

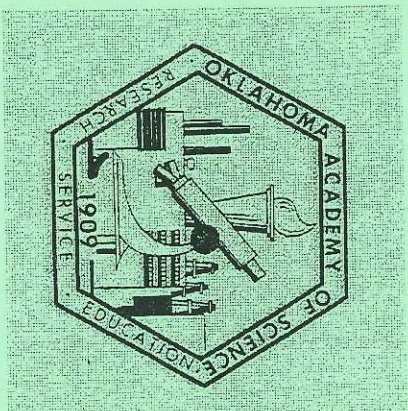
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OFFICIAL PROGRAM  
OF THE  
90TH ANNUAL TECHNICAL MEETING

# OKLAHOMA ACADEMY OF SCIENCE

Affiliated with the  
American Association for the Advancement of Science



FRIDAY  
November 2, 2001

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.

NINETEETH ANNUAL TECHNICAL MEETING  
OKLAHOMA ACADEMY OF SCIENCE  
CAMERON UNIVERSITY

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# THE OKLAHOMA ACADEMY OF SCIENCE

Cameron University  
Lawton, Oklahoma

## 90TH ANNUAL FALL TECHNICAL MEETING Program Summary

6:30 p.m.	Thursday, 01 November 2001 Executive Council Dinner and Meeting	Mezzanine Shepler Center
7:30 a.m. - 3:00 p.m.	Friday, 02 November 2001 Registration for Technical Meeting	Goodyear Room
8:00 a.m. - 11:00 a.m.	Concurrent Scientific Paper Sessions	Sciences Complex
Section A	Biological Sciences - Botany	Room 103
Section A	Biological Sciences - Zoology	Room 102
Section B	Geology	Room 105
Section C	Physical Sciences	Room 204
Section D	Social Science	Room 205
Section E	Science Education	Room 205
Section F	Geography	Room 204
Section G	Fish and Wildlife Conservation	Room 100
Section H	Microbiology	Room 104
Section I	Engineering Sciences	Room 201
Section J	Biochemistry and Biophysics	Room 130
Section K	Microscopy	Room 128
Section L	Mathematics and Computer Science	Room 114
Section M	Environmental Sciences and Planning	Room 101
Section N	Biomedical Sciences	Room 200
All Sections	Posters	Main Lower Hall
11:00 a.m. - 11:20 a.m.	Section Meetings Participate in the 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.	Goodyear Room Sciences Complex
12 noon - 1:30 p.m.	OAS BANQUET Admission by ticket only. Tickets available at registration. Dr. Barney Lipscomb Botanical Research Institute of Texas (BRIT) "Medicinal Plants: Friend or Foe?"	Mezzanine Shepler Center
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 Cameron University will be clearly marked and is identified on the map on the inside back cover to assist you in locating it. Parking is free to all CU visitors on that day.

**Preregistration:** Preregistration assists greatly in planning to accommodate a large influx of visitors. Preregistration will continue until 26 October. If you have not yet done so, please register on-line at the Academy's website <http://oas.okstate.edu>. Preregistration is a means by which you can save a little of the expense of attending this meeting. The cost will increase on November 2nd. Banquet tickets may not be available, but every effort will be made to enable you to obtain one at the last minute.

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

**2001 and 2002 Dues are Payable:** The OAS registration desk will accept dues payments.  
Regular - \$25.00; Graduate Student - \$5.00; Family - \$30.00  
Collegiate Student - \$10.00; Sustaining - \$100.00; Life - \$500.00

**Academy Business Meeting:** The 90th Annual Business Meeting of the Oklahoma Academy of Science will be held in Room 100 (Goodyear Room) of the Sciences Complex at 11:30 a.m.

**Academy and Award Banquet:** This gala affair will begin at noon Friday on the mezzanine of the Shepler Center. 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 80 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](mailto:dbass@ucok.edu).

**Official Program:** Bring this program booklet with you. Additional copies may be purchased for \$1.00 at the registration desk.

**Motel Accommodations:** The headquarters motel for the 90th Annual Technical Meeting will be the Holiday Inn, 3134 NW Cache Rd., Lawton, OK (580-353-1682). Telephone for reservations and rate confirmation. Inform the desk that you are an OAS delegate.

Other motels in the vicinity of Cameron University are:

Baymont Inn	1203 NW 40th St.	580-353-5581
Executive Inn	3110 NW Cache Rd.	580-353-3104
Super Eight Motel	2202 NW Hwy 277	580-353-0310

Rates are generally comparable, ranging from about \$50-65/night for a single room.

**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:** 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 CU faculty and staff assigned to assist you.

