

**100th ANNUAL TECHNICAL MEETING  
OKLAHOMA ACADEMY OF SCIENCE  
SOUTHEASTERN OKLAHOMA STATE UNIVERSITY**

**TABLE OF CONTENTS**

OAS Statement of Purpose and Sponsored Activities .....	Front Cover
Program Summary .....	2
General Information .....	4
Parking	
Registration	
Membership Dues	
Guidelines for Submitting Manuscripts to <i>POAS</i>	
Assistance	
Future Meetings	
Special Notes .....	5
Sectional Meeting Programs	
Biological Sciences - Botany .....	6
Biological Sciences - Zoology .....	8
Geology .....	9
Physical Sciences .....	10
Social Sciences .....	11
Science Education .....	13
Geography .....	14
Fish and Wildlife Conservation .....	16
Microbiology .....	17
Engineering Sciences .....	18
Biochemistry and Biophysics .....	20
Microscopy .....	21
Mathematics, Computer Science, and Statistics .....	22
Environmental Sciences and Planning .....	23
Biomedical Sciences .....	24
Molecular Virology Symposium .....	25
Special Guests .....	26
OAS Presidents Past and Present .....	27
Map of Southeastern OSU .....	Inside Back Cover





## GENERAL INFORMATION

**Name Badges:** Name badges, provided upon registration, must be worn at all times by all individuals attending Academy sectional programs, business meetings, and luncheon. If your badge is not visible, you may be asked to leave by the persons in charge. Lost badges may be replaced at the registration desk upon verification of your registration documents. **All presenters must register and wear an official name badge.**

**Parking:** East and west of Chuckwa St. and lots along 7th St.

**On-site Registration Fees:**

Members - \$20.00
Non-members - \$25.00
Student members - \$10.00
Student non-members - \$15.00
Luncheon tickets (if available) - \$20.00

**2011 and 2012 Dues are Payable:** The OAS registration desk will accept dues payments.

Professional - \$30.00
Graduate/Undergraduate Student - \$20.00
Family - \$35.00
Library - \$40.00
Life - \$500.00

**Guidelines for Paper Publication:** Papers may be published in the *Proceedings of the Oklahoma Academy of Science*, subject to the editorial policies as stated in the most recent issue of the *POAS*, Volume 90, 2010, and the review of the Editorial Board. Abstract publication fee is \$35. *POAS* editor is Kurtis Koll, [kurtisk@cameron.edu](mailto:kurtisk@cameron.edu).

**Executive Director:** Inquiries concerning upcoming OAS activities and membership may be directed to David Bass, OAS Executive Director, Campus Box 90, University of Central Oklahoma, Edmond OK 73034, 405-974-5772, [dbass@uco.edu](mailto:dbass@uco.edu).

### Official Meeting Hotels:

*Best Western Markita Inn*

2401 W. Main St., Durant OK 74701, 580-924-7676

<http://www.bestwesternoklahoma.com/hotels/best-western-markita-inn>

*Hampton Inn and Suites*

3199 Shamrock Lane, Durant OK 74701, 580-924-0300

<http://hamptoninn.hilton.com>

## Molecular Virology Symposium

General Classroom Bldg., room 120

**Moderator: Ulrich Melcher**  
Oklahoma State University

- 1:30 **Fitness and Self-Awareness: Two Unconventional Approaches to Dealing with HIV-1.** John T. West, S. Abigail Smith, Huda Mussa, William Hildebrand, Jon Weidanz. OU Health Science Center, Texas Tech University-Abilene.
- 1:50 **Grass-Infecting Viruses of the Family *Tombusviridae*.** Kay Scheets. Oklahoma State University.
- 2:10 **Dissecting the Mechanisms of Respiratory Syncytial Virus Assembly.** Tom Oomens. OSU Center for Veterinary Science.
- 2:30 **Basic and Applied Plant Virology: Movement and Host Gene Function Studies.** Xiaohua Yang, Chengke Liu, Hema Ramanna, Xin Shun Ding, Richard S. Nelson. S. R. Noble Foundation.
- 2:50 Break
- 3:00 **Molecular Basis of Influenza Virus Evolution.** Gillian Air. OU Health Science Center.
- 3:20 **Presence of Asclepias Asymptomatic Virus in Eastern Oklahoma and the Detection of other New Viruses from Milkweed.** Akhtar Ali, Michelle Miller. University of Tulsa.
- 3:40 **Poxvirus Immune Evasion: Neutralization Mechanisms of Interleukin-18.** Brian Krumm, Junpeng Deng. Oklahoma State University.
- 4:00 **Estimating the Age of RNA Viruses.** Ulrich Melcher, Anthony Stobbe. Oklahoma State University.

