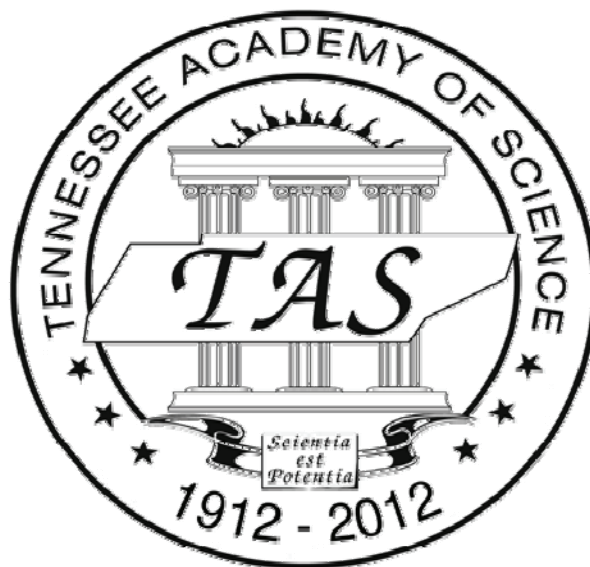


123rd Meeting
**Tennessee
Academy of
Science
Program**



November 15, 2013

**Motlow State
Community College,
Lynchburg, Tennessee**

Celebrating 101 Years

**Tennessee Academy of Science
Institutional Sustaining Members**

Austin Peay State University
East Tennessee State University
Middle Tennessee State University
Motlow State Community College
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Tennessee Technological University
The University of Tennessee–Knoxville
The University of Tennessee–Martin
The University of the South
Volunteer State Community College
Walters State Community College

**Tennessee Academy of
Science Affiliated Societies**

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Barnard Astronomical Society
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Tennessee Entomological Society
Tennessee Association of
Science Department Chairs
Tennessee Psychological Association
Tennessee Junior Science and
Humanities Symposium
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Advancement of Science

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Journal of the Tennessee Academy of Science

TAS Future Annual Meeting Sites
2014—Walters State Community College

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Welcome . . .

. . . to the 2013 Annual Meeting of the Tennessee Academy of Science. We hope you enjoy and benefit from this opportunity to present your research, to learn of other research going on in Tennessee, to interact in a relaxed atmosphere with other science professionals and to participate in the business of the Academy.

Please let our volunteers on the executive board know if you have any needs or questions and if the meeting in any way does not meet (or if it exceeds!) your expectations. We are always striving to improve! (or if it exceeds!) your expectations. We are always striving to improve!

Announcements

If not already members, presenters and attendees may register by mail or at the Annual Meeting (in the lobby of Student Life Center). Application forms will be available on-site, and they are available for download from the TAS web site. Dues are collected at time of registration.

Student	\$10 annually
Emeritus	\$10 annually
Member	\$40 annually
Sustaining	\$50 annually
Supporting	\$100 annually
Life	\$400 single payment

Journal subscription for libraries inquire with Treasurer
Registration and dues can be mailed to the TAS
Treasurer, Dr. Steven Murphree, Department of
Biology, Belmont University, 1900 Belmont Boulevard,
Nashville, TN 37212-3758

Luncheon tickets will be available for purchase at the registration desk.

Schedule of Events
Thursday, November 14, 2013

5:30-10:00pm	Executive Committee Meeting and Dinner Holiday Inn Conference Room
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Friday, November 15, 2013

7:30 a.m. until 1:30 p.m.	Registration Marcum Technology Center Lobby
7:30 a.m. until 8:30 a.m.	Poster Setup Marcum Technology Center Hall (Poster board and easel provided—look for the designated area to set up your poster)
7:45 a.m. until 8:15	Meeting of Section Chairs Marcum Technology Center - Classroom 134
8:30 a.m. until 9:45 a.m.	Poster Presentation and Judging Marcum Technology Center Hall
9:45 a.m. until 10:30 a.m.	Business Meeting Marcum Technology Center Room A,B, and C
10:30a.m. until 11:30a.m.	Plenary Session = Dr. Molly Miller = “Giant Trees at the Ancient South Pole and Giant Worms on the Modern Seafloor: Antarctica’s Clues to Earth Processes and Change” Student Life Center - Marcum Technology Meeting Room A, B, and C
11:30 am until 1:00 p.m.	Luncheon Cafeteria
1:00 p.m. until finished	Afternoon Technical Sessions/Section Business Meetings Marcum Technology Center Rooms A, B, C, and classrooms 134, 138, 142, 153, and 156 and Simon Hall Classrooms 130, 132, 232, 233 and Eoff’s Hall Powers Auditorium
1:30 p.m. until 2:30 p.m.	Agriscience Forum - Simon Hall Classroom 130

Meet our Keynote Speaker

Dr. Molly Miller

10:30-11:30 Marcum Technology Meeting Room A, B, and C

Dr. Molly Miller, has been a Professor at Vanderbilt University for the past 35 years, specializing in paleoecology, clastic sedimentology, and ichnology. She regularly travels to Antarctica to conduct experiments in climate change. The reason she studies this system is because the tops of mountains that stick up above the ice in Antarctica have the best records on earth of lake and stream environments. An engaging speaker and committed to students, she teaches all levels from undergraduate introductory geology to advanced courses for graduate students. Her presentation will be of interest to all members of TAS.

