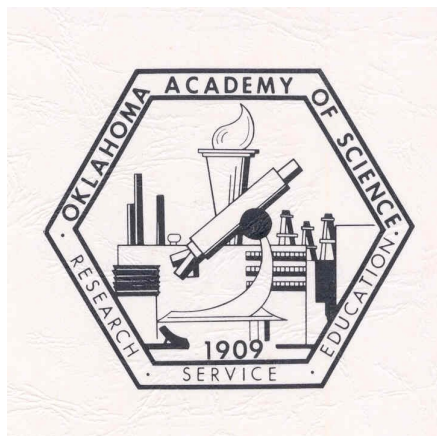


OFFICIAL PROGRAM
OF THE
102nd ANNUAL TECHNICAL MEETING

***OKLAHOMA
ACADEMY OF SCIENCE***

Affiliated with the
American Association for the Advancement of Science



FRIDAY
November 8, 2013

Cameron University
Lawton, 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 1, 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.

**102nd ANNUAL TECHNICAL MEETING
OKLAHOMA ACADEMY OF SCIENCE
CAMERON UNIVERSITY**

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**102nd ANNUAL TECHNICAL MEETING
OKLAHOMA ACADEMY OF SCIENCE
CAMERON UNIVERSITY**

PROGRAM SUMMARY

Thursday, 7 November 2013

6:30 p.m. Executive Council Dinner/Meeting Buddy Green Room
2nd floor
McMahon Centennial Complex

Friday, 8 November 2013

7:30 a.m. Registration for Technical Meeting Atrium
- 10:00 a.m. Sciences Complex

8:30 a.m. Concurrent Scientific Paper Sessions
- 2:30 p.m. Sciences Complex (SC)
McMahon Centennial Complex (MCC)

Section A Biological Sciences – Botany SC 101
Section A Biological Sciences – Zoology SC 102
Section B Geology SC 200
Section C Physical Sciences SC 103
Section D Social Sciences SC 140B
Section E Science Communication and Education SC 147
Section F Geography SC 204
Section G Applied Ecology and Conservation SC 201
Section H Microbiology MCC 211
Section I Engineering Sciences SC 104
Section J Biochemistry and Biophysics SC 205
Section K Microscopy SC 140B
Section L Mathematics SC 105
Section M Environmental Sciences MCC 212
Section N Biomedical Sciences MCC 204

WICHITA MOUNTAINS SYMPOSIUM SC 100

Posters (9-11 am) 1st floor hallway, Sciences Complex
Vendors Atrium, Sciences Complex
Refreshments Atrium, Sciences Complex

GENERAL INFORMATION

Name Badges: Name badges, provided upon registration, must be worn at all times by all individuals attending Academy section 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: Three large parking lots are near the Science Complex.

On-site Registration Fees:

Members - \$20.00
Non-members - \$25.00
Student members - \$10.00
Student non-members - \$15.00
Luncheon tickets (if available) - \$18.00

2013 and 2014 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 Abstract Publication: Abstracts 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 92, 2012, and the review of the Editorial Board. Specific formatting instructions for abstracts may be found at <http://biosurvey.ou.edu/oas/publications.html>. Abstract publication fee is \$35. *POAS* editor is Dr. Mostafa S. Elshahed, mostafa@okstate.edu.

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

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

Official Meeting Hotels:*Fairfield Inn and Suites*

201 SE 7th St., Lawton, OK 73501; 580-248-5500

<http://www.marriott.com/hotels/travel/lawfi-fairfield-inn-and-suites-lawton/>

La Quinta Inn and Suites

1408 NW 40th St., Lawton, OK 73505; 580-355-6800

<http://www.lq.com/lq/properties/propertyProfile.do?propId=6172>

Springhill Suites

3 SE Interstate Dr., Lawton, OK 73501; 580-248-8500

<http://www.marriott.com/hotels/travel/lawsh-springhill-suites-lawton/>

SPECIAL THANKS

John McArthur, President of Cameron University, for providing his support.
Ronna Vanderslice, Vice President for Academic Affairs, for funding the Executive Committee dinner.

Terry Conley, Dean of the School of Science and Technology, for providing the refreshments and for coordinating all the arrangements for today's meeting.