**SECTION N: BIOMEDICAL SCIENCES**  
**Biological Sciences Bldg., room 215**

**Moderator: Eric Phelps**  
**Oklahoma Christian University**

- 9:00    **\*GLUT4 Overexpression Prevents Insulin Resistance in Mice Fed a High-Fat Diet.** Caleb D. King, B. Griesel, B. J. Atkinson, A. L. Olson, Oklahoma Christian University, OU Health Sciences Center.
- 9:15    **\*Developing a Method of Continuous Application of Retinoic Acid in the Chick Sclera.** Cody A. Bryant, L. R. Hollaway, W. Lam, J. Powell, J. A. Summers Rada. Oklahoma Christian University, OU Health Sciences Center.
- 9:30    Break
- 9:45    **Mapping Genomic Libraries of Drill Monkey Cytomegalovirus DNA to Assemble the Genome.** Earl L. Blewett, B. J. Reddig. OSU Center for Health Sciences.
- 11:00    **Section N Business Meeting**

**Poster**

**\*Performance on 8-ft Up-and-Go Test Improved in Elderly after Use of Dynavec MD Machine.** J. W. Barber. Oral Roberts University.

**No Smoking:** Please, no smoking in any of the buildings on the campus. Also, food and drink are not permitted in any meeting room. Thank you.

**Refreshments:** Food and drink will be available during registration and breaks.

**Assistance or Information:** Look for individuals with OAS badges or host ribbons. These are faculty and staff assigned to assist you.

**SPECIAL NOTES**

Special thanks are extended to the site coordinator Tim Patton, Associate Professor of Biological Sciences at Southeastern Oklahoma State University, who coordinated all aspects of the meeting, including room arrangements, multimedia, and the luncheon.

Doug McMillan, SOSU Vice President of Academic Outreach and Project Development, generously provided financial support for the meeting.

**Upcoming Meetings:**

- 2012    Oklahoma Junior Academy of Science Meeting, March 8-10  
East Central University
- 2012    Spring Field Meeting, April 20-22 (tentative), Sequoyah State Park
- 2012    Fall Field Meeting, TBA
- 2012    Annual Technical Meeting, Nov. 2 (tentative), University of Central Oklahoma

**SECTION A: BIOLOGICAL SCIENCES - BOTANY**  
**General Classroom Bldg., room 120**

**Moderator: Brooke Stabler**  
**University of Central Oklahoma**

- 8:30 **\*Determining Dry Matter Intake of Annual and Perennial Cool-Season Grasses Harvested as High Moisture Hay and Fed to Lambs.** Cameron Tuthill, Bill Phillips. Redlands Community College.
- 8:45 **Study Site and Publication Biases in North American Floristics.** M.W. Palmer. Oklahoma State University.
- 9:00 **Forest Diversity in Five Forested Areas along Lake Texoma, Oklahoma, and Texas.** Erica A. Corbett, Penny Blanton, Kirsten Talbot. Southeastern Oklahoma State University.
- 9:15 **The Epiphytic Bryophyte Community of a Long Unburned Cross Timbers Forest.** Channing Richardson. Oklahoma State University.
- 9:30 Break
- 9:45 **Influence of Meteorological Conditions on the Aerobiology of *Juniperus ashei* Pollen in Sonora, Texas.** C.E. Bogdanoff. Oral Roberts University.
- 10:00 **Homologs of Genes Underlying Trichome Production Identified in the *Asclepias syriaca* Genome.** Shakuntala Fathepure, Mark Fishbein. Oklahoma State University.
- 10:15 **\*Marker Development for Species Level Phylogenetics of Milkweeds (*Asclepias*): Nuclear *cosII* Genes in the Sonoran Desert Clade.** Ben Haack, Larinda Holland, Chelsea Pfarr, Drew Richardson, Angela Rein, Mark Fishbein. Oklahoma State University.
- 10:30 **A Peek at the Milkweed Genome (*Asclepias*, Apocynaceae).** Mark Fishbein, Shannon Straub, Richard Cronn, Aaron Liston. Oklahoma State University, Oregon State University.