Presentation Title

Giant Trees at the Ancient South Pole and Giant Worms on the Modern Seafloor: Antarctica's Clues to Earth Processes and Change.

Abstract

Over the last 280 million years, everything about Antarctica has changed (a lot!) except for its position at or near the South Pole. Its polar susceptibility to climate change is preserved in its luxuriant fossil forests of 250 million years ago, by its modern land-to-sea sediment transport systems that operate in the near absence of liquid water, and by its unique marine benthic communities characterized by absence of fast predators and by (some of) their members' gigantism. In addition to raising questions, the ancient terrestrial fossil record, modern ice processes, and modern benthic fauna constrain Antarctica's history of change and may provide insight about the future.

Oral Presentations
BOTANY
Chair: Jennifer Boyd, Ph.D.
Simon Hall
Classroom 233
1:00 p.m. – 2:05 p.m.

1:00 – 1:05 Business Meeting

1:05 – 1: 20 Plant conservation under the Endangered Species Act: proposals to list two Tennessee plants as endangered and designate critical habitat. **Geoff Call**, *US Fish and Wildlife Service, Cookeville, Tennessee.*

1:20 – 1:35 Observations on the the globally-rare Hall's Bulrush in Kentucky with Implications for Tennessee. **Edward W. Chester**, *Austin Peay State University, Clarksville, Tennessee*

1:35 – 1:50 A Tree Inventory of a One Hectare Plot of Lowland Peruvian Rainforest . **Allen D. Moore, Gilberto Navarro-Aguilar and Luis Torres-Montenegro.** *Tennessee Wesleyan College, Athens, Tennessee.*

1:50 – 2:05 Ten years of monitoring of federally threatened *Scutellaria montana* in Catoosa County, Georgia: findings and recommendations. **Jared Odell* and Jennifer Boyd**, *University of Tennessee at Chattanooga, Chattanooga, Tennessee.*

Cell and Molecular Biology
Chair: Greg A Johansen
Simon Hall
Classroom 130
1:00 p.m. – 1:20 p.m.

1:00 – 1:05 Business Meeting

1:05 – 1: 20 Effect of Connexin 43 blockade on GT1
-7 Cell Synchronization, **Deepthi R. Koppula*** and
Gilbert R. Pitts, *Austin Peay State University,*
Clarksville, Tennessee.

* student author

presenting author, if not first author

Chemistry
Chair: Daniel J. Swartling, Ph.D.
Marcum Technology Center
Classroom 134
1:00 p.m. – 2:20 p.m.

1:00– 1:05 Business Meeting

1:05– 1:20 Differential proteomic strategy to determine sub-lethal effects of gold-nanoparticles on *Tetrahymena* sp. **Vanaja Reddy Bodeddula***, **Sri Bharat Madireddy, Sharon G Berk, and Jeffrey O Boles**, *Tennessee Technological University, Cookeville, Tennessee (VRB, SBM, JOB), and Center for the Management, Utilization and Protection of Water Resources, Tennessee Technological University, Cookeville, Tennessee (SGB).*

1:20– 1:35 Progress in the Development of a Parabolic Solar Reflector for Use in Organic Synthesis Reactions. **Brian M. Agee***, **Gene Mullins, and Daniel J. Swartling**, *Tennessee Technological University, Cookeville, Tennessee.*

1:35 – 1:50 Comparing Raman and FT-IR Spectra of Synthetic Cathinones and Common Cutting Agents. . **Courtney Chance* Sarah Gray, and Andrew Callender**, *Tennessee Technological University, Cookeville, Tennessee.*

1:50 – 2:05 Progress towards the enantioselective total synthesis of hamigeromycin b: part II, preparation of the aromatic synthon. **Michael S. Probasco,* John W. Kirby, and Jesse D. Carrick**, *Tennessee Technological University, Cookeville, Tennessee.*

2:05 - 2:20 Computational Study of Acetylthiazole Thiosemicarbazones. **Mallory B. Miles,* Edward C. Lisic, and Scott H. Northrup**, *Tennessee Technological University, Cookeville, Tennessee.*

* student author

presenting author, if not first author

**Engineering and Engineering Technology
Chair: Ihab Habib
Marcum Technology Center Meeting Room
A, B, C
1:00 p.m. - 3:20 p.m.**

1:00 – 1:05 Business Meeting

1:05 – 1:20 Assessing resiliency of mobile cyber-physical systems. **Daniel Henke***, **Aaron Henderson***, **S. Keith Hargrove**, and **Sachin Shetty**
Tennessee State University, Nashville Tennessee.

1:20 – 1:35 Augmented Reality Mechanism Assembly System **Benjamin W. Morton*** *Tennessee State University, Nashville, Tennessee.*

1:35 – 1:50 Bandwidth Optimization via DNS Automation, **Daniel J. Flanigan***, **Sachin Shetty**, **Tamara Rogers**, and **S. Keith Hargrove**,
Tennessee State University, Nashville, Tennessee.

