

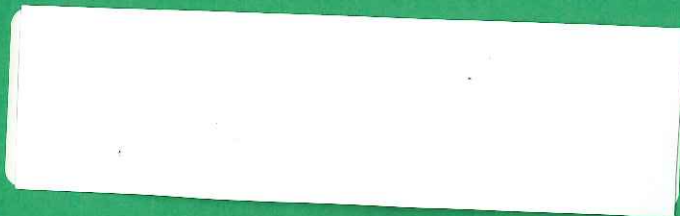
OKLAHOMA ACADEMY OF
SCIENCE
Office of the
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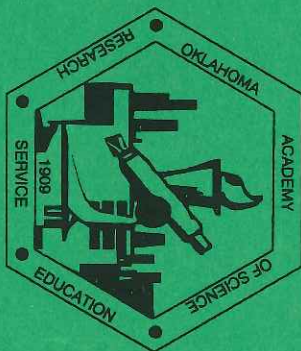


OFFICIAL PROGRAM
OF THE
86TH ANNUAL TECHNICAL MEETING

OKLAHOMA

ACADEMY OF SCIENCE

Affiliated with the
American Association for the Advancement of Science
National Association of Academies of Science
American Junior Academy of Science



FRIDAY
November 7, 1997

UNIVERSITY OF SCIENCES AND ARTS OF OKLAHOMA
2108 S. 19th Street
CHICKASHA, OKLAHOMA

OKLAHOMA ACADEMY OF SCIENCE

Since 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 varied 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.

OKLAHOMA ACADEMY OF SCIENCE EIGHTY-SIXTH ANNUAL TECHNICAL MEETING UNIVERSITY OF SCIENCES AND ARTS OF OKLAHOMA

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Map of the Campus of The University of Sciences and Arts of Oklahoma..... Back Inside Cover

THE OKLAHOMA ACADEMY OF SCIENCE
86TH ANNUAL FALL TECHNICAL MEETING
University of Sciences and Arts of Oklahoma
 Chickasha, OK
Program Summary

Thursday, 06 November 1997

6:30 p.m. Executive Council Dinner and Meeting Emerald Room Student Union

Friday, 07 November 1996

7:30 a.m. - 2:00 p.m. Registration for Technical Meeting Austin Hall, 1st Floor

7:30 a.m. - 11:00 a.m. Registration Junior Academy Workshop Davis Hall, 2nd Floor

9:00 a.m. - 11:00 a.m. Concurrent Scientific Paper Sessions Listed Below

	BLDG & RM#		BLDG & RM #
Section A Botany	AH 213	Section A Zoology	AH 202
Section B Geology	GH 202	Section C Physical Sciences	GH 210
Section D Social Science	DH 201	Section E Science Education	GH 108
Section F Geography	AH 101	All Sections Posters	All, Emerson Rm
Section G Fish and Wildlife	AH 108	Section H Microbiology	AH 206
Section I Engineering Sciences	AH 209	Section J Biochemistry/Biophysics	DH 107
Section K Microscopy	TH 305	Section L Math/Computer Science	TH 306
Section M Environmental	DH 226	Section N Biomedical Sciences	AH 107
Section Z Junior Academy	Workshop on Student Research		DH 224

Key to Building Abbreviations: AH=Austin Hall GH=Gary Hall DH=Davis Hall
 TH=Trout Hall SU=Student Union

11:00 a.m. - 11:15 a.m. Section Meetings in assigned meeting rooms listed above.

Please participate in the election of the 1998 Section Vice Chair.

11:20 a.m. - 11:50a.m. All Academy Business Meeting TH Auditorium 1
 OAS members are encouraged to attend and visitors are welcome.

12 noon - 1:30 p.m. OAS AWARDS BANQUET SU Ballroom
 Dr. David W. Stahl, Department of Geography, University of Arkansas
 "Tree-Ring Chronologies for the Southeastern United States."
 Admission by ticket only. Tickets in registration packet and at desk.

1:45 p.m. - 5:00 p.m. Concurrent Scientific Paper Sessions Continuation

2:00 p.m. - 3:00 p.m. Special Section Oklahoma Partners for Biological Sciences DH 205

An OAS name badge, obtained by registering, is required for all individuals attending Academy workshops and meetings. All presenters must register and wear an official name badge.

GENERAL INFORMATION

Parking: Members and visitors may park in any of the parking areas indicated on the map on the back cover of this booklet. Parking is free to all USAO visitors on that day.

Preregistration assists greatly in the planning by the host institution to accommodate a large influx of visitors.

Fee Schedule:	Members - \$5	Student Members - \$3
	Nonmembers - \$10	Student Nonmembers - \$3
	Banquet - \$10	

The preregistration period will continue until November 1, 1997. If you have not already done so please utilize the registration form provided in this booklet and register before November 1. You will save time and money by preregistration. The cost will increase on November 2-7. Banquet tickets may not even be available. They usually are and they will cost more on Nov. 7.

On Site Registration creates a chaotic condition of congestion at the registration area. In order to reduce this situation, on site prices have been increased as a disincentive to on site registration.

On site Fee Schedule:	Members - \$10	Student Members - \$6
	Nonmembers - \$15	Student Nonmembers - \$6
	Banquet - \$15	

1997 and/or 1998 Dues are Payable Now.

