

OFFICIAL PROGRAM  
OF THE  
92ND ANNUAL TECHNICAL MEETING

**OKLAHOMA  
ACADEMY OF SCIENCE**

Affiliated with the  
American Association for the Advancement of Science



FRIDAY  
November 7, 2003  
UNIVERSITY OF SCIENCE & ARTS OF OKLAHOMA  
Chickasha, Oklahoma

# OKLAHOMA ACADEMY OF SCIENCE

Established in 1909

"The purpose of the Academy shall be to stimulate scientific research; to promote fraternal relationship among those engaged in scientific work in Oklahoma; to diffuse among the citizens of the State a knowledge of the various disciplines of science; and to investigate and publicize the human, natural and educational resources of the State."

## Article I, Section 2 OAS Constitution

### Activities of the Academy

- Publishes the *Proceedings of the Oklahoma Academy of Science*, *Annals of the Oklahoma Academy of Science* and *Transactions of the Oklahoma Junior Academy of Science*.
- Hosts the Annual Technical Meeting for the presentation of scientific papers by both professional and collegiate scientists.
- Sponsors symposia on selected topics of timely and vital interest to the State and Nation.
- Arranges spring and fall field meetings in different biogeographic regions of the State.
- Coordinates and promotes the activities of the Oklahoma Junior Academy of Science.
- Supervises the activities of the Oklahoma Collegiate Academy of Science.
- Provides research grants and scholarship awards to outstanding proposals submitted by secondary school and undergraduate college students.
- Provides scientific consultation services to governmental and private agencies throughout the State.

# NINETY-SECOND ANNUAL TECHNICAL MEETING OKLAHOMA ACADEMY OF SCIENCE UNIVERSITY OF SCIENCE & ARTS OF OKLAHOMA

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**NINETY-SECOND ANNUAL TECHNICAL MEETING  
OKLAHOMA ACADEMY OF SCIENCE  
UNIVERSITY OF SCIENCE & ARTS OF OKLAHOMA**

**PROGRAM SUMMARY**

**Thursday, 6 November 2003**  
Executive Council Dinner and Meeting

Regents Room  
Student Center (Union)

**Friday, 7 November 2003**  
Registration for Technical Meeting

1<sup>st</sup> floor hallways  
Austin Hall

8:00 a.m. - 11:00 a.m.	<b>Concurrent Scientific Paper Sessions</b>	
Section A	Biological Sciences - Botany	Davis Hall
Section A	Biological Sciences - Zoology (I)	Davis Hall
Section A	Biological Sciences - Zoology (II)	Room 226
Section B	Geology (meeting with Geography)	Room 203
Section B	Physical Sciences	Room 201
Section C	Social Sciences	Room 202
Section D	Science Education	Room 203
Section E	Geography (meeting with Geology)	Room 104A
Section F	Fish and Wildlife Conservation	Room 201
Section G	Microbiology	Room 224
Section H	Engineering Sciences	Room 209
Section I	Biochemistry and Biophysics	Room 101
Section J	Microscopy	Room 242
Section K	Mathematics & Computer Science	Room 206
Section L	Environmental Sciences & Planning	Room 124
Section M	Biomedical Sciences	Room 107
Section N		Room 244

11:00 a.m. - 11:20 a.m. **Section Meetings**  
Election of Section Vice-Chair.

Meeting Rooms Above

11:30 a.m. - 12:00 p.m. **All Academy Business Meeting**  
All OAS members are encouraged to attend.  
Visitors are welcome.

Room 224  
Davis Hall

12 noon - 1:30 p.m. **OAS BANQUET**  
Admission by ticket only.  
Tickets available at registration.

Ballroom  
Student Center (Union)

**Cynthia N. Brown, Ed.D.**  
**Oklahoma State Regents for Higher Education**  
**"Preparing All of Oklahoma's Students for Post-Secondary Lives"**  
1:45 p.m. - 5:00 p.m. Concurrent Scientific Paper Sessions

**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 banquet. 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:** OAS parking at USAO will be clearly marked. Parking is free to all visitors on the meeting day.

**On-site Registration Fees:** Members - \$15.00; Non-members - \$20.00; Students \$10.00  
Banquet tickets (if available) \$15.00

**2003 and 2004 Dues are Payable:** The OAS registration desk will accept dues payments.  
Regular - \$25.00; Graduate Student - \$15.00; Family - \$30.00  
Collegiate Student - \$10.00; Sustaining - \$100.00; Life - \$500.00

**Academy Business Meeting:** The 92nd Annual Business Meeting of the Oklahoma Academy of Science will be held in Davis Hall 224 at 11:30 a.m.

**Academy and Award Banquet:** This gala affair will begin at noon Friday in the Student Center Ballroom. There will be a special speaker and award presentations.

**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 *POAS*, Volume 82 and review of the Editorial Board. OAS members are charged \$30-\$35 per page and non-members are charged \$90-\$105 per page.

**Executive Secretary-Treasurer:** Inquiries concerning upcoming OAS activities and membership may be directed to David Bass, OAS Executive Secretary-Treasurer, Campus Box 90, University of Central Oklahoma, Edmond OK 73034, 405-974-5772, dbass@ucok.edu.

**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 served only in designated areas adjacent to the meeting rooms from 8:00 - 10:30 a.m. and from 2:00 - 3:30 p.m.