1:50 – 2:05 Bandwidth Analysis of Video Transmission in a Distributed Environment using PlanetLab, **Jared Wagnac***, **Sachin Shetty**, **S. K. Hargrove**, **Tamara Rogers**, *Tennessee State University, Nashville, Tennessee.*

2:05 – 2:20 Detection and response mechanism to combat malware infecting web browsers on smartphones. **Waled M. Tayib***, **Ian Miller***, **Sachin Shetty**, **Samuel Hargrove**. *Tennessee State University, Nashville, Tennessee.*

2:20 – 2:35 The theoretical extension of Prandtl's inviscid lifting line theory to the viscous flow over rotating cylinders. **Mark N. Callender**, *Middle Tennessee State University, Murfreesboro, Tennessee.*

2:35 – 2:50 Effectiveness of various de-noising algorithms applied to audio extraction. **Na Zhu**, *Austin Peay State University, Clarksville, Tennessee.*

2:50-3:05 E learning on Robotic Applications **Chin-Zue Chen**. *Austin Peay State University, Clarksville, Tennessee.*

3:05-3:20 A Study of Female Students Enrollment in Engineering Technology STEM Programs. **Ihab Habib**, *Austin Peay State University, Clarksville, Tennessee.*

* student author

presenting author, if not first author

Geology and Geography
Chair: Michael A. Gibson, Ph.D.
Marcum Technology Center
Classroom 138
1: 00 p.m. – 3:20 p.m.

1: 00 – 1:05 Business Meeting

1:05 – 1:20 Variation in water temperature as an indicator of recharge area characteristics in Middle Tennessee springs **Randy M. Curtis, Gresham, Smith & Partners, Nashville, Tennessee.**

1:20 – 1:35 The nature of the contact between the Dean and the Wilhite formations at milepost 16.5 along US Highway #64, Ocoee Gorge, Southeast Tennessee Blue Ridge. **Andrew J. Steven* and Habte G. Churnet, University of Tennessee at Chattanooga, Chattanooga, Tennessee.**

1:35 – 1:50 Structures within the Walden Creek Group proximal to the confluence of the Hiwassee River and Wolf Creek, Polk County, Tennessee. **Jonathan A. Petsch* and Habte G. Churnet, University of Tennessee at Chattanooga, Chattanooga, Tennessee.**

1: 50 - 2:05 A geospatial analysis of Tennessee caves and sinkholes, **Chuck Sutherland*, and Peter Li, Tennessee Technological University, Cookeville, Tennessee.**

2:05 - 2:20 Break

2:20 – 2: 35 Memorial to Dr. James Xavier Corgan: his service to the Department of Geology at Austin Peay State University. **Phillip R. Kemmerly, and Jack E. Deibert, Austin Peay State University Clarksville, Tennessee.**

2:35 – 2:50 James X. Corgan and the history of geological research and education in Tennessee. **Richard G. Stearns and Michael A. Gibson. Vanderbilt University, Nashville, Tennessee and University of Tennessee at Martin, Martin, Tennessee.**

* student author

presenting author, if not first author

2:50 – 3:05 James X. Corgan: Paleontologist.
Michael A. Gibson. *University of Tennessee at
Martin, Martin, Tennessee.*

3:05 – 3:20 The last billion years: a geologic history
of Tennessee. **Don W. Byerly,** *Department of
Earth and Planetary Sciences, The University of
Tennessee, Knoxville, Tennessee.*

* student author
presenting author, if not first author

**Health and Medical Sciences
Chair: Nick Ragsdale, Ph.D.
Marcum Technology Center
Classroom 142
1:00 p.m. - 1:40p.m.**

1:00 – 1:05 Business Meeting

1:05 – 1: 20 The Genetic Counseling Patient and Gene Therapy **Sara M Stevers***, **Eugene de Silva, and Jeffrey Horner** Walters State Community College, Morristown, Tennessee (SS, EDS, JH) and Virginia Research Institute (EDS), Tennessee.

1: 20 – 1:35 In Vitro Effect of Prednisone on *Mus musculus* (mouse) Fibroblast C57BL cells Treated with *Loxosceles reclusa* Venom. **Ashudee Kirk*** and **Amy Thompson**, Austin Peay State University, Clarksville, Tennessee.

1:25 - 1:40 Hormone Response in Humans **Emily Kistner***, **Eugene de Silva, and Whitney Jarnagin**, Walters State Community College, Morristown, Tennessee (EK, EDS, WJ) and Virginia Research Institute (EDS), Tennessee.

* student author

presenting author, if not first author

History of Science
Chair: Brother Kevin Ryan, FSC
Simon Hall
Classroom 132
1:00 p.m. – 1: 50 p.m.

1:00 – 1:05 Business Meeting

1:05 – 1: 20 Twenty-five greatest science discoveries of the twentieth century. **Brother Kevin Ryan**, *Christian Brothers University, Memphis, Tennessee.*

1:20 — 1:35 Graduate Education of Archibald Belcher: First Science Professor at MTSU. **Martin V. Stewart**, *Middle Tennessee State University, Murfreesboro, Tennessee.*

1:35 - 1:50 What's in a name? Phalangid nomenclature with emphasis on genus *Leiobunum* (Arachnida: Phalangida (Opiliones)). **Charles R. McGhee**, *Middle Tennessee State University, Murfreesboro, Tennessee.*

* student author

presenting author, if not first author

Math and Computer Science
Chair: Ayman Alzaatreh, Ph.D.
Simon Hall
Classroom 232
1:00 p.m. – 2: 50 p.m.