The OAS registration desk will accept annual dues payments that are accompanied by an appropriate application or renewal form. Payment of registration, banquet and dues may be combined in a single check. If you need a hand written receipt request one from the several student clerks serving you.

Academy Business Meeting: The 86th Annual Business Meeting of the Oklahoma Academy of Science will be held in Trout Hall Main Auditorium 11:20 a.m. All OAS members are encouraged to attend and registered visitors are welcome.

All Academy Award Banquet

This Gala affair will be held in the Ballroom of the Student Union. Tickets are required for the meal, awards ceremony and featured speaker. Students and others will be admitted after the meal in order to hear the featured speaker as space allows.

Papers may be published in the Proceedings of the Oklahoma Academy of Science, subject to the editorial policies as published in v. 76, pp. 117-125. Manuscripts, an original and two copies are required, or alternatively manuscripts may be submitted on computer disk or transmitted as an e-mail document. Mail manuscripts or diskettes to Dr. Thomas L. Warren, Editor, POAS, Department of English, 205 Morrill Hall, Oklahoma State University, Stillwater, OK 74078-0135. E-mail: twarren@vml.ucc.okstate.edu Manuscripts received after May 15, 1998 will be accepted for publication in November 1999. OAS members are charged \$30 per page and nonmembers are charged \$100 per page.

Inquiries relating to OAS policies, activities and membership may be directed to the Executive Secretary-Treasurer, P.O. Box 701915, Tulsa, OK 74170-1915. Voice Mail 918-495-6944, Fax 918-743-2428, Home Office 918-742-5709 or E-mail enclison@oru.edu.

OAS Home Page: <http://hmb-fs1.biochem.okstate.edu/OAS/OASHomePage.html>

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.

No Smoking is permitted in any classroom on the campus. Also food and drink are not permitted in any meeting room.

Motel Accommodations: The designated headquarters motel for the 86th Annual Technical Meeting will be the **Days Inn** (86 rms), 2701 S. 4th Street, Chickasha, OK. (405) 222-5800. Rate quoted: Single \$35 plus tax, double \$40 plus tax, continental breakfast included. Telephone for reservations and rate confirmation. Inform the desk you are an OAS delegate. Other discounts may apply. Ask before you register.

Other fine motels in the vicinity of USAO:					
Motel	Address	#Rms	Phone	Single	Double
Best Western	2101 S. 4th St.	154	224-4890	\$45.00	\$47.00
Deluxe Inn	2728 S. 4th St.	55	222-3710	\$30.00	\$42.00
Royal American Inn	2901 S. 4th St.	65	222-2205	\$30.00	\$32.00
U-Lodge Motel	1313 S. 4th St.		224-8010	\$25.00	\$30.00
Cambell-Richison B & B	1428 Kansas Ave	3	222-1754		\$39.49, 59

Name badges prepared prior to your arrival if you preregistered or prepared on site if you did not preregister must be displayed at all times while attending Academy sectional programs, business meetings, refreshment centers and banquet. Without displaying OAS identification you may be asked to leave by the persons in charge of these areas. Lost badges may be replaced at the registration desk upon the verification of your status.

Official Program Booklet: Bring this copy that was mailed to you to the meeting. A replacement copy may be purchased for \$2.00 at the registration desk.

FUTURE MEETINGS

1998 Spring Field Meeting is not yet scheduled. **Dr. Mike Bay**, Department of Biology, East Central University, Ada, OK 73034-0164820, 405 332-8000 Ext. 5783. E-mail: mbay@biology.ecok.edu is planning the details for this meeting. Convey your suggestions for tailoring this meeting to meet your needs to him. If you need more details before the March OAS Newsletter he is the person to contact.

1998 Fall Field Meeting is still in the planning stages. **The Section Chair of Section G: Fish and Wildlife** will select a site after the first of the year and will recruit the field trip leaders shortly thereafter. If you have any site or field trip in mind call the Section Chair and give her/him the details.

The 1998 Annual Technical Meeting will be held at the Northeastern State University at Tahlequah, Oklahoma on **Saturday November 14, 1998**. Note that this meeting is a day later than our usual date. If you have serious, valid or reasonable objections to this date let your elected officers know now. Otherwise make plans to attend.

The Division of Science and Mathematics will soon designate one of their faculty to coordinate this meeting. If you have any suggestions for a special session other than the usual sectional paper format contact them at College of Mathematics, Science and Nursing, Department of Biology, Northeastern State University, Tahlequah, OK 74464, 918 456-5511 or e-mail macklin@cherokee.nsok.edu

The 1999 Annual Technical Meeting place and time is now under consideration. Oklahoma City University wants to host us on **Saturday November 13, 1999**. This will be a second year in a row that an annual meeting will be held on a Saturday. This meeting has been confirmed by letter from the President of OCTI. If you have serious, valid or reasonable objections to this date let your elected officers know now. Otherwise make plans to attend.