**Upcoming Meetings:**

2002 Spring Field Meeting	April 2002
2002 Fall Field Meeting	September 2002
2002 Annual Technical Meeting	November 2002

hosted by ~~Southern Nazarene University~~  
Oklahoma Christian University

**SECTION A: BIOLOGICAL SCIENCES - BOTANY  
 103 SCIENCES COMPLEX**

**Morning Session - Moderator: Constance Murray, Tulsa Community College**

- |       |  |
|-------|--|
| 8:30  | Oil Contaminated Tall Grass Prairie Soils. Chris Sellers and Anne Cross. Oklahoma State University   |
| 8:45  | Seasonal Patterns of Toxicity in Oak Leaves. *Ian B. Maness, Stanley A. Rice, Erica A. Corbett, and Diana L. Bannister. Southeastern Oklahoma State University   |
| 9:00  | <i>Callitropa americana</i> : Abundance and Soil pH. *Jona A. Reasor. Southeastern Oklahoma State University.  |
| 9:15  | Composition and Age of a Ponderosa Pine ( <i>Pinus ponderosa</i> ) Stand in Cimarron County, Oklahoma. Bruce Hoagland and Aondover Tarhule. University of Oklahoma                                       |
| 9:30  | Changes in the Plant Communities in the Pushmataha Forest Habitat Research Area. Raelene Crandall, Ronald J. Tyrl, and Ronald E. Masters. Oklahoma State University                                      |
| 9:45  | Break  |
| 10:00 | Flora of Oklahoma: A Progress Report. Paul Buck, Susan Barber, James Estes, Patricia Folley, Lawrence Magrath, Constance Taylor, Rahmona Thompson, and Ronald Tyrl.                                      |
| 10:15 | The Use of a Selective Media to Quantify <i>Arthrobrans oligospora</i> from Putting Green Soil. Jason Woodward, Nathan Walker, Dennis Martin, Jack Dillwith, and Haitin Zhang. Oklahoma State University |
| 10:30 | The Effects of Mesquite Encroachment on Community Composition and Diversity. Priscilla H. Callahan, Bruce Hoagland, and Phillip T. Crawford. University of Oklahoma                                      |
| 10:45 | Systematics of <i>Nuttallanthus</i> (Scrophulariaceae/Anthriscaceae) in Oklahoma. Phillip Crawford and Wayne J. Elsens. University of Oklahoma   |
| 11:00 | Section A Business Meeting, Room 102   |
| 11:30 | Academy Business Meeting, Room 100   |
| 12:00 | Academy Banquet, Shepler Center Mezzanine  |

\*Collegiate Academy; Undergraduate Competition

SECTION A: BIOLOGICAL SCIENCES - BOTANY  
103 SCIENCES COMPLEX

Afternoon Session - Moderator: Constance Murray, Tulsa Community College

- 1:45 Classification of Poison Ivy and Its Relatives in Oklahoma. Steve Owens and Ronald J. Tyrl. Oklahoma State University
- 2:00 A Floristic Survey of Plant Communities at the UCO Selman Living Laboratory in the Gypsum Hills of Northwestern Oklahoma. Robin R. Buckallew and Gloria M. Caddell. University of Central Oklahoma
- 2:15 Isozyme Divergence Among Disjunct Populations of *Alnus maritima* (Betulaceae) in Oklahoma and the Delmarva Peninsula. Wayne Elisen. University of Oklahoma
- 2:30 Photoacclimation Strategies of Zygnematalean Algae that form Metaphytic Mats. Steven W. O'Neal. Southwestern Oklahoma State University
- 2:45 Break
- 3:00 A Botanical Blitz at Natural Falls State Park. Botany Class. McCloud High School
- 3:15 How Many Species? An Analysis of North American Floras. Michael W. Palmer. Oklahoma State University
- 3:30 Evolutionary Patterns in Spring Budbreak Time in Deciduous Trees. Stanley A. Rice. Southeastern Oklahoma State University
- 3:45 Flora Oklahoma Business Meeting

SECTION A: BIOLOGICAL SCIENCES - ZOOLOGY  
102 SCIENCES COMPLEX

Morning Session - Moderator: Vincent A. Cobb, Northeastern State University

- 8:00 Impact of Animal Genotype and Dietary Protein Concentration on Hay Intake. \*Rachael E. Ellison. Redlands Community College; USDA-ARS Grazinglands Research Laboratory
- 8:15 Nutritional Value of Pigeonpea (*Cajanus cajan*) for Young Ruminants. \*Houston Cantrell. Redlands Community College; USDA-ARS Grazinglands Research Laboratory
- 8:30 Evaluation of the Relation of Estimated Progeny Differences for Milk and Actual Milk Yield in Brangus Cattle. \*David Jason Uecke and Michael A. Brown. Redlands Community College; USDA-ARS Grazinglands Research Laboratory
- 8:45 Sialomucin Complex (Muc4) Expression in Pig Endometrium During the Estrous Cycle and Early Pregnancy. \*Anita Ferrell. Oklahoma State University
- 9:00 *Dirofilaria immitis* and the Development of a Vector Surveillance Program in Cleveland County, Oklahoma. \*Johnnie L. Gilpen, Jr. University Of Oklahoma; Oklahoma Biological Survey
- 9:15 Is Heptyl Butyrate the Best Chemical Attractant for the Southern Yellowjacket (*Vespaula squamosa*)? \*Stephanie Smith. Oral Roberts University
- 9:30 Testing of Possible Chemical Attractants for Paper Wasps (*Polistes* species). \*Rebecca Seefeldt. Oral Roberts University
- 9:45 Break
- 10:00 Vegetative Characteristics of Swainson's Warbler (*Limnolophus swainsonii*) Nests in Southeastern Oklahoma. \*Michael L. Adams. Northeastern State University
- 10:15 *Thomomys* cf. *talpoides* from the Washita Local Fauna. \*Joanne M. Gonzalez. Southwestern Oklahoma State University
- 10:30 Environmental Conditions and Fire Ant Activity. \*Roger Nelson. Southeastern Oklahoma State University

\*Collegiate Academy, Undergraduate Competition

SECTION A: BIOLOGICAL SCIENCES - ZOOLOGY  
102 SCIENCES COMPLEX  
(cont.)

10:45 **Defining Phylogenetic Relationships Within and Among Plecoptera and Nymphalid Bats Based on Nuclear DNA Sequences.** \*Matthew S. Leslie and Ronald A. Van Den Bussche. Oklahoma State University

11:00 Section A Business Meeting

11:30 Academy Business Meeting, Room 100

12:00 Academy Banquet, Shepler Center Mezzanine

**Afternoon Session – Moderator: Vincent A. Cobb, Northeastern State University**

1:45 **Invasive Social Wasps of the Galapagos Islands.** Hal C. Reed and Peter Landolt. Oral Roberts University

2:00 **Growth and Feeding of *Labidesthes sicculus* in Response to Biotic and Abiotic Factors in Lake Texoma.** Raul Ramirez, Eric Johnson, and Keith Gido. Sam Noble Oklahoma Museum of Natural History

2:15 **Breeding Ecology of the Swainson's Warbler in Southeastern Oklahoma.** Mia R. Revels. Northeastern State University

2:30 **A Comparison of Heat Shock Protein Levels between Two Invasive Leafcutting Bee Species During Thermal Stress.** John Barthell, John Hranitz, and Robbin Thorp. University of Central Oklahoma and University of California at Davis

2:45 **Seasonal Daily Bison Movements and Locomotory Energy Expenditures on Oklahoma Tallgrass Prairie.** Eric J. Matchak. Oklahoma State University

3:00 **Tick (Acarina: Ixodidae) Population Study in Forested Habitats.** \*Steven Garvin. University of Science and Arts of Oklahoma

SECTION B: GEOLOGY  
105 SCIENCES COMPLEX

No papers are being presented in this section.

