52. *Assessing Pollen Viability in Christmas cactus (*Schlumbergera xbuckleyi* var. Magenta) Flowers Following Time Since Anthesis Using Aniline Blue Stain.* **Doran, Taylor P.*, Courtney B. Godbolt*, and Amy E. Faivre** Cedar Crest College.
53. *Exploring Self-Incompatibility Systems in *Schlumbergera xbuckleyi* var. Magenta.* **Ferguson, Briana N.* and Amy E. Faivre** Cedar Crest College.
54. *Using Select Remote Sensing Techniques to Quantify the Occurrence and Spatial Distribution of Shade Trees in the Urban Environment of Chester, Pennsylvania.* **Gensel, Sarah*** Widener University.
55. *Degradation of Glyphosate Utilizing Plant Growth Promoting Bacteria.* **Beaver, Mariah* and Cassie Leggour*** Delaware Valley University.
56. *The effects of resource translocation on the success of clonal offspring of *Fallopia japonica*.* **Talabiska, Nicholas* and David Matlaga** Susquehanna University.
57. *Effects of planting depth on Japanese Knotweed (*Fallopia japonica*) rhizome performance.* **Wood, Shannon* and David Matlaga** Susquehanna University.
58. *Neofunctionalization of *Candida glabrata* Pmu3 as a thiamine phosphatase.* **Bergado, Zefanne, Pam Myers* and Kelly Orlando** Immaculata University.

59. *Vegetation Assessment of the Transco Natural Gas Pipeline in Northeastern Pennsylvania*. **Klemow, Kenneth***, **Abdullatif Alghusn, Tekalign Berhe, Marc Davis, Darrell Dech, Christopher Kropiewnicki, Carley Smith** Wilkes University.
60. *Small World Initiative at Lafayette College: crowd sourcing antibiotic discovery*. **Ventresca, Juliana***, **Sedomo Agosa, and Laurie Caslake** Lafayette College.
61. *Dot blot analysis of desert crust organisms for the presence of oxyR*. **Villaverde, Leslie*** and **Laurie Caslake** Lafayette College.
62. *Bioinformatic and Functional Analysis of Glycoside Hydrolase Family 3 genes in Phytophthora sojae*. **Parish, Andrea*** and **Manuel Ospina-Giraldo** Lafayette College.
63. *Expression Analysis of Chitin Synthase in Phytophthora sojae R5: RNA extraction, Reverse-Transcription, and qPCR analysis*. **Ross, Brandon*** and **Manuel Ospina-Giraldo** Lafayette College.
64. *Modification of TYLCV to make transgenic plants and express virus in the whitefly insect vector*. **Gundlah, Victoria***, **Sreejata Munsu, Meg M. Laakso** Eastern University.
65. *Genetically engineering tomato yellow leaf curl virus to express GFP in transgenic plants*. **Paul, Jocelyn*** Eastern University.
66. *Using the Amborella trichopoda expansin superfamily to elucidate the history of Angiosperm expansins*. **Seader, Victoria H.***, **Jennifer M. Thornsberry, and Robert E. Carey** Lebanon Valley College.
67. *Microclimatic Characteristics of a Lowland Neotropical Rainforest, Amazon Conservatory of Tropical Studies (ACTS) Iquitos, Peru*. **Metcalf, Blake E.***, **Peter J. Pulhac, Benjamin J. Harowitz, John L. Silverio, Joseph T. D'Auria, Sarah A. Benson, Stephen R. Madigosky, Itzick Vatnick, and Robert W. Morris** Widener University.
68. *Success Rate and Effects on Growth of Artificial Combinations of Cool Season Grasses and Strains of Fungal Endophytes*. **Leger, Alena*** King's College.
69. *Use of a brine shrimp (Artemia salina) assay to evaluate endophyte-infected Agrostis hyemalis toxicity*. **Kolbeck, Matthew*** and **Tammy Tintjer** Kings College.
70. *The effect of diet on a fly model of Parkinson's disease*. **Corbin, Kenzie***, **Isabella Walko, Brianna Dacy and Elaine R. Reynolds** Lafayette College.
71. *The analysis of microbes on common college surfaces and their survivability in the presence of anti-microbial agents*. **Sturdivant, Brittany*** and **Krystal Tolson*** Immaculata University.