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

**Upcoming Meetings:**  
2004 Spring Field Meeting      April  
2004 Fall Field Meeting      September  
2004 Annual Technical Meeting      November  
hosted by University of Central Oklahoma



SECTION A: BIOLOGICAL SCIENCES – BOTANY  
205 Davis Hall

Morning Session – Moderator: Rahmona A. Thompson,  
East Central University

- 8:30 Male Cottonwoods Open Their Flowers Before Female Cottonwoods. Stanley Rice, Southeastern Oklahoma State University.
- 8:45 Plant Geography of the Red River Basin. Wayne Elisens, Bruce Hoagland, George Diggs, The University of Oklahoma, Austin College.
- 9:00 \*Why is the Seaside Alder Rare? Shade Tolerance in *Alnus maritima* and *Alnus serrulata*. Dawn Morningstar, Southeastern Oklahoma State University.
- 9:15 Ecology of *Castanea pumila* var. *ozarkensis* in the Ozark Plateau of Oklahoma. Bruce Hoagland, Amy Butthod, University of Oklahoma.
- 9:30 Differences in Environmental Conditions Underneath *Juniperus virginiana* Trees in Central Oklahoma. Jerad Linneman, Oklahoma State University.
- 9:45 Break
- 10:00 An Exploratory Analysis of the Variance in Species Composition of a Tallgrass Prairie Explained by Soil Phosphorus Fractionation. Joshua Brokaw, Michael Palmer, Oklahoma State University.
- 10:15 Status of Soil Nutrients Following Bioremediation of Petroleum Contaminated Tallgrass Prairie Soils. Joshua Brokaw, Oklahoma State University.
- 10:30 Effects of Military Training on Grasslands at Fort Sill, Oklahoma. Sherry A. Leis, David M. Engle, David M. Leslie, Jr., Jeffrey S. Fehmi, Justin Kreitzer, Eric Webb, Oklahoma State University.
- 10:45 Effects of Fire Ants (*Solenopsis invicta*) on Germination and Growth of Peanut (*Arachis hypogaea*) Seedlings. Roger Nelson, Stanley Rice, J.T. Vogt, Southeastern Oklahoma State University.
- 11:15 Section A Business Meeting
- 11:30 Academy Business Meeting, 224 Davis Hall
- 12:00 Academy Banquet, Ballroom, Student Center

\*Collegiate Academy, Undergraduate Competition

SECTION A: BIOLOGICAL SCIENCES – BOTANY  
205 Davis Hall

Afternoon Session – Moderator: Gloria Caddell,  
University of Central Oklahoma

- 2:00 Preliminary Phylogenetic Analysis of Morphological Variation in *Phlox* Section *Divarticata* (Polemoniaceae). Patty B. Smith, St. Gregory's University.
- 2:15 Evolution of Self-fertilization in the Inky Cap Mushrooms. Jim Johnson, Cameron University.
- 2:30 \*Plant Diversity on Contrasting Soil Types in Texas County, Oklahoma. Katy Levings, University of Oklahoma.
- 2:45 Characterization of Diatoms from the Salt Plains Microbial Observatory, Oklahoma. Andrew Potter, William J. Henley, Andrea E. Kirkwood, Oklahoma State University.
- 3:00 Pyramiding Disease Resistance Genes in Cotton: How Does it Alter the Resistance Response? Melanie B. Bayles, Margaret Essenberg, Margaret L. Pierce, Laval M. Verhalen, Oklahoma State University.
- 3:15 \*Tracking the Resplendent Quetzal: Conclusion of a 12-Year Long Study of the Phenology of the Lauraceae Trees Conducted in the San Gerardo de Dota of the Talamanca Mountains, Costa Rica. Heath Hagy, Southern Nazarene University.
- 3:30 Flora of Oklahoma Project. Flora Oklahoma Editorial Committee.
- Posters:
- \*Lycopen Extraction from Freeze-Dried Tomatoes. Dawn Morningstar, Southeastern Oklahoma State University.
- \*Evaluating Mini-Melons for Lycopen Content. Bobbie Ceriotti, Southeastern Oklahoma State University.
- \*Screening for High Lycopen Watermelon Varieties. Missy O'Hern, Southeastern Oklahoma State University.
- Describing Oklahoma's Botanical Diversity – The Flora of Oklahoma Project: Writing a Flora by Committee and in Stages. S.C. Barber, P. Buck, W. J. Elisens, J.R. Estes, P. Folley, L.K. Magrath, C.E.S. Taylor, R.A. Thompson, R.J. Tyrl.

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SECTION A: BIOLOGICAL SCIENCES – ZOOLOGY (I)  
226 Davis Hall

Morning Session – Moderator: David McNeely,  
Langston University

- 8:30 A Survey on Coccidian Parasites (Apicomplexa: Eimeriidae) from Select Bats (Chiroptera) of Arkansas, Mississippi, Oklahoma, and Texas. Chris. T. McAllister, Steve J. Upton, Zachary D. Ramsey, Texas A&M University, Kansas State University.
- 8:45 Helminth Parasites of the Grotto Salamander, *Typhlorhion speleaus* (Caudata: Plethodontidae) from Northern Arkansas and Southern Missouri. Chris T. McAllister, Charles R. Bursey, Stanley E. Trauth, Texas A&M University, Pennsylvania State University, Arkansas State University.
- 9:00 \*Gastrointestinal Helminths of Rafinesque's Big-Eared Bat, *Corynorhinus rafinesquii* (Chiroptera: Vespertilionidae) from Southwestern Arkansas. Angela D. Burns, Texas A&M University.
- 9:15 Paleontology of the Monarch Mill Formation at Eastgate, Churchill County, Nevada. Kent Smith, OSU Center for Health Sciences.
- 9:30 \*New Geographic Distribution Record for *Theatops posticus* (Chilopoda: Scolopendromorpha: Cryptopidae) from Northwestern Oklahoma. Michelle L. Cameron, Texas A&M University.
- 9:45 \*Preliminary Results of the 2003 Ouachita Mountains Bat Blitz, West-Central Arkansas. Zachary D. Ramsey, Texas A&M University.
- 10:00 Break
- 10:15 \*Post-Deafferentation Changes in the Olfactory Nerve Layer of Zebrafish. Andrew Barker, Oklahoma Christian University.
- 10:30 Developing Indices of Biological Integrity for Wetlands in Central Oklahoma. Dena Hartzell, Joseph Bidwell, Craig Davis, Oklahoma State University.
- 10:45 \*Influence of a Fish Introduction on the Sex Ratio and Size of Damselfly Larvae of the Eralagma complex. Nick Rasmussen, Oklahoma State University.
- 11:00 Mesocarnivore Abundance in Oak Forest Patches: A Comparison of Scent Station and Live-Trapping Techniques. Michael Disney, Eric Helligren, Craig Davis, David Leslie, Oklahoma State University.

