

95th Annual Meeting of the Pennsylvania Academy of Science

March 29-31, 2019



at



Program Booklet

Welcome to Cedar Crest College

Since its founding in 1867, Cedar Crest College has been encouraging and inspiring passionate learners, and giving them the tools they need to lead and succeed in a global community. The foundation of a Cedar Crest College education is a grounding in the liberal arts and a dedication to academic excellence, innovation and student success. With more than 50 academic programs, we provide the strong scholarship and real-world opportunities that deliver a powerful learning experience to our diverse student body including young women, adult undergraduate and graduate students.



Opening Reception at the Da Vinci Science Center

A special thanks to the Women in Science and Engineering (WISE) Network and the Da Vinci Center for sponsoring the opening reception. Located on the Cedar Crest College campus, the Da Vinci Science Center is a national award-winning nonprofit organization that has brought science to life and lives to science since 1992. The Science Center's hands-on exhibits, programs, and partnership efforts present the STEM subjects of science, technology, engineering, and mathematics to kids informally, playfully, and in ways that relate to their popular interests. These active and engaging experiences awaken interest, promote fundamental skills, and inspire students to consider exciting STEM careers that meet growing industry demands. The Science Center also promotes creativity, artistry, and current-day applications of qualities of greatness embodied by Leonardo da Vinci and the innovators who have succeeded him. The Science Center served a record total of 142,743 participants in its latest fiscal year ending June 30, 2016, and its annual participation has increased by 73 percent since 2011.



Thank you to our Reception Speakers, including Cedar Crest College President Elizabeth Meade, Da Vinci Science Center CEO Lin Erickson, and State Representative Mike Schlossberg. Please join us at 7:30 in the Da Vinci Center atrium to hear their comments.

7:00–9:00 PM Wine, Cheese, and Hors d'oeuvres served

Welcome Message from Dr. Amy Parente President, Pennsylvania Academy of Science

It is my pleasure to welcome you to the 95th annual meeting of the Pennsylvania Academy of Science. My theme for my time as President has been “2020 Vision” as the Academy moves towards its centennial celebration in 2024. During my first year as president, we have seen many positive changes that have allowed us to better live out the mission of the Academy to be “*Pennsylvania’s vital and valuable resource for science professionals, faculty, and students.*” We are excited to unveil our new logo at this year’s meeting which we feel better captures the diversity of our membership. We have many PAS-themed items we will be giving away as gifts and as part of our many raffle items that will be drawn during Saturday evening’s banquet. We have also worked to expand the Academy’s funding opportunities to further support student research and travel to present their findings at the annual PAS meeting. More on that in the upcoming year.



In this year’s meeting we are hosting a symposium on *Connecting Society with Science: How can scientists better communicate with the public* featuring some of the most knowledgeable names in the field. The symposium will be capped by Dr. Lorraine Soisson who is giving the keynote address on Saturday evening following our banquet. Like last year, we will also have a panel for students considering careers in STEM fields during lunch on Saturday. I would also like to encourage participants to increase their involvement in the society by joining the PAS Board of Directors for our business meeting held at the same time – lunch will be provided for both of these events. We are always looking for more members to take leadership roles in the society. We are also very excited about the breadth of oral and poster presentations throughout the weekend. At PAS we pride ourselves on the diversity of our membership and encourage you to attend at least one talk or visit one poster that is in a field outside of your discipline. I would like to extend a special word of thanks to the faculty and staff at Cedar Crest College for their roles in organizing the meeting this year. Good luck to all of the students participating in the Anne Spsychala Competition and a tremendous thank you to all of the volunteer judges for the event – we could not have this awards opportunity without your assistance. Please enjoy the meeting and I look forward to seeing you at next year’s event at York College, in York, PA.

Meeting Wireless Access for Saturday and Sunday

Wireless Network: CCEvent

Visit the PAS website for Conference information

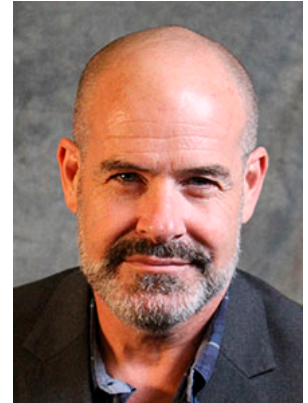
Pennsci.org

2019 Plenary Symposium Address

The Science of Science Communication: Theory and Practice

Dr. Lee Ahern

Lee Ahern is associate professor of advertising and public relations in the Donald P. Bellisario College of Communications at Pennsylvania State University. He is director of the Science Communication Program and a senior research fellow at the Arthur W. Page Center for Integrity in Public Communication. Ahern studies the science of science communication. Effective public policies relative to science and technology require public understanding of complex concepts. Over the past two decades, communications scholars have begun to identify the social and psychological factors that combine to make meaning about scientific issues in the minds of different audience segments. They are also beginning to understand why science communication campaigns so often fail to deliver the intended and desired results. These findings have made it clear that scientists must consider not just the science itself, but how audiences will react to and make meaning from science communications.



Saturday March 30 in Alumnae Hall Auditorium 9:15-9:45AM

2019 Keynote Address

A World View of the Fight Against Malaria.

Dr. Lorraine Soisson

Lorraine (Amory) Soisson graduated from Cedar Crest College with a BS in Genetic Engineering Technology, Biology and Chemistry and pursued her PhD in Biochemistry, Cellular and Molecular Biology at the Johns Hopkins University School of Medicine. Her dissertation focused on development of a vaccine for schistosomiasis, the second most prevalent parasitic infection worldwide. Dr. Soisson was then selected as an American Association for the Advancement of Science (AAAS) Science and Diplomacy Fellow by the U.S. Department of State. As an AAAS Fellow, she led efforts to communicate U.S. Science and Health Policy to the international community, most notably to various United Nations organizations, and represented the United States on various delegations including the World Summit for Social Development. She is now the Senior Technical Advisor to the U.S. Agency for International Development's Malaria Vaccine Development Program (USAID MVDP), whose mission is to develop vaccines to retard morbidity and mortality in children and pregnant women, and to eventually introduce these vaccines into malaria control programs.



**Saturday March 30, 2019 following the dinner beginning at 6:00PM
in the Tompkins College Center**

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

Panel I: *Health Professions and Med School. Location OBC1*

Moderator: Audrey Ettinger Cedar Crest College

Cedar Crest alumnae representing a variety of health fields, including medicine, nursing, genetic counseling, and physical therapy, will discuss their professional pathways.

Natalie Akers

Drexel University Medical School
Fourth year Medical Student

Renee Tedder

Allentown Health Bureau
Environmental Health Officer

Kimberly Barry, PT, DPT

St. Luke's University Health Network
Physical Therapist

Stefanie Weber, MS, LCGC

Metis Genetics and the University of
Pennsylvania
Licensed Certified Genetic Counselor
Consultant

Emily Meyers, CRNP, CDE

St. Luke's University Health Network
Nurse Practitioner and Diabetes
Educator

Panel II: *Science Career and Graduate School Panel Location SCI 136*

Moderator: Jenny Hayden Cedar Crest College

Cedar Crest alumnae working in a variety of fields, including industry and academic positions, will discuss their professional pathways.

Angela Caravella

B. Braun Medical Inc.
Senior Regulatory Affairs Specialist

Dr. Meg Christie

Rutgers University and Nanyang Technical
University Postdoctoral Fellow

Cristy Botens

Distek, Inc.
Product Line Manager -
Bioprocessing

Katie MacQueen

Pennsylvania State Police
Forensic Scientist

Angela Snyder

Penn State College of Medicine
Neuroscience Ph.D. Candidate

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

Students wishing to attend the panel must have signed up during online meeting registration.

Presentations at the 95th Annual Meeting of the PAS

School/Organization	Number of Presentations
Cedar Crest College	22
DeSales University	14
Lafayette College	14
Indiana University of Pennsylvania	13
East Stroudsburg University	10
Mercyhurst University	10
Harrisburg University of Science and Technology	9
King's College	9
Lycoming College	9
Cabrini University	7
Messiah College	7
Penn State University-Altoona	7
York College of Pennsylvania	7
Penn State University-York	6
Susquehanna University	5
Immaculata University	4
Marywood University	4
Misericordia University	4
Moravian College	4
Widener University	4
Delaware Valley University	3
Duquesne University	3
Wilson College	3
Gettysburg College	2
Muhlenberg College	2
Penn State University-Abington	2
University of Pittsburgh at Bradford	2
Villanova University	2
West Chester University	2
Albright College	1
Bloomsburg University	1
Cairn University	1
Eastern University	1
Gannon University	1
Penn State University	1
Rosemont College	1
Rutgers University-Camden	1
Ursinus College	1
Wilkes University	1

Presentations sponsored by 39 Pennsylvania & New Jersey colleges and universities.

