



**PennState**  
Behrend

## **Penn State Behrend – Sigma Xi**

Twenty-Seventh Annual  
Undergraduate Student Research and  
Creative Accomplishment Conference

### **Poster Presentations**

<b>Session #</b>	<b>Session Name</b>
Session I	<a href="#"><u>Biology I</u></a>
Session II	<a href="#"><u>Biology II</u></a>
Session III	<a href="#"><u>Biology III</u></a>
Session IV	<a href="#"><u>Biology IV</u></a>
Session V	<a href="#"><u>Chemistry, Mathematics &amp; Physics</u></a>
Session VI	<a href="#"><u>Computer Science &amp; Engineering</u></a>
Session VII	<a href="#"><u>Environmental Science</u></a>
Session VIII	<a href="#"><u>Humanities &amp; Social Sciences</u></a>

# POSTER PRESENTATIONS

## SESSION I

## BIOLOGY I

### WITKOWSKI 21W

Poster #	Session
1	<b>Role of Ent Proteins in Nitrogen-Regulate Growth of <i>Saccharomyces cerevisiae</i></b> <u>Allyson Owens</u> , Olivia Haile, (Quyen Aoh), Gannon University - Cell & Molecular Biology
2	<b>Examining the effect of Resveratrol Treatment on a Fruit Fly Model for TPI Deficiency</b> <u>Austin Shirk</u> , <u>Annette Choi</u> , (Martin Buckley, Stacy Hrizo), Slippery Rock University of Pennsylvania - Cell & Molecular Biology
3	<b>The Effect of DMN on the Expression of Pathogenesis-Related Protein 4 in <i>Solanum tuberosum</i></b> <u>Abrar Aljahani</u> , (Michael Campbell), Penn State Behrend - Cell & Molecular Biology
4	<b>Role of SCAMP3 in B-Amyloid Production and Secretion</b> <u>Maura Mobilia</u> , (Quyen Aoh), Gannon University - Cell & Molecular Biology
5	<b>The Effect of 1,4-dimethylnaphthalene on mir-166 microRNA</b> <u>Alhanouf Alharbi</u> , (Michael Campbell), Penn State Behrend - Cell & Molecular Biology
6	<b>Examining if Expression of a Mutant Form of Triose Phosphate Isomerase Results in HSF Activation Using Live Cell Imaging</b> <u>Kaitlyn McNamara</u> , <u>Kathryn Skolnick</u> , (Stacy Hrizo, Martin Buckley), Slippery Rock University - Cell & Molecular Biology
7	<b>Pathogenesis Related Protein 5 Expression Influenced by 1,4-dimethyl naphthalene Treated Potato Meristems</b> <u>Maria Pirritano</u> , (Michael Campbell), Penn State Behrend - Cell & Molecular Biology
8	<b>The Growth of <i>Fusarium oxysporum</i> Spore Isolates from Potato is Inhibited by 1,4-Dimethylnaphthalene</b> <u>Rachael Adams</u> , (Michael Campbell), Penn State Behrend - Cell & Molecular Biology

