

West Virginia  
Academy of Science

96<sup>th</sup> Annual Meeting

2023



April 22<sup>nd</sup>  
Hosted by Bluefield State University  
at  
Pipestem State Resort

# West Virginia Academy of Science

96th Annual Meeting

April 22, 2023

EVENT SPONSORS:



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## **Welcome to the WVAS Annual Meeting!**

On behalf of the WVAS Executive Committee, we welcome you to the 96th West Virginia Academy of Sciences Annual Meeting. We are excited to provide a venue for this meeting at the Pipestem State Resort and hope you have an engaging and rewarding experience as you immerse yourself in scientific discoveries and discussions.

Bluefield State University is delighted to sponsor this event's venue and food. We would also like to thank our sponsors: W.E.L. Instrument Company®, First2 Network®, West Virginia University, West Liberty University, Bluefield State Universities Research and Sponsored Programs. We are most grateful to Bluefield State University for providing the venue and the complimentary breakfast buffet and lunch! We are also grateful to the BSU Organizing Committee and our many BSU volunteers for their selfless service.

We truly hope you have a wonderful and productive meeting.

Sara Sawyer, Ph.D.  
President, WVAS Executive Committee

## **Keynote Speaker**

### **JAMES T. ANDERSON**

Director James C. Kennedy Waterfowl and Wetlands  
Conservation Center

James C. Kennedy Endowed Chair of Waterfowl and Wetland Ecology  
Professor Wildlife and Fisheries Ecology Certified Wildlife Biologist®



### **My Journey as a Wetland Scientist: Under the Sphagnum Moss, to the Mountain Top and Down the Other side**

James T. Anderson, Ph.D.

James C. Kennedy Waterfowl and Wetlands Conservation Center, Belle W. Baruch  
Institute of Coastal Ecology and Forest Science, Clemson University, P.O. Box  
596, Georgetown, SC 29442, USA; [jta6@clemson.edu](mailto:jta6@clemson.edu)

Wetlands are life; wetlands have been my professional life for 36 years and part of my personal life for over 50 years. In this presentation, I will take you on a path of personal growth, scientific discovery, and coming to grips with our collective past. I have three goals to accomplish with this presentation: 1) inspire young scientists to follow their dreams by presenting “My Life in Wetlands,” 2) deliver the results of our Mountain State wetland discoveries, and 3) discuss a future wetland initiative inspired by past cultural atrocities. The remainder of this abstract is focused on objective two. Wetlands are transitional areas between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. In the United States, when a wetland is converted to a non-wetland, a new wetland must be created, or a former wetland must be restored to mitigate the loss of wetland function. Moreover, numerous conservation programs exist to create and restore wetlands. One primary function of wetlands is to provide wildlife diversity and wildlife habitat. For 25 years, my students and I have studied wetland biodiversity and ecosystem services of created and natural wetlands of West Virginia. For the most part, we found that mitigated and other restored wetlands provided suitable habitats for birds, amphibians, small mammals, invertebrates, and vegetation. However, the community composition and abundance of species vary. Wetland restoration has improved over time, although older wetlands perform better than younger wetlands, indicating wetlands need time to develop correctly. Results suggest that in many circumstances, mitigated wetlands and natural wetlands are functionally and compositionally similar when the restoration is appropriately conducted.

## 96th annual West Virginia Academy of Science meeting Schedule of Events

**Registration – McKeever Lodge, 5th Floor Vestibule**

**5:00 pm – 7:00 pm April 21<sup>st</sup> and 8:00 am– 10:00 am April 22<sup>nd</sup>**

### **April 21<sup>st</sup>**

**S'mores and Hot Chocolate & Live Entertainment – Cardinal Deck**

**6:00 pm – 9:00 pm April, 21<sup>st</sup>**

### **April 22<sup>nd</sup>**

**Breakfast Buffet - Faulconer Room (2nd floor)**

Compliments of BSU Research and Sponsored Programs

**7:00 am – 8:45 am**

**Opening Ceremony – Ballroom B**

**9:00 – 9:15 Welcoming Remarks:**

Introduce Organizing Staff and WVAS executive committee

**9:15 – 10:15 Keynote Speaker – Dr. James Anderson**

**My Journey as a Wetland Scientist: Under the Sphagnum Moss, to the Mountain Top and Down the Other**

**Side.** Dr. James T. Anderson, Director James C. Kennedy Waterfowl and Wetlands

Conservation Center, James C. Kennedy Endowed Chair of Waterfowl and Wetland Ecology,