\*Undergraduate Competition

**SECTION M: ENVIRONMENTAL SCIENCES AND PLANNING**  
**Biological Sciences Bldg., room 209**

**Moderator: Daniel M. McInnes**  
**East Central University**

- 8:45 **\*Contrasting Current Women Leaders in Landscape Architecture: Mia Leher vs. Martha Schwartz.** Kayla McKinley. Oklahoma State University.
- 9:00 **\*Andropogon Associates: Creators of Sustainable Landscape Architecture.** Lance Shaw. Oklahoma State University.
- 9:15 **\*Contrasting Development of Urban Landscape Design in St. Louis and Boston.** Mickella Sjoquist. Oklahoma State University.
- 9:30 Break
- 9:45 **Sense of Place: Comparison of Selected French Lorie Valley Chateaux.** Charles L. Leider. Oklahoma State University.
- 11:00 **Section M Business Meeting**

**Poster**

- \*Characteristics of a Small Stream During Severe Drought Conditions.** A. Williams, M. Avard. Southeastern Oklahoma State University.

\*Undergraduate Competition

**SECTION L: MATHEMATICS, COMPUTER SCIENCE,  
AND STATISTICS**  
**Biological Sciences Bldg., room 205**

**Moderator: Clay Carley**  
**East Central University**

- 10:00 **Games On! Game Engines Aren't Just for Games.** Clay B. Carley III. East Central University.
- 10:15 **\*The Mathematics of Hyperthermia as a Medical Treatment: Option for Tumors.** Ashley Cardwell. East Central University.
- 10:30 **QR Codes.** Bill Walker. East Central University.
- 10:45 **Is This What Modern Mathematics Looks Like ???** Anita Walker. East Central University
- 11:00 **Section L Business Meeting**

**SECTION A: BIOLOGICAL SCIENCES - BOTANY**  
**(cont.)**

- 10:45 **Flora of Oklahoma Project.** Flora Oklahoma Editorial Committee.
- 11:00 **Section Business Meeting - GCB 120**  
(combined with Zoology)

**Poster**

**Effect of Jasmonic Acid on Biomass Accumulation and Enzyme Activity in Switchgrass.** Jocelyn Bidlack, Paul Olson, Carmen Cowo, Erin Ralstin, Robert Dinger, Jim Bidlack. University of Central Oklahoma.

\*Undergraduate Competition

**SECTION A: BIOLOGICAL SCIENCES - ZOOLOGY**  
**General Classroom Bldg., room 118**

**Moderator: Mia Revels**  
**Northeastern State University**

- 9:00 **A New Geographic Distribution Record for the Horsehair Worm, *Paragordius varius* (Nematomorpha: Gordiida) from Oklahoma.** Chris T. McAllister, Matthew G. Bolek, Ben Hanelt. Eastern Oklahoma State College, Oklahoma State University, University of New Mexico.
- 9:15 **Brain Size of Male and Female Little Brown Skinks (*Scincella lateralis*).** Mark Paulissen. Northeastern State University.
- 9:30 Break
- 9:45 **Effects of Wastewater Treatment on Mosquito Abundance and Survival.** Valerie A. O'Brien, Monika Ghimire, Michael H. Reiskind. Oklahoma State University.
- 11:00 **Section A Business Meeting - GCB 120**  
(combined with Botany)

**SECTION K: MICROSCOPY**  
**Biological Science Bldg., room 207**

**Section Chair: Scott Russell**  
**University of Oklahoma**

11:00 **Section K Business Meeting**

**Poster**

**\*Imaging Unstained, Unfixed Ocular Tissues of *Gallus gallus domesticus* with Confocal Microscopy and Multiphoton-Microscopy.** J. T. Powell, J. A. Summers Rada. Oral Roberts University, OU Health Sciences Center.