1:00 – 1:05 Business Meeting

1:05– 1:20 Integrating business intelligence and visualization tools into graduate technology programs. **Maurice Dawson, Tyrone Bannister***, **Darius Craig***, and **David Floyd***, *Alabama A&M University, Normal, Alabama (MD), Florida Institute of Technology, Melbourne, Florida (TB, DC) and Colorado Technical University, Colorado Springs, Colorado (DF).*

1:20 - 1: 35 Evolving landscape of American politics with technology. **Johnny L. King*** and **Maurice Dawson**, *Alabama A&M University, Normal, Alabama.*

1:35 - 1:50 Using business intelligence to link organizational silos in a consolidated information solution to address the human capital challenge in an organization. **Jeff Stevens**, *Alabama A&M University, Normal, Alabama.*

1:50 - 2:05 On the gamma-logistic distribution, **Indranil Ghosh and Ayman Alzaatreh**, *Austin Peay State University, Clarksville, Tennessee.*

2:05 - 2: 20 A new family of generalized normal distributions. **Ayman Alzaatreh**, *Austin Peay State University, Clarksville, Tennessee.*

2:20 - 2:35 Development of mathematical model to understand spread of lyme Disease. **Matthew Martin*** and **Samuel N. Jator**, *Austin Peay State University, Tennessee.*

2:35 - 2:50 Finding an optimal baseball batting order. **Stephen J. Robinson**, *Belmont University, Nashville, Tennessee.*

Microbiology
Chair: Jennifer T. Thomas Ph.D.
No oral presentations. Check the list for poster presentations.

* student author

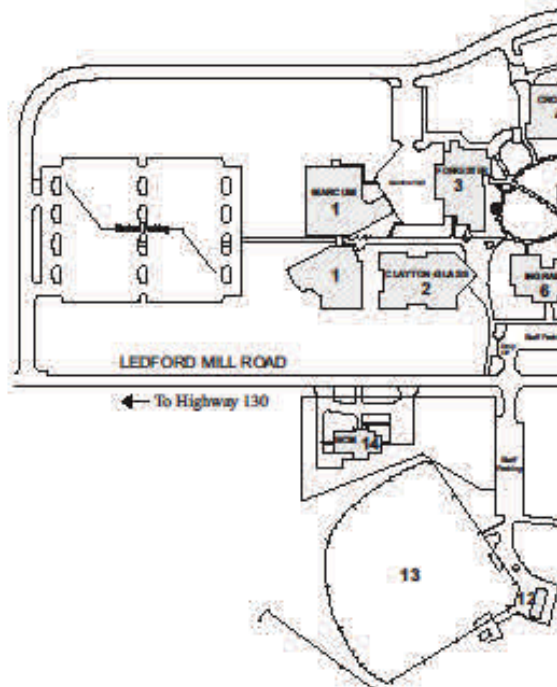
presenting author, if not first author

Microbiology
Chair: Jennifer T. Thomas Ph.D.
No oral presentations. Check the list for
poster presentations.

* student author

presenting author, if not first author

Moore County



- | | |
|---|---------------|
| 1. Marcum Technology Center / Glass Leadership Center | 6. Ingram |
| 2. Clayton-Glass Library / Writing Center | 7. Eoff Hall |
| 3. Forrester Student Center / Tipps Bookstore | 8. Nisbett |
| 4. Crouch Learning Center / Testing Center | 9. Facilities |
| 5. Simon Hall | 10. Equipment |

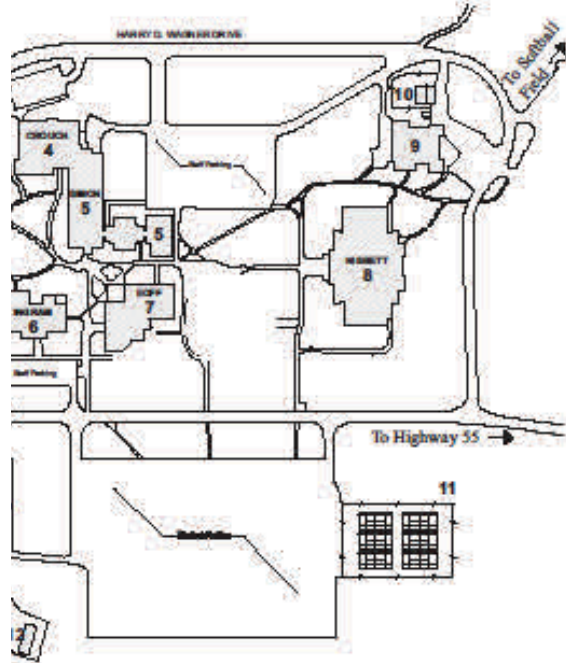
Moore County Campus
 6015 Ledford Mill Road
 Tullahoma, TN 37388
 P.O. Box 8500
 Lynchburg, TN 37352-8500
 931-393-1500

Fayetteville Center
 1802 Winchester Hwy.
 P.O. Box 618
 Fayetteville, TN 37334
 931-438-0028