Saturday, April 11 AFTERNOON SESSIONS

ORAL SESSION IV: Gene Expression and Genomics

Saturday April 11 1:00-2:00 PM Location: **Leedy Theater, Mund College Center**

Session Chair: Dr. Jeramia Ory

- 1:00-1:15 **16. *A Potential Role for Biotin in Cryptococcal Meningitis Severity*. Kosak, Zachary J.*, Erin E. McClelland, and Jeramia J. Ory** King's College.
- 1:15-1:30 **17. *Expression of small heat shock proteins in Hydra*. Altares, Erin E.* and Diane Bridge** Elizabethtown College.
- 1:30-1:45 **18. *Identification and Annotation of Cytochromes P450 in the Purple Sea Urchin Genome*. Stavish, Gary*, Nada Alghithi, Lyndsie Johndrow, and Robin P. Ertl** Marywood University.
- 1:45-2:00 **19. *Using the Amborella trichopoda expansin superfamily to elucidate the history of Angiosperm expansins*. Seader, Victoria H.*, Jennifer M. Thornsberry, and Robert E. Carey** Lebanon Valley College.

ORAL SESSION V: Animal Pathogens

Saturday April 11 2:15-4:00 PM Location: **Leedy Theater, Mund College Center**

Session Chair: Dr. Howard P. Whidden

- 2:15-2:30 **20. *Canis lupus familiaris* as fungal reservoirs for *Rhodotorula* species. Hile, Jessica*, Kelcy McIntyre, and Amy Reese, PhD.** Cedar Crest College.
- 2:30-2:45 **21. *The Effects of Temperature on the Competitive Interactions between Pseudogymnoascus destructans and Native Cave Fungi*. Meck, Jessica^{1*}, Laura F. Altfeld² and Brad E. Engle¹** 1.Wilson College, 2.Saint Leo University
- 2:45-3:00 **22. *Assessment of Eastern North American Tree Bat Activity Along Two Potential Migration Corridors*. McGovern, Elizabeth*, Christopher Hauer, and Howard P. Whidden** East Stroudsburg University.
- 3:00-3:15 **23. *Changes in the Community Composition and Distribution of Bats in the Delaware Water Gap National Recreation Area Following the Emergence of White-nose Syndrome*. Hauer, Christopher*, Elizabeth McGovern, and Howard P. Whidden** East Stroudsburg University.
- 3:15-3:30 **24. *Seroprevalence of Toxoplasma gondii in Coyotes (Canis latrans) From Eastern United States*. Lukow, Devon*, Megan Santiago, and Abdalla Aldras** East Stroudsburg University.
- 3:30-3:45 **25. *Looking for Toxoplasma gondii In the Erie, PA environment*. Matthews, Margaret*, Matthew Vendeville, Sara Turner, and Thomas Cook** Mercyhurst University.
- 3:45-4:00 **26. *The Prevalence of Ixodes scapularis on Presque Isle*. De Salle, Samantha*, Thomas Kelly, and Sara Turner** Mercyhurst University.