SECTION C: PHYSICAL SCIENCES  
204 SCIENCES COMPLEX

**Morning Session – Moderator: Albert Chen, Oklahoma Baptist University**

9:00 **Gate insulators for MBE grown InSb quantum wells.** Darin Corman and Sheena Murphy. Oklahoma University

9:15 **Single Molecule Spectroscopy of Dyes Encapsulated Inside Sol-gel Films.** \*Amanda Jayne Nichols. Oklahoma Christian University

9:30 **Laser Heating of CdSe Nanoparticles During the Formation of Films by Solvent Evaporation.** \*Timothy McDonald. Oklahoma Baptist University

9:45 **Ion Analysis of Tenkiller and Broken Bow Lakes.** \*Bonnie Kennedy. Northeastern State University

10:00 **Study of CFD Solution Algorithms - Phase II - Bifurcation and NN.** Albert Chen. Oklahoma Baptist University

10:15 Break

10:30 Section C Business Meeting

11:30 Academy Business Meeting, Room 100

12:00 Academy Banquet, Shepler Center Mezzanine

Poster (Main Lower Hall)

**Linking Poly-L-Arginine and Poly-DL-Lysine using Pentosidines.**  
\*Athena Dawson. Southeastern Oklahoma State University

SECTION D: SOCIAL SCIENCES  
201 SCIENCES COMPLEX

Afternoon Session - Moderator: Lois E. Albert, Oklahoma Archeological Survey

- 2:00 **Why is Cephalocaudally Organized Grooming Such a Prevalent Pattern.**  
Stanley Bursten. Cameron University
- 2:20 **Effects of Body Modifications on Perceived Teaching Ability.** \*Anne M. Collins. University of Central Oklahoma
- 2:40 **Linguistic Analysis of Brainstorming Groups.** \*Lori Purcell, Mary Dzindolet, and Linda Pierce. Cameron University
- 3:00 **Understanding Automation Reliance.** Mary Dzindolet, Linda Pierce, and Hall Beck. Cameron University
- 3:20 **The 'Mozart Effect' on Cognitive and Spatial Task Performance.** \*Matish Montgomery and Kathleen M. Donovan. University of Central Oklahoma
- 3:40 **Preparing a National Register of Historic Places Nomination for the Ross Cemetery, Cherokee County, Oklahoma.** Lois E. Albert. University of Oklahoma, Oklahoma Archeological Survey
- 4:00 **The Effect of Feedback on Automation Reliance.** \*Tamara Young. Cameron University
- 4:20 Section D Business Meeting

Posters (Main Lower Hall):

- A Comparison of Visual and Auditory Attention Shifting.** \*Tanja Dotson and Scott Peterson, Cameron University
- Effect of Imagery Instructions Given of Speed and Accuracy of a Tracing Task.** \*Reagan D. Bockhold. University of Central Oklahoma
- Effects of Pet Care on nursing Home Residents.** \*Jolie B. Beadreaux, Julie Gaston, and Kathleen M. Donovan. University of Central Oklahoma

SECTION E: SCIENCE EDUCATION  
205 SCIENCES COMPLEX

Morning Session - Moderator: Cynthia A. Pfeifer-Hill,  
Northwestern Oklahoma State University

- 8:00 Visit other Sectional Paper Sessions and Posters.
- 9:00 **Learning Biotechnology through Internships.** Charlotte Mulvihill. Oklahoma City Community College Biotechnology Program
- 9:15 **Applications of Computer Molecular Modeling in Teaching Organic Chemistry.** Elizabeth Ann Nalley. Cameron University
- 9:30 **Laying Ghosts to Rest in Bosnia.** \*Micah Edwin. Cameron University
- 9:45 **Wildlife Forensics: An Interdisciplinary Approach for the Enhancement of Science and Math Curriculum.** Kathi A. McDowell, Erik Terdal, and Michael Wilds. Northeastern State University
- 10:00 **Quantum Mechanical Studies on Acid/Base Equilibria Utilizing Energy Calculations.** \*Lu Y. Hale. Cameron University
- 10:15 **Teaching Astronomy.** Nolen Harsh. Northwestern Oklahoma State University
- 10:30 **The Selman Living Laboratory Observatory: The Scope and Intended Use of the Facility.** Steven J. Maier. Northwestern Oklahoma State University
- 10:45 Break
- 11:00 Section E Business Meeting
- 11:30 Academy Business Meeting, Room 100
- 12:00 Academy Banquet, Shepler Center Mezzanine

SECTION E: SCIENCE EDUCATION  
205 SCIENCES COMPLEX

Afternoon Session - Moderator: Steven J. Maier,  
Northwestern Oklahoma State University

- 2:00 North vs. South Sides of Trees: An Outdoor Activity for General Botany.  
Stanley Rice. OSU
- 2:15 Thermal Degradation of Aloin. \* Vincia Bonnie. Cameron University
- 2:30 Addressing Non-Committal Responses and All-Inclusive Possibilities in Student Explanations. Steven J. Maier. Northwestern Oklahoma State University
- 2:45 Estimation of Partition Coefficients via HPLC and Shake Flask Techniques. \* Janet Seratte. Cameron University
- 3:00 Introducing Analytical Chemistry Techniques in General Chemistry: A Solar Energy Project Laboratory. \* Jonathon Hunt. Oklahoma Christian University
- 3:15 Quantitative Analysis of Mannose and Galactose Ratios of Guar Powders and Seeds. \* Robert Fulton. Cameron University
- 3:30 Hypothesis Based Learning. Bruce Ackerson. Oklahoma State University
- 3:45 13.6 Million Dollar Gear-Up Grant to Promote K-12 Science Education in Poor Schools. Alan Lennon, B.K. Clark, and D. Barnes. Southeastern Oklahoma State University