# POSTER PRESENTATIONS

## SESSION II

### BIOLOGY II

#### WITKOWSKI 21W

Poster #	Session
9	<b>Inactivation of Escherichia coli on Spice-infused Media Via Radiant Catalytic Ionization</b> <u>Christopher Pasky</u> , <u>Elena Tran</u> , <u>Thomas McCoy</u> , <u>Andre Francis</u> , <u>Roman Fedchik</u> , (David Fulford, William Mackay, Craig Steele), Edinboro University of Pennsylvania - Microbiology
10	<b>Investigating the Synergistic Effects of Green Tea and <math>\beta</math>-lactam Antibiotics</b> <u>Alex Benedetto</u> , (Kevin McDade), Penn State Shenango - Microbiology
11	<b>Study Examining the Antibacterial Effectiveness of Agion Silver Zeolite Technology in the Biofilms Found in the Ecosystems within the Wintergreen Gorge and Behrend Campus</b> <u>Anthony Popoff</u> , <u>Na Cho</u> , Tyler Hostetler, (Beth Potter), Penn State Behrend - Microbiology
12	<b>Use of a service-learning project in introductory microbiology lab to understand how students feel about handwashing and vaccinations</b> <u>Kaitlyn White</u> , Trina Laffey, Olivia Myers, Bianca Johnson, Sara Shuhart, (Beth Potter), Penn State Behrend - Microbiology
13	<b>Female Flora: Influence of Presence of <i>Lactobacillus vaginalis</i> and <i>Gardnerella vaginalis</i> on <i>Haemophilus ducreyi</i> Growth</b> <u>Leah Kelly</u> , (Tricia Humphreys), Allegheny College - Microbiology
14	<b>Ecology of Zoonotic Infectious Disease: Small Mammal Reservoirs and Coinfection Risk by Tick-Borne Pathogens</b> <u>Kevin Regan</u> , Jeffery Larkin, Charlie Eichelberger, Joseph Wisgo, (Vida Irani), Indiana University of Pennsylvania - Microbiology
15	<b><i>Enterobacter aerogenes</i>: Antibiotic Resistance Responses</b> <u>Matthew Dilts</u> , (Narveen Jandu), Gannon University - Microbiology
16	<b>College Student Vaccination Rates and Influenza-like Illness</b> <u>Cheyenne Annarumo</u> , (Narveen Jandu), Gannon University - Microbiology
17	<b>Opiates, Injection Drug Users, MRSA &amp; Endocarditis – What's the Link?</b> <u>Jared McLaughlin</u> , (Narveen Jandu), Gannon University - Microbiology

# POSTER PRESENTATIONS

## SESSION III

### BIOLOGY III

#### *ROCHE HALL*

Poster #	Session
18	<b>Seasonal Effects on Dopamine Levels in Human Urine</b> <u>Ashley Crilley</u> , <u>Shamim Chaparian</u> , <u>Isaac Hodapp</u> , (He Liu), Gannon University - Neuroscience
19	<b>Investigating the Neuronal Connections Between the Mediodorsal Thalamus and the Brainstem of Cynomolgus Monkeys</b> <u>Nina Neumann</u> , Agata Pietrzak, Samuel LaFuria, (Darlene Melchitzky), Mercyhurst University - Neuroscience
20	<b>Fixed Interval Performance of Rats: A comparison of VPA Autism model Rats and Typical Neuro-developing Rats</b> <u>Alexis Sotelo</u> , <u>Jessica Parkinson</u> , (Rodney Clark), Allegheny College - Neuroscience
21	<b>Connections between the Basal Forebrain and the Lateral Mediodorsal Thalamic Nucleus in Macaque Monkey</b> <u>Megan Conley</u> , (Darlene Melchitzky), Mercyhurst University - Neuroscience
22	<b>Effects of Exogenous Estradiol Administration on BACE-1 Alzheimer's Disease Model Mice</b> <u>Kathryn Weiss</u> , (Lee Coates), Allegheny College - Neuroscience
23	<b>Effects of Sucrose Consumption on Anxiety-Like Behaviors in a Rat Model</b> <u>Megan Maloney</u> , (Deanne Buffalari), Westminster College - Neuroscience

# POSTER PRESENTATIONS

## SESSION IV

### BIOLOGY IV

#### ROCHE HALL

Poster #	Session
24	Derivatives of Folic Acid Rescue the Eye Phenotype in Ethanol Treated Zebrafish Embryos <u>Trina Laffey</u> , <u>Allison Kuzora</u> , (James Warren), Penn State Behrend – Development Biology
25	Comparing the effects of road salt on aquatic insect diversity in southern Lake Erie tributaries <u>Michelle Phelps</u> , <u>Hannah Jacob</u> , (Matthew Gruwell), Penn State Behrend - Entomology
26	Nematode Infections of Ruffed Grouse ( <i>Bonasa umbellus</i> ) by Year, Age, and Sex in Pennsylvania <u>Maria Colt</u> , <u>Evan DeFalco</u> , <u>Megan Zimmer</u> , Justin Brown, (Edward Phillips), Gannon University - Zoology
27	Triassic Sharks from Southeast Asia <u>Ania Gorski</u> , (Todd Cook), Penn State Behrend – Paleontology Biology
28	Effects of temporal variability of salt disturbance on leaf decomposition and leaf shredder activity <u>Grace Schoeniger</u> , <u>Emily Dobry</u> , <u>Blake Bachner</u> , (Pamela Silver), Penn State Behrend - Ecology
29	Effects of Barriers to <i>Salmo trutta</i> Movement on Fish Community Composition <u>Joanna Berry</u> , (Scott Wissinger), Allegheny College - Ecology