SECTION A: BIOLOGICAL SCIENCES
BOTANY SUBSECTION
AUSTIN HALL (AH) 213
MODERATOR: CLARK OVBREBO, UCO

- 9:00 Purification of Cantaloupe Lipoxygenase Peroxidases. Charlie L. Biles, Benny D. Bruon, and Jinxu X. Zhang, FCU
- 9:15 Temperature and Irradiance Effects on Growth and Pigmentation of Mougeotia and Zygnema (Chlorophyta). Steven W. O'Neal, SWOSU
- 9:30 Vegetation Patterns at the Chickasaw National Recreation Area, Murray County, OK. Bruce Hoagland, Steven Gray, and Forrest L. Johnson, OU
- 9:45 A Taxonomic Investigation of Plantago elongata Pursh, P. pusilla Nutt. and P. heterophylla Nutt. Ron H. Hoggard and Gloria M. Caddell, OCO
- 10:00 BREAK
- 10:15 Growth and Yield Response to Water and Abscissic Acid Treatments of Pigeon Pea (Cajanus cajan). Mony A. Porter and James E. Bidlack, UCO
- 10:30 Phylogeny and Biogeography of Calamovilfa (Poaceae). Pamy B. Smith, OU/OSU
- 10:45 Macrofungi of Barro Colorado Island, Panama: A First Look. Clark L. Ovbredo, UCO
- 11:00 Section A Business Meeting, AH 213. Election of Vice-Chair.
- 11:20 All Academy Business Meeting, TH Auditorium
- 12:00 OAS Awards Banquet, Student Union Ballroom

AFTERNOON SESSION
BOTANY SUBSECTION
AUSTIN HALL (AH) 213

- 2:00 Flora of Oklahoma Project Meeting. Susan Barber, OCU

SECTION A: BIOLOGICAL SCIENCES
ZOOLOGY SUBSECTION
AUSTIN HALL (AH) 202
MODERATOR: JOHN HRANITZ, UCO

- 9:00 Social Inhibition of Territorial Behavior in Yearling Male Collared Lizards, Crotaphytus collaris. Troy A. Baird and Dusti K. Timanus, UCO.
- 9:15 Phenotypic correlates of Estimated Mating Success in Male Collared Lizards, Crotaphytus collaris. Dusti K. Timanus and Troy A. Baird, UCO.
- 9:30 Microgeographic Population Structure of Crotaphytus collaris in Central Oklahoma. John M. Hranitz and Troy A. Baird, UCO.
- 9:45 Intrasexual Female Aggression in Thirteen-Lined Ground Squirrels, Spermophilus tridecemlineatus. Linda D. Luna and Troy A. Baird, UCO.
- 10:00 BREAK
- 10:15 Fishes of the Deep Fork River, Central Oklahoma. Jimmie Pigg, DEQ.
- 10:30 Late Pleistocene Geomys from Washita Local Fauna. Dustin V. Devine, SWOSU.
- 11:00 Section A Business Meeting, AH 213. Election of Vice-Chair.
- 11:20 All Academy Business Meeting, TH Auditorium.
- 12:00 OAS Awards Banquet, SU Ballroom.

SECTION B: GEOLOGY
Gary Hall Room 202

Moderator: Dr. John P. Hogan, University of Oklahoma

Morning Session:

- 9:00 Designation of a composite-stratotype for the McAlester Formation (Desmoinesian) in its type area: Pittsburg County, Oklahoma. Lefkoy A. Hemish, OGS.
- 9:15 Rate and mechanism of surficial Barite precipitation.
Ernie Sanders and Thomas Dewers, OU.
- 9:30 Subsurface structural geology of the northern part of Carter-Knox oil field, Grady County, Oklahoma.
Brian Hoffman and Ibrahim Cemen, OSU.
- 9:45 Trace fossils as indicators of sedimentologic processes: Effects of bioturbation on sediment properties. James R. Chaplin, OGS.
- 10:00 Geometry and structural evolution of the thrust faults in the Tahina and Red Oak 7.5 minute Quadrangles, Latimer County, Oklahoma.
Mehdi Syed, and Ibrahim Cemen, OSU.
- 10:15 * Extraction of iron/sulfate minerals for bioremediation assessment.
Kevin Ware, Valerie Green, Lonnie Kennedy, and Jess Everett, OU.
- 10:30 * Microfaunal analysis of a potential boundary stratotype for the Middle-Upper Pennsylvanian boundary
Ryan Birkenfeld, Shawna Mashburn, Joseph Hall, OSU.
- 10:45 * Determining the age of fluid flow through the Reagan Sandstone using paleomagnetic data. Carrie Kienberger, OU.
- 11:00 SECTION B GEOLOGY BUSINESS MEETING.
- 11:20 ALL ACADEMY BUSINESS MEETING.
- 12:00 OKLAHOMA ACADEMY OF SCIENCES BANQUET.

* Afternoon Session Begins at 14:00 *
 See You There!

SECTION B: GEOLOGY
Gary Hall Room 202

Moderator: Dr. John P. Hogan, University of Oklahoma

Afternoon Session:

- 14:00 Changing patterns of Late Carboniferous-Early Permian cyclicity resulting from changes from an icehouse to greenhouse climate.
Darwin Boardman, OSU.
- 14:15 Sulfate and iron interactions at a methane seep caused by a failed natural gas well.
Robert Parsons, Lonnie Kennedy, and Jess Everett, OU.
- 14:30 Economic geochemistry of south central Oklahoma.
Robert Neman, ECU.
- 14:45 Dissolution an precipitation of calcite in aqueous solutions at 100°C - Influence of PCO_2 and hydrodynamic regime. Satavisa Sarkar and Thomas Dewers, OU.
- 15:00 Estimation of fracture hydraulic properties from an infiltration test"
Mike J. Nicholl, OSU.
- 15:15 An introduction to water resources management issues at CNRA.
Jason Nord, T. Brown, T. Wikle, M. Nicholl, and R. Parker, OSU.
- 15:30 Geometry and structural evolution of the thrust faults in the Blackridge and Leflore 7.5 minute Quadrangles, Leflore County, Oklahoma
Jeff Ronck, and Ibrahim Cemen, OSU.
- 15:45 Time dependent changes in waxes and asphaltenes during oil production.
Ellit Chouparova and R. Paul Philp, OU.
- 16:00 Morphometric analysis of the Upper Pennsylvanian and Lower Conodont genus *Sireptognathodus*" Tim Walsh, OSU.
- 16:15 Intraspices variation in the stable Carbon isotope composition of Peas.
James Payne, OU.
- 16:30 Preparing earth science teachers for Oklahoma elementary schools.
Vern Scott, OSU.
- 16:45 End of Session.

SECTION C: PHYSICAL SCIENCE
GARY HALL, ROOM 210
MODERATOR: J. S. MEYER, ST. GREGORY'S UNIVERSITY

Morning Session:

- 9:40 Numerical simulation in the design of a new rock engine diffuser. Albert Chen
OBU
- 10:00 A tunable diode laser for spectroscopic applications. Chih-yung Wang and
John A. Gaultne CSU
- 10:20 Vapor pressure of oxygen in equilibrium. Dwight L. Myers and Samuel J. Cluck
ECU
- 10:40 Tentative steps in using W3 in physical science courses at St. Gregory's
University. James S. Meyer SGTU
- 11:00 Section C Business Meeting—your attendance at this meeting is crucial.
- 11:20 All Academy Business Meeting Trout Hall Auditorium

Section D, Social Sciences
Davis Hall, Room 102
Morning Session: Moderator: Lois E. Albert

- 9:00 Colonialism and Hispano Identity in the Southwest. Joseph Whitecotton, OU
 - 9:15 Pit Structures and Prehistoric People in Southeastern Arizona. Patricia Gilman, OU
 - 9:30 A Prehistoric Civilization in Chichuahua, Mexico.
Paul Minnis (OU) and Michael E. Whalen (TU)
 - 9:45 Multiple Bedrock Exposures of Alibates Silicified Dolomite along the Eastern Edge of the Caprock
Escarpment: Reevaluation and Implications for Archaeological Interpretations.
K. C. Kraft, Oklahoma Museum of Natural History
 - 10:00 Break
 - 10:15 The Two Sisters Site: Late Prehistoric Occupation in the Oklahoma Panhandle.
Marjorie Duncan, Oklahoma Archeological Survey
 - 10:30 Current Research at the Little Deer Site: The Protohistoric Period in Western Oklahoma.
Richard R. Drass, Oklahoma Archeological Survey
 - 10:45 The History of the Deer Creek Site, "Ferdinandina," and Future Archaeological Research.
Robert L. Brooks, Oklahoma Archeological Survey
 - 11:00 Section D Business Meeting: Election of Officers.
 - 11:20 All Academy Business Meeting: Trout Hall Auditorium
 - 12:00 Banquet. Speaker: David Stahle, University of Arkansas
- Section D, Social Sciences**
Davis Hall, Room 102
Afternoon Session: Moderator: Lois E. Albert
- 1:45 Neoconservative Social Welfare and Human-Service Corporations.
Thomas D. Watts, UT-Arlington
 - 2:00 Archaeological Excavations at 34NB68, a Historical Structure on Olee-Missouri Trust Lands,
Noble County, Oklahoma. Lynita Langley-Ware and Robert Bartlett, Oklahoma Highway
Archeological Survey
 - 2:15 Investigations at a Late Pottawatomie Allotment Farmstead (34PT141) in Northern Pottawatomie
County, Oklahoma. Charles S. Wallis, Jr., Oklahoma Conservation Commission
 - 2:30 Archeology in the Lee Creek Valley, Eastern Oklahoma.
Lois E. Albert, Oklahoma Archeological Survey
 - 2:45 Potentials of UV Fluorescence as a Raw Material Sourcing Technique.
Greg Maggard, University of Tulsa
 - 3:00 The Protection of Indigenous Populations' Cultural Property in Peru, Mexico and the
United States. Jason Roberts, University of Tulsa

SECTION E: SCIENCE EDUCATION
DAVIS HALL ROOM 108
MORNING SESSION
MODERATOR: ALAN LENNON, SEOSU

- 8:45 Complexity of Biological Models May Interfere with Spatial Enhancement. Brad Ludrick and Alan Lennon, SEOSU.
- 9:00 Sensational Chemistry. Gordon Eggleton, SEOSU.
- 9:15 "Teacher as Researcher": Pedagogy and the Scientific Method. Shannon Arthur, Rebecca James, and Alan Lennon, SEOSU.
- 9:30 A Colloquium-Portfolio Approach to an Enhanced Science Education. Daryel Reigh and Charles Mather. USAO
- 9:45 Break
- 10:15 Section E Business Meeting (DH 108). Election of Officers, Future of Section Planning.
- 10:30 Visit other Section Presentations.
- 11:20 All Academy Business Meeting (TH Auditorium).
- 12:00 OAS Banquet.
- 2:00 Visit other section presentations.