ORAL SESSION VI: Microbial Ecology, and Education

Saturday April 11 2:15-3:45 PM Location: **Room 203, Neidig-Garber Science Center**
Session Chair: Dr. David Dunbar

- 2:15-2:30 **27. *The Effect of Alternative Sugars on the Intestinal Flora of Mouse Model.* Hoffman, Kyle*, Nelvia Ruano, and Abdalla Aldras** East Stroudsburg University.
- 2:30-2:45 **28. *Antimicrobial Activity as Related to Alkaloid Composition of Root Extracts from Berberine Containing Plants.* Messler, Alice* and Cosima Wiese** Misericordia University.
- 2:45-3:00 **29. *Bacteriophage Predation is Amplified by Increased Temperature in Soil Systems.* Shade, David* and Caroline Nielsen** Cabrini College.
- 3:00-3:15 **30. *Isolation of novel *Arthrobacter* sp. phages with a robust new method.* Chudoff, Dylan*** Immaculata University.
- 3:15-3:30 **31. *Vision and Change in the Biology Classroom: Meet the Life Science Teaching Resource Community.* Surmacz, Cynthia A.*** Bloomsburg University.
- 3:30-3:45 **32. *A SENCER approach to Biochemistry Lab: preparing students for the real world.* Robin P. Ertl*** Marywood University.

POSTER SESSION II: Aquatic Ecology and Water Quality; Education

Saturday April 11 1:00-3:00 PM Location: **Syndoninos Commons, Lynch Memorial Hall**
Session Chair: Dr. Barbara McCraith

- 72. *A comparison of macroinvertebrate functional feeding groups in artificial leaf litter packs and natural leaf litter in Trout Brook and Leonard's Creek, PA.* Pates, H.*** Misericordia University.
- 73. *An Analysis of Fish Stomach Contents and Benthic Macroinvertebrates in Trout Brook and Leonard's Creek, Luzerne and Wyoming Counties, PA.* Pheasant, Michael S.*, Timothy A. Kennedy, and Barbara J. McCraith** Misericordia University.
- 74. *Abundance and distribution of native and non-native crayfish taxa in the Ten-Mile Creek watershed of the Huyck Preserve.* Gerrity, Skyler*** Misericordia University.
- 75. *Comparison of Benthic Macroinvertebrate Diversity in Trout Brook and Leonard's Creek, Pennsylvania.* Kennedy, Timothy A.*, Michael Pheasant, and Barbara McCraith** Misericordia University.
- 76. *Effects of Temperature on the Levels of Heat Shock Protein 70 in Blackworms (*Lumbriculus variegatus*).* Morton, Jacob T.*, Blake H. Shoemaker*, Cynthia A. Surmacz, and John M. Hranitz** Bloomsburg University.
- 77. *Bacteriological and Chemical Assays of Upper Ohio Basin Municipal Water and Well Water.* Angely, Samantha*, Lindsay Richardson*, Brandon Snyder*, and Cynthia Walter, Ph.D.** Saint Vincent College.
- 78. *Microalgae biofuel production and nutrient reduction in municipal waste water.* Cavalcanti, Lisana Furtado and Cynthia A. Walter*** Saint Vincent College.
- 79. *Using landscape characteristics to predict brook trout populations.* Ressler, Dan* and Jon Niles** Susquehanna University.