\*Undergraduate Competition

**SECTION J: BIOCHEMISTRY AND BIOPHYSICS**  
**Biological Sciences Bldg., room 204**

**Section Chair: Rob Burnap**  
**Oklahoma State University**

- 9:45 **A Study of Virus Type and Biomass Correlation in *Panicum virgatum*.** JulieAnna Rohde, Ulrich Melcher. Northeastern Oklahoma A&M College, Oklahoma State University.
- 10:00 **\*Examining the Role of RRP42 in Mitotic Checkpoint Function.** Alyssa Casteel, D. Crawford. Oklahoma Christian University, OU Health Science Center.
- 10:15 **\*Genetic and Functional Assessment of the Role of the rs13431652-A and rs573225-A Alleles in the *G6PC2* Promoter that Strongly Associate with Impaired Fasting Glucose Levels.** N. Conley, N. Bouatia-Naji, R. O'Brien. Oklahoma Christian University, Vanderbilt University School of Medicine.
- 10:30 **\*Development and Characterization of Transition Metal Complexes as CXCR4 Antagonists.** Candace Baker, Tim Hubin. Redlands Community College, Southwestern Oklahoma State University.
- 10:45 **\*The Effectiveness of Luminol in the Detection of Degraded Hemoglobin Samples.** Peter Zakes. Oral Roberts University.
- 11:00 **Section J Business Meeting**

**Posters**

**Genetic Diversity in the Coat Protein Gene of Papaya Ringspot Virus-W Isolates from Multiple Hosts in Oklahoma.** Osama Abdalla, Akhtar Ali. University of Tulsa.

**A Genome-Wide Screen for Host Factors Interacting with TMV Replicase.** Xiaohua Yang, Bethany Bishop, Min Zhu, Richard S. Nelson. S. R. Noble Foundation.

\*Undergraduate Competition

**SECTION B: GEOLOGY**  
**Science Bldg., room 102**

**Moderator: Jeff Dorell**  
**Southwestern Oklahoma State University**

- 9:00 **Afghanistan: Its Mineral Resources and Challenges.** Kurtis J. Koll. Cameron University.
- 9:15 **\*Distribution and Occurrence of Karst Features in the Arbuckle-Mountains of South Central Oklahoma.** Kevin Blackwood. East Central University.
- 11:00 **Section B Business Meeting**

\*Undergraduate Competition

**SECTION C: PHYSICAL SCIENCES**  
**Science Bldg., room 102**

**Moderator: Weldon Wilson**  
**University of Central Oklahoma**

- 10:00 **Identifying Problems with Replicating Acoustic and Optical Attenuation Coefficient Experiments.** K.A. Williams. East Central University
- 10:15 **Thermodynamics of a Single Particle System.** W. J. Wilson. University of Central Oklahoma
- 11:00 **Section C Business Meeting**

**SECTION I: ENGINEERING SCIENCES**  
**(cont.)**

- 10:45 **\*A New Approach to a Power Wheelchair for Children.** Y. Jia, S. Bennett, M. Payne, B. Jassemnejad. University of Central Oklahoma.
- 11:00 **\*\*Recent Research Trends in Biophotonics.** R. Odongo, A. Abu-Abed. University of Central Oklahoma.
- 11:15 **Section I Business Meeting**