Students, Faculty, and Staff of the School of Science and Technology for their volunteer service.

UPCOMING MEETINGS

- 2014 Oklahoma Junior Academy of Science Awards, Oklahoma State Science and Engineering Fair, March 6-7, East Central University
- 2014 Spring Field Meeting, tba
- 2014 Fall Field Meeting, Sept. 19-21 (tentative), Black Mesa State Park
- 2014 Annual Technical Meeting, Nov. 7, Northeastern State University-Broken Arrow campus

WICHITA MOUNTAINS SYMPOSIUM

Sciences Complex 100

- 8:00 Symposium Opening
- 8:15 **What does the Topographic Character of the Wichita Mountains Tell Us?** M. Charles Gilbert, Emeritus Professor, ConocoPhillips School of Geology and Geophysics, University of Oklahoma.
- 8:45 **From Mammoths to Medicine Bluff: The Cultural History of the Wichita Mountains.** Robert L. Brooks, Oklahoma Archeological Survey, University of Oklahoma.
- 9:15 **Historical Indigenous Peoples of the Wichita Mountains Region.** Michael Cox, Department of History and Government, Cameron University.
- 9:45 Break
- 10:00 **The Economic Impact of Tourism.** Syed Ahmed, Director of the Bill W. Burgess, Jr. Business Research Center, Cameron University.
- 10:30 **Significance of the Wichita Mountains in the Flora of Oklahoma.** Bruce Hoagland, Oklahoma Biological Survey and Department of Geography and Environmental Sustainability, University of Oklahoma.
- 11:00 Section Business Meetings
(Presentation rooms)
- 11:30 Academy Business Meeting
(Sciences Complex 101)
- 12:00 Academy Luncheon
(McCasland Ballroom, 2nd floor
McMahon Centennial Complex)

WICHITA MOUNTAINS SYMPOSIUM

- 1:45 **Faunal Diversity of the Wichita Mountains: A Resource for Tourism, Citizen Science, and Research.** Michael S. Husak, Department of Biological Sciences, Cameron University.
- 2:15 **Bison Management.** Daniel T. McDonald, U.S. Fish and Wildlife Service.
- 2:45 **A Decade of Fire Ecology Research at the Wichita Mountains Wildlife Refuge.** Ralph Godfrey, U.S. Fish and Wildlife Service.
- 3:15 Break
- 3:30 **Wichita Mountains: Oklahoma Outpost for the Endangered Black-capped Vireo.** Joseph A. Grzybowski, College of Mathematics and Science, University of Central Oklahoma.
- 4:00 **The Climate of the Past, Present, and Future and the Impact on Oklahoma.** Gary McManus, Associate State Climatologist, Oklahoma Climatological Survey.
- 4:30 **A Window to the Wichitas: The Art and Photography of Katherine Liontas-Warren and Tom Russell.** Katherine Liontas-Warren and Tom Russell, Cameron University.
- 5:00 Symposium Closing

SECTION A: BIOLOGICAL SCIENCES - BOTANY
Sciences Complex 101

Moderator: Adam Ryburn
Oklahoma City University

- 8:30 ***Variation in Mechanical Strength of Ferns in the Santa Monica and Santa Cruz Mountains.** H. Holmlund, S. Davis. Oklahoma Christian University, Pepperdine University.
- 8:45 ***Investigating a Red Algal Protein that May Protect Photosynthesis Against High Light Levels.** Sukyoung Kwak, Steven J. Karpowicz. University of Central Oklahoma.
- 9:00 ***Response of *Chlamydomonas reinhardtii* to Medium Viscosity.** Thi Nguyen, Huong Do, Steven J. Karpowicz. University of Central Oklahoma.
- 9:15 **Flora and Vegetation of the Beaver River Wildlife Management Area, Beaver County, Oklahoma.** Mark Fishbein. Oklahoma State University.
- 9:30 Break
- 9:45 **Plant Usage Among the Kiowa, Comanche, and Plains Apache in the Southern Plains of North America.** Wayne Elisens, Amanda Wills. University of Oklahoma.
- 10:00 ****Phylogeny and Biogeography of a Semi-Arid Adapted Clade of Milkweeds (*Podostemma* clade, *Asclepias* L., Apocynaceae).** Lindsey Worcester. Oklahoma State University.
- 10:15 ***Multilocus Phylogenetics of the Sonoran Desert Milkweed Clade (*Asclepias*, Apocynaceae).** Ben Haack, LaRinda Holland, Shannon Straub, Brichard Cronn, Aaron Liston, Mark Fishbein. Oklahoma State University, Oregon State University.
- 10:30 **Flora of Oklahoma Annual Meeting**