80. *Does the production of defensive spines come at a reproductive cost in an aquatic snail?* **Sirnic, Teresa***, **Ashley Hummel**, and **Edward P. Levri** Penn State Altoona.
81. *Using Benthic Macroinvertebrate Families for Monitoring in the Upper Main Stem of the Susquehanna River: Is Family-Level Identification Adequate?* **Beachel, Breyon***, **Michael D. Bilger**, and **Jack R. Holt** Susquehanna University.
82. *Settlement recruitment as observed at a field site in Lynnhaven Inlet, Virginia.* **Costenbader, Drew*** and **James C. Hunt** East Stroudsburg University.
83. *Examining meiobenthic communities in sediments associated with an oyster restoration project in Greenbackville, Maryland.* **Million, Andrew***, **Cassandra Powell**, **Kyle Holiman**, **Dawna Houser**, and **James C. Hunt** East Stroudsburg University.
84. *Aquatic Macroinvertebrates from a Freshwater Seep in Luzerne County, Pennsylvania.* **Corpus, Larry D.***, **David Dorbad**, **Garrett Drumheller**, **Nick Essington**, **Alex Romeo**, and **Nick vonEgypt** Misericordia University.
85. *Effects of nutrient enrichment and acidification on phytoplankton species composition in Raritan Bay, a eutrophic estuary.* **Hayden, Leah*** and **Megan Rothenberger** Lafayette College.
86. *The effect of toxic legacy sediments on macroinvertebrate populations in the Bushkill Creek as an indicator of post-dam removal impacts.* **May***, **Dionne** and **Megan Rothenberger** Lafayette College.
87. *Effects of habitat fragmentation on vernal pool-breeding salamanders.* **Osborn, Elizabeth*** and **Megan Rothenberger** Lafayette College.
88. *Limnological Evaluation of Indian Park Pond.* **Gnocchi, Peter***, **Samuel Wanner**, and **Mel Zimmerman** Lycoming College.
89. *Comparison of Water Quality, Fish, and Macroinvertebrate Characteristics of Two Class A Trout Waters with Other Impaired Streams.* **McNett, Alison*** and **Mel Zimmerman** Lycoming College.
90. *The Lycoming County Farm Project.* **Minnick, Alec*** and **Mel Zimmerman** Lycoming College.
91. *Contribution of Lycoming College Clean Water Institute to PFBC Unassessed Waters Project, 2010-2014.* **Zimmerman, Mel*** Lycoming College.
92. *Habitat Preferences, and Population Structure and Stability, in an Eastern Hellbender Meta-population in the Susquehanna River West Branch Watershed.* **SarPedrick, Sarah D.***, **Samuel E. Wanner**, and **Peter J. Petokas** Clean Water Institute.
93. *Use of Artificial Nest Boxes to Facilitate Egg Collection for an Eastern Hellbender Head-Starting Program in the Susquehanna River Watershed.* **Wanner, Samuel E.***, **Sarah D. Pedrick**, and **Peter J. Petokas** Clean Water Institute.
94. *Asexual reproduction of an invasive macrophyte grown over various sediment types.* **Wray, Katelyn*** and **Rebecca A. Urban** Lebanon Valley College.
95. *Using DNA Barcoding to Enhance Identification of Benthic Macroinvertebrates for use in Waterway Biomonitoring : An Interdisciplinary Lab in Ecology and Genetics at Lebanon Valley College.* **McDonald, Connor M.***, **Rebecca A. Urban**, and **Robert E. Carey** Lebanon Valley College.

96. *Cytochromes P450 Sequence Identification in the Purple Sea Urchin Genome*. **Alghithi, Nada***, **Gary Stavish, Lyndsie Johndrow, and Robin P. Ertl** Marywood University.
97. *Approaching fifty years of ecological research and education at Lacawac Sanctuary Field Station*. **Knoll, Lesley B.*** Lacawac Sanctuary Field Station.
98. *Community Partnership of the Waterdale Environmental Education Center*. **Potuck, Justin* and Mel Zimmerman**. Lycoming College.

Sunday, April 12 MORNING SESSIONS

ORAL SESSION VII: Aquatic Ecology

Sunday April 12 9:45-11:00 AM Location: **Leedy Theater, Mund College Center**
Session Chair: Dr. Anya Goldina

- 9:45-10:00 **33.** *Diatom communities in the upper main stem of the Susquehanna River reflect the habitat and the means of collection*. **Holt, Jack R.*, Austin Iovoli, Amir Alwali, and Ian Murray** Susquehanna University.
- 10:00-10:15 **34.** *Individual Recognition in the crayfish Orconectes rusticus depends on social status*. **Thalathoti, Samuel P.* and Anya Goldina** Elizabethtown College.
- 10:15-10:30 **35.** *Serotonin maintains aggression within social networks of crayfish Orconectes obscurus*. **Meier, Casey* and Anya Goldina** Elizabethtown College.
- 10:30-10:45 **36.** *Abundance, distribution, and social perceptions of two non-native crab species in the Raritan Bay system: an interdisciplinary approach to bioinvasion*. **Woodruff, Sarah* and Megan Rothenberger** Lafayette College.
- 10:45-11:00 **37.** *Effect of Road Proximity on Abundance and Movement Patterns of Vernal Pool-Dependent Wood Frogs*. **Engberg, Katherine* and Megan Rothenberger** Lafayette College.