95th Annual Meeting of the Pennsylvania Academy of Science

All events held on the Cedar Crest College campus
Campus map on back cover

SCHEDULE OF ACTIVITIES AT A GLANCE

Friday, March 29

5:00-6:30 PM	PAS Board Meeting	Tompkins College Center 1867
6:00-7:00 PM	PAS Board Dinner	Tompkins College Center 1867
7:00-8:00 PM	Meeting Check-In	Da Vinci Science Center
7:00-9:00 PM	Reception	Da Vinci Science Center
7:30 PM	Welcome Remarks	
	Dr. Joy Karnas, Meeting Organizer	
	Lin Erickson, Executive Director and CEO Da Vinci Science Center	
	Dr. Elizabeth Meade, President of Cedar Crest College	
	Mike Schlossberg, State Representative, 132 nd District in the PA House of Representatives	

Saturday Morning Sessions, March 30

8:00-9:15 AM	Early Meeting Check-In and Information	Alumnae Hall Atrium
8:55-9:10 AM	Symposium Introduction and Welcome: <i>Connecting Society with Science: How can scientists better communicate with the public</i> Stephen Mech, Albright College	Alumnae Hall Auditorium
9:10-9:45 AM	Symposium Plenary Address: <i>The Science of Science Communication: Theory and Practice</i> Lee Ahern, Pennsylvania State University	Alumnae Hall Auditorium
9:30-5:00 PM	Meeting Check-In and Information	Harmon Hall of Peace
10:00-11:35 AM	Symposium Session I	SCI 136
9:30-11:30 AM	Coffee Break	Lees Hall Gym
10:00-11:45 AM	Oral Presentations: <i>Cancer Biology and Genetics</i>	OBC 1
10:15-11:45 AM	Oral Presentations: <i>Fungal Microbiology and Biotechnology, Chemistry</i>	SCI 139
10:45-11:45 AM	Oral Presentations: <i>Aquatic Ecology</i>	MIL 33
10:00-12:00 PM	Poster Session I (Poster set-up 9:00-10:00 AM) <i>Chemistry, Physics & Forensic Science; Developmental Biology, Neuroscience, and Behavior</i>	Lees Hall Gym

Saturday Lunch Sessions, March 30

11:45-12:00 PM	Avidian Tournament Round I	SCI 138
11:45-1:15 PM	Lunch: Pick up outside Lunch panels/Business Meetings	
12:00-1:00 PM	Student Lunch Panel: <i>Health Professions and Med School</i>	OBC 1
12:00-1:00 PM	Student Lunch Panel: <i>Science Career and Graduate School Panel</i>	SCI 136
12:00-1:00 PM	PAS Business Meeting/Lunch (Open to all members)*	MIL 33

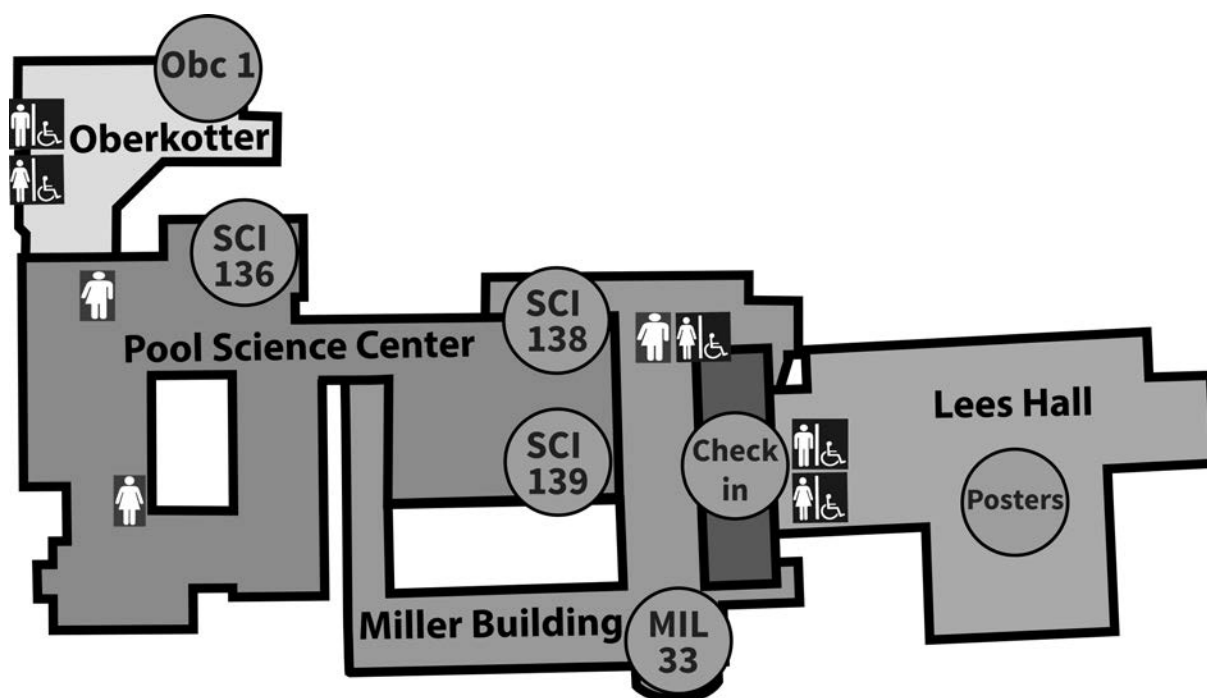
* Business Meeting Election slate found at the end of the program book.

Saturday Afternoon, Evening Sessions, March 30

9:30–5:00 PM	Meeting Check-In and Information	Harmon Hall of Peace
1:15–2:45 PM	Oral Presentations: <i>Terrestrial Ecology/reptiles and amphibians</i>	MIL 33
1:15–2:45 PM	Oral Presentations: <i>Terrestrial Ecology/Insects, Spiders, and Plants</i>	OBC 1
2:00–3:55 PM	Symposium Session II	SCI 136
1:15–3:15PM	Poster Session II (Poster set-up 12:00-1:15 PM) <i>Genes, Proteins, Cells, and Disease</i>	Lees Hall Gym
2:00–4:00 PM	<i>Coffee Break</i>	Lees Hall Gym
3:15–5:15 PM	Oral Presentations: <i>Human impacts on habitats</i>	MIL 33
3:15–5:00 PM	Oral Presentations: <i>Molecular pathways and Human Health</i>	OBC 1
4:15–5:45 PM	Oral Presentations: <i>Terrestrial Ecology/Bats, Birds, and Bears</i>	SCI 136
5:45–6:00 PM	Avidian Tournament Round II	SCI 138
6:00-6:45 PM	Cocktails	Tompkins College Center Canova Commons
7:00-9:00 PM	Dinner and Keynote Address: <i>A World View of the Fight Against Malaria. Dr. Lorraine (Amory) Soisson the Senior Technical Advisor to the U.S. Agency for International Development's Malaria Vaccine Development Program (USAID MVDP)</i>	Tompkins College Center Canova Commons

Sunday, March 31

8:00–12:00 PM	Meeting Check-In and Information	Harmon Hall of Peace
8:00-9:30 AM	PAS Board Meeting	MIL 20
9:00–11:00 AM	<i>Coffee Break</i>	Lees Hall Gym
9:45–11:45 AM	Oral Presentations: <i>Microbiology</i>	OBC 1
10:00–11:45 AM	Oral Presentations: <i>Cancer Biology and Treatment</i>	MIL 33
9:45-11:45 AM	Poster Session III (Poster set-up 8:00-9:45 AM) <i>Aquatic and Terrestrial Ecology & Geology, Environmental Science</i>	Lees Hall Gym
11:45–12:30 PM	Lunch	MIL 33/ OBC 1/SCI 136
12:30-1:00 PM	Closing Remarks and Awards Ceremony	SCI 136



95th Annual Meeting of the Pennsylvania Academy of Science Symposium

Connecting Society with Science: How can scientists better communicate with the public

Symposium Chair: Stephen G. Mech

SYMPOSIUM PLENARY SESSION

Saturday March 30 9:10 AM-9:45 AM Location: **Alumna Hall Auditorium**

- 9:10-9:15 *Introduction and Welcome* **Stephen G. Mech** Albright College
- 9:15-9:45 *The Science of Science Communication: Theory and Practice* **Lee Ahern** Pennsylvania State University

SYMPOSIUM SESSION I:

Saturday March 30 10:00 AM-11:35 AM Location: **Science Center 136 (SCI 136)**

- 10:00-10:20 *Working at the Interface of Science and Policy* **Diane White Husic** Moravian College
- 10:20-10:40 *Entertain Before you Educate* **Sarah McAnulty** Skype with a Scientist
- 10:40-11:00 *Connecting to Science through NASA's GLOBE Program* **Charles M. Randazzo** Certified GLOBE trainer, Berks Nature Science Educator
- 11:00-11:20 *Training Scientists to Communicate in the University Setting* **Lee Ahern** Pennsylvania State University
- 11:20-11:35 *Open Q&A*

SYMPOSIUM SESSION II:

Communicating Science to the Public

Saturday March 30 2:00 PM-3:55 PM Location: **Science Center 136 (SCI 136)**

- 2:00-2:20 *Science, Ethics, and Society: Using an undergraduate capstone course to develop skills for communicating science to the public* **Jennifer D. Hayden***, **Amy J. Reese**, and **Audrey J. Ettinger*** Cedar Crest College
- 2:20-2:40 *The Climate and Urban Systems Partnership: Reaching city residents with informal climate change education* **Rachel Valletta** Chief Environmental Scientist for The Franklin Institute, and director of Climate and Urban Systems Partnership
- 2:40-3:00 *Nature in the City* **Alyssa Miller** Environmental Educator at Schuylkill Nature Center
- 3:00-3:20 *The Role of Science Centers and other Informal Science Education Institutions in Connecting the Public with Science* **Karen Knecht** Director of Education, Da Vinci Science Center
- 3:20-3:40 *Building Science Fair into the Curriculum and Parent Outreach* **Brandy M. Sawyer** Director of Science, Technology, Engineering, and Mathematics for Allentown School District
- 3:40-3:55 *Open Q&A*

SYMPOSIUM Abstracts

Ahern*, Lee, Associate Professor of Advertising and Communications, Penn State University *Training Scientists to Communicate in the University Setting* - This presentation will explore various approaches to training scientists to be better communicators. There are various resources and training modules available to scientists, but their effectiveness has not been closely measured or evaluated. There is also discussion about the best practices: should scientists be trained in graduate school, or after? Should training be voluntary or mandated? Where should the training fall on the theory-practice continuum? Observations and experiences will be presented in the hopes of stimulating a broad discussion of the issue.

White Husic*, Diane, Dean of the School of Natural and Health Sciences, Moravian College *Working at the Interface of Science and Policy* -When we hear about the need to better connect society with science, we often think about how scientists can better communicate with the public to enhance understanding of complex challenges such as climate change or help dispel misunderstandings about issues like vaccine safety or genetically modified organisms. Alternatively, we may consider ways to engage various age groups in the excitement of scientific discovery. But another important interface is to connect science and scientists with policymakers. In this session, I will share examples of my work at the United Nations (international), state and local levels and discuss the importance of working in this realm.