SECTION F: GEOGRAPHY
AUSTIN HALL ROOM 101

Despite the best efforts of the Section Chair, Dr. Rebecca Scott, no members of this section had submitted titles by the time the program booklet had to go to the printer. In the event you had submitted a title to the section chair after the deadline posted in the OAS Newsletter, your paper may still be presented. It will be slightly awkward but you should continue to work with your section chair (405) 325-5832, e-mail rscott@coga.gen.uoknor.edu for an explanation and together produce a program even if it cannot be published in the official program.

- Make multiple copies of the program you create.
- Place some at the registration desk on November 7th.
- Post an enlarged copy on the door of the room assigned to your section.
- Have copies for distribution available in the meeting room.

SECTION G: FISH AND WILDLIFE CONSERVATION
AUSTIN HALL, 108
MORNING SESSION
MODERATOR: BRYON K. CLARK, SOSU

- 8:45 Porcupines, pinyon pines, and bark beetles. Linda M. Ilse and Eric C. Heltgen. OSU
- 9:00 Preliminary results of road and habitat use by predators on an area that has experienced a decline in eastern wild turkey numbers. Lori L. Nicholson, James H. Shaw, David M. Leslie, Jr., and Ronald E. Masters. OCFWRU and OSU.
- 9:15 The effects of dietary methionine on an enclosed population of wild cotton rats (*Sigmodon hispidus*). Eric Webb, Robert L. Lochmiller, and David M. Leslie, Jr. OCFWRU and OSU.
- 9:30 Protection of bald cypress plantings from nutria and beaver herbivory. Ty Swirin and Hans M. Williams. Stephen F. Austin State Univ.
- 9:45 Oklahoma's Nongame Program: What do people know and what will they support? Kimberly A. Kelly. OSU.
- 10:00 Break
- 10:15 Pesticides vs. lizards: Is there reason for concern? Larry G. Talent. OSU
- 10:30 *The effects of riparian disturbance on habitat suitability for plethodontid salamanders at Horseshief Spring, LeFlore County, Oklahoma. Kyle W. Winters. St. Gregory's Univ.
- 10:45 Demography of the Texas tortoise in the Western Rio Grande Plains, Texas. Richard T. Kazmaier, Eric C. Heltgen, and Donald C. Ruthven, III. OSU.
- 11:00 Fish and Wildlife Conservation Section Business Meeting--Austin Hall 108
- 11:20 All Academy Business Meeting--Trout Hall Main Auditorium
- 12:00 OAS Banquet

*Collegiate Academy (Undergraduate) Papers

SECTION G: FISH AND WILDLIFE CONSERVATION

AUSTIN HALL 108

AFTERNOON SESSION

MODERATOR: DAVID M. LESLIE, JR., OCFWRU and OSU

- 1:45 Aquaponics: merging of aquaculture and hydroponics. John E. Korsiad. ORU.
- 2:00 Trends of the Arkansas river shiner, *Notropis girardi*. Jimmie Pigge. DEQ.
- 2:15 Status of the Arkansas darter (*Etheostoma caeruleum*) in eastern Oklahoma. A. David Martinez, Anthony A. Echelle, and William L. Fisher. USFWS, OCFWRU, and OSU.
- 2:30 Correlating fish assemblages to mesohabitats in a large floodplain lake: an empirical model. William S. Chappell and William L. Fisher. OCFWRU and OSU.
- 2:45 Genetic structure of smallmouth bass populations in the Interior Highlands. Donald J. Bell, Anthony A. Echelle, and Ronald A. Van Den Bussche. OSU.
- 3:00 Break
- 3:15 Habitat use of shorebirds at Tishomingo National Wildlife Refuge. Matthew L. Cole, David M. Leslie, Jr., and William L. Fisher. OCFWRU and OSU.
- 3:30 Effects of deterrents on avian diversity, abundance, and nesting density. John B. James, Eric C. Heltgen, and Ronald E. Masters. OSU.
- 3:45 Analysis of genetic variation in the eastern wild turkey using DNA fingerprinting. Stephanie A. Harmon and Ronald A. Van Den Bussche. OSU.
- 4:00 Hen survival and reproductive success of the eastern wild turkey in southeastern Oklahoma. David S. Nicholson, Monte D. Stewart, Robert L. Lochmiller, Ronald E. Masters, and David M. Leslie, Jr. OCFWRU and OSU.

SECTION H: MICROBIOLOGY

MORNING SESSION

AUSTIN HALL AH 206

MODERATOR: RIAZ AHMAD, UCO

- 8:45 Determination of cytochrome P450 in intestinal microorganisms. Shannon Walls and Gilbert John. OSU.
- 9:00 *Regulation of murine TNF expression by peroxisome proliferator activated receptors. Kerry Rodgers and Molly Hill. OC.
- 9:15 *Development of a biosensor for environmental DNA-damaging stresses. Tricia Reid and Robert Miller. OSU.
- 9:30 *Temporal changes in the microbial ecology of refrigerated gray water. Michael Walker and John Korsiad. ORU.
- 9:45 *The effects of antibiotics on *Naegleria fowleri*. Darrell Baskin and David John. OSUCOM.
- 10:00 **BREAK/POSTER SESSION** -
*Phenol oxidase and laccase production by *Fusarium* sp. Nikita Walls and Charles Biles. ECU.
- 10:15 *Identification of hyaluronan synthase in *Pasteurella multocida*. Preeti Joseph and Hal Reed. ORU.
- 10:30 *Polymerase chain reaction amplification of cytochrome P450 from human microflora. Jodi Jones and Gilbert John. OSU.
- 10:45 *Domain swapping between Transcription Enhancer Factor-1 (TEF) and related TEF-1 (RTEF-1). Yunuen Valenzuela and John Korsiad. ORU.
- 11:00 Section H Business Meeting (AH 206). Election of officers.
- 11:20 All Academy Business Meeting (TH Auditorium).
- 12:00 OAS Awards Banquet (SU Ballroom).