*Undergraduate Competition

**Graduate Competition

SECTION A: BIOLOGICAL SCIENCES - BOTANY
(cont.)

11:00 Section A Business Meeting Sciences Complex 101
(combined with Zoology)

Posters

***Evaluation of Native Cross Timber Plants Using rbcLa and MatK Plastid Loci.** Mylissa Stover, James Brown, Michael Adair, Jerney Sabo, Patrice Samuels, Amanda Winn. Tulsa Community College.

*Undergraduate Competition

SECTION A: BIOLOGICAL SCIENCES - ZOOLOGY
Sciences Complex 102

Moderator: Michael S. Husak
Cameron University

- 9:00 ***Comparing Growth Rates Between Scissor-Tailed Flycatchers and Western Kingbirds.** Aaron Quickle, Alex Jahn, Diane Landoll, Diego Tuero, Michael Husak. Cameron University.
- 9:15 ***Modeling of the Vision System of the Kangaroo Rat (*Dipodomys ordii*) and Implications for UV Communication.** Adrienne Wells, Brandon McDonald, Bryce Geiger, Joe Macedonia, Charlene Belew, Kelsey Carter, Paula Pierce, Larissa Perry. Cameron University.
- 9:30 Break
- 9:45 ***Photoreceptor Proteins and Relative Densities in the Retina of the Kangaroo Rat (*Dipodomys ordii*) and Implications for Vision.** Sarah Vrla, Bryce Geiger, Brandon McDonald, Paula Pierce, Larissa Perry. Cameron University.
- 10:00 ****The Spring-Summer Nesting and Activity Patterns of the Western Chicken Turtle (*Deirochelys reticularia miaria*).** Donald T McKnight. Missouri State University.
- 10:15 **Coleoptera (Histeridea and Scarabaeidea) from Baird's Pocket Gopher (*Geomys breviceps*) Burrows from Southeastern Oklahoma: Two New State Records.** Matthew B. Connior, Chris T. McAllister. South Arkansas Community College, Eastern Oklahoma State College.
- 10:30 ***First Report of *Sarcocystis* sp. (Apicomplexa: Sarcocystidae) from Oklahoma Snakes (Ophidia: Colubridae).** Chris T. McAllister, William G. Palmer, R. Scott Seville. Eastern Oklahoma State College, University of Oklahoma, University of Wyoming.

*Undergraduate Competition

**Graduate Competition

SECTION A: BIOLOGICAL SCIENCES - ZOOLOGY
(cont.)

11:00 **Section A Business Meeting** Sciences Complex 101
(combined with Botany)

Posters

***Breeding Home Ranges of Scissor-Tailed Flycatchers: Preliminary Data.** Jessica Roy, Michael S. Husak, Diane V. Landoll. Cameron University.

***The Effects of Weather and Neighbors on Displays of Scissor-Tailed Flycatchers.** Misti M. Shultz, Diane V. Landoll, Michael S. Husak. Cameron University.

***Operative Temperature Availability Within Microhabitats Used by Two Sympatric Lizard Species in the Wichita Mountains.** Jetta Trammell, Matthew Van Sant. Cameron University.

The Omnivorous Diet of the Western Chicken Turtle (*Deirochelys reticularia miaria*). Donald T McKnight. Missouri State University.