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SECTION A: BIOLOGICAL SCIENCES – ZOOLOGY (II)  
203 Davis Hall

Morning Session – Moderator:

- 8:30 Thermoregulatory Effectiveness of Collared Lizards. Jerry F. Husak, Kristopher B. Karsten, Oklahoma State University.
- 8:45 Population Status and Seasonal Effects on Density in Chameleons of Southwest Madagascar. Kristopher B. Karsten, Laza Andriamandimbiantsoa, Christopher J. Raxworthy, Daniel Rakotoniravony, Stanley F. Fox, Oklahoma State University.
- 9:00 Ecology of the Texas Horned Lizard at Tinker AFB: Some Preliminary Findings. Joe C. Hacker, Eric C. Helligren, Stanley F. Fox, Ray Moody, Oklahoma State University.
- 9:15 \*The Effects of Body Symmetry on Social Behavior in Collared Lizards. Matthew N. Rouse, Oklahoma State University.
- 9:30 Digestive Efficiency in Two Sympatric Species of Box Turtles, *Terrapene carolina* and *T. ornata* on Pure Diets of Fruit. Matt Stone, Oklahoma State University.
- 9:45 Female Osteoporosis as an Adaptive Strategy in the Texas Tortoise (*Gopherus berlandieri*): Calcium Homeostasis and Reproduction. Matt Stone, Oklahoma State University.
- 10:00 Break
- 10:15 Physiological Effects of Incubation Temperature in the African Spurred Tortoise. Day B. Ligon, Oklahoma State University.
- 10:30 \*Variability in the Scleral Ossicles of Cryptodiran Turtles. Teri Overton, East Central University.
- 10:45 Effects of Embryonic Sodium Perchlorate Exposure on the Western Fence Lizard. Melinda Redick, Dave Janz, Todd Anderson, Larry Talent, Oklahoma State University.
- 11:00 Bioaccumulation of Trace Metals and Associated Effects in Fresh Water Turtle Eggs. LeeAnne Tome-Moeller, Joseph R. Bidwell, Oklahoma State University.

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**SECTION B: GEOLOGY**  
(Meeting jointly with Geography Section)  
201 Davis Hall

**Morning Session – Moderator: Robert Newcomer**  
East Central University

- 9:30 **Stratigraphy and Composition of Turbidite Deposits, Jackfork Group, Eastern Oklahoma.** Gloria A. Romano, Roger M. Slatt, University of Oklahoma.
- 10:10 **Using Stone in Structures as a Teaching Aid. Examples from the NSU Campus and Nearby Buildings.** D. Fay Simms, John J. Simms, Northeastern State University.
- 11:00 Sections B & F Joint Business Meeting
- 11:30 Academy Business Meeting, 224 Davis Hall
- 12:00 Academy Banquet, Ballroom, Student Center
- Posters:**

- Structural Geometry of Thrust Faulting in the Potato Hills Area of the Ouachita Mountains, Southeastern Oklahoma.** Gulcekin Kaya, Oklahoma State University.
- Geometry of Thrust Faulting in Southwestern Harthorne Gas Field, Southeastern Oklahoma.** Osman Kaldirim, Jr., Ibrahim Cemen, Oklahoma State University.
- Post Remediation Characterization of LNAPL Using Direct Push Electric Resistivity Tomography.** Ivy Graham, Todd Halihan, Stanley Paxton, Matthew Riley, Oklahoma State University.
- Structural Geometry of Thrust Faulting in the Harthorne Area of the Frontal Ouachitas, Arkoma Basin, Oklahoma.** Steve Hadaway, Oklahoma State University.
- Structural Geometry and Evaluation of Thrust Faulting in the Damon and Wilburton Quadrangles in Latimer County, Southeastern Oklahoma.** Marlene Collins, Oklahoma State University.
- \*Watershed Restoration Feasibility for the Washita Battlefield National Historic Site.** Chris Ennen, Oklahoma State University.
- Stratigraphy, Timing, and Rock Properties of Lower Skinner Valley FILL Sandstones.** Aaron Siemers, Jim Puckette, Oklahoma State University.
- Geometry and Tectonic Significance of the Bascayir Detachment, Buyuk Menderes Graben, Western Turkey.** Ogunz Gogus, Ibrahim Cemen, E.I. Carlos, Veyssel Isik, Guroi Seyitoglu, Oklahoma State University.

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**SECTION C: PHYSICAL SCIENCES**  
202 Austin Hall

**Morning Session – Moderator: Myron Cherry,**  
Northeastern State University

- 9:15 **Geometric Algebra and the Normal Equations of Linear Regression.** James Meyer, St. Gregory's University.
- 9:30 **\*Synthesis, Fabrication, Characterization, and Applications of Polymer Thin Films and Materials.** Matt Meredith, Oklahoma Christian University.
- 9:45 **Development of Charge to Mass Ratio Microdetector for Future Mars Mission.** Albert Chen, Merle Alexander, Carlos Calle, Oklahoma Baptist University, Baylor University, NASA Kennedy Space Center.
- 10:00 **\*The Production of Nanocrystalline Titanium Dioxide.** Jared Kennedy, Oklahoma Christian University.
- 10:15 **\*Synthesis and Characterization of a Novel Water Soluble Phosphine: 3,7-Diacetyl-1,3,7-triaza-5-phosphabicyclononane (DAPT-A).** Justin Kamplam, Texas A&M University, Oklahoma Christian University.
- 10:30 **\*Titanium Dioxide as a Photocatalyst.** Daniel Harris, Oklahoma Christian University.
- 10:45 **\*Absorption of H<sub>2</sub> on Single Wall, Closed End Carbon Nanotubes.** Devin Holmes, Oklahoma Baptist University.
- 11:00 Section C Business Meeting
- 11:30 Academy Business Meeting, 224 Davis Hall
- 12:00 Academy Banquet, Ballroom, Student Center