McAnulty*, Sarah Skype with a Scientist *Entertain Before you Educate* -In today's fast-paced internet society, it can be challenging to get people to listen to a science lecture. To compete with Netflix and social media feeds it can be effective to focus on entertaining first, and allowing the education to happen naturally. I'll discuss how to hook the public with fun science content to get their attention so you can share science with a wider audience.

Randazzo*, Charles M. Certified GLOBE trainer, Berks Nature Science Educator *Connecting to Science through NASA's GLOBE Program* -In this session I will provide an overview of GLOBE and how it can be implemented in schools, citizen science, and municipalities, and how to become trained for GLOBE. The **G**lobal **L**earning and **O**bservations to **B**enefit the **E**nvironment Program (GLOBE) is a hands-on international science and education program that provides students and the public worldwide with the opportunity to participate in data collection and the scientific process, and contribute meaningfully to our understanding of the Earth system and global environment. GLOBE's vision promotes and supports students, teachers, scientists, and citizens to collaborate on inquiry-based investigations of the environment and the Earth system working in close partnership with NASA, NOAA and NSF in study and research about the dynamics of Earth's environment. GLOBE's mission is to promote the teaching and learning of science, enhance environmental literacy and stewardship, and promote scientific discovery.

Hayden*, Jennifer D., Audrey J. Ettinger*, and Amy J. Reese Faculty at Cedar Crest College *Science, Ethics, and Society: Using an undergraduate capstone course to develop skills for communicating science to the public* - The rejection of scientific discoveries by some members of the public demonstrates the importance of communicating science effectively to the general public; therefore, developing this skill should be an important component of an undergraduate science curriculum. The *Science, Ethics, and Society* course that we developed provides biological sciences majors with an opportunity to examine the intersection of science and public discourse by focusing on topics including climate change, vaccines, and genetically modified

crops as well as ethical issues including the use of human and animal research subjects, and the importance of diversity in scientific voices. Course assignments include preparing a letter to an elected official or the press regarding a scientific issue, analyzing an example of media treatment of science or scientists, and writing a research description suitable for public consumption. Together, the class readings and written assignments have increased student skills and engagement in communicating science to the public.

Valletta*, Rachel Chief Environmental Scientist for The Franklin Institute, and director of Climate and Urban Systems Partnership *The Climate and Urban Systems Partnership: Reaching city residents with informal climate change education* -The Climate and Urban Systems Partnership (CUSP) is a four-city climate change education initiative based in science centers and museums. CUSP unites climate scientists, learning scientists, and informal education specialists to develop methods for reaching city residents with engaging climate change and environmental science education. The Philly CUSP network comprises nearly 90 partner organizations including academic institutions, city agencies, artists, and community leaders. This session will introduce CUSP's approach to informal climate change education, the CUSP community of practice, and the advantages of partnering with science centers and museums to perform outreach activities.

Miller*, Alyssa Environmental Educator at Schuylkill Center for Environmental Education *Nature in the City* -In Philadelphia, tall concrete buildings, sidewalks, and beige surround students. It is understandable how a group of 7th graders from South Philly could be absolutely terrified of nature. They have been taught that nature is dirty and frightening. There have been many instances in my work as an educator where someone refused to even touch soil because it was dirty. It is extremely important to connect students with their environment. However, the challenge of getting kids to care about something they have had almost zero exposure to is difficult. I have been working to engage students through my work with The National Audubon Society and other nature centers to connect students with their environment and watersheds.

Knecht*, Karen Director of Education, Da Vinci Science Center *The Role of Science Centers and other Informal Science Education Institutions in Connecting the Public with Science* - Science Centers and other similar learning institutions can be a great place for scientists and the public to meet. Learn about resources in the community that can help connect scientists with the public. Gain practical tips about how people learn, effective facilitation techniques for different audiences, and how to develop hands-on activities to engage people in your field of science.

Sawyer*, Brandy M. Director of Science, Technology, Engineering, and Mathematics for Allentown School District *Building Science Fair into the Curriculum and Parent Outreach* -In this presentation, we will discuss the opportunities for schools to incorporate science fairs and engineering practices, both within the curriculum and across the curriculum to improve students' awareness and STEM readiness. In addition, we will discuss different pathways to increase parent involvement in STEM.

95th Annual Meeting of the Pennsylvania Academy of Science

GENERAL PROGRAM SESSIONS

ALL Abstracts are available in the Abstract Booklet located at

<https://pennsci.org/schedule2019/>

Program Chair: André P. Walther

Saturday, March 30 MORNING SESSIONS

ORAL SESSION I: Cancer Biology and genetics

Saturday March 30 10:00-11:45 AM Location: **Oberkotter 1 (OBC 1)**

Session Chair: **Dr. Anastasia Thévenin**

- 10:00-10:15 1. *DNA methylation and X-linked microRNAs associated with lung cancer sex-disparities.* **Rabin-Court, Joelle***, and **Khadijah Mitchell** Lafayette College.
- 10:15-10:30 2. *Exploring the relationship between menthol cigarette smoking, microRNA regulation, and racial disparities in lung cancer.* **Kufner, Michaella***, and **Khadijah Mitchell** Lafayette College.
- 10:30-10:45 3. *Profiling DNA methylation of cancer immunotherapy resistance and response genes in African Americans and European Americans with non-small cell lung cancer.* **Triolo, Chloe***, and **Khadijah Mitchell** Lafayette College.
- 10:45-11:00 4. *Identifying a clinical classifier based on differential expression of PD-L1 and a cancer immunotherapy resistance and response protein across kidney cancer subtypes.* **Hudak, Andrew***, and **Khadijah Mitchell** Lafayette College.
- 11:00-11:15 5. *Prevalence of a variant gastrin receptor RNA and correlating genomic polymorphism in human pancreatic cancer.* **Jones, Rebekah***, and **John Harms** Messiah College.
- 11:15-11:30 6. *Antiproliferative effects of gap junction protein delivery to glioma cells utilizing a cancer targeting peptide.* **Gallo, Michael***, **Janessa Gerhart**, **Anthony Varshavskiy**, **Damien Thévenin**, and **Anastasia Thévenin** Moravian College.
- 11:30-11:45 7. *Do MAP Kinases (MAPKs) regulate tumor suppressive functions of Gap Junctions?* **Cusimano, Marissa***, and **Anastasia Thévenin** Moravian College.

ORAL SESSION II: Fungal Microbiology and Biotechnology, Chemistry

Saturday March 30 10:15-11:45 AM Location: Pool Science Center 139 (SCI 139)

Session Chair: **Dr. Andrea Nagy**

- 10:15-10:30 **8.** *Investigating cell stiffness in wild-type Candida albicans and its morphologies using contact atomic force microscopy.* **Ash, Michelle***, and **Jeff Stephens** Misericordia University.
- 10:30-10:45 **9.** *Structural characterization of Phytophthora sojae carbohydrate esterase family 10 genes and comparative analysis of their expression during infection of Glycine max.* **Grams, Nicholas***, and **Manuel Ospina-Giraldo** Lafayette College.
- 10:45-11:00 **10.** *Spectroscopic analysis of adulterated petroleum products using low-field nuclear magnetic resonance spectroscopy.* **Rumbaugh, Tristen***, **Andrea Nagy**, and **Catherine Santai**Harrisburg University of Science and Technology.
- 11:00-11:15 **11.** *Optimization of growth conditions for biodiesel fatty acid production in the oleaginous yeast Cryptococcus neoformans.* **Morgan, Alexandra***, and **André Walther** Cedar Crest College.
- 11:15-11:30 **12.** *Specializations of fungal decomposers from the hyper-arid Namib Desert.* **Cordova-Ortiz, Esbeiry***, **Robert Logan**, **Kathryn Jacobson**, and **Sarah Evans** Indiana University of Pennsylvania.
- 11:30-11:45 **13.** *Development of molecular tools for rapid genotyping of yeast strains used in beer production.* **Barr, Stephanie***, and **André Walther** Cedar Crest College.

ORAL SESSION III: Aquatic Ecology

Saturday March 30 10:45-11:45 AM Location: Miller Building 33 (MIL 33)

Session Chair: **Dr. James Hunt**

- 10:45-11:00 **14.** *Substrate preference in summer flounder, Paralichthys dentatus, in the Barnegat Bay, New Jersey.* **Bergman, Leah***, and **James Hunt** East Stroudsburg University.
- 11:00-11:15 **15.** *Analysis of potential biotic triggers of toxin release by the colonial cyanobacterium Microcystis in Lake Erie.* **Campbell, John*** Mercyhurst University.
- 11:15-11:30 **16.** *Analysis of possible causes of winter fish kills in Lake Erie waters adjacent to a coke manufacturing operation.* **Mader, Emma***, and **John Campbell** Mercyhurst University.
- 11:30-11:45 **17.** *Predator avoidance behaviors come at the cost of growth in an invasive aquatic snail.* **Levri, Edward***, **Colin Berkheimer**, and **Kellie Wilson** Penn State University-Altoona.

POSTER SESSION I: Chemistry, Physics & Forensic Science; Developmental Biology, Neuroscience, and Behavior

Saturday March 30 10:00-12:00 PM Location: Lees Hall Gymnasium

Session Chair: **Dr. Ryan Colyer**

- 18.** *Toward using ouzo-like colloids to deliver retinoic acid to SH-SY5Y neuroblastoma cells.* **Thomas, Nicolas***, **Joseph Cirilo**, and **Julie Belanger** King's College.