*Undergraduate Competition

**SECTION B: GEOLOGY
Sciences Complex 200**

**Moderator: Kurtis Koll
Comanche Nation College, Lawton
Upper Iowa University, Ft. Sill**

- 8:45 ***Oklahoma Tar Pits and the Native American Influence.** K. Koll, P. Nauni. Comanche Nation College.
- 9:00 **Hematite, Meteorites and Native Traditional Insight.** K. Koll, P. Nauni. Comanche Nation College.
- 9:15 **Hypogene Karst in the Arbuckle Mountains.** Kevin W. Blackwood. Arbuckle Karst Conservancy.
- 11:00 **Section B Business Meeting**

*Undergraduate Competition

SECTION C: PHYSICAL SCIENCES
Sciences Complex 103

Moderator: Weldon Wilson
University of Central Oklahoma

- 9:45 ***Dye-Sensitized Solar Cells: Energy for the Future.** Ciara Kelley, Miwa Fukuda, Seth Geiger, John Whitlow, E. Ann Nalley. Cameron University.
- 10:00 ***Photochemistry Laboratories in Undergraduate Organic Lab.** Roosevelt Matthews, Truman Deeb, Kristen Worthen, E. Ann Nalley. Cameron University.
- 10:15 ***Microwave Synthesis in Undergraduate Organic Labs.** Dane Swinford, Taj Ahmad, Kristen Worthen, Turman Deeb, E. Ann Nalley. Cameron University.
- 10:30 **Using the Slope Method to Obtain the Attenuation Coefficient of Liquids.** Karen Williams. East Central University.
- 10:45 **Alternative Approach to Relativistic Dynamics.** W. J. Wilson. University of Central Oklahoma.
- 11:00 **Section Business Meeting**

Posters

NanoExplorers: A High School Summer Science Academy Report on Physics Activities. E. Ann Nalley, Mark Polson, Cassidy Adams, Faith Dennis, Smantha Draeger, Ciara James, Alysha Morris, Mohamad Akel, Soorajath Boominathan, Dante Coleman, Adriana Sebastian Coronel, Mujahid Egan, Varun Ennamuri. Cameron University.

NanoExplorers: A High School Summer Science Academy Report on Chemistry Activities. E. Ann Nalley, Mark Polson, Disiree Renfro, Ashley Spriggs, Tiffany Swinford, Jasmine Walker, Jordan Wilson, Joseph Lau, Blaise Manual, Patrick McDowell, Xavier McClure, Dylan Price, Ethan Price, Nickolas Singleton. Kyle Sanders, Kris Smith, Sodudee Tuangswang. Cameron University.

*Undergraduate Competition

SECTION D: SOCIAL SCIENCES
Sciences Complex 140B

Moderator: Tephillah Jeyaraj
University of Central Oklahoma

11:00 **Section D Business Meeting**

**SECTION E: SCIENCE COMMUNICATION & EDUCATION
Sciences Complex 147**

**Moderator: Erica Corbett
Southeastern Oklahoma State University**

- 9:45 **Have You Ever Considered Participating in the Fulbright Program?** Elizabeth Bergey. Oklahoma Biological Survey, University of Oklahoma.
- 10:00 **MOOCs – What is Their Role in the Future of Higher Education?** Panel Discussion: Stan Rice, Southeastern Oklahoma State University; Brad Bays, Oklahoma State University.
- 11:00 **Section E Business Meeting**

**SECTION F: GEOGRAPHY
Sciences Complex 204**

**Moderator: Brad Bays
Oklahoma State University**

- 8:30 **Oklahoma Labyrinths.** Robert E. Newcomer. East Central University.
- 8:45 **Compilation and Design of Guidebook Maps.** Greg Plumb. East Central University.
- 9:00 **Barns of Northeast Oklahoma.** Brad Bays. Oklahoma State University.

Poster Presentations

- 9:15 **Revising the ECU Online Campus Map.** Matthew Baker. East Central University.
- 9:20 **Creating a Geodatabase of Tribal Allotted Lands.** Jared Alexander. East Central University.
- 9:25 **Establishing a Sidewalk and Trail Master Plan for the City of Ada.** Aaron Simpson. East Central University.
- 11:00 **Section F Business Meeting**