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**SECTION D: SOCIAL SCIENCES**  
**203 Davis Hall**

**Afternoon Session – Moderator: Stanley N. Bursten,**  
**Cameron University**

- 1:45 **\*Using Linguistic Analysis to Detect Deception.** Amanda Brown, Julie Santiago, Trisha Oliver, Cameron University.
- 2:05 **\*Reliance on an Imperfect Automated Decision Aid.** Paul Clark, Jan Shields, Mary Dzindolet, Hall Beck, Cameron University.
- 2:25 **The Relationships between Language Use and Brainstorming Performance among Distributed and Face-to-Face Groups.** Jennifer Batka, Emily Beadles, Mary Dzindolet, Cameron University.
- 2:45 **\*The Effects of Communication Medium on the Relationship between Linguistic Style and Performance on a Mixed-Motive Task.** Cassandra Brenner, Victor Wong, Cameron University.

**SECTION E: SCIENCE EDUCATION**  
**104A Gary Hall**

**Morning Session – Moderator: Kathi A. McDowell**  
**Northeastern State University - Broken Arrow**

- 10:00 **Tropical Biology Classes for Northeastern State University Students in Belizean Watersheds.** Erik Terdal, Mike Wilds, Northeastern State University.
- 10:20 **Density and Porosity of Wood in Trees of Different Successional Status: A Botany Lab Project.** Stanley Rice, Southeastern Oklahoma State University.
- 10:40 **Field Research Experiences Improve Secondary Science Teacher Attitudes Toward Science Inquiry.** Brad Ludrick, Doug Wood, Angie Mumholland, Southeastern Oklahoma State University.
- 11:00 **Section E Business Meeting**
- 11:30 **Academy Business Meeting, 224 Davis Hall**
- 12:00 **Academy Banquet, Ballroom, Student Center**

**Posters:**

**Secondary Science Teachers and Biological Field Research in Southeastern Oklahoma.** Bill Smith, Donola Battles, Brad Ludrick, Doug Wood, Pittsburg High School.

**\*Colorful Chemical Demonstrations on the Role of Liquid-Liquid Phase-Transfer Catalysts.** Anil Jose, University of Science & Arts of Oklahoma.

**Colorful Chemical Demonstrations on the Role of Liquid-Liquid Phase-Transfer Catalysts.** Roch C.Y. King, Louis Susanto, Kerensa Rothe, Anil Jose, University of Science & Arts of Oklahoma.

**SECTION F: GEOGRAPHY**  
(Meeting jointly with Geology Section)  
201 Davis Hall

**Morning Session – Moderator: Robert Newcomer**  
East Central University

- 9:50 A Geographic Analysis of the Condition Characteristics of the National Wildlife Refuges of the Western United States. Ed Pugh, University of Central Oklahoma.
- 10:30 Construction of Animated Isarithmic Maps. Yoshinori Ishitsuka, East Central University.
- 11:00 Sections B & F Joint Business Meeting
- 11:30 Academy Business Meeting, 224 Davis Hall
- 12:00 Academy Banquet, Ballroom, Student Center

**Afternoon Session – Moderator: Ed Pugh**  
University of Central Oklahoma

- 1:45 Teaching Student Critical Thinking: Strategies in Human Geography. Robert Newcomer, East Central University.
- 2:05 Making Maps Interactive with HTML Code. Teena Lowry, East Central University.
- 2:25 From ITV to WebCT: A Lesson in Technological Advancements. Mark Miccozzi, East Central University.
- 2:45 Verbal Command and Control of CRT Map Displays. Gregory Plumb, East Central University.

**Posters:**

- Mapping Soft Drinks by Any Other Name. Matthew Campbell, East Central University.
- Agglomeration of Data Geocoded by Zip Code for Choropleth Mapping at a County Level. Gregory Plumb, East Central University.
- GIS Applications for the Lake of the Arbuckles Watershed. Dillon Payne, East Central University.
- Mapping Iraqi Education Collegiate Students Outside and Within the Discipline of Cartography. Stan Drannon, Ed Ayres, Matthew Campbell, Edward Jeffrey, Gregory Plumb, East Central University.

**SECTION G: FISH AND WILDLIFE CONSERVATION**  
224 Davis Hall

**Morning Session – Moderator: Mia Revels,**  
Northeastern State University

- 8:00 Genetic Structure of the Contact Area of Two Species of *Gambusia*, *G. heterochir* and *G. affinis*. Stacey Davis, Ronald Van Den Bussche, Oklahoma State University.
- 8:15 Genetic Structure of the Channel Catfish Complex (*Genus Ictalurus*) in New Mexico and Texas. Sherri McClure, Anthony Echelle, Ron Van Den Bussche, Oklahoma State University.
- 8:30 Larval Striped Bass Distribution and Abundance in Lake Texoma. Jason J. Schaffter, Dana L. Winkelman, Oklahoma State University.
- 8:45 Over-Winter Survival and Condition of Age-0 Striped Bass in Lake Texoma. Matt Mauck, Dana Winkelman, Oklahoma State University.

- 9:00 Sampling Considerations for Assessing Prairie River Fish Assemblages. Nicholas J. Utrup, William L. Fisher, Oklahoma State University.

**Break**

- 9:15 Measuring Stream Habitats with a Global Positioning System: Can It Replace the Tape Measure? Daniel C. Dauwalter, William L. Fisher, Kevin Belt, Oklahoma Cooperative Fish & Wildlife Research Unit, Oklahoma State University.