# POSTER PRESENTATIONS

## SESSION V

### CHEMISTRY, MATHEMATICS & PHYSICS

#### *FASENMYER*

Poster #	Session
30	Tale of Two Planets: Potential Binary Evolution of Mars and Venus <u>Cole Brown</u> , <u>Quinn Bierbaum</u> , (Darren Williams), Penn State Behrend - Astronomy
31	Thermodynamic Analysis of ATP Dissociation in a DEAD-Box Protein <u>Lisa Yoder</u> , Conner Bardine, Jake Patterson, (Ivelitza Garcia), Allegheny College - Biochemistry
32	Limited Proteolysis Analysis of a DEAD-box Protein and its Domain Truncated Variants <u>Megan Arnold</u> , Yueting Xu, Eleni Kaffenes, (Ivelitza Garcia), Allegheny College - Biochemistry
33	Characterization of DNA Aptamers Binding 17 $\beta$ -estradiol for Contamination Mapping in Northwestern Pennsylvania Streams and Lakes <u>Susan Campbell</u> , (Ivelitza Garcia, Scott Wissinger), Allegheny College - Biochemistry
34	Characterization of a Carbon Dioxide-Hexafluorobenzene Complex using Matrix Isolation Infrared Spectroscopy <u>Yudhishtara Payagala</u> , (Jay Amicangelo), Penn State Behrend - Chemistry
35	Synthesis and Biochemical Evaluation of Piperine Linker Analogs for Acetylcholinesterase Inhibition <u>Maryn Horn</u> , <u>Thalia Soto</u> , (Todd Eckroat), Penn State Behrend - Chemistry
36	Electrochemical characterization of HSA-heme-imidazole complexes towards future nitrite reductase activity <u>Ashlyn Kelly</u> , (Jason Bennett, Mary Grace Galinato), Penn State Behrend - Chemistry
37	A Transition State Study of the Reaction of the Hydroperoxy Free Radical with p-Substituted Phenols using Density Functional Theory <u>Blaine Laird</u> , (Tim Laher), Gannon University - Chemistry
38	Synthesis and reactivity of (phenyliodonio)pyridines: reagents for pyrdinylation of nucleophiles. <u>Rebecca Novak</u> , (Michael Justik), Penn State Behrend - Chemistry
39	Minimum Variance Linear Unbiased Estimators for Burr III Distribution <u>Luke Szramowski</u> , (Woosuk Kim), Slippery Rock University - Mathematics
40	Fluorescence Quenching Analysis of the Binding of Alpha-Naphthoflavone to the Drug-Metabolizing Enzyme Cytochrome P450 3A4 <u>Robert Hawranko</u> , (Glenn Marsch), Grove City College - Biophysics
41	Quantum Properties of Defects in Nano-porous Si-C Dielectrics. <u>Joseph Noonan</u> , (Blair Tuttle), Penn State Behrend - Physics