Professor Wildlife and Fisheries Ecology, WVAS Lifetime Member, Clemson University

**10:15 – 10:30 Break: Check out the views and Vendors! Coffee too**

**10:30 – 12:30 Oral Presentations Session 1 – McKeever Conference Center**

There will be three 15-minute talks (12 min for presenting & 3 min for questions) per hour. There will be 5 minutes between talks to move around.

**Cardinal Room:** Environmental Science and Stream Ecology and Paleontology

**Ballroom A:** First2 STEM Student Success track

**Ballroom B:** Biology (Microbiology and Immunology), Computational Science

**Ballroom C:** Chemistry and Forensics

**Ballroom D:** Biomedical (Health Science, Cancer/Mental Health)

**12:30 – 1:30 Lunch - Faulconer Room (2nd floor)**

Complimentary Lunch buffet sponsored by BSU Research and Sponsored Programs

**1:15 – 2:00 WVAS Annual Business Meeting - Falconer Room (2nd floor)**

**1:30 – 3:30 Poster Presentations and Vendors – Covered Walkway**

**1:30 – 2:45 Coffee**

**2:45 Judges turn in scoresheets to Kennedy Board Room**

**3:30 – 4:00 Awards for Oral and Poster Presentations, Closing Ceremony and Remarks – Ballroom B**

Provost Ted Lewis, M.S., Ed.D.

Sarah Sawyer, Ph.D., West Virginia Academy of Science President

Awards

## **LIST OF ORAL PRESENTATIONS**

**10:30 AM – 12:30 PM**

### **Cardinal Room:**

**Environmental Science, Stream Ecology and Paleontology**

**Moderator: Elizabeth Walters, MA**

**10:30 AM #1.** Elizabeth Walters, Ghita Courdi, Emma Flynn, Alexander Ramsey, Renee Turner, Christian Yates. Department of STEM, Bluefield State University, Bluefield, WV 24701, **Assessing the UAE's Efforts to Combat Climate Change using Ecological Footprint Accounting**

**10:50 AM #2.** Tyler P. Hill, and Holly Racine, Dept of Biomedical Science, West Liberty University, West Liberty, WV, 26074, **Validation of an Avian Model of Induced-Thyrototoxicosis**

**11:10 AM #3.** Cassidy Gebhardt, Zachary Loughman, Department of Organismal Biology, Ecology, And Zoo Science. West Liberty University, West Liberty WV, 26074, **Taxonomic Standing and Genetic Surveillance of the Spiny Scale Crayfish (*Cambarus jezerinaci*) in Southeastern Kentucky**

**11:30 AM #4.** Kamden Dulaney and Mark Flood, Dept. of Natural Sciences, Fairmont State University, Fairmont, WV, 26554, **Examination and Assessment of the Environmental Health of a Non-Acid Mining Drainage Site**

**11:50 AM #5.** Stuart A. Welsh, U.S. Geological Survey, WV Cooperative Fish and Wildlife Research Unit, West Virginia University, Morgantown, WV 26506, Nathaniel V. Owens, West Virginia Division of Natural Resources, Elkins, WV 26241, Daniel A. Cincotta, 113 Beauregard Drive, Staunton, VA 24401 **Range reduction of the Appalachia Darter in the lower New River drainage with comments on the status of endemic fishes.**

### **Ballroom A:**

**First2 STEM Student Success track**

**Moderator: Michelle Richards-Babb, Ph.D.**

**10:30 AM #1.** Michelle Richards-Babb, C. Eugene Bennett Department of Chemistry, West Virginia University, Morgantown, WV 26506. **Embedded student formative reporting to promote student metacognition and instructor pedagogical adjustments**