**SECTION G: APPLIED ECOLOGY & CONSERVATION
Sciences Complex 201**

**Moderator: Erik Terdal
Northeastern State University**

- 10:15 **The Status of Historical Tree Plantations at The Wichita Mountains Wildlife Refuge, Comanche County, Oklahoma.** Mike Dunn. Cameron University.
- 10:30 **Organizing Camera Trap Data on Terrestrial Wildlife: A Case Study from Belize.** T. Scott Eaton, Jr., Jacob Ward, Erik Terdal. Northeastern State University.
- 10:45 **Mesocarnivore Mammals in the Mountain Pine Ridge of Belize: Report from a Camera Trap Survey in 2010.** Erik Terdal, Ronaldi Martinez. Northeastern State University, Mountain Pine Ridge Forest Reserve-Belize.
- 11:00 **Section G Business Meeting**

**SECTION H: MICROBIOLOGY
McMahon Centennial Complex 211**

**Moderator: Joel Gaikwad
Oral Roberts University**

- 10:15 **The Antimicrobial Effects of Copper Alloys on Nosocomial Infection Causing Pathogens.** Briana Meacham, Joel Gaikwad. Oral Roberts University.
- 10:30 **Disinfectant Efficacy of Low pH Water.** Marissa Thomas, Joel Gaikwad. Oral Roberts University.
- 11:00 **Section H Business Meeting**

Posters

***Laccases of *Ganoderma lucidum* and *Pleurotus ostreatus*.** Shundiin Bohan, Nikole Vargas, Charlie Biles, Alejandro Canale. East Central University.

***Light Intensity Effects Growth and Reproduction of *Chaetomium globosum*, a Common Indoor Mold.** Tara Gurung, Sujita Dahal, Upasana Rijal, Shubhra Poudyal, C. Biles. East Central University.

***Non-Steroidal Anti-Inflammatory Drugs Inhibit Growth and Reproduction of *Chaetomium globosum*, a Common Indoor Mold.** Sujita Dahal, Heather Konsure, Taylor Glasco, Upasana Rijal, Tara Gurung, Kelsey Dalmont, C. Biles. East Central University

****Fusarium* Species Longevity in Soil Tube Cultures.** Upasana Rijal, Sujita Dahal, C. Biles. East Central University.

***Fungal Endophytes of Green Briers (*Smilax* sp.).** Taylor Glasco, Caleb Biles, C. Biles. East Central University.

*Undergraduate Competition

SECTION I: ENGINEERING SCIENCES
Sciences Complex 104

Moderator: Morshed Khandaker
University of Central Oklahoma

- 8:30 **Laser Immunotherapy for Treatment of Metastatic Tumors.**
Ethan Wood, Cody Bahavar, Aamr Hasanjee. University of Central Oklahoma.
- 8:45 **Characterizing the Motility of Single Algal Cells in Response to Medium Viscosity.** Kara Clark, Daniel Fijalka, Jordan Johnson, Davis Kuriakose, McKayla Mashburn, Steven Karpowicz, Gang Xu. University of Central Oklahoma.
- 9:00 **Designing a Digital Test Set using LabVIEW.** Montell Wright. University of Central Oklahoma.
- 9:15 **Liquid Crystals Beyond Displays.** Alaeddin Abu-Abed. University of Central Oklahoma.
- 9:30 Break
- 9:45 **Finite Element Models for Cilia and Flagella.** Miciah Guy, Gang Xu. University of Central Oklahoma.
- 10:00 **Geometry Optimization of Aerodynamic Add-On Devices.** Abdellah Ait Moussa, Justin Fischer, Rohan Yadav. University of Central Oklahoma.
- 10:15 **Stent Enhancement Using a Locally Adaptive Unsharp Masking Filter in Digital X-Ray Fluoroscopy.** Eranda Ekanayake, Yuhao Jiang. University of Central Oklahoma.
- 10:30 **Characterization of the Mechanical Tension in Dermal-Equivalent Collagen Lattices.** Lauren Tinnin, Khiet Tran, Melville Vaughan, Gang Xu. University of Central Oklahoma.
- 10:45 **Analysis of Electric Field Driven Particle Assembly and Trapping in Microfluidic Devices.** Mohammad Hossan. University of Central Oklahoma.

SECTION I: ENGINEERING SCIENCES
(cont.)

11:00 **Mechanical Effectiveness of Polyvinyl Alcohol/Polyvinyl Pyrrolidone (PVA/PVP) as an Intervertebral Disc Polymer.**
Kooroush Azartash-Namin, S. Ashton Williams, Zheila Azartash-Namin, Khiet Tran, Morshed Khandaker. University of Central Oklahoma.