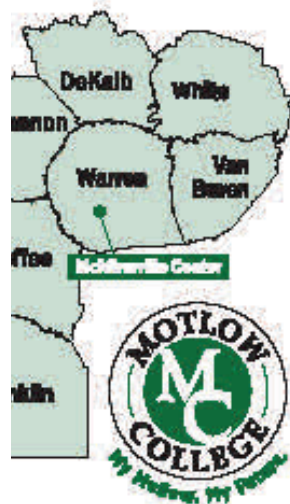


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My Campus Map



- | | |
|------------------------------|---|
| gram Administration | 11. Tennis Courts |
| off Hall / Powers Auditorium | 12. Driver Baseball Complex |
| isbett Center | 13. Baseball Field |
| ilities / Power Building | 14. Baptist Collegiate Ministries (BCM) |
| quipment Storage | |



McMinnville Center
225 Cadillac Lane
McMinnville, TN 37110
931-668-7010

Smyrna Center
5002 Motlow College Blvd.
Smyrna, TN 37167
615-220-7800

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Physics and Astronomy
Chair: Eugene de Silva, Ph.D., FRSA
Marcum Technology Center
Classroom 153
1:00 p.m. – 1:50 p.m.

1:00 – 1:05 Business Meeting

1:05 – 1:20 An Exploratory Study to Improve the Effectiveness of a Front-Kick in Martial Arts.

Gabrielle Baker*, **Eugene de Silva**, and **William Sproat**, *Walters State Community College, Morristown, Tennessee (GB, EDS, WS), Virginia Research Institute (EDS), Tennessee and Institute of Physics, UK/USA Branch (EDS), Tennessee.*

1:20- 1:35 Effectiveness of various de-noising algorithms applied to audio extraction. **Na Zhu**, *Austin Peay State University, Clarksville, Tennessee.*

1:35 - 1:50 Effect of Environment on the Corrosion Behavior of ODS FeCrAl alloy at 1100° C. **E. Essuman**, **E. De Silva**, **S. Dryepondt**, and **B.A Pint**. *Walters State Community College, Morristown, Tennessee and Materials Science (EE and EDS), Technology Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee (EE (previously), SD, and BAP), and Institute of Physics, UK/USA Branch, Tennessee (EDS), and Virginia Research Institute, Tazewell, Tennessee (EE and EDS).*

* student author

presenting author, if not first author

**Science and Math Teaching
Chair: Michelle Rogers
Marcum Technology Center
Classroom 156
1:00 p.m. – 2:05 p.m.**

1:00 – 1:05 Business Meeting

1:05 – 1:20 Effect of a content-based science biology course on the attitudes of pre-service teachers toward teaching and learning science.
Heather L. Barker* and **Cindi Smith-Walters**,
Middle Tennessee State University, Murfreesboro,
Tennessee.

1:20 – 1:35 Understanding the effect of an active-learning strategy in a non-major biology course
Jeffery W. Bonner* and **Michael L. Rutledge**,
Middle Tennessee State University, Murfreesboro,
Tennessee.

1:35 – 1:50 Teaching biology in the prep room: co-curricular science education for student workers.
A. Darlene Panvini, *Belmont University, Nashville, Tennessee.*

1:50 – 2:05 Learning community courses: “linking” science with diverse academic disciplines. **Chris Barton**, *Belmont University, Nashville, Tennessee.*

* student author

presenting author, if not first author

Zoology
Chair: John Hisey, Ph.D.
Simon Hall
Eoff's Hall Powers Auditorium
1:00 p.m. – 2:50 p.m.

1:00 – 1:05 Business Meeting

1:05 – 1:20 Comparisons of capture data for Virginia opossums (*Didelphis virginiana*) and raccoons (*Procyon lotor*) in western Tennessee. **Rebecca M. Bingham***, **John R. Hisey**, **Daniel M. Wolcott**, **Erica H. Vecchio**, and **Michael L. Kennedy**, *The University of Memphis, Memphis, Tennessee.*

1:20 – 1:35 Activity pattern of the eastern woodrat (*Neotoma floridana*) in western Tennessee. **Jessica Davin***, **Lauren A. Madeira***, and **Michael L. Kennedy**, *The University of Memphis, Memphis, Tennessee*

1:35 – 1:50 Species richness in a unique habitat patch (an old barn). **James Gaines***, **Jessica Davin***, **Lauren A. Madeira***, and **Michael L. Kennedy**, *The University of Memphis, Memphis, Tennessee.*

1:50 – 2:05 An assessment of host-tick associations for small mammals in western Tennessee. **Deanna L. Long***, **Rebecca Butler***, **Dave Paulsen***, **Rebecca Trout-Fryxell**, **Allan E. Houston**, and **Michael L. Kennedy**, *The University of Memphis, Memphis, Tennessee (DLL, RB, and MLK), The University of Tennessee, Knoxville, Tennessee (DP, RT), and The Ames Plantation, Grand Junction, Tennessee (AH).*

2:05 – 2:20 Interspecific association between distantly related species, *Odocoileus virginianus* and *Meleagris gallopavo*, in western Tennessee. **Lauren A. Madeira***, **Allan E. Houston**, **Steve W. Stephenson**, and **Michael L. Kennedy**, *The University of Memphis, Memphis, Tennessee (LAM, MLK), The Ames Plantation, Grand Junction, Tennessee (AEH), and Milan Army Ammunition Plant, Milan, Tennessee (SWS).*

* student author

presenting author, if not first author

2:20 – 2:35 Effectiveness of using silent counts and aural stimuli to detect Barred Owls in the area surrounding Reelfoot Lake, Tennessee. **Katrina D.R. Moeller***, **Heather Meadors.** and **H. Dawn Wilkins**, *University of Tennessee at Martin, Martin, Tennessee.*

2:35– 2:50 Scavenging of internal organs of hunter-harvested white-tailed deer (*Odocoileus virginianus*). **Edward O. Zahed***, **Steve W. Stephenson**, and **Michael L. Kennedy**, Department of Biology, The University of Memphis, Memphis, Tennessee (EOZ, MLK), and American Ordnance LLC/Milan Army Ammunition Plant, Milan, Tennessee (SWS).