19. *Characterization of meso-tetra (N-methyl-4-pyridyl) porphine tetra tosylate and Inclusion into phosphatidylcholine liposomes.* **Arnold, Victor***, and **Julie Belanger** King's College.
20. *Characterization of thermal transitions of DPPC lipids in the presence of small molecules with DSC.* **Waizenegger, Zoe***, **Justin Lansberry***, and **Julie Belanger** King's College.
21. *Synthesis and characterization of N-[(1H-indol-3-yl)(phenyl)methyl]aniline via the Mannich reaction.* **Miller, Jessica***, and **Jeanne Berk** Cedar Crest College.
22. *Synthesis of isoxazolines to inhibit the quorum sensing pathway in *Vibrio fischeri*.* **Froess, Joshua***, and **Amy Danowitz** Mercyhurst University.
23. *Using Quantum Mechanics and Molecular Mechanics (QM/MM) to model the effects of kinase domain mutations on the binding of HER2 kinase inhibitors.* **Rugelis, Nicholas***, **Ronald Brown**, and **Christopher Taylor** Mercyhurst University.
24. *Synthesis of esterified stevioside as a potential treatment for Lyme's disease.* **Carwell, Shanna***, and **Deanne Dulik Garver** Marywood University.
25. *Photoactive Ruthenium (II) Polypyridyl Complexes: Synthesis, Redox, Photochemical, and DNA Interaction Studies.* **Marold, Joseph***, **Laura Gearhart***, and **Avijita Jain** Indiana University of Pennsylvania.
26. *Liquid-liquid extraction and analysis of the antioxidant, resveratrol, from various red, rosé and white wines.* **LoVine, Brianne***, **Samantha Mullin***, and **Francis Mayville** DeSales University.
27. *Synthesis of polyamine analogs as possible anti-inflammatory agents for chinese hamster ovary cells.* **Amick, Jessica***, **Morgan Gash***, **Suhaa Shafi***, and **Francis Mayville** DeSales University.
28. *Investigation of the release mechanism of naproxen sodium, acetaminophen and ibuprofen from tablet delivery systems.* **Carrero, Joseph***, **Hagar Fadel***, and **Francis Mayville** DeSales University.
29. *Liquid-liquid extraction and analysis of the antioxidant, resveratrol, from various red, rosé and white wines.* **Asbrock, Victoria***, **Danielle Simons***, and **Francis Mayville** DeSales University.
30. *The Synthesis of water-soluble porphyrins/metalloporphyrins and the interrogation of their interaction with quadruplex DNA.* **Plumer, Mariah**, **Nilang Suthar***, and **Jill McCue** King's College.
32. *Solvent effect on the hydrogenation of α -methyl-trans-cinnamaldehyde with the use of metal chloride additives.* **Replogle, Kirsten***, and **Lindsey Welch** Cedar Crest College.
33. *Synthesis and acid/base properties of o-benzylhydroxylamine inhibitors of indoleamine 2,3-dioxygenase.* **Rachii, Diana***, and **Maria Winters** Delaware Valley University.
34. *Recent developments towards generating imine nucleophiles.* **Guest, Rachel***, **Kathryn Yomes**, **Anthony Hoffman**, and **Christopher Taylor** Mercyhurst University.
35. *The development and characterization of an open body fluorescence microscopy system for fluorescence lifetime imaging.* **Ayer, Danielle***, and **Ryan Colyer** Cabrini University.
36. *Resistivity of conductive silver nanoparticle inks as functions of annealing temperature and mechanical stress.* **Corey, Thomas***, **Colin Herna***, **Steven Sweeney***, and **Sara Hayik*** DeSales University.
38. *Genetic influence of spontaneous walking behavior in *Drosophila melanogaster*.* **McLaughlin, Sean**, **Olivia Lawler***, and **David Andrew** Lycoming College.
39. *Acute administration of fluoxetine in adult *Rattus norvegicus* (Sprague Dawley rats) increased anxiety-like behaviors and decreased locomotor activity.* **Amelotte, Alexis***, **Karina Ortiz-Gomez***, **Sarah Smoot***, and **Daniel Curlik II** York College of Pennsylvania.
40. *The role of ABC transporters, MDR65 and MRP4 in acute alcohol sensitivity.* **Tate, Jesse***, and **Valbona Hoxha** York College of Pennsylvania.
41. *Spatial-dependent neural growth in enriched, complex environments in the eastern fence lizard (*Sceloporus undulatus*).* **Wasik, Jeremy***, **Jenna Mickel***, and **Lara LaDage** Penn State University-Altoona.

42. *Increased male sexual displays correlates with ventral posterior amygdala volume and cell volume in wild-caught side-blotched lizards Uta stansburiana.* **Yu, Tracy***, **Lara LaDage**, and **Pete Zani** Penn State University-Altoona.
43. *Sholl analysis of Purkinje neuron morphology using MetaMorph software.* **King, Carli***, and **Mary Morrison** Lycoming College.
44. *Control of Purkinje neuron dendrite development by the MAP kinase and PI3 kinase signaling pathways.* **Kramer, Emilie***, and **Mary Morrison** Lycoming College.
45. *Addiction behaviors in female Parasteatoda tepidariorum.* **Nolt, Makenzie***, and **Jessica Petko** Penn State University-York.
46. *Connecting genes, neurons, and behavior: how the dissatisfaction nuclear receptor regulates Drosophila courtship behavior.* **Duckhorn, Julia***, and **Troy Shirangi** Villanova University.
47. *Hormonal and neuronal control of behavioral maturation in Drosophila melanogaster.* **Metkus, Mary***, and **Troy Shirangi** Villanova University.
48. *Effects of acute or chronic mirtazapine on methamphetamine-induced locomotor sensitization.* **Kalimon, Olivia***, and **Daniel Widzowski** Indiana University of Pennsylvania.
49. *Body coloration and aggressive behavior in young Rocio octofasciatum cichlid fish.* **Dobrowski, Jennifer M.***, **Brianna L. Marrero***, **Victoria A. Attinger***, and **Audrey J. Ettinger** Cedar Crest College.
50. *House Hunters: Cichlid Edition – Females in a monogamous pair determine nest site location.* **Mullin, Samantha***, **Claire Gogel***, and **Joseph Leese** DeSales University.
51. *Interrogating the Ancestral Role of EGF Ligands in Insect Oocyte Development.* **Tews, Veronika***, and **Austen Barnett** DeSales University.
52. *In ovo assays investigating potential roles of Hypericum perforatum and $\Delta 9$ -tetrahydrocannabinol in biological development.* **Ross, Ashley C.***, **Adriana E. Sorrentino***, and **Audrey J. Ettinger** Cedar Crest College.
53. *Effects of the neurotoxin 6-OHDA on planaria, Dugesia dorotocephala.* **Jones, Morgan***, and **Sean Georgi** York College of Pennsylvania.
54. *Anatomical effects of sex hormone derivatives on embryonic Danio rerio (zebrafish) development.* **Butler, Timera***, **Richard Jackson**, and **Rachel Fogle** Harrisburg University of Science and Technology.
55. *Characterization of stress-related signaling molecules in Parasteatoda tepidariorum.* **Sanchez, Juan***, **Mindy Gruzin**, and **Jessica Petko** Penn State University-York.
56. *Pharmacological characterization of dopamine receptors in the common house spider, Parasteatoda tepidariorum.* **Winkowski, Madison***, and **Jessica Petko** Penn State University-York.
57. *Sex determination in Parasteatoda tepidariorum: analysis of virilizer and transformer splice variants.* **Thileepan, Mathura***, **Swetal Rathod***, and **Jessica Petko** Penn State University-York

Saturday, March 30 AFTERNOON SESSIONS

ORAL SESSION IV: Terrestrial Ecology-reptiles and amphibians

Saturday March 30 1:15-2:45 PM Location: **Miller Building 33 (MIL 33)**

Session Chair: **Dr. J. Michael Campbell**

- 1:15-1:30 **58. Terrestrial salamanders as bioindicators of environmental change related to forest fragmentation in Jacobsburg State Park.** **Dougherty, Ryan***, **Megan Rothenberger**, and **Emily Lynch** Lafayette College.

- 1:30-1:45 **59.** *Effect of recreational trail development on salamander communities of riparian forest habitats near Lake Erie in Pennsylvania.* **Herman, Sean***, and **John Campbell** Mercyhurst University.
- 1:45-2:00 **60.** *Revising taxonomic relationships of highland frogs (Anura: Ranidae: Rana maculata) from Nuclear Central America.* **Ross, Ayla***, **Daniel Dudek**, and **Josiah Townsend** Indiana University of Pennsylvania.
- 2:00-2:15 **61.** *Detection of Snake Fungal Disease caused by Ophidiomyces ophiodiicola among Timber Rattlesnakes (Crotalus horridus) in Pennsylvania.* **Januskiewicz, Eric***, **Nicole Chinnici**, and **Thomas LaDuke** East Stroudsburg University.
- 2:15-2:30 **62.** *Quantifying the Effects of Habitat Disturbance on the Timber Rattlesnake, Crotalus horridus, in Pennsylvania.* **Adamski, Jonathan***, and **Thomas LaDuke** East Stroudsburg University.
- 2:30-2:45 **63.** *Exploring species boundaries in mesoamerican coastal leopard frogs through the application of ecological niche models in a phylogenetic context.* **O'Neill, Justin***, and **Josiah Townsend** Indiana University of Pennsylvania.

ORAL SESSION V: Terrestrial Ecology-Insects, Spiders, and Plants

Saturday March 30 1:15-2:45 PM Location: **Oberkötter Center 1 (OBC 1)**

Session Chair: **Dr. Jessica Petko**

- 1:15-1:30 **64.** *Dietary habits of the spotted lanternfly Lycorma delicatula.* **Fetchen, Miranda***, **Miriam Cooperband**, and **Allison Cornell** Cedar Crest College.
- 1:30-1:45 **65.** *Panthera uncia (snow leopard) dependence on livestock in northern Pakistan and its implications with human-wildlife conflict mitigation.* **Hacker, Charlotte***, **Dr. Shafqat Hussain**, **Ghulam Muhammad**, and **Dr. Jan Janecka** Duquesne University.
- 1:45-2:00 **66.** *Exploring the physiological changes that Hymenolepis diminuta inflicts upon Tribolium confusum.* **Lutz, Gregory***, and **Anne Vardo-Zalik** Penn State University-York.
- 2:00-2:15 **67.** *Expression of doublesex sex determination genes in the common house spider, Parasteatoda tepidariorum.* **Mekheal, Marina***, and **Jessica Petko** Penn State University.
- 2:15-2:30 **68.** *Floral height influences pollinator visitation in Mountain Laurel (Kalmia latifolia).* **Smithbauer, Michelle***, **Casey Weber**, **Maureen Levri**, and **Edward Levri** Penn State University-Altoona.
- 2:30-2:45 **69.** *All wrapped up: prehensility and the tarsal flexor system in the legs of harvestmen (Arachnida: Opiliones: Eupnoi).* **Costenbader, Sydney***, and **Daniel Proud** Moravian College.