# POSTER PRESENTATIONS

## SESSION VI

### COMPUTER SCIENCE & ENGINEERING

#### *FASENMYER*

Poster #	Session
42	<b>Computer Vision with OpenCV, Integrating Object Recognition and LiDAR for Robotic Navigation and Interaction</b> <u>Kyle Monteleone</u> , (David Shaffer), Westminster College (PA) - Computer Science/Software Engineering
43	<b>Troubleshooting of Complex Electronic-Circuit Systems for Near Space Exploration</b> <u>Kaitlyn Babiarz</u> , Rachel Amorose, Tenger Batjargal, Stephen Karpinsky, Jessica Moukoro, Cheikhou Toure, (Wookwon Lee, Nicholas Conklin), Gannon University - Electrical Engineering
44	<b>SEM Characterization and Manufacturability of Advanced High Strength Steels</b> <u>Beth Gaughan</u> , (Paul Lynch), Penn State Behrend - Engineering
45	<b>Graph Grammars GUI</b> <u>Anthony Walker</u> , (Shradda Sangelkar), Penn State Behrend - Engineering
46	<b>Quantum Computing: Effective Uses and Challenging Problems</b> <u>Robert Bevard</u> , (Tarek Elarabi), Penn State Behrend - Engineering
47	<b>Utilizing the Mechanical Strength of 18650 Li-Ion Batteries in a Drone Frame</b> <u>Dylan McAnallen</u> , Matthew Brockett, (Adam Hollinger, Christopher Rahn), Penn State Behrend, Penn State University Park - Mechanical Engineering
48	<b>Matlab® Optimization Process for a Ramjet Engine Using a Calorically Perfect Gas Approach</b> <u>Marco Nunez</u> , (Amir Danesh, Shraddha Sangelkar), Penn State Behrend - Mechanical Engineering
49	<b>Predictive Analytics Models for Student Admission and Enrollment</b> <u>Jared Cirelli</u> , (Faisal Aqlan), Penn State Behrend – Industrial Engineering
50	<b>Quantum Computers Architecture</b> <u>Matthew Silloway</u> , (Tarek Aqlan), Penn State Behrend – Computer Engineering
51	<b>Degradation of Shear Induced Crystallization in PLA</b> <u>Valerie Zivkovich</u> , (Alicyn Rhoades), Penn State Behrend - Polymer Engineering
52	<b>Studying the Effect of Various Molecular Weight Poly-ether-ether-ketone on Crystalline Peak Half Times Using Fast Scanning Chip Calorimetry</b> <u>Olivia Dubin</u> , (Alicyn Rhoades, Anne Gohn), Penn State Behrend - Polymer Engineering
53	<b>Financial Analysis of Commodities, Trades, and Options in Real-Time (F.A.C.T.O.R)</b> <u>Jacob Scott</u> , <u>Matthew Partin</u> , <u>Jacob Fickes</u> , <u>Kyle Burns</u> , (Meng Su, Timothy Krause), - Computer Science/Software Engineering

# POSTER PRESENTATIONS

## SESSION VII

### ENVIRONMENTAL SCIENCE

*WITKOWSKI 22W*

Poster #	Session
54	<b>Monthly Water Quality Changes in Presque Isle Bay</b> <u>Kaylee Luchansky, Christopher Ross</u> , (Christopher Dempsey), Gannon University - Environmental Science
55	<b>Impacts of Woodcock Creek Dam on the Fluvial Geomorphology of Woodcock Creek in Crawford County, Pennsylvania</b> <u>Chris Micucci</u> , (Matt Carter), Allegheny College - Environmental Science
56	<b>Assessing the Penn State Behrend stream health through analysis of macroinvertebrate assemblages in natural leaf packs</b> <u>Megan Palko</u> , Emily Brown, (Pamela Silver), Penn State Behrend - Environmental Science
57	<b>Environmental Analysis of Platinum Group Elements and Solubility in Road Salt Solutions</b> <u>Rose Kerr, Galen Gerber</u> , (Deborah Aruguete), Penn State Behrend - Environmental Science
58	<b>Early Learning Center Bottle House Construction Project and Natural Play Space Design</b> <u>Nik Dombkowski</u> , Ann Quinn (Mike Naber), Penn State Behrend - Environmental Science
59	<b>Cation exchange of grit induced by melted road salt</b> <u>Gaoming Zhou</u> , (Deborah Aruguete), Penn State Behrend - Environmental Science
60	<b>Feasibility investigation for hydrokinetic power generation in French Creek (Meadville, PA)</b> <u>Nathan Pastorek, Cayton Hornberger, David Shipe</u> , (Matt Carter), Allegheny College – Energy Systems



# POSTER PRESENTATIONS

## SESSION VIII

### HUMANITIES & SOCIAL SCIENCES

*WITKOWSKI 21W*

Poster #	Session
61	<p>Can Evidence Based Occupational Therapy Practices Enhance the Development of Children Born to Young Mothers</p> <p><u>Holly Masters</u>, (Roxanne Atterholt), Penn State Shenango – Human Development and Family Studies</p>
62	<p>Reading and Writing through Emergent Genres</p> <p><u>Janine Zaunegger</u>, <u>Gracie Wiles</u>, (Lisa Ciecierski), Penn State Behrend - Education</p>
63	<p>Shifting Conservative Environmental Attitudes Using Moral Foundations Theory</p> <p><u>Leah Franzluebbers</u>, (Andrew Bloeser, Scott Wissinger), Allegheny College - Political Science</p>
64	<p>Effects of Developmental Delay in Children Born to Young Mothers, Comparing the Gender of the Children, and How Occupational Therapy Interventions May Enhance Growth and Development</p> <p><u>Alexandra Izzo</u>, (Roxanne Atterholt), Penn State Shenango – Human Development and Family Studies</p>