**10:45 AM #2.** Caleb Gibson, Garrett Davis, and Samuel Ingram, Department of Chemistry, West Virginia Wesleyan College, Buckhannon, WV 26201, **Development of Undergraduate Teaching Laboratories in the Analysis of Maple Syrup Antioxidants and Phenolics**

**11:00 AM #3.** Eliza Keener, Dept of Engineering Technology, Fairmont State University, Fairmont, WV 26554, and Landon Brewer, Dept of Natural Sciences, Fairmont State University, Fairmont, WV 26554. **Benefits of First2 Network immersive bridge programs at Fairmont State University.**

**11:15 AM #4.** William Church, Dept. of Mechanical Engineering, West Virginia University Institute of Technology, Beckley, WV, 25801. Yogendra M. Panta, Dept. of Mechanical Engineering, West Virginia University Institute of Technology, Beckley, WV, 25801. **Synchronizing Teaching Resources of Energy Conservation Principle in Mechanical Engineering Courses- Year 2 Updates**

## **Ballroom B:**

**Biology, Microbiology, Immunology and Computational Science**

**Moderator: Tesfaye Belay, Ph.D.**

**10:30 AM #1.** Tyler Burgee, Department of Computer Sciences, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV, 25443. **Superposition as a Means of Data Encryption in N-Dimensional Value Spaces.**

**10:45 AM #2.** Elio F. Delatore III, Elle Roberts, Stuart Cantlay, & Joseph Horzempa. Department of Biomedical Sciences, West Liberty University, WV. **Deletion of FTL\_1199 to determine the role of this gene in erythrocyte invasion by Francisella tularensis.**

**11:00 AM #3.** Jordan Gibson, Justin Rice, Emily Young, and Deanna M. Schmitt, Department of Biomedical Sciences, West Liberty University, West Liberty, WV, 26074. **Hypoxia increases Neisseria gonorrhoeae resistance to Resazomycins: Role of Efflux Pumps and Oxidative Stress.**

**11:15 AM #4.** Emily Young, Jordan Gibson, Siena McGovern, Emma Beatty, Claire Kelly, Kendall Souder, Justin Rice, Department of Biomedical Sciences, West Liberty University, West Liberty, WV, Ryan J. Percifield, Department of Biology, West Virginia University, Morgantown, WV, Donald A. Primerano, Department of Biomedical Sciences, Joan C. Edwards School of Medicine, Marshall University, Huntington, WV, Nicole Garrison and Deanna M. Schmitt. Department of Biomedical Sciences, West Liberty University, West Liberty, WV. **Role of FTL\_0445 in Francisella tularensis Susceptibility to Resazurin.**

**11:30 AM #5.** Andrew Moseman, Jared Knotts, Mohammed Balassi, Dept. of Computer Science, Mathematics and Engineering, Shepherd University, Shepherdstown, WV, 25443, and Weidong Liao (Faculty Advisor), Dept of Computer Science, Mathematics and Engineering, Shepherd University, Shepherdstown, WV, 25443. **Developing a Reinforcement Learning based Chess Engine.**



## **Ballroom C:**

### **Chemistry and Forensics**

**Moderator: Mark Flood, Ph.D.**

**10:30 AM #1.** Serenity Parsell, Department of Forensic Science, Fairmont State University, Fairmont, WV, 26554 and Kristy Henson, Department of Forensic Science, Fairmont State University, Fairmont, WV, 26554. **Assessing the interactions of variables affecting the rate of nonhuman decomposition.**

**10:45 AM #2.** Hannah Bonham and Mark Flood, Dept of Natural Sciences, Fairmont State University, Fairmont, WV 26554. **External effects on the characteristics of handwriting analysis and the analysis of forgery types.**

**11:00 AM #3.** Linsee Mullenex, Student of Forensic Science, Fairmont State University, Fairmont, WV, 26554, and Kristy Henson, Assistant Professor of Forensic Science, Fairmont State University, Fairmont, WV, 26554. **An Examination of Gunshot Residue and Lead Exposure.**

**11:15 AM #4.** Kimberly Brown, Fairmont State University, Fairmont, WV, 26554, and Kristy Henson, Dept. of Natural Sciences, Fairmont State University, 26554. **Effects of household cleaning supplies on trace blood evidence.**