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

Saturday March 30 1:15-3:15 PM Location: **Lees Hall Gymnasium**

Session Chair: **Dr. Lisa Antoniaci**

- 70.** *Cloning a fluorescent fusion protein for detection and localization of the gastrin receptor.* **Le, Vinh***, and **John Harms** Messiah College.
- 71.** *Effect of 4-thiazolidinones on cancer cell proliferation in vitro.* **Cunningham, Moriah***, **Schenatsar Dorvillier***, and **Eric Ingersoll** Penn State University-Abington.

72. *Functional Analysis of Macrophages and Neutrophils in Early Innate Immune Response to Murine Mammary Carcinomas.* **Lauricella, Amanda***, **Matthew DeBenedetto***, and **Robert Kurt Lafayette** College.
73. *Antiproliferative Effects with "Targeting" Cytotoxicity: Exposing Gastrointestinal Stromal Tumor Cells to Ascorbate.* **Wasserman, Adam***, and **Thomas McGuire** Penn State University-Abington.
74. *Mutually exclusive interactions of Connexin 43 Gap Junctions with Src and Zona Occludens-1 (ZO-1) are regulated through phosphorylation.* **Bonetti, Irene***, and **Anastasia Thévenin** Moravian College.
75. *Quercetin hydrate in the acceleration of osteoblast differentiation and function *in vitro*.* **Wyche, Deanna***, **Klaudia Walewska***, and **Joyce Belcher** Cabrini University.
76. *The effects of BV2 microglial cells on glutamate-stressed SH-SY5Y cell death.* **Raffensberger, Nathan***, **Marielle Roberts-McDonald**, and **Barbara Fenner** King's College.
77. *Analysis of multiple signaling pathways in human monocytes using an experimental and computational approach.* **Polanco, Laura***, **Robert Kurt**, and **Chun Wai Liew** Lafayette College.
78. *Using fluorescent in situ hybridization (FISH) to map amplicons in the larval salivary gland polytene chromosomes of the fungus fly, *Sciara coprophila*.* **Olaoye, Ibukunoluwa***, and **Michael Foulk** Mercyhurst University.
79. *Puff FISHing: Mapping *Sciara coprophila* salivary gland polytene chromosome amplicons using fluorescence in situ hybridization (FISH).* **Hannah, Wallace***, and **Michael Foulk** Mercyhurst University.
80. *Genetic Variability of White-Tailed Deer (*Odocoileus virginianus*) in Southwestern Pennsylvania and Applications for Forensics.* **Quain, Melanie***, **Jan Janecka**, and **Lisa Ludvico** Duquesne University.
81. *Patterns of matrilineal evolution of neotropical leopard frogs (*Ranidae: Rana: Pantherana*).* **Dudek, Daniel***, and **Josiah Townsend** Indiana University of Pennsylvania.
82. *Single Nucleotide Polymorphisms (SNP's) associated with Dyslexia may influence college choice major.* **Ahmed, Sara***, **Courtney Amoroso***, and **Ann Yezerksi** King's College.
83. *Relating bacterial cell wall synthesis to bacterial antibiotic susceptibility.* **Muller, Rebecca***, and **Akeisha Belgrave** Harrisburg University of Science and Technology.
84. *Commensal *Streptococcus intermedius* reduces infection of pathogenic *Porphyromonas gingivalis* in oral epithelial cells.* **Herzog, Hannah***, and **Giancarlo Cuadra** Muhlenberg College.
85. *Examining the antagonistic interaction between *Streptococcus intermedius* and *Porphyromonas gingivalis*.* **James, Michelle***, and **Giancarlo Cuadra** Muhlenberg College.
86. *Use of a modified tube dilution method to determine bacterial susceptibility to antimicrobial proteins from *Eisenia hortensis*.* **Bauer, Anna***, **Alyssa Rothman**, **Sophia Scarpone**, and **Sheryl Fuller-Espie** Cabrini University.
87. *Identifying mechanisms of growth inhibition of zinc oxide nanoparticles on *Bacillus cereus*.* **Valles, Kristen***, and **Brian Gray** York College of Pennsylvania.
88. *Discovery and Annotation of Cluster AN Arthrobacter Phages.* **Gerasimidis, Kyriaki***, **Rya Scull**, **Jessica Azzarano**, **Jessica Baranoski**, **Lavinia Harrison**, **Megan Wojick**, **Sonia Spadafora**, **Olivia Mancini**, and **Eph Fonge** Cabrini University.
89. *The impact of lysine acetylation on cell aggregation in *Mycobacterium smegmatis*.* **Wilkins, Ashley***, and **Jennifer Hayden** Cedar Crest College.
90. *Sliding motility and biofilm formation in *Mycobacterium smegmatis*.* **DeLorenzo, LenaRose***, and **Jennifer Hayden** Cedar Crest College.
91. *Exploring the importance of Andes Virus glycoprotein glycosylation on host entry and infection.* **Bradfield, Jacob***, and **Meda Higa** York College of Pennsylvania.
92. *Investigation of changes to oral bacterial strains over time through genetic analysis of *Streptococcus mutans*.* **Blodgett, Kassandra***, and **K. Joy Karnas** Cedar Crest College.

94. *The role of ubiquitin-proteasome system (UPS)-associated genes in the preservation of cardiac and muscle function in Drosophila melanogaster.* **Khan, Maria***, and **Anna Blice-Baum** Cabrini University.
95. *The effect of caffeine ingestion and the CYP1A2 polymorphism on long anaerobic exercise performance.* **Steckbeck, Rachel***, **Kristen Hasse**, **Caleb Smith**, **Madison Wright**, **H. Scott Kieffer**, and **Michael Shin** Messiah College.
96. *Detection of protein-protein interactions involving the carboxyl terminus of the human cannabinoid 1 receptor.* **Christman, Laura***, **Sara Wolbert**, and **Stephanie Justice-Bitner** King's College.
97. *Over-expression of JAG1; how it alters Notch3, NF- κ B, NOS, and how these pathways affect Duchenne Muscular Dystrophy.* **Paul, Maggie***, and **Ronald Kaltreider** York College of Pennsylvania.
98. *Detection of sex determination gene (doublesex) by degenerate PCR in Stiphra species.* **Hunter, Tracy***, **Alexis Nagengast**, and **Stephen Madigosky** Widener University.
99. *Heparin-induced BMP6 expression and localization changes in vascular smooth muscle cells.* **Jacobson, Emily***, **Sapanna Chantarawong***, **Linda Lowe-Krentz**, and **Joshua Slee** DeSales University.
100. *Soursop is truly sour: pro-inflammatory effects of annonacin.* **Cervantes, Rebecca***, **Dina Ninan***, **Anthony Farrugia***, **Georgina VanNorden**, **Francis Mayville**, and **Joshua Slee** DeSales University.
101. *Determination of biliverdin's antioxidant capabilities.* **Ki, Kwanho***, and **Michael Butler** Lafayette College.
102. *The effects of dietary calcium and vitamin D supplementation on bone mineral density in elderly female zebrafish (Danio rerio).* **Burgis, Adam***, **Mark Meadowcroft**, and **Rachel Fogle** Harrisburg University of Science and Technology.
103. *Examination of UV sensitivity in haploid yeast cells and spores of Saccharomyces cerevisiae.* **Cortes, Christopher***, **Mary Grace Murray***, **Nathan Navarro**, **Eliizabeth Walton**, **Edward Winter**, and **Aikaterini Skokotas** Rosemont College.
104. *Identification of a Physical Interaction between Yeast Proteins Htz1, Cdc5, and Rad24.* **Farrell, Keegan***, **Monique Barrese***, and **Lisa Antoniaci** Marywood University.
105. *Characterization of Genetic and Physical Interactors of the Yeast Protein Cdc5.* **Rotell, Sarah***, **Shannon Real***, and **Lisa Antoniaci** Marywood University.
106. *The role of trans-golgi network and endosomal adaptors in nitrogen-regulated growth of Saccharomyces cerevisiae.* **Owens, Allyson***, **Rachel Stubler**, and **Quyen Aoh** Gannon University.
107. *Examining the role of Replication Protein A in telomere synthesis in the budding yeast Saccharomyces cerevisiae.* **Houman, Brianna***, and **André Walther** Cedar Crest College.
108. *The effect of Replication Protein A phosphorylation on the cellular response to DNA Damage.* **Hill, Brianna***, **Jennifer Moss***, and **André Walther** Cedar Crest College.
109. *Exploring protein interactions of Replication Protein A in Saccharomyces cerevisiae using the Yeast 2 Hybrid system.* **Bianchini, Emily***, and **André Walther** Cedar Crest College.
110. *Analysis of A β 42 oligomer toxicity in Saccharomyces cerevisiae.* **Godfrey, Elizabeth***, **Emily Esquea***, **Ashna Goyal***, and **Lara Goudsouzian** DeSales University.
111. *The effects of the antioxidants resveratrol and glutathione on growth of a mitochondrial mutant strain of Saccharomyces cerevisiae.* **Greco, Graziella**, **William Stollsteimer***, and **Lara Goudsouzian** DeSales University.
112. *Tethered telomerase inhibits trinucleotide repeat expansions in Saccharomyces cerevisiae.* **Greco, Graziella***, and **Lara Goudsouzian** DeSales University.
113. *The telomere position effect of Saccharomyces cerevisiae is not influenced by constitutive telomerase at the telomere.* **Churylo, Kara***, **Richard Portas***, **Meghan Freed***, and **Lara Goudsouzian** DeSales University.