* student author

presenting author, if not first author

Poster Presentations

Marcum Technology Center Hall

**Set Up: 7:30—8:30 (Poster board & easel
are provided; posters are displayed by
technical section name)**

Display: 8:30 – 9:45

Judging: 8:30 – 9:45

**(Presenters should be near their displays during
the judging to answer any questions.)**

Botany Posters

A comparison of algae and chemical/physical water quality assessments in a spring fed, open field stream in Davidson County, Tennessee. **Ashley R. Allen*** and **C. Steven Murphree**, Belmont University, Nashville, Tennessee.

Diatom biodiversity of Paw Paw Creek, a stream in the Reelfoot Lake watershed, northwest Tennessee. **Michael Beasley***, and **Jennifer Greenwood**, The University of Tennessee at Martin, Martin, Tennessee.

Influence of invasive exotic plants on earthworm diversity. **Megan Swaine*** and **A. Darlene Panvini**, Belmont University, Nashville, Tennessee.

Bryophyte Diversity of Athens Regional Park, McMinn County, Athens, TN. **Summer Cupples***, **Brooke Ward*** and **Allen Moore**. Tennessee Wesleyan College, Athens, Tennessee.

Cell and Molecular Biology Posters

Cin-4, a protein with homology to the catalytic domain of topoisomerase II, is specific to neural development in *C. elegans*. **Nathaniel Owens***, **Amanda Williams**, and **Bonny Millimaki**, Lipscomb University, Nashville, Tennessee.

Integrin-Dependent Endothelial Cell Activation by Synthetic Laminin Peptide QSLDL. **Daniel Hutchison***, **Amanda D. Williams**, **Beth Conway**. Lipscomb University, Department of Biology, Nashville, Tennessee.

Examination of isomers of butanediol as olfactants in *Caenorhabditis elegans*. **Morgan Arrants*** and **Robert Grammer**, Belmont University, Nashville, Tennessee.

Investigating the attraction of *Caenorhabditis elegans* to *Bacillus thuringiensis* through volatile organic compounds. **Fakhry Daowd*** and **Robert Grammer**, Belmont University, Nashville, Tennessee

Innate Versus Learned Response to *Bacillus thuringiensis* and Isoamyl Alcohol as Modeled by Olfactory Chemotaxis Response in *Caenorhabditis elegans*. **Matthew A. Heard*** and **Robert Grammer**, Belmont University, Nashville, Tennessee.

Integrating Chemotaxis and Thermotaxis in *Caenorhabditis Elegans*. **Molly R. Shankles*** and **Robert T. Grammer**, Belmont University, Nashville, Tennessee.

Structural Determinants of Olfactants in Attraction/Repulsion of *C. elegans*. **Morgan Wilters*** and **Robert Grammer**, Belmont University, Nashville, Tennessee.

Topoisomerase 2 isoforms in *Caenorhabditis elegans* **Jacob T Akers***, **Alex J. Croghan***, **Amanda Williams**, **Bonny Millimaki**. Lipscomb University, Nashville, Tennessee.

Exon profile of Human Brain-Derived Neurotrophic Factor (BDNF) in non-cancerous breast epithelium using HMEC and MCF-10A cell lines. **Joel B. McNeil*** and **Jon H. Lowrance**, Lipscomb University, Nashville, Tennessee.

Geology and Geography Poster

Analysis of possible Memphis earthquakes zones and their geological impact on the area. **Elizabeth B. Johnson***, and **Dr. Peter Li**, Tennessee Technological University, Cookeville, Tennessee.

Health and Medical Science Posters

Music makes you lose control: emotional music's role in the facilitation of movement. **Aditya V Karhade***, **Corrie R. Camalier**, *Vanderbilt University, Nashville, Tennessee.*

The Evaluation of Type I Interferons in HPV-Positive Cervical Cancer Cells and the Influence of Infection with *Candida albicans*. **Crystal N. LeBlanc*** and **Jennifer T. Thomas**, *Belmont University, Nashville, Tennessee.*

Evaluation of selected plant extracts for anti-herpes simplex virus-1 activity. **Lauren E. Whaley***, **Megan L. House**, **Matthew E. Wright**, and **Stephen M. Wright**, *Middle Tennessee State University, Murfreesboro, Tennessee (LEW, MEW, SMW), and University of Kentucky, Lexington, Kentucky (MLH).*

Effect of a weight loss intervention in a faith-based environment with overweight-obese African American women: A pilot study. **Terra L. Smith**, **Janelle M. Meeks**, **Robin R. Roach**, and **Ebenezer O. George**, *The University of Memphis, Memphis, Tennessee.*