POSTER SESSION III: Health And Disease

Sunday April 12 9:45-11:45 AM Location: **Syndoninos Commons, Lynch Memorial Hall**
Session Chair: Dr. André Walther

99. *The role of Ndt80 activator protein in the meiotic commitment point of an IME-2 hyperactivated S. cerevisiae strain*. **Mehmeti, Lediona*, Rosalinda DiGironimo, Brendan Dougherty, Archana Ganta, Krista Vadaketh, Edward Winter, and Aikaterini Skokotas** Rosemont College.
100. *Quantification of Homologous Recombination in Saccharomyces cerevisiae Using qPCR*. **Grady, Rebecca B.*, Jessica Kline, and Dr. André P. Walther** Cedar Crest College.
101. *Identification of Protein-Protein Interactions of Replication Protein A in Saccharomyces cerevisiae*. **Ortiz, Michaela A.*, Chelsea Mahoney, Kayla Hager, and Dr. André Walther** Cedar Crest College.

102. *Activity of the Metabotropic Glutamate Receptor -1 (GRM1) Gene as a Potential Marker for Aggressive Breast Cancer Subtypes* . **Kosarek, Noelle N.* and Eric S. Ho** Lafayette College.
103. *Expression of Matrix Metalloproteinases in Breast Cancer Cells*. **Otarashvili, Teona* and Eric P. Ingersoll** Penn State Abington.
104. *SV40 T antigen's role in the activation of the cyclin A promoter via TBP and p53 binding*. **Girsch, Emily A*, McDevitt, Dillon and Dr. Jane F. Cavender** Elizabethtown College.
105. *Down Regulation of Telomerase Enzyme in Mouse (*Mus musculus*) Melanoma Cancer Cells using a Novel Anti-Telomerase siRNA Plasmid*. **Kendig, David J.* and Jeffrey P. Thompson** York College of Pennsylvania.
106. *Evaluating the Presence of Inflammasomes after LPS Treatment in 4T1 Cells as Compared to Dendritic Cells*. **Albagli, Kevin*, Brenna Hynes*, Ashley St. John*, and Robert Kurt** Lafayette College.
107. *Using the EMT6 Murine Mammary Carcinoma to Study Concomitant Tumor Immunity*. **Hillman, Michelle*, Coleen McDonald*, Robert Kurt** Lafayette College.
108. *Ascorbate Decreases Proliferation of MCF-10F and C5 Breast Epithelial Cells*. **Antal, Julian* and Thomas McGuire** Penn State Abington.
109. *Sand Dollar Embryos as a Potential Model System for Studying Thalidomide Teratogenesis*. **Kolmer, Taylor* and Alyssa Cantalini** Susquehanna University.
110. *A Twist on a Classic Developmental Biology Laboratory: Morphological Data and Molecular Analysis of Apoptosis from Chemically Exposed *Gallus gallus* Embryos*. **Osborne, Allison*, Jinalben Patel*, Tayler White, Angela Snyder, Kristin Konapelsky, Taylor Perkins, Francesca Prendes, Denyell Spingola, Alicia Zook, Audrey J. Ettinger, and K. Joy Karnas** Cedar Crest College.
111. *JNK is required for first cell division following fertilization in the sea urchin embryo*. **Naugle, Michaela*, Rachel Ovelman*, Taylor Unger* and Margaret T. Peeler** Susquehanna University.
112. *The effects of A β 25-35-induced toxicity on SH-SY5Y cells*. **Erdmann, Cassie*, Matthew Kimock* and Barbara Fenner** King's College.
113. *The effects of *trkB.t1*, independent of *trkB.tk+*, on neurite morphology in the presence of BDNF*. **Runner, Kaitlyn* and Barbara Fenner** King's College.
114. *Roux-En-Y Gastric Bypass Surgery Alters Oleoylethanolamide (OEA) Mediated Ingestive Behavioral Responses*. **Murphy, Zachary*, Jessica Biegler, Nelli Horvath, Ann Rodgers, and Andras Hajnal** Misericordia University.
115. *A mutation in the Krüppel-like transcription factor (*klf*) 2 decreases the life-span of *Caenorhabditis elegans**. **Maylor, Alexis, Samantha Rosencranz and Christopher W. Brey*** Marywood University.
116. *Quantitation of Epigallocatechin (EGC) and Epigallocatechin Gallate (EGCG) in Green Tea Supplements*. **Perkins, Ashley G.*, Deborah S. Austin, Rebecca M. Smith** Wilson College.
117. *Horizontal Transmission of Nosocomial Infections from Healthcare Providers' to their Patients*. **Moss, Jessica*** Misericordia University.