114. *Mutation of a novel fungal protein disrupts microtubule stability and cell division in Aspergillus nidulans*. **Woodward, Claire***, **Julia Palmucci**, and **Steven James** Gettysburg College.
115. *A GYF-domain protein damaged by a reciprocal translocation partially rescues G2/M defects in the fungus Aspergillus nidulans*. **Brown, Morgan***, **Alec Beck**, **Katherine Watson**, and **Steven James** Gettysburg College.
116. *Histone H2A N-terminus may stimulate NuA4-mediated H4 acetylation*. **Scheidel, Brandon***, and **Daniel Ginsburg** Immaculata University.
117. *Yaf9 stimulates NuA4 interaction with histone H3 tails*. **McHugh, Jessica***, and **Daniel Ginsburg** Immaculata University.
118. *H3 acetylation does not stimulate NuA4 interaction with chromatin*. **Sponsel, Kayla***, and **Daniel Ginsburg** Immaculata University.
119. *Do Yaf9 and histone H3 acetylation stimulate NuA4 binding to chromatin?* **Mancini, Olivia***, and **Daniel Ginsburg** Immaculata University.

ORAL SESSION VI: Human impacts on habitats

Saturday March 30 3:15-5:15 PM Location: **Miller Building 33 (MIL 33)**

Session Chair: **Dr. Catherine Santai**

- 3:15-3:30 **120.** *Heavy Metal Ion Toxicity and its Effect on Arabidopsis thaliana mutants rack1b, rack1c, and mtp1*. **Perez, Christina***, **Michael Shin**, and **Richard Schaeffer** Messiah College.
- 3:30-3:45 **121.** *Identifying the effects bacteria have on the efficiency of passive remediation systems designed to treat abandoned mine drainage*. **Valkanas, Michelle***, and **Nancy Trun** Duquesne University.
- 3:45-4:00 **122.** *A multidisciplinary risk assessment study prior to dam removal in a tributary to the Delaware River*. **Bottega, Caroline***, **Megan Rothenberger**, **Dru Germanoski**, and **John Wilson** Lafayette College.
- 4:00-4:15 **123.** *Comparing predator and prey composition among natural, restored, and created vernal pools*. **Baranovic, Alison***, and **Megan Rothenberger** Lafayette College.
- 4:15-4:30 **124.** *The effect of hydrous ferric oxide deposits on benthic macroinvertebrate community structure*. **Smith, Tiffany***, and **Christine Proctor** Harrisburg University of Science and Technology.
- 4:15-4:30 **125.** *The use of road kill surveys to predicting road mortality hotspots in northeastern North Carolina*. **Fairfield, Meagan***, and **Christine Proctor** Harrisburg University of Science and Technology.
- 4:45-5:00 **126.** *From golf course to wildlife refuge; quantifying restoration efforts with low-cost sensor technology using stream discharge and turbidity*. **Reeves, Christa***, **Kristen Roth***, and **Paul Wilson** East Stroudsburg University.
- 5:00-5:15 **127.** *Characterization of Psychromonas aquimarina, a new model organism for climate change*. **Carpenter, Carrie***, and **Catherine Santai** Harrisburg University of Science and Technology.

ORAL SESSION VII: Molecular pathways and Human Health

Saturday March 30 3:15-5:00 PM Location: **Oberkotter Center 1 (OBC 1)**

Session Chair: **Dr. Joshua Slee**

- 3:15-3:30 **128.** *A combined quantum mechanics/molecular mechanics approach to calculating protein-ligand interactions.* **Gasparovic, Nathaniel***, **Ronald Brown**, and **Amy Danowitz** Mercyhurst University.
- 3:30-3:45 **129.** *Testing the r1 peptide on kidney development in zebrafish.* **Mahadevan Padmanabhan, Tejas***, and **Cuong Diep** Indiana University of Pennsylvania.
- 3:45-4:00 **130.** *Wine your way to good health: anti-inflammatory effects of resveratrol.* **Greco, Graziella***, **Brad Evert***, **Francis Mayville**, and **Joshua Slee** DeSales University.
- 4:00-4:15 **131.** *In vivo promoter analysis of klf-1 gene in *Caenorhabditis elegans*.* **Srour, Meghan***, and **Christopher Brey** Marywood University.
- 4:15-4:30 **132.** *The role of serotonin in regulating the hypoxic hyperventilatory response of larval *Danio rerio* (zebrafish).* **Jensen, Gregory***, and **Steve Perry** Cairn University.
- 4:30-4:45 **133.** *Study of indicators of stress in working therapy dogs: a question of welfare.* **Schwarz, Kyrstin***, **Jennifer Shelly**, and **Gary Fortier** Delaware Valley University.
- 4:45-5:00 **134.** *Analysis on the effects of pre-operative physical therapy on range of motion in individuals undergoing total knee replacements.* **McMaster, Zachary***, **M. Dana Harriger**, **Tonia Hess-Kling**, and **Derek Kling** Wilson College.

ORAL SESSION VIII: Terrestrial Ecology/Bats, Birds, and Bears

Saturday March 30 4:15-5:45 PM Location: **Pool Science Center 136 (SCI 136)**

Session Chair: **Dr. Allison Cornell**

- 4:15-4:30 **135.** *Impact of sound pollution on bird behavior.* **Williamson, Thalia***, and **Karen Campbell** Albright College.
- 4:30-4:45 **136.** *Differences in biparental behavior in *Falco sparverius* depending on sex.* **Robbins, Taylor***, **Allison Cornell**, and **Jean-Francois Therrien** Cedar Crest College.
- 4:45-5:00 **137.** *Variation in paternal care and its possible consequences on offspring development in a farmland raptor.* **Matson, Jaime***, **Jean-Francois Therrien**, and **Allison Cornell** Cedar Crest College.
- 5:00-5:15 **138.** *The northern waterthrush: analyzing the distribution and abundance of a secretive songbird in Pennsylvania.* **Clarke, Justin***, and **Terry Master** East Stroudsburg University.
- 5:15-5:30 **139.** *Distribution and occupancy measures for eastern small-footed bats (*Myotis leibii*) in the Delaware Water Gap National Recreation Area.* **Schell, Joseph***, and **Howard Whidden** East Stroudsburg University.
- 5:30-5:45 **37.** *Prevalence of Powassan virus and Lyme disease (*Borrelia burgdorferi*) in *Ixodes scapularis* collected from New Jersey and Pennsylvania Black Bears (*Ursus americanus*).* **Bentkowski, Kristine***, **Nicole Chinnici**, and **Joshua Loomis** East Stroudsburg University.

Sunday, March 31 MORNING SESSIONS

POSTER SESSION III: Aquatic and Terrestrial Ecology & Geology, Environmental Science

Sunday March 31 9:45-11:45 AM Location: **Lees Hall Gymnasium**

Session Chair: **Dr. Meg Laasko**

140. *The nymphal damselflies and dragonflies of upper Meadows Pond.* **Corpus, Larry*** Misericordia University.
141. *Pollution resistance may be evolving in the mummichog *Fundulus heteroclitus* in the lower Darby Creek in southeastern Pennsylvania.* **Kenwood, Matthew*, Hannah Merges*, Ian Johnson, Brianna Quarles, Mary Fuchs, Matthew Fontanese, and Kathryn Goddard** Ursinus College.
142. *Short-term characterization of a biofilm in a free-flowing freshwater creek in south-central Pennsylvania.* **Gilbert, Katelynn*, Deborah Austin, Rachael Picard, and M.Dana Harriger** Wilson College.
143. *Size influences desiccation tolerance in an aquatic invasive snail.* **Xu, Jingyi*, Kevin Yoder*, Colin Berkheimer, Kellie Wilson, Tessa Woods, and Edward Levri** Penn State University-Altoona.
144. *Reproductive characteristics and habitat type in the invasive New Zealand mud snail in Polecat Creek, Wyoming.* **Woods, Tessa*, Colin Berkheimer, Krista Silvis, Rachel Mills, Kellie Wilson, Jingyi Xu, Kevin Yoder, and Edward Levri** Penn State University-Altoona.
145. *Vertical migration of adult Plecoptera (Stoneflies) above forested headwater streams.* **Bowman, Ruric*, Brittany Lenze, and Robert Smith** Lycoming College.
146. *Fair weather friends: a comparison of invertebrates in vernal and forest pools.* **Crowell, Allison*, and Holly Travis** Indiana University of Pennsylvania.
147. *Ephemeral Life: A Comparison of Invertebrates Found in Several Types of Pools.* **Eytcheson, Morgan*, and Holly Travis** Indiana University of Pennsylvania.
148. *Effects of environmental acidification on oxidative stress in Red Swamp crayfish (*Procambarus clarkii*).* **Metheny, Jacob*, Samantha Lucas, Zan Usmani*, Theresa Tran, and Itzick Vatnick** Widener University.
149. *Physiological Effects of Environmental Atorvastatin on Northern Leopard Frogs (*Rana pipiens*).* **Pham, Lauren*, and Ann Yezerski** King's College.
150. *A limnological assessment of Rose Valley Lake.* **Perrin, Alexia*, and Mel Zimmerman** Lycoming College.
151. *Diet composition and sex ratio of American kestrel chicks.* **Zimmerman, Courtney*, Jean-Francois Therrien, and Allison Cornell** Cedar Crest College.
152. *Relationships among morphological and physiological parameters in developing American kestrel chicks.* **Melo, Mercy*, Allison Cornell, and Jean-Francois Therrien** Cedar Crest College.
153. *Investigating contamination effects from a coke manufacturing operation using seed germination tests and *Gammarus* (Amphipoda) toxicity bioassays.* **Shafer, Mark*, and John Campbell** Mercyhurst University.
154. *A three-year profile (2016-2018) of temperature and humidity in a coffee field located in Sabanilla de Alajuela, Costa Rica.* **Albukhari, Faisal*, Stephen Madigosky, and Bruce Grant** Widener University.
155. *The effect of rainfall events on the thermal stratification of a primary forest at the Amazon Conservatory of Tropical Studies (ACTS) Iquitos, Peru.* **Hance, Gabrielle*, Zan Usmani*, and Stephen Madigosky** Widener University.