Poster (Main Lower Hall):

Process Chemistry: Ethics and Methodology of Research Through Societal Need Regarding Pesticide Usage Reduction. \* Aundre' Johnson, Cameron University

\*Collegiate Academy, Undergraduate Competition

SECTION F: GEOGRAPHY  
204 SCIENCES COMPLEX

Afternoon Session - Moderator: Edward J. Pugh,  
University of Central Oklahoma

- 1:30 Ethnic Populations in Oklahoma City from 1950-1990. Dan Peebles.  
University of Oklahoma
- 1:45 Petroleum Production in Oklahoma during the 1990s. Edward J. Pugh.  
University of Central Oklahoma
- 2:00 State Geographic Systems Update 2001. Robert Springer. Office of the State Geographer
- 2:15 Section F Business Meeting

Posters (Main Lower Hall):

- Crime and Violent Crimes in Oklahoma, 1974 vs 1990. \*Tanisha Johnson. University of Central Oklahoma
- Education of Oklahoma, 1950 vs 1990. \*Tanisha Johnson. University of Central Oklahoma
- Oklahoma's Per Capita Income and Percentage of Residents Below the Poverty Level, 1970 vs 1990. \*Justin Combe. University of Central Oklahoma
- Population by Race in Oklahoma, 1970 vs 1980. \*Charlie Stevenson. University of Central Oklahoma
- Oklahoma and United States Native American Population, 1970 vs 1990. \*Brandie Reisman. University of Central Oklahoma

\*Collegiate Academy, Undergraduate Competition



SECTION G: FISH AND WILDLIFE CONSERVATION  
100 SCIENCES COMPLEX

Morning Session - Moderator: Dana L. Winkelman,  
Oklahoma Cooperative Fish & Wildlife Research Unit

8:00 Movement and Survival of Stocked Rainbow Trout in a Northeastern Oklahoma Stream. Maureen G. Walsh, Daniel B. Fenner, and Dana L. Winkelman. Oklahoma Cooperative Fish and Wildlife Research Unit, Oklahoma State University

8:15 Multiple Paternity, Inbreeding, and Reproductive Success in a Population of Gunnison's Prairie Dogs. Sarah B. Moore and Ronald A. Van Den Bussche. Oklahoma State University

8:30 Spatial and Temporal Distribution of Bison on Tallgrass Prairie. Krysten L. Schuler and James H. Shaw. Oklahoma State University

8:45 Preliminary Assessment of New England Cottontail (*Sylvilagus transitionalis*) and Eastern Cottontail (*S. floridanus*) in Connecticut. W. David Walter, Michael A. Gregonis, and Howard J. Kilpatrick. Connecticut Department of Environmental Protection, Wildlife Division

9:00 Larval Striped Bass Growth and Survival in Lake Texoma, Oklahoma - Texas: A Study Design. Jason Schaffler and Dana L. Winkelman. Oklahoma State University

9:15 A Survey of Springs in Oklahoma: Preliminary Fish and Flow Results. Elizabeth Bergey and William Matthews. University of Oklahoma

9:30 Nitrogen Concentration of Stomach Contents as an Index of Dietary Nitrogen for Hispid Cotton Rats. Jay E. Clark, Jennifer L. Parsons, Eric C. Helligren, and Eric E. Jorgensen. Oklahoma Cooperative Fish and Wildlife Research Unit, Oklahoma State University; U.S. Environmental Protection Agency

9:45 Break

SECTION G: FISH AND WILDLIFE CONSERVATION  
100 SCIENCES COMPLEX

(cont.)

10:00 Modeling Habitat Selection and Den Site Availability for Black Bears in a Desert Montane Landscape. Dave P. Onorato and Eric C. Helligren. Oklahoma Cooperative Fish and Wildlife Research Unit, Oklahoma State University

10:15 Diet Overlap Between Native Fishes and Introduced Rainbow Trout in an Ozark Stream. Daniel B. Fenner, Maureen G. Walsh, and Dana L. Winkelman. Oklahoma Cooperative Fish and Wildlife Research Unit, Oklahoma State University

10:30 Still Discovering the Fishes of Oklahoma. \*Courtney Vidacovich, Oklahoma City University

10:45 A Herpetological Survey of the Chickasaw National Recreation Area. \*Adrienne Cooper. St. Gregory's University

11:00 Section G Business Meeting

11:30 Academy Business Meeting, Room 100

12:00 Academy Banquet, Shepler Center Mezzanine

## SECTION G: FISH AND WILDLIFE CONSERVATION

Afternoon Session – Moderator: Tim Patton,  
Southeastern Oklahoma State University

- 1:45 Impacts of Angling on Hybrid Bluegill. Clifton R. Sager and Dana L. Winkelman. Oklahoma Cooperative Fish and Wildlife Research Unit
- 2:00 Mussels of the Poteau River: Distribution, Abundance and Implications for Future Commercial Harvest. Caryn C. Vaughn and Daniel E. Spooner. University of Oklahoma
- 2:15 Ecosystem Effects of Native Freshwater Mussels (Family: Unionidae). Daniel Spooner, Caryn Vaughn, and Keith Gido. Oklahoma Biological Survey and University of Oklahoma
- 2:30 Female Opssum Den Use in the Cross Timbers: Effects of Interspecific Competition and Habitat Fragmentation. Shauna M. Ginger, Maral A. Kasparian, and Eric C. Helligren. Oklahoma State University
- 2:45 Genetic Structure of Wolverines in Canada. Derrick Chappell and Ronald Van Den Bussehe. Oklahoma State University; Oklahoma Cooperative Fish and Wildlife Research Unit
- 3:00 Monitoring Population Dynamics of an Expanding Elk (*Cervus elaphus*) Herd Surrounding the Wichita Mountains Wildlife Refuge. W. David Walter, and David M. Leslie, Jr. Oklahoma Cooperative Fish and Wildlife Research Unit
- 3:15 Associations of Eastern Red Cedar on Community Structure of Small Mammals. Valerie Homcastle, Eric Helligren, and Paul Mayer. Oklahoma State University
- 3:30 Gone in Patagonia: *Atelagnathus patagonicus*, archetypical example of worldwide amphibian declines/extinctions? Joy H Yoshioka, Stanley F. Fox, and Carmen A Ubeda. Oklahoma State University
- Poster (Main Lower Hall):  
Annual Changes in Limnological Parameters and Trophic Status Indices for Crowder Lake, Washita Co., OK. Steven W. O'Neal, Adam Carr, Adam Richardson, Amber Kindstafner, Lynsie Morris, Renee Skladzien, and Amy Trachte. Southwestern Oklahoma State University