- 9:45 The Status and Distribution of an Endangered Frog in Argentinean Patagonia, *Atelognathus patagonicus*. Stanley Fox, Joy Yoshioka, Maria Elena Cuello, Carmen Ubeda, Oklahoma State University, Universidad Nacional del Comahue.

- 10:00 Survival and Home Ranges of Texas Horned Lizards Under Different Burning Regimes. Beth Moeller, Eric Helgren, Richard Kazmaier, Chip Ruthven, Oklahoma State University.

- 10:15 \*Species List and Habitat Associations of Snakes at the J.T. Nickel Preserve in Northeastern Oklahoma. Robert C. Jadin, Oklahoma Cooperative Fish & Wildlife Research Unit, Oklahoma State University.

- 10:30 Unraveling the Mystery of Sex and Dispersal: Conservation Genetics of the Endangered Ozark Big-Eared Bat, *Corynorhinus townsendii ingens*. Sarah Weyandt, Ronald Van Den Bussche, David Leslie, Jr., Meredith Hamilton, Oklahoma Cooperative Fish & Wildlife Research Unit, Oklahoma State University.

- 10:45 The Status of Cave Dwelling Bats, Particularly Western Big-Eared Bats (*Corynorhinus townsendii pallascens*) in Western Oklahoma. Stephanie J. Smith, David M. Leslie, Jr., Oklahoma Cooperative Fish & Wildlife Research Unit, Oklahoma State University.



- 11:00 Section G Business Meeting  
 11:30 Academy Business Meeting, 224 Davis Hall  
 12:00 Academy Banquet, Ballroom, Student Center

#### SECTION G: FISH AND WILDLIFE CONSERVATION 224 Davis Hall

Afternoon Session - Moderator: Doug Wood,  
 Southeastern Oklahoma State University

- 1:45 **Abundance and Density of Swift Fox (*Vulpes velox*) in Oklahoma.** Marc Criffeld, Kimberly Freel, Eric C. Helligren, David M. Leslie, Jr., Oklahoma Cooperative Fish & Wildlife Research Unit, Oklahoma State University.
- 2:00 **Response of Rocky Mountain Elk (*Cervus elaphus*) to Wind-Power Development in Southwestern Oklahoma.** David Walter, David M. Leslie, Jr., Oklahoma Cooperative Fish & Wildlife Research Unit, Oklahoma State University.
- 2:15 **The Role of Heterogeneity in Grassland Bird Productivity at the Tallgrass Prairie Preserve, Oklahoma: A First Year Look.** Roy Churchwell, Craig A. Davis, Sam D. Fuhlendorf, David M. Engle, Oklahoma State University.
- 2:30 **\*Comparison of Quetzal Nesting Trees in the San Gerardo de Dota Valley.** Josh Richardson, Southern Nazarene University.

#### Posters:

- Response of Grassland Birds to High-Diversity and Low-Diversity Restoration Plantings on Upland Grasslands in the Rainwater Basin Region, Nebraska.** Jill M. Sporrang, Craig A. Davis, Oklahoma State University.
- Can Mountain Bikers and Golden-Cheeked Warblers Coexist?** Allen E. Graber, Craig A. Davis, David M. Leslie, Jr., Oklahoma State University.
- \*Movement and Home Range of Ornate and Three-Toed Box Turtles in Bryan County, Oklahoma.** Anson Sutterfield, Tim Patton, Doug Wood, Southeastern Oklahoma State University.
- \*Isolation Due to Sedimentation Affects Fish Distribution in Widow Moore Creek Cove, Lake Texoma, Oklahoma.** Jesse Bahn, Anson Sutterfield, Tim Patton, Southeastern Oklahoma State University.

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#### SECTION H: MICROBIOLOGY 209 Austin Hall

Morning Session - Moderator: Alexander C.K. Lai,  
 Oklahoma State University

- 8:30 **Identification of Determinants Mediating Osmoadaptation and Peptide Resistance in *Pseudomonas aeruginosa*.** Arden Aspedon, Southwestern Oklahoma State University.
- 8:45 **\*Cecal Ligation and Puncture Model in Wild Type vs. PPAR $\alpha$  Deficient Mice.** Heather Duncan, Oklahoma Christian University.
- 9:00 **Benzene Degradation under Hypersaline Conditions.** Carla Nicholson, Oklahoma State University.
- 9:15 **Biodegradation of Vegetable Oil by Commercial Cultures of Bacteria.** Louis A. Susanto, David P. Nagle, University of Oklahoma.
- 9:30 **ChIA: A Recent Addition to the *Dicystotellium discoideum* family of Characterized G Protein-Coupled Receptors.** Brent S. Raisley, Jeffrey A. Hadwiger, Oklahoma State University.
- 9:45 **\*Isolation of Avian Influenza Virus.** Dustin J. Colegrove, Oklahoma State University.
- 10:00 **Reptilian Dendritic Cells: The Cornerstone for Development of a Reptile Model of Immunity.** David Melson, Oklahoma State University.