**11:30 AM #5.** Yogendra M. Panta, Dept. of Mechanical Engineering, West Virginia University Institute of Technology, Beckley, WV, 25801. **Fulbright Project Experience in Nepal: Promoting Effective Teaching Practices and Active Learning for Student Success and Faculty Development**

## **Ballroom D:**

### **Biomedical Sciences: Health Science, Cancer, Mental Health**

**Moderator: James Walters, Ph.D.**

**10:30 AM #1.** Stuart Cantlay\*, Nicole Garrison\*, Rachelle Patterson\*, Donald Primerano†, Jun Fan† and Joseph Horzempa\*, \*Department of Biological Sciences, West Liberty University, West Liberty, W.V. † Genomics and Bioinformatics Core Facility, Marshall University, Huntington, W.V. **Applying RNA-Seq to investigate the transition into a Viable But Non Culturable State (VBNC) for the intracellular pathogen, Francisella tularensis LVS.**

**10:45 AM #2.** Chandler Russell, Jesse Orell, Dakota Parnell, and James Walters Ph.D, Department of STEM, Bluefield State University, Bluefield, WV 24701, **Studying freely fed seven days post fertilization zebrafish larvae with high fat diets versus a microfluidic chip environment.**

**11:00 AM #3.** Anna Oschmann, Dept of Chemistry, Fairmont State University, Fairmont, WV, 26554, and Matthew Scanlon, Dept of Chemistry, Fairmont State University, Fairmont, WV, 26554. **Quantifying lead, copper, iron and arsenic in hair dye samples**

**11:15 AM #4.** Raji Lukmon and A.R.M. Ruhul Amin, Department of Pharmaceutical Sciences, Marshall University School of Pharmacy, Huntington, WV 25755. **FLLL12, a curcumin analog, activates the oxidative stress response pathway in head and neck cancer: implication for chemoprevention**

**11:30 AM #5.** Casie Banyi and Mark Flood, Forensic Science Program, Fairmont State University, Fairmont, WV, 26554. **The analyzation of DNA and cross contamination inside the cyanoacrylate (superglue) fuming chamber**

**11:45 AM #6.** Danielle Baker, Tesfaye Belay. Dept of Applied Science and mathematics. Sch. Of STEM. Bluefield, WV **Roles of dendritic cells and macrophages during Chlamydia muridarum genital infection in stressed mice.**

**12:00 – 1:30 Lunch: Faulconer Room, 2nd floor**

**12:30 – 1:30 WVAS Annual Business Meeting: Falcon Center 3rd floor Private Dining Hall**

## LIST OF POSTER PRESENTATIONS

### 1:30 – 3:30 Poster Presentations, Vendors, and Coffee – Covered Walkway

#### First2 STEM Student Success and Education

**Poster # 1** Qing Wang, Department of Computer Sciences, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV 25443, and Amy Dewitt, Department of Sociology, Criminology, and Criminal Justice, Shepherd University, Shepherdstown, WV 25443, and Emily Gross, Academic Support Center, Shepherd University, Shepherdstown, WV 25443, and Weidong Liao, Karen Adams, Reza Mirdamadi, and Osman Guzide, Department of Computer Sciences, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV 25443. The S-STEM Scholarship Program to Advance Academic Success and Career Development for CME Majors at Shepherd University. **The S-STEM Scholarship Program to Advance Academic Success and Career Development for CME Majors at Shepherd University**

**Poster # 2** Yogendra M. Panta, Dept. of Mechanical Engineering, West Virginia University Institute of Technology, Beckley, WV, 25801. **Fulbright Project Experience in Nepal: Promoting Effective Teaching Practices and Active Learning for Student Success and Faculty Development**