## SECTION H: MICROBIOLOGY 104 SCIENCES COMPLEX

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

- 8:45 Cyanobacteria, Salt Stress, and DNA arrays. Brad Postier, R. Burnap, L. Impson, and H. Wang. Oklahoma State University
- 9:00 Proteomic Analysis of TcdB Induced Apoptosis. Matthew Ramsey and Jimmy Ballard. University of Oklahoma
- 9:15 Expression analysis of NaCl stress on *Aspergillus nidulans*. Hugh Russell and Rolf Prade. Oklahoma State University
- 9:30 Genetic and Antigenic Analysis of an Equine Influenza Virus. \*Kristin Rogers and Alexander C. K. Lai. Oklahoma State University
- 9:45 Vegetative Compatibility Among Nitrate Nonutilizing Mutants of *Fusarium oxysporum*. \*Loretta Rush. East Central University
- 10:00 Break
- 10:30 Characterization of a G protein-coupled Receptor in *Dictyostelium discoideum*. Brent Raisley and Jeffrey Hadwiger. Oklahoma State University
- 10:45 Receptor and G Protein Specificity in Eukaryotes. \*Jason Beaman and Jeff Hadwiger. Oklahoma State University
- 11:00 Section H Business Meeting
- 11:30 Academy Business Meeting, Room 100
- 12:00 Academy Banquet, Shepler Center Mezzanine
- Afternoon Session – Moderator: Arden Aspedon,  
Southwestern Oklahoma State University
- 1:45 Expression Studies of Metabolic Genes involved in plant cell wall degradation by *Aspergillus nidulans*. Sunita Macwana, Rolf A. Prade, Anamika Ray, and A. Mort. Oklahoma State University
- 2:15 Construction of a Bacteriophage-based Biosensor for Food Pathogens. Cory M. Pfeifer and Robert Miller. Oklahoma State University

2:00 Regulation of Phagocytosis of *Escherichia coli* in the *Biomphalaria glabrata* Embryonic (Bge) Cell Line. Courtney Copeland, Timothy Yoshino, and Judith Humphries. University of Wisconsin-Madison

2:15 Construction of a Bacteriophage-based Biosensor for Food Pathogens. Cory M. Pfeifer and Robert Miller. Oklahoma State University

2:30 Carbon Sensing in *Aspergillus nidulans*. Rosanna Murralla and Rolf Prade. Oklahoma State University

2:45 Cloning of the S1P3 Homologue in *Aspergillus nidulans*. Shobana Krishnan, Rosanna Penna-Muralla and Rolf Prade. Oklahoma State University

3:00 Break

3:30 Development of a DNA Vaccine for Equine Influenza Virus. Sheela Ramamoorthy and Alexander C. K. Lai. Oklahoma State University

3:45 Analysis of Microbial Diversity of Bromeliaceae in the Cloud Forest of the Rio Savegre Valley of Costa Rica. \*Skipper Rowland. Southern Nazarene University

4:00 G Protein Function in Eukaryotic Cells. Wambui Kioni and Jeffrey A. Hadwiger. Oklahoma State University

Posters (Main Lower Hall):

Genome Characterization of *Streptococcus zooepidemicus*. \*Cacie E. Soltani. Oklahoma City University

The Cell Wall's Contribution to the Pathogenesis of Bacterial Endophthalmitis. \*Tiffany G. Elliott. Oklahoma City University

Identification of Bacteria Involved in the Bioremediation of Acid Mine Drainage. \*Karen Gaber. University of Tulsa

Use of Biphasic Cultures to Increase the Yield of Plasmid DNA. \*Mathew B. Johnson. University of Tulsa

Use of Heavy Metals to Prevent Nosocomial Infections Spread by Pens. \*Nicole Farrar. University of Tulsa

Construction and Analysis of EST Data Base of *Cryptococcus neoformans*. \*Sonja Good-Messenger. Oklahoma City Community College Biotechnology Program

\*Collegiate Academy, Undergraduate Competition

SECTION I: ENGINEERING SCIENCES  
201 SCIENCES COMPLEX

No papers are being presented in this section.

9:00 Section I Business Meeting

SECTION J: BIOCHEMISTRY & BIOPHYSICS  
130 SCIENCES COMPLEX

Morning Session – Moderator: Jack W. Dillwith, Oklahoma State University

10:00 Differential Gene Expression in Anthrax-intoxicated Macrophages. Amy Meader-Tucker and Jimmy Ballard. University of Oklahoma

10:15 Studies on the TrpE Gene of *Brucella abortus*. Bobby Gramling and Richard Essenberg. Oklahoma State University

10:30 Gene Expression in Male *Dermacentor andersonii* is Affected by Both Feeding and Females. Felix Anyomi, Richard Essenberg, and John Sauer. Oklahoma State University

10:45 Constraints on Sequences Near Read-through Stop Codons Revealed by Comparative Analysis. Lance Harrell and Ulrich Melcher. Oklahoma State University

11:00 Section J Business Meeting

11:30 Academy Business Meeting, Room 100

12:00 Academy Banquet, Shepler Center Mezzanine

Afternoon Session – Moderator: Ann West, University of Oklahoma

1:45 The Effects of Light on Tyrosine Phosphorylation in Bovine Rod Outer Segments. \*Trent Tadlock. Oklahoma City University

2:00 Genes Induced During the Hypersensitive Resistance Response in Cotton Leaves to *Xanthomonas*. Mohini Patil, Margaret L. Pierce, Bryan Venters, Angela Phillips, and Margaret Essenberg. Oklahoma State University

2:15 Evidence for a 3' Translational Enhancer for Maize Chlorotic Mottle Virus. Kay Scheets. Oklahoma State University

\*Collegiate Academy, Undergraduate Competition

SECTION J: BIOCHEMISTRY & BIOPHYSICS  
130 SCIENCES COMPLEX  
(cont.)