118. *The plant hormone zeatin riboside inhibits T lymphocyte activity via adenosine A2A receptor activation.* **Lappas, Courtney M., Wise, Rebecca R.*, Lloyd, Cody, J. and Pipkin, Emily N.** Lebanon Valley College.
119. *Prevention of Corticosterone Induced Loss of Dendritic Cell Subsets When Exposed to Anti-CD40.* **Bessonett, Shannon M.* and Dr. Jodi L. Yorty** Elizabethtown College.
120. *Effects of Vitamin D3 and Corticosterone in vivo and in vitro on C57BL/6 Dendritic Cells.* **Mrozek, Christine M.* and Dr. Jodi L. Yorty** Elizabethtown College.
121. *Identification of Anaplasma phagocytophilum and Bartonella henselae in ticks from Presque Isle.* **Wright, Jessica*, Margaret Raydo, Sara Turner, Ph. D** Mercyhurst University.
122. *Using flow cytometry to measure xenoreactive responses in annelids: An in vitro study using Lumbricus terrestris versus Eisenia fetida.* **Daly, Jennifer H.*, Shannon R. Cook, and Sheryl L. Fuller-Espie** Cabrini College.
123. *Using microbe-associated molecular patterns to induce nitric oxide production in the coelomocytes of Eisenia hortensis.* **Sperratore, Morgan M.*, Shannon R. Cook and Sheryl L. Fuller-Espie** Cabrini College.
124. *Investigation into the capsule binding mechanism of the fungus Rhodotorula.* **McIntyre, Kelcy*, Catherine Bradshaw, and Amy J. Reese, Ph.D.** Cedar Crest College.
125. *Analysis of fungal organisms isolated from domestic dog coats.* **Namous, Fadia, Selena Contreras*, Jessica Hile, and Amy J. Reese, Ph.D.** Cedar Crest College.
126. *Toward overexpression of alpha-1,3-glucanase in Cryptococcus neoformans using two inducible plasmid constructs.* **Kelly, Julia*, Megan Morrison, and Amy J. Reese** Cedar Crest College.
127. *Identifying the prevalence of Rhodotorula species on trees of the William F. Curtis Arboretum of Cedar Crest College.* **Ngo, Victoria*, Selena Contreras, Julia Kelly, Samantha Korpics, and Amy J. Reese, Ph.D.** Cedar Crest College.
128. *The Distribution of Parasites at Forest Edge Sites.* **Serino, Katelyn* and Anthony Serino** Misericordia University.
129. *Prevalence of Lyme Disease in Forested Areas.* **Watkins, Lydia* and Anthony Serino** Misericordia University.
130. *Prevalence of ranavirus in adult amphibian hosts in a vernal pool in south central Pennsylvania.* **Perrone, Brandon* and Bridgette E. Hagerty** York College of Pennsylvania.
131. *Copper Selective Phenotypes in Cryptococcus neoformans.* **Rahman, Sabih*, Jeramia Ory, PhD., and Morgan Coslett** King's College.
132. *Degradation of Lignin and its Analogues by C. neoformans.* **Tram, Lan*, Steven Buczek* and Jeramia Ory** King's College.
133. *Investigating potential interactions between N-acetylgalactosamine- and Mannose- Specific Lectins on Hantavirus Glycoproteins GN and GC.* **Gray, Monique A.* and Meda Higa, Ph.D.** York College of Pennsylvania.
134. *Expression and purification of Hantaan and Puumala virus GN glycoproteins in E. coli.* **Hernandez, Millie* and Meda Higa, Ph.D.** York College of Pennsylvania.

