

STUDENT PRESENTATION AWARDS AT THE 118th MEETING OF THE TENNESSEE ACADEMY OF SCIENCE

ORAL PRESENTATIONS

Botany

- First Place—*Meredith Montgomery*. Disjunct Populations of *Clematis fremontii* in Tennessee and Georgia: Recent Introductions or Relict Populations? *University of Tennessee at Chattanooga, Chattanooga, Tennessee*
- Second Place—*Meagan Binkley*. Phylogeography of North American *Castanea*. *The University of Tennessee at Chattanooga, Chattanooga, Tennessee*
- Third Place—*Nacole Clutter*. The population genetics of the rare plant *Arabis perstellata*. *Austin Peay State University, Clarksville, Tennessee*

Cell and Molecular Biology

- First Place—*Karen A. Beasley*. Arginyl Aminopeptidase-like 1 (RNPEPL1) is an Alternatively Spliced Neutral Aminopeptidase with Specificity for Citrulline, Methionine, and Glutamine Residues. *Middle Tennessee State University, Murfreesboro, Tennessee*
- Second Place—*Maryam Farsian*. Optimization of an Enzyme Immunoassay for the Detection of Gonadotropin-Releasing Hormone. *Austin Peay State University, Clarksville, Tennessee*
- Third Place—*Richard M. Sharpe*. Maize BS and MSC Chloroplasts: Same Genes Different BS. *Middle Tennessee State University, Murfreesboro, Tennessee*

Chemistry

- First Place—*Marshall McDonnell*. Titanium Phosphate/PBI Composite Membranes in Proton Exchange Membrane Fuel Cells. *Lincoln Memorial University, Harrogate, Tennessee*
- Second Place—*C. DeSheles and A. Schaible*. WISE Chemistry. *Middle Tennessee State University, Murfreesboro, Tennessee*

Geology and Geography

- First Place—*Hung C. Ho*. Spatial Modeling in Sinkhole Flooding Analysis and Management System. *Tennessee Technological University, Cookeville, Tennessee*
- Second Place—*Cathy Wilson*. Hurricanes: Problem or Problem Solver? Discussion of Hurricane Storm Patterns Producing Significant Precipitation for the Southeastern United States. *Austin Peay State University, Clarksville, Tennessee*

Health and Medical Science

- First Place—*Christina Russell*. Preliminary Data Describing a Novel Antimicrobial Agent to

Combat MRSA Infections. *Austin Peay State University, Clarksville, Tennessee*

- Second Place—*Justin B. Patel*. The Effect of Inebriety vs. Aspirin on Pain Perception. *Lincoln Memorial University, Harrogate, Tennessee*

History of Science

- First Place—*Lisa Bovee*. The Creation of Ernest Lawrence's Cyclotron. *Indiana University, Bloomington, Indiana*

Mathematics and Computer Science

- First Place—*Robert French and Michael Northington*. Solving Third Order Ordinary Differential Equations by Boundary Value Methods. *Austin Peay State University, Clarksville, Tennessee*
- Second Place—*Jennifer Jones*. Initial Value Methods for Two-Point Boundary Value Problems. *Austin Peay State University, Clarksville, Tennessee*
- Third Place—*Zachary D. Hodge and Scott Swindell*. A Block Method for Second Order Initial Value Problems. *Austin Peay State University, Clarksville, Tennessee*

Microbiology

- First Place—*Jillian Kay*. Genetic Analysis of *Borrelia burgdorferi* Isolates Found in Middle Tennessee. *Austin Peay State University, Clarksville, Tennessee*
- Second Place—*David W. Olsen*. The Characterization of a Novel Bacterial Pathogen Isolated from a Hot Tub. *Middle Tennessee State University, Murfreesboro, Tennessee*
- Third Place—*Gina M. Cullerton*. How to Build a Better Mouse Trap: Sanitation Issues in the Food Microbiology Industry. *Middle Tennessee State University, Murfreesboro, Tennessee*

Physics and Astronomy

- First Place—*Chasity Long*. A Review of Osteopathic Manipulation among Western Physicians and Eastern Indigenous Practitioners. *Lincoln Memorial University, Harrogate, Tennessee*
- Second Place—*Tessa Garrett*. Understanding the Physics Behind the Performance of Roping Horses. *Lincoln Memorial University, Harrogate, Tennessee*
- Third Place—*Alexander Basiri*. Application of Biomechanics to Improve the Reverse Punch. *Lincoln Memorial University, Harrogate, Tennessee*

Zoology

- First Place—*David Christopher Henley*. Development of a DNA Capture System for the Detection of

Batrachochytrium dendrobatidis from Infected Frog Tissues. *Austin Peay State University, Clarksville, Tennessee*

Second Place—*Riley S. McCormick*. Differential Use of Cave Chambers by Eastern Pipistrelle, *Perimyotis subflavus*, During Torpor and Prior to Maternal Roost. *Austin Peay State University, Clarksville, Tennessee*