*Collegiate Academy (Undergraduate) Papers

SECTION H: MICROBIOLOGY
AFTERNOON SESSION
AUSTIN HALL AH 206
MODERATOR: JEFFREY HADWIGER, OSU

- 1:45 dsRNA patterns of plant fungal pathogens. Terry Cluck, Charles Biles and Benny Bruton. ECU.
- 2:00 Genetic diversity of naturally-occurring rhizobia nodulating pigeonpea. Ana Valle and David Demezas. OSU.
- 2:15 Possible ultraviolet resistance determinant in the conjugative transposon Trn5252. Ursula Munoz-Najar and Moses Vijayakumar. OSU.
- 2:30 Cell-type specific localization and differentiation mediated by G protein function: a role for Gα4 in *Dictyostelium* development. Jaishree Srinivasan and Jeffrey Hadwiger. OSU.
- 2:45 Thermophilic enzymes of purine metabolism in microorganisms from the domains archaea, eubacteria, and eucarya. David Nagle and Manish Parekh. OU.
- 3:00 **BREAK/POSTER SESSION**
- 3:15 Competition for sugars by yeasts plays a role in the biological control of gray mold of apple. Alexander Filonow. OSU.
- 3:30 Specificity of the Gα5 subunit in the multicellular development of *Dictyostelium*. Kanchana Natarajan and Jeffrey Hadwiger. OSU.
- 3:45 Fungal genetics of plant cell wall degradation. Patricia Ayoubi, Robert Abel and Rolf Prade. OSU.
- 4:00 A DNA-cytosine methyltransferase gene in the *Streptococcal* conjugative transposon Trn5252. Janardan Sampath and Moses Vijayakumar. OSU.
- 4:15 Mutational analysis of the Gα4 signal transduction pathway in *Dictyostelium discoideum*. Christopher Stoner and Jeffrey Hadwiger. OSU.

SECTION I: ENGINEERING SCIENCES
209 AUSTIN HALL - MORNING SESSION
MODERATOR: Sarah L. Kimball, OSU

- 9:00 *Static performance of symmetric end-plate steel frame connections. Shauna N. Jones, OU.
- 9:20 *Cyclic performance of symmetric end-plate steel frame connections. Malik B. El-Amin, OU.
- 9:40 *Cyclic performance of semi-rigid double web angle steel frame connections. Justin D. Hartman and Eugene P. Chen, OU.
- 10:00 Analysis of steel frames with semi-rigid joints and considering P-Delta effects. Anant R. Kukreti and Ali S. Abolmazi, OU.
- 10:20 Economics of riparian management in Oklahoma. Scott H. Stoodley, OSU.
- 10:40 A geographical information system analysis of the trend of groundwater nitrates in Oklahoma. LaDonna C. McCowan, Surekha R. Charamolu, and Michael D. Smolen, OSU.
- 11:00 Section I. Business Meeting
- 11:20 All Academy Business Meeting. Trout Hall Auditorium
- 12:00 OAS Award Banquet, Student Union Ballroom

SECTION J: BIOCHEMISTRY/BIOPHYSICS/MOLECULAR BIOLOGY

DAVIS HALL, ROOM 107 AFTERNOON SESSION

MODERATOR: STEVEN WHITE, OSU

- 1:45 Characterization of a Ca²⁺/CAM Protein Kinase in the Halophytic, Facultative CAM Plant, *Mesembryanthemum crystallinum*. Tahar Taybi and John Cushman, OSU.
- 2:05 Cloning and Functional Expression of Core Proteins of Bovine Heart Mitochondrial bcl. Sudha K. Shenoy, Kai-ping Deng, Linda Yu and Chang-An Yu, OSU.
- 2:25 Is Surface Sialic Acid the Sole Determinant of Influenza Virus Entry? Stephen J. Stray, Richard D. Cummins and Gillian M. Air, OUHSC
- 2:45 Components and Characteristics of Grammosola Cala Venom, the Beautiful Tarantula of Chile. George V. Odell, Mike P. Doss, and Aron W. Fenton, OSU
- 3:05 *Isolate-Specific Synergy Between a Caulimo- and a Tobamovirus. George Hui, (Director- Ulrich Melcher), OSU
- 3:25 Detection of a Matrix Processing Peptidase Activity by Cytochrome b from Complex from Mitochondria. Kai-ping Deng, D. Xia, and Anatoly M. Kachurin, H. Kim, J. Deisenhofer, Linda Yu and Chang-An Yu, OSU
- 3:45 The Involvement of Localized Proton Gradients in Oxidative Phosphorylation by Bovine Heart Mitochondrial Cytochrome c Oxidase and ATP Synthase. Tong Xie, Dmitri Tolkatchev, Linda Yu, and Chang-An Yu, OSU
- 4:05 Interaction of Cytochrome C with bcl Complex from Rhodabacter. Hua Tian, Linda Yu and Chang-An Yu, OSU. MCLA Stimulated Electron Leak in the Antimycin A Inhibited Succinate Cytochrome c Reductase. Li Zhang, Linda Yu, and Chang-An Yu, OSU
- 4:25 Effect of Subunit IV of Rhodabacter sphaeroides Cytochrome bcl complex in Electron Transfer from Cytochrome c1 to Cytochrome c2. Shih-chia Tso and Linda Yu, OSU