**Poster # 3** Kenan Hatipoglu, Dept. of Electrical and Computer Engineering, West Virginia University Institute of Technology, Beckley, WV, 25801, Cao Thang Bui, Dept. of Computer Science and Information Systems, West Virginia University Institute of Technology, Beckley, WV, 25801, Yogendra M. Panta, Dept. of Mechanical Engineering, West Virginia University Institute of Technology, Beckley, WV, 25801. Tamara Floyd Smith, Dean of College of Engineering and Sciences, West Virginia University Institute of Technology, Beckley, WV, 25801, and Joan L. Neff, Dept. of Social Sciences and Public Administration, West Virginia University Institute of Technology, Beckley, WV, 25801. **NSF S-STEM Program - Supporting Undergraduate Cohorts of Career-Ready Engineering and Science Scholars (SUCCESS) Project at WVU Tech – Year 2 updates**

**Poster # 4** Robert L. Harsh and Laura S. Robertson, Dept of Biology, Shepherd University, Shepherdstown, WV 25443. **Identification by DNA barcode of viable fungi captured in a teaching laboratory in West Virginia**

#### Biology, Microbiology and Immunology

**Poster # 5** Emma J. Beatty, Emily Young, Claire Kelly, Rori Schrieber, Jordan Gibson, Kendall Souder, Justin Rice, Nicole Garrison, and Deanna M. Schmitt, Department of Biomedical Sciences, West Liberty University, West Liberty, WV 26074, and Ryan J. Percifield, Department of Biology, West Virginia University, Morgantown, WV 26506, and Donald A. Primerano, Department of Biomedical Sciences, Joan C. Edwards School of Medicine, Marshall University, Huntington, WV 25755. **Role of LpnA in Francisella tularensis Susceptibility to Resazurin.**

**Poster # 6** Kaitlyn Bailey & Joseph Horzempa. Department of Biomedical Sciences, West Liberty University, West Liberty, WV. **The Effect of Dillapiole on the pathogenesis of Escherichia coli**

**Poster # 7** Madelyn Logan, Stuart Cantlay, & Joseph Horzempa. Department of Biomedical Sciences, West Liberty University, WV. **The Identification of Fungal Isolates Capable of Inhibiting Growth of Methicillin-Resistant Staphylococcus aureus**

**Poster # 8** Reagan Gray & Joseph Horzempa. Department of Biomedical Sciences, West Liberty University, West Liberty, WV. **The identification of bacteria from human microbiota that inhibit the growth of Methicillin-Resistant Staphylococcus aureus**

**Poster # 9** Mackenzie Hall, Emily Young, Jordan Gibson, Ryleigh Morgan, Caroline Woody, Department of Biomedical Sciences, West Liberty University, West Liberty, WV, KH. Tanvir Ahmed, Gregory B. Dudley, C. Eugene Bennett Department of Chemistry, West Virginia University, Morgantown, WV, and Deanna M. Schmitt, Department of Biomedical Sciences, West Liberty University, West Liberty, WV. **Screening Resorufin Pentyl Ether Analogs for Enhanced Antimicrobial Activity Against Francisella tularensis and Neisseria gonorrhoeae**

**Poster # 10** Rori Schreiber, Emily Young, Jordan Gibson, Siena MCGovern, Emma Beatty, Claire Kelly, Kendall Souder, Justin Rice, Department of Biomedical Sciences, West Liberty University, West Liberty, WV, Ryan J. Percifield, Department of Biology, West Virginia University, Morgantown, WV, Donald A. Primerano, Department of Biomedical Sciences, Joan C. Edwards School of Medicine, Marshall University, Huntington, WV, Nicole Garrison and Deanna M. Schmitt. Department of Biomedical Sciences, West Liberty University, West Liberty, WV. **Role of KatG in Francisella tularensis Susceptibility to Resazurin.**

**Poster # 11** Rachelle Patterson, Stanley Czahoroski, Stuart Cantlay And Joseph Horzempa. Dept of Biomedical Sciences, West Liberty University, West Liberty, WV, 26074. **Characterization of two predicted lipid metabolism genes (FTL\_1569 and FTL\_1570) in the intracellular pathogen, Francisella tularensis LVS.**

**Poster # 12** Kristen Rolen, Tesfaye Belay. Dept of Applied Sciences and Mathematics, BluefieldState University. Bluefield, WV 24701. **Thelper1 and T helper2 cytokine production patterns in stressed beta2-adrenergic receptor-deficient mice during chlamydia genital infection.**