157. *Data resolution and scale of land use data alter the ability to predict the benefits of riparian buffers on fish populations.* **Fox, Cassandra***, **Daniel Ressler**, and **Jonathan Niles** Susquehanna University.
158. *Applying Best Management Practices to Aid Snyder County in Meeting the Watershed Implementation Plan Phase 3 Reduction Goals in Nitrogen, Phosphorus, and Sediment.* **Barnes, Melissa***, and **Katherine Straub** Susquehanna University.
160. *Elucidating the molecular and physiological mechanisms underlying reductions of growth and asexual reproduction in Lemna minor exposed to elevated concentrations of zinc.* **Cabassa, Meaghan***, **Rachel Rosato***, **Dylan Jainchill***, **Blyssalyn Bieber**, **Eric Ho**, **Manuel Ospina-Giraldo**, and **Cosima Wiese** Misericordia University.
161. *Paleoecology and Taphonomy of shell hash beds on Route 11-15.* **McDonald, Deanna***, and **Jennifer Elick** Susquehanna University.
162. *Paleoecological analysis of shell beds from the Trimmers Rock Formation (Upper Devonian-Frasnian) along the Juanita Parkway outside of Newport PA.* **Dix, Tyler***, and **Jennifer Elick** Susquehanna University.
163. *Assessing eastern oyster, Crassostrea virginica, restoration success in the Chesapeake Bay using spectral classifications.* **Fairfield, Meagan***, and **Christine Proctor** Harrisburg University of Science and Technology.
164. *Invasive Spotted Lanternfly (Lycorma delicatula) and its potential hosts.* **Abreu, Leslie***, **Miriam Cooperband**, **Kelly Murman**, **Stefani Cannon**, and **Allison Cornell** Cedar Crest College.
165. *Exploring the relationship between Allegheny mound ant colonies and neighboring reptile and amphibian species richness.* **Harris, Sebastian***, and **Amy Savage** Rutgers University-Camden.
166. *The curious case of sand fly identification: a story of morphology, molecules, and confusion.* **Hurt, Hayley***, **Anne Vardo-Zalik***, **Sarah Stetzer**, and **Philip Kaufman** Penn State University-York.
167. *A Comparative Study of Hymenopteran Pollinator Diversity.* **Adamski, Jonathan***, and **Matthew Wallace** East Stroudsburg University.
168. *Using ground penetrating radar to search agriculture fields for unmarked graves in Beaver Springs, Pennsylvania.* **Groce, Zachary***, and **Ahmed Lachhab** Susquehanna University.
169. *Repeated emergence counts at a little brown bat (Myotis lucifugus) maternity roost in the Delaware Water Gap National Recreation Area.* **Zangakis, Reannon***, and **Howard Whidden** East Stroudsburg University.
170. *Detection of tomato yellow leaf curl virus and determination of viral kinetics in two plant host species.* **Bahr, Lauren***, **Ja Seng Tawng Dingrin**, **Jenna Beachley**, and **Meg Laakso** Eastern University.
171. *Characterization of Chryseobacterium gabriellii sp. nov., and reclassification of Chryseobacterium greenlandense as a junior synonym of Chryseobacterium aquaticum.* **Young, Megan***, **Jamie Atondo**, and **Jeffrey Newman** Lycoming College.
172. *Genome based division of the genus Flavobacterium and description of Lycobacterium gen. nov and seven novel species in the genus.* **Appadoo, Shania ***, **Kiyah Bell***, **Azad Aghababian***, **Alecia McElwee**, and **Jeffrey Newman** Lycoming College.
173. *Bacillus Bacterial Strain Isolated from York College as a Source for the Production of Polyhydroxylalkanoates (PHAs).* **Schmoyer, Joseph***, and **David Singleton** York College of Pennsylvania.
174. *Experimental Study of Garlic Mustard (Alliaria petiolata, Brassicaceae) in Luzerne County, PA.* **Kunkel, David***, and **Grace Chen** Misericordia University.
175. *Assessing the impact of climate change on the spring phenology of the native trees of Eastern Pennsylvania.* **Dammer, Magdalena***, **Amelia Porter Bacon**, and **John Cigliano** Cedar Crest College.

176. Using pollen tubes to estimate floral visitor activity for azalea (*Rhododendron sp.*) on the Cedar Crest College campus. **Witt, Allyssa A.***, and **Amy E. Faivre** Cedar Crest College.
177. Pollen collection from local bee species to measure potential pollinator effectiveness at Wildlands Conservancy, Emmaus, PA. **Judd, Ashley N.***, **Amy E. Faivre**, and **John A. Cigliano** Cedar Crest College.
178. Assessing success of a Forest Reclamation Approach in a northeastern Pennsylvania anthracite mine site – A baseline assessment. **Fehn, Michaela***, **Amber Grohowski**, **Cassidy Heid**, **Kellie Kalada***, **Kabita Kandel**, **Michael Kovalick**, and **Kenneth Klemow*** Wilkes University.
179. Floral height influences pollinator visitation in Mountain Laurel (*Kalmia latifolia*) when inflorescence density is controlled. **Weber, Casey***, **Michelle Smithbauer**, **Maureen Levri**, and **Edward Levri** Penn State University-Altoona.
180. The influence of edge effects on soil respiration and soil carbon storage in temperate deciduous forests of southeastern Pennsylvania. **Miller, Jason***, and **Jessica Schedlbauer** West Chester University.
181. Changes in carbon distribution, structure, and composition in an isolated forest fragment: implications for future management. **Polohovich, Sarah***, and **Jessica Schedlbauer** West Chester University.
182. Change in photosynthetic activity in deciduous trees as photoperiod decreases. **Moreira, Victoria***, and **Elizabeth Skendzic** Delaware Valley University.
183. Estimating the timing of hemlock woolly adelgid infestation of lightly to moderately declining eastern hemlocks using tree ring analysis. **Knopsnider, Kaitlin***, **Michael Tyree**, **Ellen Yerger**, **Timothy Tomon**, and **Carolyn Copenheaver** Indiana University of Pennsylvania.
184. Using tree-ring analysis to determine effectiveness and duration of biological treatments for hemlock woolly adelgid on eastern hemlocks. **Zakrzewski, Shelby***, **Michael Tyree**, **Ellen Yerger**, **Timothy Tomon**, and **Carolyn Copenheaver** Indiana University of Pennsylvania.
185. Stop and smell the roses: Native species accumulate less insect herbivory than their invasive congener. **Blaetz, Margaret***, and **Ellen Yerger** Indiana University of Pennsylvania.
186. The mental health benefits of exposure to nature. **Nekich, Payton***, and **Christine Proctor** Harrisburg University of Science and Technology.
187. Auditory and visual signals in the Ecuadorian hermit crab, *Coenobita compressus*. **Berkey, Abigail*** Wilson College.
188. Effects on *Artemia salina* (Brine Shrimp) When Feeding on Endophyte-Infected versus Non-Infected Grasses. **Darbenzio, Gabriella***, and **Tammy Tintjer** King's College.

ORAL SESSION IX: Microbiology

Sunday March 31 9:45-11:45 AM Location: **Oberkotter Center 1 (OBC 1)**

Session Chair: **Dr. Jeffrey Newman**

- 9:45-10:00 **189.** Characterization of the molecular basis of antimicrobial activity found in protein extracts of the earthworm *Eisenia hortensis*. **Rothman, Alyssa***, and **Sheryl Fuller-Espie** Cabrini University.
- 10:00-10:15 **190.** Genetic characterization of molecular mechanisms underlying triclosan resistance in novel *Enterobacter cloacae* strains. **Marotta, Julianna***, and **K. Joy Karnas** Cedar Crest College.
- 10:15-10:30 **192.** Determining the antibacterial effectiveness of different vinegar/oil concentrations on bacteria obtained from grocery store produce. **Shields, Daniel***, and **Sarah Ruffell** University of Pittsburgh at Bradford.

- 10:30-10:45 **193.** *Increased percentage of pathogenic bacteria with human activity on university campus.* **Huff, Jillian***, **Tara Halterman**, and **Sarah Ruffell** University of Pittsburgh at Bradford.
- 10:45-11:00 **194.** *Description of Lycobacillus franzii gen. nov. sp. nov. from freshwater creek and transfer of three Bacillus species into the new genus.* **Allen, Colin***, and **Jeffrey Newman** Lycoming College.
- 11:00-11:15 **195.** *Investigation of a novel 'Bacillus' species suggests that it should be classified in a new genus.* **Konopka, Emily***, and **Jeffrey Newman** Lycoming College.
- 11:15-11:30 **196.** *A Proteomic Study of Lysin Genes in Novel Bacteriophages: Arby and Scuttle.* **Spadafora, Sonia***, **Isabella Romani***, **Rya Scull**, **Jessica Azzarano**, **Jessica Baranoski**, **Caroline Germain**, **Kyriaki Gerasimidis**, **Matt Mastropaolo**, and **Melinda Harrison** Cabrini University.
- 11:30-11:45 **197.** *A potential application of intrinsic fluorescence towards the evaluation of inhibitors.* **Fuanta, René*** East Stroudsburg University.

ORAL SESSION X: Cancer Biology and Treatment

Sunday March 31 10:00-11:45 AM Location: **Miller Building 33 (MIL 33)**

Session Chair: **Dr. Angela Hess**

- 10:00-10:15 **198.** *Elucidating the role of gastrin signaling in the uniquely fibrotic pancreatic tumor microenvironment.* **Darok, Matthew***, and **John Harms** Messiah College.
- 10:15-10:30 **199.** *Immunotherapy targeting an insertion sequence in an altered tumor-associated growth receptor associated with aggressive pancreatic cancers.* **Orner, Amber***, **Justin Sweitzer**, **John Harms**, and **Lawrence Mylin** Messiah College.
- 10:30-10:45 **200.** *In search of improved strategies to induce T cell immunity targeting a receptor expressed by aggressive pancreatic cancer cells.* **Sweitzer, Justin***, and **Lawrence Mylin** Messiah College.
- 10:45-11:00 **201.** *Melanoma Aggressiveness in relation to EphA2 Expression in a Murine Model.* **Buczowski, Stephanie***, and **Angela Hess** Bloomsburg University.
- 11:00-11:15 **202.** *Characterizing metabolic reprogramming in early innate immune response of myeloid cells to murine mammary carcinoma in BALB/c mice.* **Zhang, Chenyu***, and **Robert Kurt** Lafayette College.
- 11:15-11:30 **203.** *Tumor Immune Cell Abundances, Efficacy, and Survival Rate.* **Vargas, Jasmin***, and **Khadijah Mitchell** Lafayette College.
- 11:30-11:45 **204.** *Predicting patient response to kidney cancer immunotherapy by stage using the tumor microenvironment.* **Cobb, Jacquelyn***, and **Khadijah Mitchell** Lafayette College.