Poster Session: Establishing an Expressed Sequence Tag (EST) Database for the Common Ice Plant (*Mesembryanthemum crystallinum*) Inna Aksefrod, Lana Stout and John Cushman, OSU

*Collegiate Academy, Undergraduate Paper Competition

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SECTION K: MICROSCOPY

TROUT HALL ROOM 305

MORNING SESSION: MODERATOR-WANDA EDWARDS

- 9:00 Salivary gland ultrastructure of the leafhopper, *Circulifer tenellus* (Baker) (Homoptera: Cicadellidae). Asiri C. Waydande and Jacqueline Fletcher, OSU
- 9:15 Mode of entry and localization of *Spizoplasma citri* in the intestines and salivary glands of its vector, *Circulifer tenellus*. M. Kwon, A. Waydande, and J. Fletcher, OSU **Timpano Competition**
- 9:30 A cytokinesis defective mutant of *Arabidopsis* shows excessive callose accumulation and other cell wall defects. Todd C. Nickle and David W. Meinke, OSU **Timpano Competition**
- 9:45 Break
- 10:00 Elucidating intercellular communications in plants: Role of microscopy. Biao Ding, OSU
- 11:00 Section K Business Meeting
- 11:20 All Academy Business Meeting
- 12:00 OAS Banquet

SECTION K: MICROSCOPY

TROUT HALL ROOM 305

AFTERNOON SESSION: MODERATOR-PHOEBE DOSS

- 1:45 A light microscopic study of the cribriform plate as a point of entry for *Naegleria fowleri* during experimental amebic meningoencephalitis in mice. Rebecca A. Biorato, Kirby L. Jarolim, Jeffrey K. McCosh, and Martha J. Howard, OSU-COM **Undergraduate Competition**
- 2:00 The ultrastructure of laser/tissue interactions and clinical applications. Robert E. Nordquist, OUHSC and Wound Healing of Oklahoma, Inc.
- 3:00 Break
- 3:15 Study of the morphology of isolated retinal cells from the adult frog, *Rana pipiens*. Ginger Baker, Nathan Lasiter, Ron Kamola, OSU-COM, Peter LoPresti, TU and Warren Finn, OSU-COM
- 3:30 Distribution of actin, tubulin and vimentin in neomycin-induced protrusion in human fibroblasts in culture. Barbara Saftejko-Mrozcka and Paul B. Bell, OU
- 3:45 Scanning electron microscopy study of isolated sperm cells of tobacco (*Nicotiana tabacum*). Zhaojie Zhang, Huiqiao Tian and Scott D. Russell, OU **Timpano Competition**

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**SECTION L: MATHEMATICS,
COMPUTER SCIENCE, AND STATISTICS**
TH 306

MODERATOR: Karla Oy, SEOSU

- 1:45 Measure, Category, and Computational Complexity. Patrick Reardon, SEOSU.
- 2:00 On the Lattice of Semi-Open Sets. John Coleman, ECU.
- 2:15 *Statistical Distributions from Homoprotein Digestions. Jason Gray, SEOSU.
- 2:30 *The Gender Gap in Math: A Genetic Difference or a Social Issue. Sandra Huntley* and Anita Walker, ECU.
- 3:00 *A Comparison of Shortest Path Algorithms. Michael Kimbro, ECU.
- 3:15 BREAK
- 3:30 A Relational Semantic Description of Pascal. Molisa Derk*, Oklahoma City University and John McGrew, ECU.
- 3:45 Book Embedding the k-ary Hypercube. David Hoelzeman, SEOSU.
- 4:00 *Interning with Andrew. Anya Berdichevskaya, ECU.
- 4:15 *Interning at WorldCom. Philip Jacobs, ECU.
- 4:30 Tcl-Tk Applications in the Classroom. Bill Walker, ECU.
- *Collegiate Academy presentation.
- *Presenter

SECTION M: ENVIRONMENTAL SCIENCE AND PLANNING
226 DAVIS HALL

MODERATOR: CHARLES L. LEIDER, OKLAHOMA STATE UNIVERSITY

- 9:00 Applications of the Indianapolis Canal to the MAPS Canal in Oklahoma City. Matthew Kirkwood.
- 9:15 Lawrence Halprin: Pioneer In 20th Century Landscape Architecture. Ryan C. Clifton.
- 9:30 Urban Created Wetlands on an Alternative to Traditional Stormwater Ponds. Lisa M. White.
- 9:45 Mitigated Wetlands Near the Creek Nation Turnpike: Success or Failure? Hal C. Reed and Edward Nelson
- 10:00 Coffee Break
- 10:15 A Study In Bioremediation: The use of Soil Bioventing to Remediate Petroleum Contaminated Sites. Stormy D. Beasley.
- 10:30 The Isotopic Composition of Nitrogen in the Sargasso Sea. SuzAnn M. Hertzler Musgrove.
- 10:45 Municipal Park and Open Space Within the Context of Comprehensive Planning. Charles L. Leider.
- 11:00 Environmental Science and Planning Business Meeting.
Elect a section chair and vice chair.