\*Undergraduate Competition  
\*\*Graduate Competition

SECTION I: ENGINEERING SCIENCES  
Science Bldg., room 117

Moderator: Morshed Khandaker  
University of Central Oklahoma

- 8:30 \***Design and Optimization of a Modular System for Biofluids Research: Tissue Scaffolding.** S. S. Peno, G. Armstrong, E. Judd, W. Espinoza, E. Lemley. University of Central Oklahoma.
- 8:45 \***Liquid Crystal Based Shear Stress Sensor.** A. Spivey, E. Lemley, A. Abu-Abed. University of Central Oklahoma.
- 9:00 \*\***Experimental Measurements of Bone and Cement Interface Properties.** Y. Li, M. Khandaker. University of Central Oklahoma.
- 9:15 \***Experimental Measurements of Microchannels and Millichannels.** A. Henderson, E. Lemley. University of Central Oklahoma.
- 9:30 Break
- 9:45 \*\***Wireless Power System for Implantable Devices.** S. Shahadat, B. Jassemnejad. University of Central Oklahoma.
- 10:00 \***Design and Optimization of a Modular System for Biofluids Research: Renal Artery Aneurysms.** S. S. Peno, G. Armstrong, E. Judd, W. Espinoza, E. Lemley. University of Central Oklahoma.
- 10:15 \***Energy Losses in Microjunction Chains.** A. J. Muvadgah, E. Lemley. University of Central Oklahoma.
- 10:30 \***Design, Fabrication and Mechanical Characterization of Polyethylene Glycol Diacrylate (PEGDA) for Tissue Engineering Applications.** A. Orock, S. Tarantini, J. White, M. Khandaker, O. Yasar. University of Central Oklahoma.

\*Undergraduate Competition  
\*\*Graduate Competition

SECTION D: SOCIAL SCIENCES  
Biological Sciences Bldg, room 213

Moderator: Robert Mather  
University of Central Oklahoma

- 9:00 \*\***The Effect of Personal Feedback, Frustration and Competence on Implicit Self- Esteem.** James Rose, Robert D. Mather. University of Central Oklahoma.
- 9:15 \*\***Chicken Soup for the (Online Dater's) Soul? Differences between Couples Meeting Online and Offline.** P.B. Mayfield, Alicia Limke. University of Central Oklahoma.
- 9:30 Break
- 9:45 \*\***Effects of Art on Perceived Stress Level in Community Mental Health Employees.** Shelly G. Oliver, Alicia Limke, Phillip R. Budd. Southern Nazarene University, University of Central Oklahoma.
- 10:00 \***Life History Theory and Attachment to Parents, Partners, and God.** Jeni C. Presley, Alicia Limke. University of Central Oklahoma.
- 11:00 **Section D Business Meeting**

Posters listed on following page.

\*Undergraduate Competition  
\*\*Graduate Competition

SECTION D: SOCIAL SCIENCES  
(cont.)

Posters

**Hiding Emotions: Differences with Inhibiting Emotional Facial Expressions Between Sexes.** Kiersten Durning. University of Central Oklahoma.

**Driven to Distraction: An Observational Study of Drivers in Tulsa.** Amber D. Canady, Sarah M. Gray, Jennifer L. Kisamore. University of Oklahoma-Tulsa.

**Measuring a Toddler's Cognitive Development Using Eye Movement Patterns II.** Erin McReynolds, Katie Jones, Cidnee Ray, Robert D. Mather. University of Central Oklahoma.

**Physiological Reactivity to Different Types of Humor.** Micah Highfill, Caleb Lack. University of Central Oklahoma.

**Narrative Realism in the Media and its Effects on Perceptions of Romance.** Sarah Kimbrell, Alicia Limke. University of Central Oklahoma.

SECTION H: MICROBIOLOGY  
Biological Sciences Bldg., Room 203

Moderator: Diane Dixon  
Southeastern Oklahoma State University

9:00 **\*Inhibition of Fungal Hyphal Growth by NSAIDs and Elicited Stress Proteins.** Skylar Farrill, Claire Chandler, Carina Clemente, Charlie Biles. East Central University.

9:15 **\*Light Inhibition of *Chaetomium globosum* Perithecia Synthesis.** Ankita Thapa, Charlie Biles. East Central University.

9:30 Break

9:45 **\*The Detection of Panton-Valentine Leukocidin (PVL) Gene in CA-MRSA among Oral Roberts University Community.** Philipa Osafo-Ampadu, Joel Gaikwad. Oral Roberts University.

10:00 **\*\*Detection of Plant Pathogens using Massively Parallel Sequencing.** Anthony Stobbe, Ulrich Melcher, William Schneider. Oklahoma State University, USDA ARS.