- 2:30 Molecular Cloning of Delta-9 Desaturase Gene in the Pea Aphid, *Acyrthosiphon pisum*. Zhaorigetu Chen, Haobo Jiang, Yang Wang, Robin D. Madden, and Jack W. Dillwith. Oklahoma State University
- 2:45 Break
- 3:00 Wheat Proteomics. Bryna Donnelly, Robin Madden, David Porter, and Jack W. Dillwith. Oklahoma State University
- 3:15 Applying d-labeled N-alkylmaleimides to Quantitative Peptide Analysis on Proteomics by Isotope Differential Mass Spectrometry. Sadamu Kuroso and Hiroyuki Matsumoto. University of Oklahoma Health Sciences Center
- 3:30 SNARE and Cell Trafficking Regulatory Proteins in the Salivary Glands of the Lone Star Tick, *Amblyomma americanum* (L.). Shahid Karim, John R. Sauer, Richard C. Essenberg, and Jack W. Dillwith. Oklahoma State University
- 3:45 Analysis of Protein-Protein Interactions in the Yeast Osmoregulatory Signal-Transduction Pathway. Stace W. Porter and Ann H. West. University of Oklahoma
- 4:00 Regulation of Arachidonic Acid Release in the Salivary Glands of the Lone Star Tick, *Amblyomma americanum* (L.). Jorge Omero Lopez, John R. Sauer, Jack W. Dillwith, and Richard C. Essenberg. Oklahoma State University
- 4:15 Elucidating the Catalytic Mechanism of Malic Enzyme via Site-directed Mutagenesis Studies. Dai Liu, William E. Karsten, and Paul F. Cook. University of Oklahoma

Poster (Main Lower Hall):  
Proteomics Study of Heat Shock Response in *Drosophila* Photoreceptor.  
\*Ken Miyaguchi, Sadamu Kuroso, Olivia Hanson, and Hiro Matsumoto.  
University of Central Oklahoma and University of Oklahoma Health Sciences Center

SECTION K: MICROSCOPY  
128 SCIENCES COMPLEX

Morning Session – Moderator: Steve Fields,  
Oklahoma Medical Research Foundation

- 9:00 "What the Heck Happened to This?" - Real Life Failure Analysis Using Microscopy and Microanalysis. Valerie Woodward. BF Goodrich Performance
- 10:00 Break
- 10:15 \*\*Free-Standing Films Preparation: Influence of Substrate on Their Structure. Arif A. Mamedov, Dmitry S. Koktysh, Zhiyong Tang, and Nicholas A. Kotov. Oklahoma State University
- 10:30 \*\*Nano-Scale Structures Fabricated in and on Various Substrates Using Anodic Aluminum Oxide Templates. P. R. Larson, A. M. Elliott, M. Keil, and M. B. Johnson. Oklahoma State University
- 10:45 \*\*Layer by Layer Assembly of Polyelectrolyte Films of Poly (diallyldimethylammonium chloride) and Poly (Acrylic Acid) for Use as a Precursor in the Fabrication of Free-Standing Films of Nanoparticles. John Ostrander and Nicholas A. Kotov. Oklahoma State University
- 11:00 Selectin-Mediated Leukocyte Rolling: Signaling and Consequences. Vishwanath V. Ramachandran, Rodger P. McEber, David Schindke, and Bill Chisose. Oklahoma Medical Research Foundation
- 11:15 OMS Business Meeting
- 11:30 Academy Business Meeting, Room 100
- 12:00 Academy Banquet, Shepler Center Mezzanine

\*\*Timpano Competition

\*Collegiate Academy; Undergraduate Competition

\*Collegiate Academy; Undergraduate Competition

SECTION K: MICROSCOPY  
128 SCIENCES COMPLEX

Afternoon Session – Moderator: Phoebe Doss, Oklahoma State University

- 1:45 Inflammatory Mediators Modulate the Adhesive Capacity of P-Selectin by Regulating its Distribution in Clathrin-Coated Pits. Hendra Setiadi and Rodger McEver. Oklahoma Medical Research Foundation
- 2:00 P-Selectin Glycoprotein Ligand-1-Deficient Mice Exhibit Leukocytosis and Neutrophilia. \*Bryan Buster and Rodger McEver. University of Oklahoma Medical Research Foundation
- 2:15 Effects of the Diabetic State on Motility and Adhesions in Human Gingival Fibroblasts. \*Jonathan A. Bryan and Barbara Safiejko-Mroczka. University of Oklahoma
- 2:30 The Effects of Hyperglycemic Conditions and Growth Factors on Fibroblasts in an In-Vitro Wound Model. \*Mark Hamilton and Barbara Safiejko-Mroczka. University of Oklahoma