- 11:00 Section H Business Meeting  
 11:30 Academy Business Meeting, 224 Davis Hall  
 12:00 Academy Banquet, Ballroom, Student Center

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**SECTION I: ENGINEERING SCIENCES**  
101 Austin Hall

**Morning Session – Moderator: Wei R. Chen,  
University of Central Oklahoma**

- 9:30 **Laser-Tissue Welding and Wound Healing.** Wei R. Chen, Sunan Shivakoti, Sang Won Jeong, University of Central Oklahoma.
- 9:50 **Laser Applications in Cancer Treatment.** Tiffany Thoren, Sang Won Jeong, Kirill Andrienko, Wei R. Chen, University of Central Oklahoma.
- 10:10 **\*Effects of Relative Refractive Index on Optical Trapping.** Cassandra Hoyt, University of Central Oklahoma.
- 10:30 **\*Measurement of Thermal Properties of Biological Materials.** Jared Crochet, University of Central Oklahoma.
- 10:50 **\*Flow Visualization of a Rotating Fluid.** Andrea Rubio, David Martin, University of Central Oklahoma.
- 11:10 **Section I Business Meeting**
- 11:30 **Academy Business Meeting, 224 Davis Hall**
- 12:00 **Academy Banquet, Ballroom, Student Center**

**SECTION J: BIOCHEMISTRY & BIOPHYSICS**  
242 Davis Hall

**Morning Session – Moderator: Richard Essenberg,  
Oklahoma State University**

- 9:30 **Solution Structure and NH Exchange Studies of the MutE Enzyme Complexed to Mg+2 and 8-oxo-dGMP, a Tightly Bound Product.** Michael Masiah, Vibhor Sarawat, Hugo Azurmendi, Albert Mdivan, Oklahoma State University.
- 9:45 **Role of Helices and Loops in the Ability of Apolipoprotein-III to Interact with Native Lipoproteins and Form Discoidal Lipoprotein Complexes.** Palaniappan S. Chetty, Estela L. Arrese, Veronica Rodriguez, Jose L. Soulagés, Oklahoma State University.
- 10:00 **Interaction with Capsid Protein Alters RNA Structure and the Pathway for *in vitro* Assembly of Cowpea Chlorotic Mottle Virus.** Jennifer M. Johnson, Deborah W. Willis, Mark J. Young, Adam Ziomnick, OU Health Sciences Center.
- 10:15 **Hepatitis B Virus (HBV) Capsid Assembly is Enhanced by Naturally Occurring Mutation F97L.** Pablo Ceres, Stephen Stray, Adam Ziomnick, OU Health Sciences Center.
- 10:30 **Cross Talk Between Cholesterol and Triacylglyceride Mobilization Pathways in 3T3L-1 Adipose Cells During Beta-Adrenergic Activation.** Philip B. Verghese, Estela L. Arrese, Jose L. Soulagés, Oklahoma State University.
- 10:45 **\*The Regulation of Matrix Metalloproteinase-2 in Vascular Smooth Muscle Cells.** Tamara Vesely, Oklahoma Christian University.
- 11:00 **Section J Business Meeting**
- 11:30 **Academy Business Meeting, 224 Davis Hall**
- 12:00 **Academy Banquet, Ballroom, Student Center**

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**SECTION J: BIOCHEMISTRY & BIOPHYSICS**  
**242 Davis Hall**

Afternoon Session – Moderator: Adam Zlotnick,  
 Oklahoma University Health Sciences Center

- 1:45 **Real-Time Quantitative PCR Arrays for Gamma Herpesviruses.** Dirk Dittmer,  
 OU Health Sciences Center.
- 2:00 **\*Mammary Gland Function is Dependent on the Expression of Smooth Muscle  
 Alpha-Actin.** Becca Brown, Oklahoma Christian University.
- 2:15 **Defective Angiogenesis and Fatal Embryonic Hemorrhage in Mice Lacking Core  
 l-derived O-glycans.** Michael McDaniel, Lijun Xia, Tongzhong Ju, Andrew  
 Westmuckett, Guangyu An, Lactamioara Ivanciu, Florea Lupu, Richard D.  
 Cummings, Rodger P. McEver, Oklahoma Medical Research Foundation.
- 2:30 **\*Interactions of an *Arabidopsis* Tetratricopeptide Repeat-Containing Protein  
 Kinase.** Rebecca S. May, Oklahoma City University.
- 2:45 **Exploring the Function of Intrastrand Sequence Symmetry in Bacterial  
 Genomes.** Andy Au Yeung, Ulrich Melcher, Oklahoma State University.

**SECTION K: MICROSCOPY**  
**206 Austin Hall**

Morning Session – Moderator: Paige Johnson,  
 University of Tulsa

- 9:00 **Scanning Electron Microscopy in Identifying the Microstructural Development  
 of Stabilized Aggregate Bases.** Najj Khoury, University of Oklahoma.
- 9:15 **Characterization of Ordered Arrays of Nano-Rings.** Preston Larson, University of  
 Oklahoma.
- 9:30 **Use of Transmission Electron Microscopy to Characterize the Catalytic  
 Production of Single Walled Carbon Nanotubes.** Jose E. Herrera, Leandro  
 Balzano, and Daniel E. Resasco, University of Oklahoma.
- 9:45 **An STM and TEM Study of Atomically-Flat Single-Crystal Gold Nanoparticles  
 on Indium Tin Oxide.** D. Dahanayaka, S. Hossain, S. Ross, and L.A. Bunn,  
 University of Oklahoma.
- 10:00 **Break**
- 10:15 **Keynote Address: Crystallographic Analysis in the Scanning Electron  
 Microscope.** Alwyn Eades, Lehigh University, MSA President.
- 11:15 **Nanomaterials as Barrier Sheets for Corrosion Resistance of Aluminum Alloy.**  
 John Ostrander, Oklahoma State University.
- 11:30 **Temperature-Dependence of the Quality of Silicon Nanowires Produced over a  
 Titania-Supported Gold Catalyst.** Nataphan Sakulchaicharon and Daniel E.  
 Resasco, University of Oklahoma.
- 11:45 **OMS Business Meeting**
- 12:00 **Academy Banquet, Ballroom, Student Center**  
 Ugly Bug Judging – Be sure to vote!