10:15 **A New Species of *Caryospora* (Apicomplexa: Eimeriidae) from the Flathead Snake, *Tantilla gracilis* (Reptilia: Ophidia), from Southeastern Oklahoma.** Chris T. McAllister, Zachary P. Roehrs, R. Scott Seville. Eastern Oklahoma State College, University of Wyoming.

11:00 **Section H Business Meeting**

Poster

**Strong Hydrophilicity and Acidity are Limited to Halophilic Proteomes.** Douglas W. Raiford, Ratnakar Deole, Wouter D. Hoff. University of Montana, Northeastern State University-Broken Arrow, Oklahoma State University.

\*Undergraduate Competition

\*\*Graduate Competition

**SECTION G: FISH AND WILDLIFE CONSERVATION**  
**General Classroom Bldg., room 118**

**Moderator: Richard Butler**  
**McLoud High School**

- 10:30    **\*Movement and Overwinter Survival of Captive-Raised Juvenile American Alligators in Southeastern Oklahoma.** Stacia Harrison, Tim Patton. Northeastern State University.
- 10:45    **Jaquar Reproduction in a Managed Tropical Pine Forest in Belize: Preliminary Report from 2010.** Erik Terdal, Ronaldi Martinez. Northeastern State University-Broken Arrow, Mountain Pine Ridge Forest Reserve-Cayo, Belize.
- 11:00    **Section G Business Meeting**

**SECTION E: SCIENCE EDUCATION**  
**Biological Sciences Bldg., room 201**

**Moderator: Liz Bergey**  
**University of Oklahoma**

- 9:00    **Transpiration by Trees and Energy Savings for Consumers: A Botany Lab Project.** Stanley Rice. Southeastern Oklahoma State University.
- 9:15    **Improving the Nature IQ of High School Students.** Bruce Smith. McLoud High School.
- 9:30    Break
- 9:45    *Panel Discussion: On-Line Submission of Research Manuscripts.* Sheila Strawn, Nicole Sump-Crethar. University of Central Oklahoma.
- 11:00    **Section E Business Meeting**

\*Undergraduate Competition

**SECTION F: GEOGRAPHY**  
**General Classroom Bldg., room 103**

**Moderator: Dr. Brad Watkins**  
**University of Central Oklahoma**

- 8:30 **Barns of Northwest Oklahoma.** Brad A. Bays. Oklahoma State University.
- 8:45 **Creating a Geodatabase of Hawaiian Waterfalls.** Gregory Plumb. East Central University.
- 9:00 **\*Deriving Population Exposure Fatality Rate Estimates for Tornado Outbreaks Using Geographic Information Systems (GIS).** Amber Cannon. East Central University.
- 9:15 **That's Right We're Not from Texas: The Search for an Oklahoma Identity.** Robert Newcomer. East Central University.
- 9:30 Break
- 9:45 **Poster Presentations**
- 11:00 **Section F Business Meeting**
- 2:00 **Poster Presentations (cont.)**

\*Undergraduate Competition

**SECTION F: GEOGRAPHY**  
**(cont.)**

**Posters**

- \*Streamlining Inventory of Right of Way for Electric Lines.** Toby Thompson. East Central University.
- \*Conflation of the Transportation Database within the Chickasaw Nation.** Christopher Cox. East Central University.
- \*Establishing a Control Point Network using GPS.** Carl Williams. East Central University.
- \*ALLIE Aid: Nepal Inundation Analysis.** Matthew Gobble. East Central University.
- \*Field Collection and Mapping of Peoples Electric Cooperative Power Poles.** Trevin Vass. East Central University.
- \*Redistricting the Board Seats of McAlester Public Schools.** Michael Barnes. East Central University.
- \*Transferring AutoCad Utility Files to ArcMap.** Brittney Burton. East Central University.
- \*Stormwater Mapping in Branson, Missouri.** Cody Hibbard. East Central University.
- \*Improving a Street Database for E911 Applications.** Brian Hutchison. East Central University.
- \*Applying Geo-Techniques to the Natural Gas Industry.** Doug West. East Central University.

\*Undergraduate Competition