SECTION K: MICROSCOPY PHOTO CONTEST  
Hallway outside Room 128

SECTION L: MATHEMATICS & COMPUTER SCIENCE  
114 SCIENCES COMPLEX

Morning Session – Moderator: Robert Ferdinand, East Central University

- 10:00 10's Complement Arithmetic, Including Infinity, for Large Binary Coded Decimal Integers. Clay Carley. East Central University
- 10:15 Recent Results on the Solution of a Nonlinear Integral Equation Appearing in Radiative Transfer. Ioannis Argyros. Cameron University
- 10:30 Functions which Preserve Compactness and Connectedness. Troy Hamlett. East Central University
- 10:45 Web Interfaces to Databases. Bill Walker. East Central University
- 11:00 Section L Business Meeting
- 11:30 Academy Business Meeting, Room 100
- 12:00 Academy Banquet, Shepler Center Mezzanine
- Afternoon Session – Moderator: Robert Ferdinand, East Central University
- 2:00 Sonia Kovalevsky High School Mathematics Day - Experiences and Practice. Anita Walker. East Central University
- 2:15 The Resolution of a Digital Topological Space. Michael Scott McClendon. University of Central Oklahoma
- 2:30 Parameter Estimation in a Nonlinear Partial Differential Equation Model having Singular Diffusion. Robert Ferdinand. East Central University

SECTION M: ENVIRONMENTAL SCIENCES & PLANNING  
101 SCIENCES COMPLEX

Morning Session - Moderator: Daniel M. McInnes, East Central University

- 9:00 Roberto Burle Marx: An Artist in the Landscape. \*Tina Y. Schulenberg, Oklahoma State University
- 9:10 Life and Works of Thomas Church. \*David C. Brown. Oklahoma State University
- 9:20 Designing with Mother Nature: Ian McHarg's Perspective. \*Anjlie K. King. Oklahoma State University
- 9:30 Michael Van Valkenburgh: Sculptural Landscape. \*Kara M. Mitchell, Oklahoma State University
- 9:40 FDR Memorial: A Landscape Architecture Master Piece. Charles Leider, Oklahoma State University
- 9:50 Section M business meeting
- 11:30 Academy Business Meeting, Room 100
- 12:00 Academy Banquet, Shepler Center Mezzanine
- Poster (Main Lower Hall):  
"Penencia Responsabel de Mascotas" En una Aldea Turistica de Montana Patagonica. Julieta Mumiz Saavedra, Huro Biasco, Ricardo Salvi, Municipalidad de San Martin de los Andes, Neuquen, Argentina

SECTION N: BIOMEDICAL SCIENCES  
200 SCIENCES COMPLEX

Morning Session - Moderator: David R. Wallace, Oklahoma State University College of Osteopathic Medicine

- 9:00 Mechanism of Endocytosis. \*Ivey Thomton. Oklahoma Christian University
- 9:15 Effect of troglitazone treatment on nitric oxide during endotoxemia in mice. \*Jared Johnson. Oklahoma Christian University
- 9:30 Construction of a new transposon vector to generate bidirectional deletions in library members housed in pICTAC-MAM2. \*Max Seibold, Southwestern Oklahoma State University
- 9:45 Horizontal Cell Development in the Mouse Retina. \*Travis Loven. Oral Roberts University
- 10:00 Break
- 10:15 Development of a diagnostic PCR assay for the detection of Baboon cytomegalovirus. Tami G. Ross and Earl L. Blewett, Oklahoma State University Center for Health Sciences, College of Osteopathic Medicine
- 10:30 Cloning of B71 and expression and purification of the B71 protein for use in diagnostic ELISA. Kirk B. Hickey, Tami G. Ross, and Earl L. Blewett, Oklahoma State University Center for Health Sciences, College of Osteopathic Medicine
- 10:45 Genomic analysis of the Baboon cytomegalovirus unique short terminus. Susan R. Neubaur and Earl L. Blewett, Oklahoma State University Center for Health Sciences, College of Osteopathic Medicine
- 11:00 Section N Business Meeting
- 11:30 Academy Business Meeting, Room 100
- 12:00 Academy Banquet, Shepler Center Mezzanine

SECTION N: BIOMEDICAL SCIENCES  
200 SCIENCES COMPLEX

Afternoon Session - Moderator: David R. Wallace,  
Oklahoma State University College of Osteopathic Medicine

- 2:00 Transplantation of MHC Mismatched Thymic Epithelial Cells Induces Recipient Tolerance to Subsequent Grafts. Sandra Sands, Robert Ketchum, Lee Rickords, and Jun Hayashi, Oklahoma State University Center for Health Sciences, College of Osteopathic Medicine
- 2:15 Down-Regulation of Opioid Receptors in Amphibians After Chronic Morphine Administration. Steven S. Sands, David R. Wallace, and Craig W. Stevens. Oklahoma State University Center for Health Sciences, College of Osteopathic Medicine
- 2:30 Do Imidazoline Receptors Have a Role in Kidney Function? Al J. Rouch and Lucia H. Kudo. Oklahoma State University Center for Health Sciences, College of Osteopathic Medicine
- 2:45 Attenuation of HIV-Mediated Oxidative Stress by Delta-Opioid Receptors. David Wallace and Summer Dodson. Oklahoma State University Center for Health Sciences and University of Tulsa

Posters (Main Lower Hall):