135. *Studying the Effects of Temperature on Hantavirus Pseudovirus Infection of Vero E6 Cells.* **Skutnik, Emily*** and **Meda Higa, Ph.D.** York College of Pennsylvania.
136. *Do sibling cannibals grow up to try to eat their mates? Aggression and cannibalism as a behavioral syndrome in wolf spiders.* **Schreiber, Matthew***, **Jess Mazzagatti**, **Emily McCaffery**, **Emily Rosenblum**, **Derek Wilson**, **Orvil Grunmeier**, **Jake Case**, **Amanda Abrams**, **Andrea Mobley**, & **Matthew Persons** Susquehanna University.
137. *The costs and benefits of sibling cannibalism in the wolf spider *Tigrosa helluo*: a mother's perspective.* **Schreiber, Matthew**, **Ellie Rosenblum***, **Jess Mazzagatti**, **Emily McCaffery**, **Derek Wilson**, **Orvil Grunmeier**, **Jake Case**, **Amanda Abrams**, **Andrea Mobley**, and **Matthew Persons** Susquehanna University.
138. *Effects of Photosensitizers and Quinones on Settlement and Metamorphosis of Larvae of the Polychaete Annelid *Capitella teleta*.* **Forney, Stephen^{1*}**, **Rebecca Wicker¹**, **Aliya Frankel¹**, **Mia Sallavanti¹**, **Fiana Fach¹**, **Brian Brune¹**, **Robert Burns²**, **Jan A. Pechenik²**, and **William J. Biggers¹** 1.Wilkes University, 2.Tufts University.

Local Area Attractions

HERSHEYPARK Springtime in the Park

Put the chill of winter behind you and preview the coming summer fun with dozens of rides, live entertainment, strolling *Hershey's Product Characters*, and more. Open Saturday from 10-9 and Sunday 10-6.
<http://www.hersheypark.com/seasonal/spring/index.php>



ZooAmerica



Visit **ZooAmerica**, a year-round, 11-acre, walk-thru zoo adjacent to *Hersheypark* in Hershey, PA. Stroll the tree-lined pathways as you learn about more than 200 animals from five regions of North America. For more about *ZooAmerica*, visit <http://www.zooamerica.com/>.

Hershey Gardens

Hershey Gardens opened in 1937 with Milton Hershey's request to "create a nice garden of roses." More than 75 years later, the 3 1/2 acre rose garden has blossomed into 23 acres of botanical beauty providing visitors with unique experiences and enriching opportunities. Overlooking the town of Hershey, Hershey Gardens features a breathtaking assortment of flowers and shrubs, a stately collection of rare, signature trees, and various programs designed to delight visitors of all ages. Visit <http://www.hersheygardens.org/>



The Hershey Story Museum

The Hershey Story explores the rags to riches accomplishments of an American entrepreneur who used his personal wealth to enrich the lives of others. Find out how Mr. Hershey revolutionized the process of making milk chocolate. Discover how the Hershey Industrial School's orphan boys became heirs to his fortune. From the interactive Museum Experience to the Chocolate Lab to Café Zooka and the Museum Shop, the sweet results of Mr. Hershey's entrepreneurship, ingenuity and philanthropy are guaranteed to inspire all who enter The Hershey Story. Visit <http://www.hersheystory.org/>

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