**SECTION K: MICROSCOPY**  
206 Austin Hall

**Afternoon Session – Moderator: Arif Mamedov,**  
Nomadics, Inc.

- 1:00 **The Marriage of Microscopy and Micro-Spectroscopy.** Christopher Sasso, Senior Sales Engineer, SensLR Technologies, Hilliard, Ohio.
- 2:00 **\*An Investigation of Locard's Exchange Principle with Respect to Palynologic Trace Analysis within Urban Locations of South Tulsa, Oklahoma.** Tara M. Romasanta, Oral Roberts University.
- 2:15 **Microscopy as an Analysis Tool for Fossil Vertebrate Studies.** M. Amy Sheldon, Oklahoma Panhandle State University.
- 2:30 **Break**
- 2:45 **Study of Attachment and Biofilm Development of the Gram Negative Bacterium *Pseudomonas aeruginosa*.** Matthew Ramsey, University of Oklahoma.
- 3:00 **\*Temporal-Spatial Study of FGF-1 and Syntaxin in the Prenatal Rat Retina.** Amber Doyle, Oral Roberts University.
- 3:15 **Ultrastructural Variability and Function of Testudine Vascular Canals.** Ken Andrews, East Central University.
- 3:30 **The Utility of Green Fluorescent Protein (GFP) for Visualizing Cytoskeletal and Organelle Dynamics in Living Plant Cells.** Elison Blancafort, S. R. Noble Foundation, Ardmore, Oklahoma.

**SECTION L: MATHEMATICS & COMPUTER SCIENCE**  
124 Davis Hall

**Morning Session – Moderator: Art Kamierczak,**  
Oklahoma City University

- 10:10 **Applications Tracking System for the International Students Office.** Marat Khalitov, A. Kazmierczak, Oklahoma City University.
- 10:30 **Pithy Python: Accessing the Web.** Clay Carley, East Central University.
- 10:50 **Finding Divisors: A Teaching Note.** Anita Walker, East Central University.
- 11:10 **Virtual Machines in the Classroom.** Bill Walker, East Central University.
- 11:30 **Academy Business Meeting.** 224 Davis Hall
- 12:00 **Academy Banquet.** Ballroom, Student Center



**SECTION M: ENVIRONMENTAL SCIENCES & PLANNING**  
107 Davis Hall

**Morning Session - Moderator: Charles Crittall,  
East Central University**

- 8:30 **\*Roberto Burle Marx: South America's Leading Landscape Architect.** Izzwan Ibrahim, Oklahoma State University.
- 8:45 **\*James C. Rose: Rebel Landscape Architect.** Crystal Powers, Oklahoma State University.
- 9:00 **\*John Simond: Landscape Architect Personified.** William Hilson, Oklahoma State University.
- 9:15 **\*Laurie Olin: Premier Modern Landscape Architect.** Bradley Jay Shropshire, Oklahoma State University.
- 9:30 **\*Michael Van Valkenburgh: The Water Artist.** Jason Wilke, Oklahoma State University.
- 9:45 **\*George Hargreaves: Current "King of the Hill" of Landscape Architecture.** Richard Powell, Oklahoma State University.
- 10:00 **Break**
- 10:15 **\*Charian Heath West: A Therapeutic Experience.** Sean Rohbacker, Oklahoma State University.
- 10:30 **\*Assessing Methods of Managing Manistee Lake.** Kathleen M. Richards, Oral Roberts University.
- 10:45 **Luis Barragan: Mexico's Leading Landscape Architect.** Charles Leider, Oklahoma State University.
- 11:00 **Section M business meeting**
- 11:30 **Academy Business Meeting, 224 Davis Hall**
- 12:00 **Academy Banquet, Ballroom, Student Center**

\*Collegiate Academy, Undergraduate Competition

**SECTION N: BIOMEDICAL SCIENCES**  
244 Davis Hall

**Morning Session - Moderator: David Wallace,  
OSU Center for Health Sciences**

- 9:00 **\*Effect of Stereotaxic Delivery of Corticosterone to the Amygdala on Visceral and Somatic Perception.** Kale Dittmeyer, Oklahoma Christian University.
- 9:15 **\*Characterization of the Association of Epstein-Barr Virus and Lupus.** Iloro Akpan, C.J. Guthridge, J.A. James, J.M. Guthridge, J.B. Harley, Cameron University, Oklahoma Medical Research Foundation.
- 9:30 **\*An Investigation of Chromosome Elongation.** Diana Schwartz, Oral Roberts University.
- 9:45 **\*Effects of Cardiovascular Deconditioning on the Neurohumoral Response to Blood Loss.** Alicia Haught, Oklahoma Christian University.
- 10:15 **\*Project Dive Exploration.** Mathew Holzman, Oral Roberts University.
- 10:30 **Detection of West Nile Virus in Native Oklahoma Mosquitoes.** Johnnie Gilpen, Elizabeth Bergey, James Papin, Dirk Dittmer, Kristy Bradley, OU Health Sciences Center.
- 10:45 **\*Smooth Muscle  $\alpha$ -Actin Expression is Important in Regulating Cell Migration and Force Generation in Myoblasts.** Courtney M. Karner, East Central University.
- 11:00 **Section N Business Meeting**
- 11:30 **Academy Business Meeting, 224 Davis Hall**
- 12:00 **Academy Banquet, Ballroom, Student Center**

**Posters:**

**\*Surrogate Light Chain Selection of Immunoglobulin Heavy Chains in B Cell Development.** Tahsin Ahmed, G.R. Kolar, P.C. Wilson, Cameron University, Oklahoma Medical Research Foundation, OU Health Sciences Center.