Third Place—*Dereck L. Eison*. Assessing Fish Populations in an Agriculturally Impacted Stream Using the Kentucky Index of Biotic Integrity, Pleasant Grove Creek, Logan County, Kentucky. *Austin Peay State University, Clarksville, Tennessee*

POSTER PRESENTATIONS

Botany

First Place—*April Tummins*. The Comparison of Photosynthesis and Transpiration Rates in *Lonicera maackii* and *Symphoricarpos orbiculatus* in Response to Environmental Factors. *Belmont University, Nashville, Tennessee*

Second Place—*Jacob Wadlington and Benjamin Bailey*. Development of Inter-Simple Sequence Repeat Markers (ISSR) for Determination of Genetic Diversity in *Dalea* Species. *Lipscomb University, Nashville, Tennessee*

Third Place—*John Evans*. Preliminary Flora of Sequatchie Valley in Sequatchie County, Tennessee. *University of Tennessee at Chattanooga, Chattanooga, Tennessee*

Cell and Molecular Biology

First Place—*M. Reece Cofer*. Characterization of the TNXB Gene in Zebrafish. *University of Tennessee at Chattanooga, Chattanooga, Tennessee*

Second Place—*Aditya P. Mahajan and Patrick W. Jennings*. Effect of Cholesterol Concentration on Lysosomal Biogenesis. *Middle Tennessee State University, Murfreesboro, Tennessee*

Third Place—*Suzanne S. Hicks*. Alternative mRNA Splicing is Prevalent in Genes and Regions of the Brain Implicated in Bipolar Disorder. *Middle Tennessee State University, Murfreesboro, Tennessee*

Chemistry

First Place—*James R. Wilson*. Synthesis and Characterization of New 2-Carboxy Quinoline Thiosemicarbazones. *Tennessee Technological University, Cookeville, Tennessee*

Second Place—*Jessika Pinto*. The Development of an Improved Activity Assay for the Rapid Assessment of Conditions Sought to Enhance Catalytic Activity in the Production of Biofuels from Cellulosic Feedstocks. *Tennessee Technological University, Cookeville, Tennessee*

Third Place—*Jami Couch*. Analysis of Product Inhibition and Stability of Cellulase from

Aspergillus niger. *Tennessee Technological University, Cookeville, Tennessee*

Geology and Geography

First Place—*Whitney M. Fuquay*. An Application of GIS on the Distribution of Foster Homes in the Upper Cumberland Region. *Tennessee Technological University, Cookeville, Tennessee*

Second Place—*Marvin Nutt*. Exciting Mineral Find at Nonconnah Creek, Memphis, Tennessee. *The University of Memphis, Memphis, Tennessee*

Third Place—*Tabetha J. Scott*. Stream Morphology in a Karstified Drainage Basin. *Tennessee Technological University, Cookeville, Tennessee*

Health and Medical Science

First Place—*Merranda D. Holmes*. The Production, Quantification and Fluorescent Detection of Anthrax-Simulating Endospores. *Middle Tennessee State University, Murfreesboro, Tennessee*

Second Place—*Shannon Murphy*. Predation among *Anopheles gambiae* S.S. and *Culex quinquefasciatus* larvae. *Middle Tennessee State University, Murfreesboro, Tennessee*

Math and Computer Science

First Place—*Matt Perry, Amy Valentine, and Nikki Fimuf*. Between the Devil and the Deep(er) Blue Sea: Florida's Precarious Position as a Result of Sea Level Rise. *Belmont University, Nashville, Tennessee*

Microbiology

First Place—*Eterial Burrell*. Toxicity and Degredation of Sevin-10 Insecticide. *Middle Tennessee State University, Murfreesboro, Tennessee*

Second Place—*Cyrus Eaton*. Investigating Mortality Rates Caused by MEC-Type and PVL-Type in *Staphylococcus aureus*. *Belmont University, Nashville, Tennessee*

Third Place (tie)—*Jessica Matheson*. Evaluating the Antimicrobial Activity of Melittin Against Several Bacteria. *Austin Peay State University, Clarksville, Tennessee*

Third Place (tie)—*Josh Cortopassi*. Confirmation of Programmed Cell Death and PMK-1 Pathways in *Caenorhabditis elegans* to *Streptococcus pneumoniae*. *Belmont University, Nashville, Tennessee*

Zoology

First Place—*Lauren Oeser*. The Specificity of Anti-predator Behavior in the Streamside Salamander, *Ambystoma barbouri*. *Belmont University, Nashville, Tennessee*

Second Place—*Angella DeSisto and Courtney Pintnich*. Influence of Body Size and Group Number on Schooling Preference in Zebrafish (*Danio rerio*). *Nashville State Community College, Nashville, Tennessee*

Third Place—*Ebrahim Jatta and Naomi Prashad*. The Efficacy of Natural Larvicides on Ontogenetic Evaluation of Mosquito (*Aedes aegypti*) Survivability. *Nashville State Community College, Nashville, Tennessee*