11:15 **Section I Business Meeting**

SECTION J: BIOCHEMISTRY AND BIOPHYSICS
Sciences Complex 205

Moderator: Bill Luttrell
Oklahoma Christian University

- 10:15 ***Tagging Cullin-E in the Social Amoeba *Dictyostelium discoideum*.** P. Walden, M. Sheikh, H. Van der Wel, C. M. West. Oklahoma Christian University, University of Oklahoma Health Sciences Center.
- 10:30 **Ambrosia Asymptomatic Virus 1 and Its Characterization.** Mukta Dutta, Nemat Sokhandan Bashir, Ulrich Melcher. Oklahoma State University.
- 10:45 ***Secreted Klotho Decreases Cellular Oxidative Stress Through Interactions with SFGH and Glycosylation at N285.** L. Dutcher, Y. Xu, Z. Sun. Oklahoma Christian University, University of Oklahoma Health Sciences Center.
- 11:00 **Section J Business Meeting**

*Undergraduate Competition

SECTION K: MICROSCOPY
Sciences Complex 140B

Section Chair: Andrew Madden
University of Oklahoma

SECTION L: MATHEMATICS
Sciences Complex 105

Moderator: Clay Carley
East Central University

- 8:30 **A Duck Tale.** Anita Walker. East Central University.
- 8:45 **Using Cryptographic Signatures to Create Set Symmetric Differences.** Bill K. Walker. East Central University.
- 9:00 ***Solving the Fibonacci Sequence Using Matrix Techniques.** Janne' Klassen, Anita Walker. East Central University.
- 9:15 ***Curl and Divergence: Relationship to Green's Theorem.** Krystal Brantley, Heather Hannah, Anita Walker. East Central University.
- 9:30 Break
- 9:45 ***A Base Converter/Calculator Application: Preliminary Analysis.** Anthony Cloutier, Anita Walker. East Central University.
- 10:00 ***Running As Fast As You Can!** Michael Cain, Anita Walker. East Central University.
- 10:15 ***Representing Integers as Sums and Differences of Squares.** Aubrey Painter, Anita Walker. East Central University.
- 10:30 **Android Apps and AI: Undergraduate Research Projects.** Patrick Harrington. Northeastern State University.
- 11:00 **Section L Business Meeting**

*Undergraduate Competition

SECTION L: MATHEMATICS
(cont.)

- 1:30 **Big Data, Big Science: Analysis of the Higgs Boson Data From the Large Hadron Collider.** Warren Mosely.
Southwestern Oklahoma State University.
- 1:45 **What Students Need to Know About Computing.** Rad Alrifai,
Rick Matzen. Northeastern State University.
- 2:00 **Parsing Data A Data Mining Operation.** Clay B. Carley III.
East Central University.

**SECTION M: ENVIRONMENTAL SCIENCES
McMahon Centennial Complex 212**

**Moderator: Daniel McInnes
East Central University**

- 10:00 ***Consumer Nutrition Environment Disparities are Associated with Neighborhood Wellness.** Kelly D. Stephens, Kristin N. Culver, Christina M. Shay. Redlands Community College.
- 10:15 ***Column Study of Bio-Electric Remediation of Nitrate in Groundwater Systems.** Linzi Thompson. East Central University.
- 11:00 **Section M Business Meeting**

Poster

***Preliminary Investigations of Actinomycetes as a Chlordane Remediation Agent.** J. Bidlack, J. Green, F. Osburn, B. Webster, P. Olson. University of Central Oklahoma.