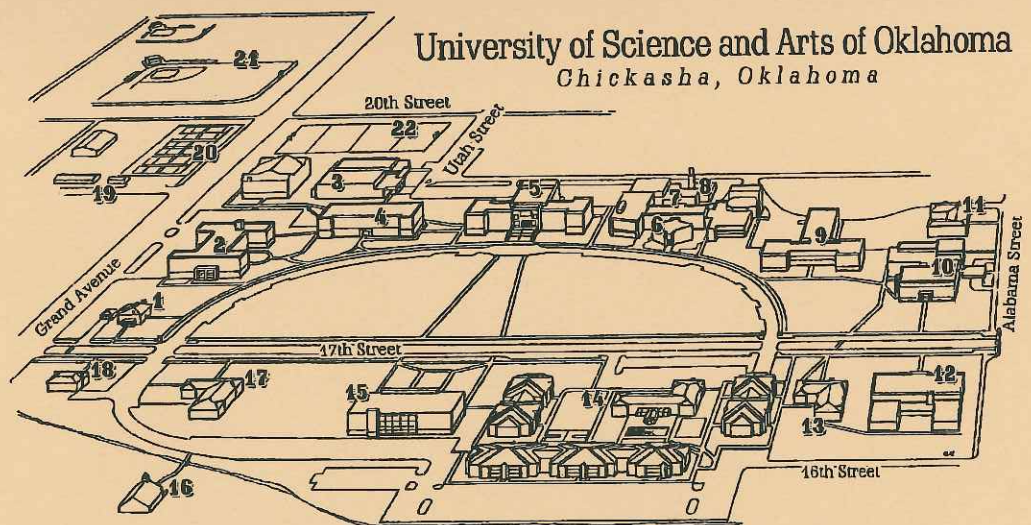
**\*MAP Kinase p42/44 is Necessary for Strain-Induced Proliferation in Lung Epithelial Cells.** Robert Fulton, P.R. Chess, Cameron University, University of Rochester School of Medicine & Dentistry.

\*Collegiate Academy, Undergraduate Competition

# OKLAHOMA ACADEMY OF SCIENCE PRESIDENTS

1910	H. L. Lane, OU	1954	A. N. Murray, TU
1911	D. W. Othem, Ok. City	1955	R. E. Olson, OU
1912	S. W. Reaves, OU	1956	A. M. Stebler, OAMC
1913	C. W. Shannon, OU	1957	D. E. Howell, OAMC
1914	No meeting	1958	G. J. Goodman, OU
1915	C. W. Shannon, OU	1959	Elmer Lucas, OU
1916	C. N. Gould, OU	1960	P. E. Smith, OUMS
1917	L. C. Ralford, ISU	1961	E. M. Hodnett, OSU
1918	No meeting	1962	H. B. Barclay, TU
1919	No meeting	1963	G. A. Moore, OSU
1920	M. M. Wickham, Norman	1964	A. D. Bouck, NOHC
1921	A. F. Reiter, PU	1965	J. E. Webster, OSU
1922	J. B. Thiburn, Ok. City	1966	C. R. Williams, PU
1923	R. O. Whitten, OAMC	1967	C. D. Riggs, OU
1924	S. Weidman, OU	1968	E. A. Reynolds, SWSC
1925	(spring) C. E. Sanborn	1969	L. V. Scott, OUHSC
1926	(fall) H. L. Dodge, OU	1970	C. C. Carpenter, OU
1927	I. H. Gould, OAMC	1971	Paul Buck, TU
1928	C. N. Gould, OU	1972	W. A. Carter, ECSU
1929	O. M. Smith, OAMC	1973	C. J. Mankin, OU
1930	A. Richards, OU	1974	N. N. Durham, OSU
1931	Leroy Long, Ok. City	1975	Barbara Shirley, TU
1932	A. O. Weese, OU	1976	G. W. Todd, OSU
1933	Herbert Patterson, OAMC	1977	D. E. Kizer, Noble Found
1934	J. E. Knowles, PU	1978	George Odell, OSU
1935	F. G. Brooks, OCU	1979	Richard Couch, ORU
1936	C. E. Decker, OU	1980	Gary Wolgast, SWSU
1937	H. J. Harper, OAMC	1981	Elroy Rice, OU
1938	B. D. Barclay, TU	1982	Everett Grigsby, NSU
1939	C. M. Perry, OU	1983	Jack Sokatch, OUHSC
1940	H. D. Chase, TU	1984	Mary Whitmore, OU
1941	G. L. Cross, OU	1985	Jeff Black, OBU
1942	R. W. Jones, OAMC	1986	Jerry Wilham, OSU
1943	H. I. Featherly, OAMC	1987	Manford K. Patterson, Noble Found
1944	O. F. Evans, OU	1988	Mary P. Carpenter, OU
1945	V. G. Heller, OAMC	1989-1990	Kenneth E. Conway, OSU
1946	J. R. Nielsen, OU	1991-1992	James K. McPherson, OSU
1947	O. C. Derner, OAMC	1993	James R. Estes, OU
1948	J. T. Self, OU	1994-1995	Jack D. Tyler, CU
1949	L. S. McLeod, TU	1996-1997	Connie Taylor, SEOSU
1950	J. C. Shirley, PU	1998-1999	Ronald J. Tyrl, OSU
1951	Howard Taylor, OCW	2000-2001	David Bass, UCO
1952	H. W. Larsh, OU	2002-2003	Crang Clifford, NSU
1953	V. B. Mommeth, OAMC		
	S. P. Massie, LU		





University of Science and Arts of Oklahoma  
Chickasha, Oklahoma

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|-----------------------------------|-------------------------------------|
| 1 President's Home                | 12 Gary Hall (Educ., Deaf Ed.)      |
| 2 Willard Hall                    | 13 Canning Hall                     |
| 3 Physical Education Complex      | 14 Lawson Court Residence Community |
| 4 Austin Hall (Physical Sciences) | 15 Nash Library                     |
| 5 Trout Hall (Admin., Business)   | 16 Alumni Chapel                    |
| 6 Davis Hall (Fine Arts)          | 17 Robertson Hall                   |
| 7 Steam Plant                     | 18 Home Management House            |
| 8 Art Annex                       | 19 Physical Plant/Maintenance       |
| 9 Sparks Residence Hall           | 20 Tennis Courts                    |
| 10 Student Center                 | 21 Bill Smith Ballpark              |
| 11 Addams Hall                    | 22 Soccer Field                     |