Sigma Xi 2018 Presentation Winners

# **Oral Presentations**

# Biology I

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Complementary Genetic Screens Reveal Inactivating and Constitutively Activating Mutations in Two-Component Systems of *Bacillus anthracis***  Michelle Chu, Ellen Upton (Devin Stauff), Grove City College - Microbiology |
| Second Place | **Speciation-related toxicity of palladium complexes to the soil bacterium *Pseudomonas aeruginosa***  Rachel Pell, Daniel Muccio, Carson Williamson (Deborah Aruguete & Kelly Miller), Penn State Behrend, Wesley College - Microbiology |

# Biology II

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Influence of Diurnal Temperature Variation on the Amphibian Fungal Pathogen, *Batrachochytrium dendrobatidis***  Carissa Lange (Matthew Venesky & Beth Choate), Allegheny College - Ecology |
| Second Place | **Developing an Ethical and Cost-Effective Murine Model for Type 1 Diabetes Mellitus-Induced Cataract via Single Dose of Streptozotocin**  Samuel Thomas (Christy Donmoyer), Allegheny College - Physiology |

# Chemistry, Math & Physics

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Optimizing the Power Output of Luminescent Solar Concentrators that Use White Diffusive Backgrounds**  Jonathon Schrecengost (Bruce Wittmershaus), Penn State Behrend - Physics |
| Second Place | **Combined Quantum Mechanical/Molecular Mechanical Investigation of Quorum Sensing Inhibitors**  Nathan Gasparovic (Ronald Brown), Mercyhurst University - Chemistry |

# Computer Science & Engineering I

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Making Database Management Systems Manageable: User-friendly Automatic Report Generation**  Karen Postupac, (Lory Al Moakar), Grove City College - Computer Science/Software Engineering |
| Second Place | **Simulation Study to Improve Scheduling at a Cardiology Outpatient Clinic**  Nicholas Bowers, (Omar Ashour), Penn State Behrend – Industrial Engineering |

# Engineering II

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Ergonomic Assessment of Automotive Service Centers: A Case Study**  Faris Alzahrani, Ahmed Mushaikh, (Faisal Aqlan), Penn State Behrend - Engineering |
| Second Place | **Interaction of Side-by-Side Fluidic Harvesters in Fractal Grid-Generated Turbulence**  Nicholas Chiappazzi, (Amir Danesh), Penn State Behrend - Engineering |

# Engineering III

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Springback Analysis of 5083 Aluminum Alloy** Brent McFarland, (Chetan Nikhare), Penn State Behrend - Mechanical Engineering |
| Second Place | **Experimental and Numerical Analysis on Bilayer Tube Flaring**  John Olevnik, (Chetan Nikhare), Penn State Behrend - Mechanical Engineering |

# Environmental Science

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Environmentally Sustainable Redesign of Seabreeze Amusement Park Waste Production** Briana Freeman, (Rich Bowden, Casey Bradshaw-Wilson), Allegheny College - Environmental Science |
| Second Place | **Assessing the Degradation of Terrestrially Derived Dissolved Organic Matter in three Temperate Lakes** Sarah Magyan, (Christopher Dempsey), Gannon University - Environmental Science |

# Humanities & Social Sciences

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Comparative Advantage and Economic Policy Tools based on a Local Economy's Imports and Exports**  Hannah Carlino, (Travis Yates), Penn State Behrend - Economics |
| Second Place | **Society’s Perception of School Mathematics as Told through Memes** Rachel Hughes, (Courtney Nagle), Penn State Behrend - Education |

# **Poster Presentations**

# Biology I

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **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 |
| Second Place | **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 II

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Investigating the Synergistic Effects of Green Tea and β-lactam Antibiotics** Alex Benedetto, (Kevin McDade), Penn State Shenango - Microbiology |
| Second Place | **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 |

# Biology III

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Effects of Exogenous Estradiol Administration on BACE-1 Alzheimer's Disease Model Mice** Kathryn Weiss, (Lee Coates), Allegheny College - Neuroscience |
| Second Place | **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 |

# Biology IV

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Triassic Sharks from Southeast Asia** Ania Gorski, (Todd Cook), Penn State Behrend – Paleontology Biology |
| Second Place | **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 |

# Chemistry, Mathematics & Physics

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Minimum Variance Linear Unbiased Estimators for Burr III Distribution** Luke Szramowski, (Woosuk Kim), Slippery Rock University - Mathematics |
| Second Place | **Characterization of a Carbon Dioxide-Hexafluorobenzene Complex using Matrix Isolation Infrared Spectroscopy** Yudhishtara Payagala, (Jay Amicangelo), Penn State Behrend - Chemistry |
| Second Place | **Thermodynamic Analysis of ATP Dissociation in a DEAD-Box Protein** Lisa Yoder, Conner Bardine, Jake Patterson, (Ivelitza Garcia), Allegheny College - Biochemistry |

# Computer Science & Engineering

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **SEM Characterization and Manufacturability of Advanced High Strength Steels** Beth Gaughan, (Paul Lynch), Penn State Behrend - Engineering |
| Second Place | **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 |

# Environmental Science

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Environmental Analysis of Platinum Group Elements and Solubility in Road Salt Solutions** Rose Kerr, Galen Gerber, (Deborah Aruguete), Penn State Behrend - Environmental Science |
| Second Place | **Impacts of Woodcock Creek Dam on the Fluvial Geomorphology of Woodcock Creek in Crawford County, Pennsylvania** Chris Micucci, (Matt Carter), Allegheny College - Environmental Science |

# Humanities & Social Sciences

| Placement | Title and Student Presenters |
| --- | --- |
| First Place | **Shifting Conservative Environmental Attitudes Using Moral Foundations Theory** Leah Franzluebbers, (Andrew Bloeser, Scott Wissinger), Allegheny College - Political Science |
| Second Place | **Reading and Writing through Emergent Genres** Janine Zaunegger, Gracie Wiles, (Lisa Ciecierski), Penn State Behrend - Education |