*Undergraduate Competition

SECTION N: BIOMEDICAL SCIENCES
McMahon Centennial Complex 204
Executive Board Room

Moderator: Earl Blewett
Oklahoma State University – Center for Health Sciences

- 8:45 **Bioinformatics for the Classroom.** E. L. Blewett. Oklahoma State University-Center for Health Sciences.
- 9:00 ***Prophage SF370.1 is the Helper Phage of *Streptococcus pyogenes* Chromosomal Island SpyCIM1.** Craig Land, Kimberly McCullor, Scott V. Nguyen, Catherine King, W. Michael McShan. Redland Community College.
- 9:15 *****Identifying Epitopes for a Collection of Anti-BaCMV Monoclonal Antibodies Using a Lambdavirus Expression Library.** Kendall Hughes, B. J. Redding, E. L. Blewett. Oklahoma State University-Center for Health Sciences.
- 9:30 Break
- 9:45 ***The Small GTPase, Gem, is a Regulator of Rnd1 and Rnd3 in Vascular Smooth Muscle Cells (VSMCs).** J. Wood, E. Bullen, D. Sherry, G. Risinger, E. Howard. Oklahoma Christian University, University of Oklahoma Health Sciences Center.
- 10:00 ***IL-24 Inhibits Cancer Metastasis by Regulating the CXCR4/SDF-1 Axis.** J. Bates, J. Panneerselva, J. Lauderdale, Q. Wang, R. Ramesh. Oklahoma Christian University, University of Oklahoma Health Sciences Center.
- 10:15 ***Caspase-1 Promotes Colitis-Associated Colorectal Cancer in Mice Lacking Intestinal O-Glycans.** David Murray, Kirk Bergstrom, Attika Secondi, Joel Gaikwad, Lijun Xia. Oral Roberts University.
- 10:30 ***Salivary Cortisol Levels and Post-Traumatic Stress Disorder in War Veterans.** Sanaz Ebrahimi, Joel Gaikwad. Oral Roberts University.
- 11:00 **Section N Business Meeting**

*Undergraduate Competition

***High School Student Presentation

Darrin Akins
Luncheon Speaker

Dr. Darrin Akins is a Professor in the Department of Microbiology & Immunology at the Oklahoma University Health Sciences Center (OUHSC). Dr. Akins has been funded by the NIH since arriving at OUHSC and currently is Principal Investigator on several NIH grant awards. He is the Principal Investigator of the statewide Oklahoma IDeA Network of Biomedical Research Excellence (INBRE) award, an NIH grant totaling ~\$19 million. He has served as a permanent member of the American Heart Association Immunology and Microbiology study section for four years and also was a permanent member of the Microbiology and Infectious Disease Research Committee (MID) study section at NIH for five years. Currently, he is a permanent member on the bacterial pathogenesis (BACP) study section at NIH. Dr. Akins also has served *ad hoc* on several other NIH study sections, including the NIH underrepresented minority predoctoral fellowship study section. He is an editorial board member for the journals *Infection & Immunity* and *Frontiers in Microbiology*. Dr. Akins has extensive administrative experience. He was the Graduate College Assistant Dean at OUHSC from 2006 - 2011, where he was in charge of directing all summer undergraduate research programs on the OUHSC campus, and he is currently the Associate Dean for Research in the College of Medicine at OUHSC where he oversees the research mission.

In addition to his administrative duties, Dr. Akins also runs a highly productive research laboratory. His research focus is on Lyme disease, the most common tick-borne infection in the United States. The major goal of his laboratory research is to identify novel outer surface proteins from the organism that causes Lyme disease and examine their role with regard to virulence, improved diagnostic testing, and vaccine development. He has currently published over 50 manuscripts, book chapters, and reviews.

