

# **Penn State Behrend – Sigma Xi**

Twenty-Seventh Annual

Undergraduate Student Research and  
Creative Accomplishment Conference

**Poster Presentations**

| Session # | Session Name |
| --- | --- |
| Session I | [Biology I](#_Session_I) |
| Session II | [Biology II](#_Session_II) |
| Session III | [Biology](#_Session_II_1) III |
| Session IV | [Biology](#_Session_IV) IV |
| Session V | [Chemistry,](#_Session_V) Mathematics & Physics |
| Session VI | [Computer](#_Session_VI) Science & Engineering |
| Session VII | [Environmental Science](#_Session_VII) |
| Session VIII | [Humanities & Social Sciences](#_Session_VIII) |

# **Poster Presentations**

## **Session I**

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

### **Biology I**

#### **WITKOWSKI 21W**

# **Poster Presentations**

## **Session II**

### **Biology II**

#### **WITKOWSKI 21W**

| Poster # | Session |
| --- | --- |
| 9 | Inactivation of Escherichia coli on Spice-infused Media Via Radiant Catalytic Ionization Christopher Pasky, Elena Tran, Thomas McCoy, Andre Francis, Roman Fedchik, (David Fulford, William Mackay, Craig Steele), Edinboro University of Pennsylvania - Microbiology |
| 10 | Investigating the Synergistic Effects of Green Tea and Î²-lactam Antibiotics Alex Benedetto, (Kevin McDade), Penn State Shenango - Microbiology |
| 11 | Study Examining the Antibacterial Effectiveness of Agion Silver Zeolite Technology in the Biofilms Found in the Ecosystems within the Wintergreen Gorge and Behrend Campus Anthony Popoff, Na Cho, Tyler Hostetler, (Beth Potter), Penn State Behrend - Microbiology |
| 12 | Use of a service-learning project in introductory microbiology lab to understand how students feel about handwashing and vaccinations Kaitlyn White, Trina Laffey, Olivia Myers, Bianca Johnson, Sara Shuhart, (Beth Potter), Penn State Behrend - Microbiology |
| 13 | Female Flora: Influence of Presence of *Lactobacillus vaginalis* and *Gardnerella vaginalis* on *Haemophilus ducreyi* Growth Leah Kelly, (Tricia Humphreys), Allegheny College - Microbiology |
| 14 | Ecology of Zoonotic Infectious Disease: Small Mammal Reservoirs and Coinfection Risk by Tick-Borne Pathogens Kevin Regan, Jeffery Larkin, Charlie Eichelberger, Joseph Wisgo, (Vida Irani), Indiana University of Pennsylvania - Microbiology |
| 15 | *Enterobacter aerogenes*: Antibiotic Resistance Responses Matthew Dilts, (Narveen Jandu), Gannon University - Microbiology |
| 16 | College Student Vaccination Rates and Influenza-like Illness Cheyenne Annarumo, (Narveen Jandu), Gannon University - Microbiology |
| 17 | Opiates, Injection Drug Users, MRSA & Endocarditis – What’s the Link? Jared McLaughlin, (Narveen Jandu), Gannon University - Microbiology |