**Poster # 13** Emily Shupe, Tesfaye Belay. Dept of Applied Science and Mathematics. Bluefield State University. Bluefield, WV 24701. **Active Hexose Correlated Compound as a Countermeasure against Cold-induced Stress during Chlamydia muridarum Genital Infection in Mice.**

**Poster # 14** Nathasha Woart, Tesfaye Belay. Dept of Applied Sciences and Mathematics. Sch of STEM. Bluefield, WV. **Analysis of immune response of stressed male mice during Chlamydia muridarum lung infection**

**Poster # 15** Mackenzie Hall, Emily Young, Jordan Gibson, Ryleigh Morgan, Caroline Woody, Department of Biomedical Sciences, West Liberty University, West Liberty, WV, KH. Tanvir Ahmed, Gregory B. Dudley, C. Eugene Bennett Department of Chemistry, West Virginia University, Morgantown, WV, and DEANNA M. SCHMITT, Department of Biomedical Sciences, West Liberty University, West Liberty, WV. **Screening Resorufin Pentyl Ether Analogs for Enhanced Antimicrobial Activity Against Francisella tularensis and Neisseria gonorrhoeae**

#### **Biomedical Science (Health Science, Cancer and Mental Health)**

**Poster # 16** Emily Hissom, Department of Natural Sciences, University of Charleston, Charleston, WV, 25304, and Hailey Cox, Department of Natural Sciences, University of Charleston, Charleston, WV, 25304, and Mark Watson, Department of Natural Sciences, University of Charleston, WV, 25304. **Effects of Handwashing and Antimicrobials on Bacterial Counts**

**Poster # 17** Connie Burris, Mariamartinez, Raemoore, Sarahzamzow, Natalia Omelchenko-Comer, STEM and Business Division, WVNCC, Wheeling, WV, 26003. **The somatosensory and visual systems adaptation times have a strong positive correlation.**

**Poster # 18** Liliana Adamo and Conor W. Sipe, Dept. of Biology, Shepherd University, Shepherdstown, WV 25443. **Uncontrolled neural stem cell proliferation affects larval survival during dietary nutrient withdrawal.**

**Poster # 19** Tailynn Varney, Kristy Henson, Dept of Forensic Science, Fairmont State University, Fairmont, WV, 26554. **Does Eye Color Affect Vision Acuity in a Variety of Light Conditions?**

**Poster # 20** Shania Davis & Joseph Horzempa. Department of Biomedical Sciences. West Liberty University. West Liberty, West Virginia. **Analyzing the contribution to pathogenesis by three putative transcriptional regulators of Francisella tularensis using the chicken embryo infection model.**

**Poster # 21** Elio F. Delatoreiii, Zachary Clark, Megan Ayala, & Joseph Horzempa. Department of Biomedical Sciences. West Liberty University. West Liberty, West Virginia. **The Efficacy, Toxicity & Pharmacology of Dillapiole: a potential new treatment for Tularemia**

**Poster # 22** Ashlei Kelly, Tesfaye Belay. Dept of Applied Sciences and Mathematics. Bluefield State University. Bluefield, WV 24701. **Evaluation of the pathogenicity of Pseudomonas aeruginosa isolates to strains of mice under stressful conditions**

**Poster # 23** Caleb Fritz, Tesfaye Belay. Dept of Applied Sciences and mathematics. Sch. STEM. Bluefield. WV. **Non-starved mucoid Pseudomonas aeruginosa isolates cause a high death rate in strains of mice.**

**Poster # 24** Ty Anderson, Catherine Stress, Sara Roberson PhD, Applied Science, Bluefield State University, Bluefield, WV 24701. **The role of chemokine signaling in habenular axon projection in zebrafish**

#### **Chemistry, Forensics and Computational Science**

**Poster # 25** Hannah Parker, , Fairmont State University, Fairmont, WV, 26554. **The Changing Acidity of Different Drinks Causes Tooth Erosion When Continuously Exposed Over Time.**