List of Restaurants Near Cedar Crest College Campus

Restaurants and Bars

Carrabba's Italian Grill
(610) 439-6100
510 S Cedar Crest Blvd

Hunan Springs
(610) 366-8338
4939 Hamilton Blvd

BJ's Restaurant & Brewhouse
(484) 268-2340
665 N Krocks Rd

The Shelby
(610) 841-0808
707 N Krocks Rd

Applebee's Grill + Bar
(610) 530-2450
1510 N Cedar Crest Blvd

TGI Fridays
(610) 776-8188
395 S Cedar Crest Blvd

P.J. Whelihan's Pub + Restaurant
(610) 395-2532
4595 Broadway

Family Restaurants

Lazeez Fresh Mediterranean Grill
(610) 351-6897
4666 Broadway

Cali Burrito
(610) 351-1791
2149 Reading Rd

Nostos Greek Restaurant Seafood and Grill
(484) 350-3799
701 N 19th St

Perkins Restaurant & Bakery
(610) 820-5767
3214 Hamilton Blvd.

Asian

Bamboo Asian Cuisine
(610) 770-8899345
S Cedar Crest Blvd

Gourmet Buffet and Grill
(610) 770-8888
3317 Hamilton Blvd

Sumo Sushi and Japanese Fusion
(610) 351-1887
3174 W Tilghman St

Thai Avenue
(610) 351-9496
4791 W Tilghman St

Thai Origin
(610) 351-5151
4686 Broadway

Pizza

Mario's Pizza Café
(610) 435-4484
3345 Hamilton Blvd

Biaggio Pizzeria & Family Restaurant
(610) 395-7006
1526 N Cedar Crest Blvd

Parma Pizza
(610) 439-6940
3100 W Tilghman St

Fast Food

Boston Market
385 S Cedar Crest Blvd

Subway
3830 Dorney Park Rd

Wendy's
450 S Cedar Crest Blvd

Chipotle Mexican Grill
3114 W Tilghman St

Panera Bread
3100 W Tilghman St

Yocco's Hot Dog King
2128 W Hamilton St

McDonald's
3860 Hamilton Blvd.

PAS Business Meeting Business
Saturday March 30 12:00-1:00 PM
Miller 33

Nominated Slate for 2019 Election:

The slate for our annual elections is given below and will also be discussed at the annual Business Meeting. After nominations are taken from the floor, there will be a vote of the membership to approve the slate of officers. Officers up for election are in bold. We are still accepting nominations for offices up for election.

Proposed Slate:

President-Elect: Matthew Wallace (2018-2020, President 2020-2022, Past- President 2022-2024)

President: Amy Parente (2018-2020, Past- President 2020-2022 (2016-2018, Past-President 2018-2020)

Past-President: Ed Levri (2018-2020)

PJAS Director: Fay Nelson (elected by PJAS)

Treasurer: Chris Brey (Treasurer 2018-2020)

Treasurer-Elect: Jennifer White (2018-2020; Treasurer 2022-2022)

Committee Director: ***OPEN (2019-2021)***

Finance and Investments Chair: J. Michael Campbell (appointed)

Education Chair: David Singleton (appointed)

Annual Meeting Chair: David Singleton (appointed)

Program Chair: André Walther (appointed)

Program co-Chair: ***OPEN***

Affiliate Chair: ***OPEN*** (appointed)

Spychala Awards Chairs: Christopher Dolanc and Michael Foulk (appointed)

Corresponding Secretary: ***Sheryl Fuller-Espie (2019-2021)***

Recording Secretary: Tammy Tintjer (2018-2020)

Editor in Chief: ***Carl Pratt (2019-2021)***

Book Editor: Sandy Whidden (appointed)

Journal Editor: Carl Pratt (appointed)

Webmaster and Archivist: ***André Walther (2019-2021)***

Website Content Editor: ***Jenny Hayden (2019-2021)***

AAAS/NAAS Representative: K. Joy Karnas (2018-2020)

Directors at Large: ***Greg George (2019-2021)***, Stephen Mech (*2018- 2020*), ***OPEN (2019-2020)***, ***OPEN (2019-2021)***

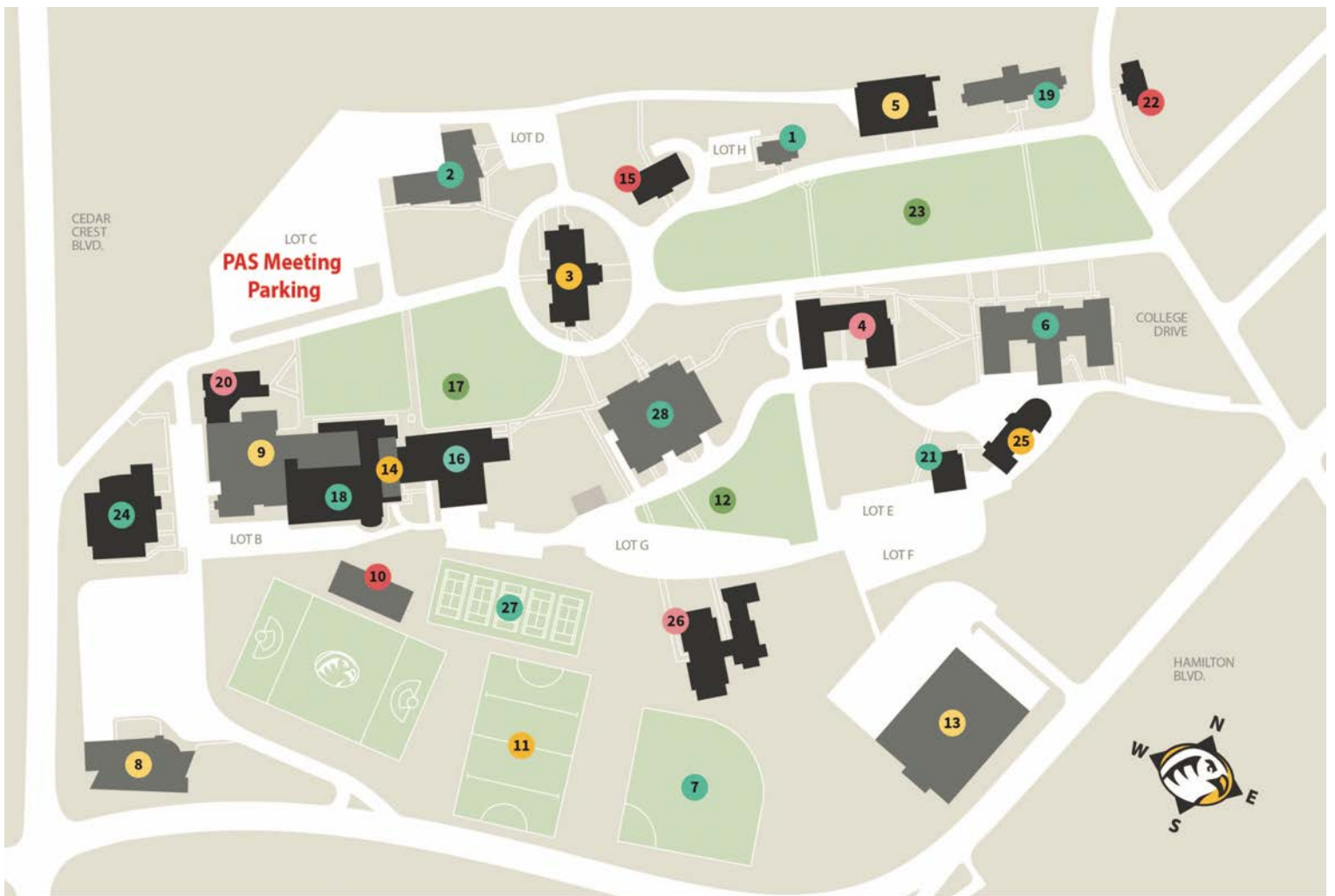
Join us next year for
the 96th Annual Meeting of
the Pennsylvania Academy of Sciences at



Thanks to



A very special thanks to Lauren Condon at Cedar Crest College Conference Services, and the many, many Cedar Crest faculty, staff, and student volunteers who made this event possible!



CEDAR CREST COLLEGE

cedarcrest.edu

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|---|--|-------------------------------------|--|--|
| 1 Allen House: Center for Diversity and Global Engagement | 6 Curtis Hall and Sigal Center for Business and Technology | 9 Dorothy Rider Pool Science Center | 16 Lees Hall | 23 The Quad |
| 2 Alumnae Hall | 7 Cynthia L. Blaschak Softball Field | 10 FalconPlex | 17 Lees Lawn | 24 The Rodale Aquatic Center for Civic Health |
| 3 Blaney Hall | 8 Da Vinci Discovery Center of Science and Technology | 11 Grass Practice Field | 18 Miller Family Building | 25 Security, Facilities & General Services (Post Office, Print Services) |
| 4 Butz Hall | | 12 Greek Theater | 19 Moore Hall | 26 Steinbright Hall |
| 5 Cressman Library and Student Success Center | | 13 Hamilton Boulevard Building | 20 Oberkotter Center for Health and Wellness | 27 Tennis Courts |
| | | 14 Harmon Hall of Peace | 21 Plant Services | 28 Tompkins College Center |
| | | 15 Hartzel Hall | 22 President's Residence | |