# **Poster Presentations**

## **Session III**

### **BIOLOGY III**

#### **ROCHE HALL**

| Poster # | Session |
| --- | --- |
| 18 | **Seasonal Effects on Dopamine Levels in Human Urine** Ashley Crilley, Shamim Chaparian, Isaac Hodapp, (He Liu), Gannon University - Neuroscience |
| 19 | **Investigating the Neuronal Connections Between the Mediodorsal Thalamus and the Brainstem of Cynomolgus Monkeys** Nina Neumann, Agata Pietrzak, Samuel LaFuria, (Darlene Melchitzky), Mercyhurst University - Neuroscience |
| 20 | **Fixed Interval Performance of Rats: A comparison of VPA Autism model Rats and Typical Neuro-developing Rats** Alexis Sotelo, Jessica Parkinson, (Rodney Clark), Allegheny College - Neuroscience |
| 21 | **Connections between the Basal Forebrain and the Lateral Mediodorsal Thalamic Nucleus in Macaque Monkey** Megan Conley, (Darlene Melchitzky), Mercyhurst University - Neuroscience |
| 22 | **Effects of Exogenous Estradiol Administration on BACE-1 Alzheimer's Disease Model Mice** Kathryn Weiss, (Lee Coates), Allegheny College - Neuroscience |
| 23 | **Effects of Sucrose Consumption on Anxiety-Like Behaviors in a Rat Model** Megan Maloney, (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** Trina Laffey, Allison Kuzora, (James Warren), Penn State Behrend – Development Biology |
| 25 | **Comparing the effects of road salt on aquatic insect diversity in southern Lake Erie tributaries** Michelle Phelps, Hannah Jacob, (Matthew Gruwell), Penn State Behrend - Entomology |
| 26 | **Nematode Infections of Ruffed Grouse (*Bonasa umbellus*) by Year, Age, and Sex in Pennsylvania** Maria Colt, Evan DeFalco, Megan Zimmer, Justin Brown, (Edward Phillips), Gannon University - Zoology |
| 27 | **Triassic Sharks from Southeast Asia** Ania Gorski, (Todd Cook), Penn State Behrend – Paleontology Biology |
| 28 | **Effects of temporal variability of salt disturbance on leaf decomposition and leaf shredder activity** Grace Schoeniger, Emily Dobry, Blake Bachner, (Pamela Silver), Penn State Behrend - Ecology |
| 29 | **Effects of Barriers to *Salmo trutta* Movement on Fish Community Composition** Joanna Berry, (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** Cole Brown, Quinn Bierbaum, (Darren Williams), Penn State Behrend - Astronomy |
| 31 | **Thermodynamic Analysis of ATP Dissociation in a DEAD-Box Protein** Lisa Yoder, Conner Bardine, Jake Patterson, (Ivelitza Garcia), Allegheny College - Biochemistry |
| 32 | **Limited Proteolysis Analysis of a DEAD-box Protein and its Domain Truncated Variants** Megan Arnold, Yueting Xu, Eleni Kaffenes, (Ivelitza Garcia), Allegheny College - Biochemistry |
| 33 | **Characterization of DNA Aptamers Binding 17B-estradiol for Contamination Mapping in Northwestern Pennsylvania Streams and Lakes** Susan Campbell, (Ivelitza Garcia, Scott Wissinger), Allegheny College - Biochemistry |
| 34 | **Characterization of a Carbon Dioxide-Hexafluorobenzene Complex using Matrix Isolation Infrared Spectroscopy** Yudhishtara Payagala, (Jay Amicangelo), Penn State Behrend - Chemistry |
| 35 | **Synthesis and Biochemical Evaluation of Piperine Linker Analogs for Acetylcholinesterase Inhibition** Maryn Horn, Thalia Soto, (Todd Eckroat), Penn State Behrend - Chemistry |
| 36 | **Electrochemical characterization of HSA-heme-imidazole complexes towards future nitrite reductase activity** Ashlyn Kelly, (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** Blaine Laird, (Tim Laher), Gannon University - Chemistry |
| 38 | **Synthesis and reactivity of (phenyliodonio)pyridines: reagents for pyrdinylation of nucleophiles.** Rebecca Novak, (Michael Justik), Penn State Behrend - Chemistry |
| 39 | **Minimum Variance Linear Unbiased Estimators for Burr III Distribution** Luke Szramowski, (Woosuk Kim), Slippery Rock University - Mathematics |
| 40 | **Fluorescence Quenching Analysis of the Binding of Alpha-Naphthoflavone to the Drug-Metabolizing Enzyme Cytochrome P450 3A4** Robert Hawranko, (Glenn Marsch), Grove City College - Biophysics |
| 41 | **Quantum Properties of Defects in Nano-porous SI-C Dielectrics.** Joseph Noonan, (Blair Tuttle), Penn State Behrend - Physics |

# **Poster Presentations**

## **Session VI**

### **computer science & engineering**

#### **FASENMYER**

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

# **Poster Presentations**

## **Session VII**

### **environmental science**

#### **WITKOWSKI 22W**

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

# **Poster Presentations**

## **Session VIII**

### **humanities & social sciences**

#### **WITKOWSKI 21W**

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