**Poster # 26** Sana Mazhar and Young B.Kim, Ph. D., Department of Applied Sciences and Mathematic, School of STEM, Bluefield State University, Bluefield, WV. **Study of Steric Hindrance of Ketone Ester Reduction Chemistry**

**Poster # 27** Ethan Bevan, Dept of Computer Science, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV 25443, and Jason R Miller, Dept of Computer Science, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV 25443. **Facial Image Generation with Limited Training Data**

**Poster # 28** Annalee Corcoran, Dept of Computer Science, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV 25443, and Jason R Miller, Dept of Computer Science, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV 25443. **Analyzing Lung Cancer Data for Machine Learning**

**Poster # 29** Johnna Smith, Dept of Mathematics, Shepherd University, Shepherdstown, WV, 25443, and Donald Mills, Dept of Computer Sciences, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV, 25443. **Basic Cryptographic Concepts and Open Problems in Hash Function Security**

**Poster # 30** Isaac Hall, Department of Natural Sciences, Fairmont State University, Fairmont, WV, 26554, Edward Behrman, Department of Chemistry and Biochemistry, The Ohio State University, Columbus, OH, 43210 and Jojo Joseph, Department of Natural Sciences, Fairmont State University, Fairmont, WV, 26554. **Computational insights on the structure of transition states and intermediates of the Boyland-Sims Oxidation reaction**

### **Environmental Science and Stream Ecology and Paleontology**

**Poster # 31** Jessicas.Kellison, Elizabeth Rea, and Laura S. Robertson, Dept of Biology, Shepherd University, Shepherdstown, WV 25443. **Identification by DNA barcode of culturable, airborne, environmental fungi isolated from the Shepherd University campus**

**Poster # 32** Mariah Cashbaugh, Shania Davis, Elio Delatore, & Joseph Horzempa, Dept.of Biomedical Sciences, West Liberty University, West Liberty, WV, 26074. **Screening putative transcriptional regulators in Francisella tularensis for attenuation using a multifaceted approach.**

**Poster # 33** Lindsey Morais, Daron Weekley, and Holly Racine, Dept. of Biomedical Sciences, West Liberty University, WV, 26074. **Induced Thyrotoxicosis Elicits Protective Effects in Developing Hearts**

**Poster # 34** Hali A. Westcott, Dept. of Biology and Environmental Science, West Virginia Wesleyan College, Buckhannon, WV, 26201, and Matthew L. Reid, Dept. of Biology and Environmental Science, West Virginia Wesleyan College, Buckhannon, WV, 26201. **Effects of simulated psyllid herbivory on the root development of Japanese knotweed.**

**Poster # 35** Haley M. Carter, Department of Biomedical Sciences, West Liberty University, West Liberty, WV, 26074, and Holly L. Racine, Department of Biomedical Sciences, West Liberty University, West Liberty, WV, 26074. **The Effect of Induced Thyrotoxicosis on Avian Limb Development.**

Poster # 36 Lindsey Morais, Daron Weekley, And Holly Racine, Dept. of Biomedical Sciences, West Liberty University, WV, 26074. **Differential morphometric analysis of the anterior fontanelle in an embryonic avian model of induced thyrotoxicosis**

**Poster # 37** Sue Newberry, Eco Vrindavan Inc., Wheeling, WV 26003 Dr. James Wood, Dept. of Biomedical Sciences, West Liberty University, WV, 26074, **Hoop Houses Provide Optimal Conditions for Increased Crop Production Year-round**

**Poster # 38** Caitlyn Morningstar, Claire Kelly, Emily Young, Jordan Gibson, Siena Mcgovern, Emma Beatty, Kendall Souder, Justin Rice, Department of Biomedical Sciences, West Liberty University, West Liberty, WV, 26074; Ryan J. Percifield, Department of Biology, West Virginia University, Morgantown, West Virginia; Donald A. Primerano, Department of Biomedical Sciences, Joan C. Edwards School of Medicine, Marshall University, Huntington, WV; Nicole Garrison, and Deanna M. Schmitt, Department of Biomedical Sciences, West Liberty University, West Liberty, WV, 26074. **Role of FTL\_0895 in Francisella tularensis Susceptibility to Resazurin.**