OKLAHOMA ACADEMY OF SCIENCE PRESIDENTS

1910	H. L. Lane, OU	1956	A. M. Stebler, OAMC
1911	D. W. Othern, Okla. City	1957	D. E. Howell, OAMC
1912	S. W. Reaves, OU	1958	G. J. Goodman, OU
1913	C. W. Shannon, OU	1959	E. Lucas, OU
1914	No meeting	1960	P. E. Smith, OUMS
1915	C. W. Shannon, OU	1961	E. M. Hodnett, OSU
1916	C. N. Gould, OU	1962	H. G. Barclay, TU
1917	L. C. Raiford, ISU	1963	G. A. Moore, OSU
1918	No meeting	1964	A. D. Buck, NOJC
1919	No meeting	1965	J. E. Webster, OSU
1920	M. M. Wickham, Norman	1966	C. R. Williams, PU
1921	A. F. Reiter, PU	1967	C. D. Riggs, OU
1922	J. B. Thoburn, Okla. City	1968	E. A. Reynolds, SWSC
1923	R. O. Whintont, OAMC	1969	L. V. Scott, OUHSC
1924	S. Weidman, OU	1970	C. C. Carpenter, OU
1925	(spring) C. E. Sanborn	1971	P. Buck, TU
1925	(fall) H. L. Dodge, OU	1972	W. A. Carter, ECSU
1926	J. H. Could, OAMC	1973	C. J. Mankin, OU
1927	C. N. Gould, OU	1974	N. N. Durham, OSU
1928	O. M. Smith, OAMC	1975	B. Shirley, TU
1929	A. Richards, OU	1976	G. W. Todd, OSU
1930	L. Long, Okla. City	1977	D. E. Kizer, Noble Found
1931	A. O. Weese, OU	1978	G. Odell, OSU
1932	H. Patterson, OAMC	1979	R. Couch, ORU
1933	J. E. Knowles, PU	1980	G. Wolgamott, SWOSU
1934	F. G. Brooks, OCU	1981	E. Rice, OU
1935	C. E. Decker, OU	1982	E. Grigsby, NSU
1936	H. J. Harper, OAMC	1983	J. Sokatch, OUHSC
1937	B. D. Barclay, TU	1984	M. Whitmore, OU
1938	C. M. Perry, OU	1985	J. Black, OBU
1939	H. D. Chase, TU	1986	J. Wilhm, OSU
1940	G. L. Cross, OU	1987	M. K. Patterson, Noble Found
1941	R. W. Jones, OAMC		
1942	H. I. Featherly, OAMC	1988	M. P. Carpenter, OU
1943	O. F. Evans, OU	1989	K. E. Conway, OSU
1944	V. G. Heller, OAMC	1991	J. K. McPherson, OSU
1945	J. R. Nielsen, OU	1993	J. R. Estes, OU
1946	O. C. Dermer, OAMC	1994	J. D. Tyler, CU
1947	J. T. Self, OU	1996	C. Taylor, SEOSU
1948	L. S. McLeod, TU	1998	R. J. Tyrl, OSU
1949	J. C. Shirley, PU	2000	D. Bass, UCO
1950	H. Taylor, OCW	2002	C. Clifford, NSU
1951	H. W. Larsh, OU	2004	S. Young, SNU
1952	V. B. Monnett, OAMC	2006	S. Barber, OCU
1953	S. P. Massie, LU	2008	U. Melcher, OSU
1954	A. N. Murray, TU	2010	K. R. Hobson, OU
1955	R. E. Olson, OU	2012	C. Clifford, NSU

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| 2. VETERANS GROVE | 23. CONWILL HALL |
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| 4. CAMERON STADIUM | 25. CAMERON EXCHANGE |
| 5. AGGIE GYM | 26. CAMERON PARK |
| 6. HOWELL HALL | 27. ENGINEERING/LOCKSMITH/CADD SERVICES |
| 7. ADMINISTRATION BUILDING | 28. MAIL AND TRANSPORTATION |
| 8. JESSE DAVENPORT UNITY GARDEN | 29. SCIENCES COMPLEX |
| 9. CENTER FOR EMERGING TECHNOLOGY AND ENTREPRENEURIAL STUDIES (CETES) | 30. MCMAHON CENTENNIAL COMPLEX |
| 10. LIBRARY | 31. STREICH-HENRY TENNIS COMPLEX/ MCMAHON FOUNDATION TENNIS COURTS |
| 11. MUSIC BUILDING | 32. CYNTHIA S. ROSS HALL |
| 12. UNIVERSITY THEATRE | 33. BENTLEY GARDENS |
| 13. COMMUNICATIONS BUILDING | 34. MONICA & TOM MCCASLAND FAMILY POND |
| 14. HAGGAR HALL | 35. MCMAHON CENTER |
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| 16. SOFTBALL PRACTICE FIELD | 37. NORTH SHEPLER |
| 17. WAREHOUSE | 38. SHEPLER CENTER (BALLROOM, CENTENNIAL ROOM, WICHITA ROOM AND CAFETERIA) |
| 18. GROUNDS | 39. SOUTH SHEPLER |
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