Chronic exposure to Lexapro and the effects of long-term memory in *Danio rerio*. **Jennifer Myer***, and **Lori McGrew**, *Belmont University, Nashville, Tennessee.*

The Effects of Mu Opioid Receptor Agonists and 5HT-3 Receptor Antagonists on Zebrafish Anxiety Levels **Emily R Mason*** and **Lori McGrew**, *Belmont University, Nashville, Tennessee.*

The Effects of the antidepressant Celexa on memory in Zebrafish. **Allison McCoy*** and **Lori McGrew**, *Belmont University, Nashville, Tennessee.*

CD-10 expression and its role in cancer invasion. **Rammiz Houry***, **Amanda D. Williams**, and **Beth Conway**, *Lipscomb University, Nashville, Tennessee.*

Characterizing the antifungal effects of isovaleric acid. **Danielle Joslin***, **Mark Messmer***, **Zackary Inman** and **Chad Brooks**, *Austin Peay State University, Clarksville, Tennessee.*

RNAi of TOP2 in *Caenorhabditis elegans*. **Meena Halaka***, **Amanda D. Williams**, and **Bonny B Millimaki**, *Lipscomb University, Nashville, Tennessee.*

Investigation of Endothelial Cell Activation by Synthetic Laminin and Collagen Peptides. **Noah Richardson***, **Jake Dowler***, **Amanda D. Williams**, **Beth Conway**, *Lipscomb University, Department of Biology, Nashville, Tennessee.*

Caffeine effects on Interleukin 1 beta secretion by human lymphocytes. **Marcus G. Wild and Margaret M. Whalen**, *Tennessee State University, Nashville, Tennessee.*

Chemistry Posters

Factors affecting the use of organized surfactant assemblies for amplification of fluorescence quenching: Application to quenchiofluorimetric determination of copper (II). **Kuntebommanahalli N. Thimmaiah***, **James L. Sylvester**, **T. Padma**, **Ashish Pagare**, **Mark Montgomery**, **P. Adris**, **P. Grisham**, **Sarah Mattox**, **Ray Cox**, **Darrell Barnes**, **Aamna Balouch**, and **Willie L. Hinze**, *Northwest Mississippi Community College, DeSoto Center, Southaven, Mississippi (KNT, JLS, TP, AP, MM, PA, PG, SM, RC, DB), Department of Chemistry, National Center of Excellence in Analytical Chemistry, University of Sindh, Jamshoro, Pakistan (AB), and Wake Forest University, Winston-Salem, North Carolina (WLH).*

Synthesis of novel *bis*-1,2,4-triazines via telescoped condensation of [1,10]-phenanthroline-2,9-dicarbonitrile with aromatic 1,2-dicarbonyls. **Serene Tai*** and **Jesse D. Carrick**, *Tennessee Technological University, Cookeville, Tennessee.*

Progress towards the enantioselective total synthesis of hamigeromycin b: part I, preparation of the polyketide synthon. **Alexander H. Cleveland***, **John W. Kirby**, and **Jesse D. Carrick**, *Tennessee Technological University, Cookeville, Tennessee.*

New directions in nucleopalladation: efforts toward the synthesis of functionalized silyl-enol ethers from alkenes utilizing a catalytic Wacker type C-H activation reaction. **Ai Lin Chin*** and **Jesse D. Carrick**, *Tennessee Technological University, Cookeville, Tennessee.*

The Surface Enhanced Raman Spectroscopy of Aniline Derivatives. **Chelsey D. Williams-Miles*** & **Dr. Beng Guat Ooi**, *Middle Tennessee State University, Murfreesboro, Tennessee.*

A Novel Approach to the Pseudoatom Expansion. **J. Robert Michael III***, **Tibor Koritsanszky**, *Middle Tennessee State University, Murfreesboro, Tennessee.*

Synthesis and anti-hiv evaluation of six-membered cyclic triphosphates containing three nucleotides. **Yousef A. Beni*** and **Keykavous Parang**, *Tennessee State University, Nashville, Tennessee, and University of Rhode, Kingston, Rhode Island.*

Engineering and Engineering Technology Posters

Security Complications in Electronic Voting. Alyxandria Henry, **Sachin Shetty*** and **S. K. Hargrove**, *Tennessee State University, Nashville, Tennessee.*

Development of an Automated Three Pump System for Microfluidic devices, **Nathan Beeten**, **Frank Block**, **Kevin Seale**, **John Wikswo**, and **Ron Reiserer**, *Vanderbilt University, Nashville Tennessee.*

Transendothelial electrical resistance measurements of the brain-on-a-chip (BoC). **Orlando S. Holett***, **James Cribbs***, **Elizabeth Keller***, **Matthew Rabon***, **Dennis Xuan***, **Loi Hoang**, **John P. Wikswo**, and **Ronald S. Reiserer**, *Vanderbilt University, Nashville, Tennessee.*

Math and Computer Science
No poster presentations. Check the list for oral presentations.

Science and Math Teaching Posters

Getting the dirt on composting and elementary student perception about the process of science. **Kim Cleary Sadler, Jennifer Parrish*, and Katlin O'Connor***, Middle Tennessee State University, Murfreesboro, Tennessee.