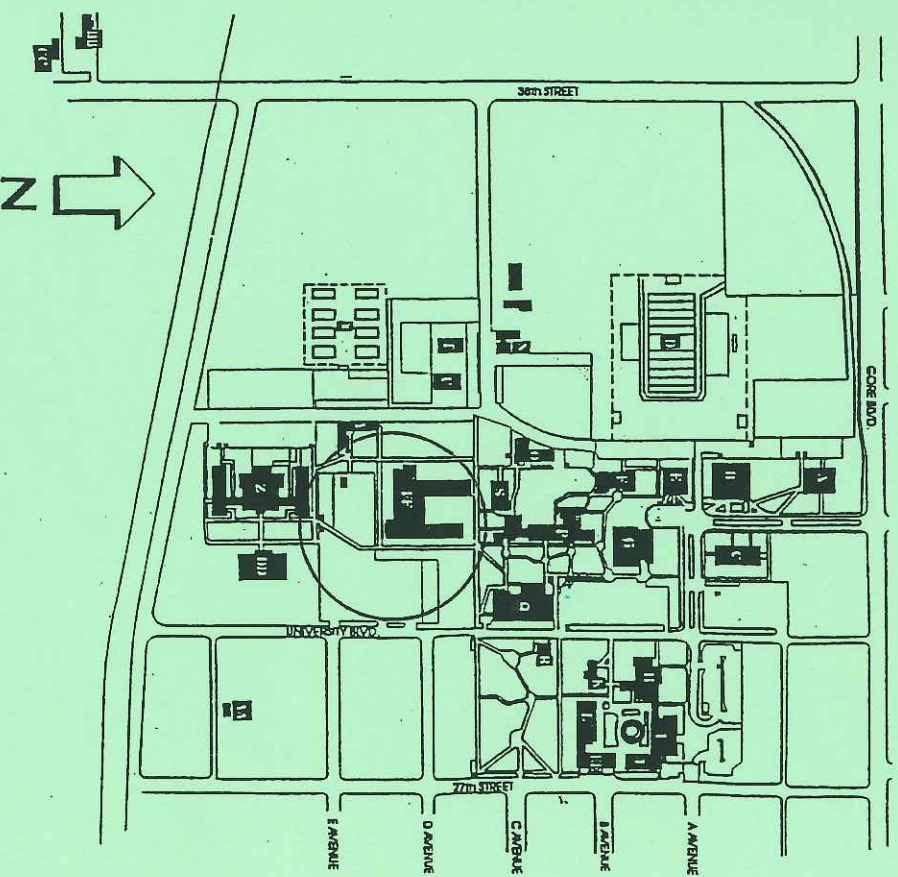
- Synaptic Inputs to Parasol Ganglion Cells in the Macaque Retina.  
\*Andrea S. Bort. Oral Roberts University
- Construction of a Plasmid Vector for the Generation of Bidirectional Deletions in Genomic Clones Housed in pJCPAC-MAM2. \*Kyle Moore. Southwestern Oklahoma State University
- Evidence for an alpha-2 Mechanism that Affects Fluid Absorption in the Small Intestine. Kenyon Williams and Al Rouch. Oklahoma State University Center for Health Sciences, College of Osteopathic Medicine

OKLAHOMA ACADEMY OF SCIENCE PRESIDENTS

1910	H.L. Lane, OU	1954	A.N. Murray, TU
1911	D.W. Otherrn, OK City	1955	R.E. Olson, OU
1912	S.W. Reeves, 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	Ehmer Lucas, OU
1916	C.N. Gould, OU	1960	P.E. Smith, OUMS
1917	L.C. Raiford, 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, NOJC
1921	A.F. Reiter, PU	1965	J.E. Webster, OSU
1922	J.B. Thoburn, OK City	1966	C.R. Williams, PU
1923	R.O. Whitemon, 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
1925	(fall) H.L. Dodge, OU	1970	C.C. Carpenter, OU
1926	J.H. Gould, OAMC	1971	Paul Buck, TU
1927	C.N. Gould, OU	1972	W.A. Carter, ECSU
1928	O.M. Smith, OAMC	1973	C.J. Mankin, OU
1929	A. Richards, OU	1974	N.N. Durham, OSU
1930	Leroy Long, OK City	1975	Barbara Shirley, TU
1931	A.O. Weese, OU	1976	G.W. Todd, OSU
1932	Herbert Patterson, OAMC	1977	D.E. Kizer, Noble Found
1933	J.E. Knowles, PU	1978	George Odell, OSU
1934	F.G. Brooks, OCU	1979	Richard Couch, ORU
1935	C.E. Decker, OU	1980	Gary Wolganott, SWSU
1936	H.J. Harper, OAMC	1981	Elroy Rice, OU
1937	B.D. Barclay, TU	1982	Everett Grigsby, NSU
1938	C.M. Perry, OU	1983	Jack Sokatch, OUHSC
1939	H.D. Chase, TU	1984	Mary Whitmore, OU
1940	G.L. Cross, OU	1985	Jeff Black, OBU
1941	R.W. Jones, OAMC	1986	Jerry Wilkin, OSU
1942	H.I. Featherly, OAMC	1987	Manford K. Patterson, Noble Found
1943	O.F. Evans, OU		
1944	V.G. Heller, OAMC	1988	Mary P. Carpenter, OU
1945	J.R. Nielsen, OU	1989-1990	Kenneth E. Conway, OSU
1946	O.C. Derrner, OAMC	1991-1992	James K. McPherson, OSU
1947	J.T. Self, OU	1993-1994	James R. Estes, OU
1948	L.S. McLeod, TU	1995-1996	Jack D. Tyler, CU
1949	J.C. Shirley, PU	1997-1998	Connie Taylor, SEOSU
1950	Howard Taylor, OCW	1999-2000	Ronald J. Tyril, OSU
1951	H.W. Larsh, OU	2001-2002	David Bass, UCO
1952	V.B. Monnet, OAMC		
1953	S.P. Massie, LU		

# CAMERON UNIVERSITY CAMPUS

NOTES



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|----|---------------------|-----|----------------------------|
| A. | BURCH HALL          | P.  | NANCE-BOYER                |
| B. | GYMNASIUM           | Q.  | DAVIS STUDENT UNION        |
| C. | HOWELL HALL         | R.  | STUDENT ACTIVITIES         |
| D. | STADIUM             | S.  | BIOLOGY                    |
| E. | ADMINISTRATION      | T.  | ENGINEERING/AG. MECHANICAL |
| F. | PHYSICAL SCIENCE    | U.  | MAIL/TRANSPORTATION        |
| G. | LIBRARY             | X.  | TENNIS COURTS              |
| H. | MUSIC               | Y.  | SCHOOL OF BUSINESS         |
| I. | THEATRE             | Z.  | SHEPLER CENTER/MEZZANINE   |
| J. | SPEECH              | AA. | CHILD DEVELOPMENT CENTER   |
| K. | HAGGAR HALL         | BB. | ANIMAL SCIENCE             |
| L. | ART                 | CC. | PLANT SCIENCE              |
| M. | ART                 | DD. | FITNESS CENTER             |
| N. | PHYSICAL FACILITIES | EE. | ART GALLERY                |
| O. | WEST HALL           | FF. | SCIENCES COMPLEX           |