Interdisciplinary Collaborative Project at Columbia State. **Joan Cook, Caroline Hanson, Glenn Hudson, Greg Mewbourn, and Mandy Carter-Lowe**, Columbia State Community College, Columbia, Tennessee.

Exploring instructor knowledge of student ideas with the force concept inventory. **Robert A. Haddard*, Brian W. Frank**, Middle Tennessee State University, Murfreesboro, Tennessee.

Girls in STEM: Role Models Matter. **Sierra Shipley*, Lorrie Pruett*, Mehreen Fatima*, Caleb Hough*, Judith Iriarte-Gross**, Middle Tennessee State University, Murfreesboro, Tennessee.

A qualitative study of the citizen science youth internship program at the Great Smoky Mountains Institute at Tremont. **Z.A. Tenenbaum* and Kim Cleary Sadler**, Department of Biology, Middle Tennessee State University, Murfreesboro, Tennessee.

Microbiology Posters

Construction of an *in vivo* gene expression detection system to be used in *Borrelia burgdorferi*, the causative agent of human Lyme disease. **Matthew Martin*** and **Chad Brooks**, *Austin Peay State University, Clarksville, Tennessee.*

Immunoproteasome subunit expression levels in response to IFN- γ . **K. Ali Keith***, **Cameron D. MacQuarrie***, and **Amanda D. Williams**, *Lipscomb University, Nashville, Tennessee.*

Detection of *Batrachochytrium dendrobatidis*, chytrid fungi, in amphibians from lower Pennsylvania. **Taylor Gaston***, **Zackary Inman**, and **Chad Brooks**, *Austin Peay State University, Clarksville, Tennessee.*

Immunoproteasome subunit expression levels in response to TNF- α . **Cameron D. MacQuarrie***, **K. Ali Keith***, and **Amanda D. Williams**, *Lipscomb University, Nashville, Tennessee.*

Physics Posters

Exoplanet Science with OSCAAR at the Cordell-Lorenz Observatory . **Taylor A. Morris***, **Douglas T. Durig**, and **Brett M. Morris***, *Sewanee: The University of the South, Sewanee, Tennessee (TAM, DTD), and University of Washington, Seattle, Washington (BMM).*

Velocity Perturbations Distributions of the Fragments of Iridium 33 Satellite. **Arjun Tan**, **Eshirdanya McGhee*** and **Mostafa Dokhanian**, *Alabama Agricultural and Mechanical University, Normal, Alabama.*

Velocity Perturbations Distributions of the Fragments of Cosmos 2251 Satellite. **Arjun Tan**, **Xavier Watt*** and **Mostafa Dokhanian**, *Alabama Agricultural and Mechanical University, Normal, Alabama.*

Zoology Posters

A comparison of algal and coral species diversity and fish species richness of natural and artificial patch reefs in northern San Salvador, Bahamas. **Jalana Abernathy***, **Chloe Donley***, **Carlos Salinas***, **Ryan Welborn***, **Ann Holmes**, and **Dawn Ford**, *The University of Tennessee, Chattanooga, Chattanooga, Tennessee.*

The effect of temperature on bat activity and bat species diversity at an urban pond in Northwest Tennessee. **Jesse Capps*** and **Nancy Buschhaus**, *University of Tennessee at Martin, Martin, Tennessee.*

The effect of evolutionarily conserved neuromodulator, serotonin, on behavior in *Drosophila melanogaster*. **Kristin Cornwell***, **Zana R. Majeed**, and **Robin L. Cooper**, *University of Kentucky, Lexington, Kentucky (KC, ZRM, RLC), and University of Salahaddin, Erbil, Iraq (ZRM).*

Effect of starvation on heart physiology of *Anopheles gambiae*. **Haley E. Ellison***, **C. Steven Murphree**, and **Julian F. Hillyer**, *Vanderbilt University, Nashville, Tennessee (HE, JH), and Belmont University, Nashville, Tennessee (HE, SM).*

Abundance and biomass of earthworm species in Shelby Bottoms Greenway and Nature Park, Nashville, Tennessee. **Sarah Gilmore*** and **A. Darlene Panvini**, *Belmont University, Nashville, Tennessee.*

A comparative study of wildlife diversity in an old-growth and adjacent secondary forest in Davidson County, Tennessee. **Jonathon K. Loyd*** and **C. Steven Murphree**, *Belmont University, Nashville, Tennessee.*

Community analysis of exotic and native worms at Shelby Bottoms Greenway and Nature Park, Nashville, Tennessee. **Kari C. Morse*** and **A. Darlene Panvini**, *Belmont University, Nashville, Tennessee.*

A comparison of night-flying insect diversity in an old-growth and adjacent secondary forest in Davidson County, Tennessee. **Kristopher R. Ray*** and **C. Steven Murphree**, *Belmont University, Nashville, Tennessee.*

The impact of a stream restoration project on condition factor and food habits of Bluegill Sunfish (*Lepomis macrochirus*). **Tessa N. Stephens* and Tom Blanchard**, *The University of Tennessee at Martin, Martin, Tennessee.*

A comparison of arthropod diversity using pitfall traps in an old-growth and adjacent secondary growth forest in Davidson County, Tennessee. **Sarah E. Spence* and C. Steven Murphree**, *Belmont University, Nashville, Tennessee.*

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