SECTION N: BIOMEDICAL SCIENCES

MORNING SESSION

AUSTIN HALL, ROOM 107

MODERATOR: John Dmytryk, OUHSC

- 9:00 Influence of NIH-3T3 Fibroblasts on Breast Cancer Cell Motility. Talitha T. Rajah, John J. Dmytryk and J. Thomas Penio, OUHSC
- 9:15* Comparison of the Behavioral Toxicity of Cocaine and its Metabolites. Joshua F. Blyden, OUHSC (Mentor: Rae Matsumoto, OUHSC)
- 9:30* Novel NMDA/Glycine Site Antagonists Prevent Cocaine-Induced Convulsions and Lethality. Michelle Brown, OUHSC (Mentor: Rae Matsumoto, OUHSC)
- 9:45* Evaluation of Novel Sigma Ligand Effects on Cocaine Overdose. Michele J. Friedman, OUHSC (Mentor: Rae Matsumoto, OUHSC)
- 10:00 Break
- 10:15 Factors Affecting Virulence in *Naegleria fowleri*. David T. John, Marsha J. Howard and Rebecca A. John, OSU-COM
- 10:30 Characterization of LPS Extracted from Supersusceptible Strain *Pseudomonas aeruginosa* Z61. Robert S. Conrad and Chris Galanos, OSU-COM
- 10:45 Neuroprotectant Actions of Sulfur-Containing Amino Acids. David R. Wallace, Ralph Dawson and Jeannie Owens, OSU-COM
- 11:00 Section Business Meeting
- 11:30 Academy Business Meeting, Trout Hall Auditorium
- 12:00 OAS Banquet, Student Union Ballroom

*Collegiate Academy Papers

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SECTION N: BIOMEDICAL SCIENCES

AFTERNOON SESSION

AUSTIN HALL, ROOM 107

MODERATOR: George M. Brenner, OSU-COM

- 1:45 Sex Steroid Induced Changes in Hematocrit and Erythrocytic Osmotic Fragility in the Rat. Loren G. Martin, George M. Brenner, Kirby L. Jarolin, David L. Coons and Amanda K. Wolfe, OSU-COM
- 2:00 Histopathologic Evaluation of Hemodilution and Hypothermia as Providing Post-Ischemic Protection to Brain. Kirby L. Jarolin, George M. Brenner and Loren G. Martin, OSU-COM
- 2:15 Radial Arm Maze Evaluation of Hemodilution and Hypothermia as Agents to Reduce Post-Ischemic Memory Deficits. George M. Brenner, Kirby L. Jarolin and Loren G. Martin, OSU-COM
- 2:30 Isolation and Culturing of Retinal Cells from the Adult Frog, *Rana Pipiens*. Ron Kantola, Nathan Lastier, Peter LoPresti and Warren Finn, OSU-COM
- 2:45 Opioid Receptors in the Spinal Cord of Amphibians. Leslie C. Newman and Craig W. Stevens, OSU-COM

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OPBS

Oklahoma Partners for Biological Sciences

(Funded by the Howard Hughes Medical Institute)

OPBS-at-OAS Meeting

November 7, 1997:00-3:00 p. m.

Room DH 205

University of Science and Arts of Oklahoma
Chickasha, OK

Students and instructors participating in the
Fall 1997 OPBS Program will meet informally for:

introductions
exchange of ideas
questions and answers
discussion of research projects

Please join us!

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SECTION 2: OKLAHOMA JUNIOR ACADEMY OF SCIENCE

RESEARCH WORKSHOP FOR

SCIENCE TEACHERS AND THEIR STUDENTS (GRADES 7-12)

NOVEMBER 7, 1997
UNIVERSITY OF SCIENCES AND ARTS OF OKLAHOMA
DAVIS HALL 224

SCHEDULE

- 7:30 - 8:30 a.m. Registration and Refreshment, Auditorium
- 8:30 - 8:45 a.m. Welcome. Joe D. Ferguson, Director OJAS, Madill High School.
- 8:45 - 9:20 a.m. Video Presentation "Science Projects for Junior High" (Handout)
 - The emphasis in this presentation is to encourage the students to complete an experimental type of project. This involves answering a problem or question by making and recording measurements and evaluating this data to form a conclusion.
- 9:30 - 10:10 a.m. Video Presentation "Switch On To Science" (Handout)
 - The emphasis in this presentation is at the High School level, which are more research-oriented and may require a substantial amount of time and energy. Tips are provided to assist teachers and students in the completion of the projects.
- 10:20 - 10:55 a.m. Video Presentation "You Be The Judge" (Handout)
 - The emphasis is on experimental types of projects and the program is a step-by-step approach on how to decide what to do and then how to do it right.
- 10:55 - 11:15 a.m. OJAS Business Meeting with Student Members and Coordinating Teachers, OJAS Director and Officers.
- 11:15 - 1:30 p.m. Lunch on your own. There is food service available at the Student Union on campus and fast food outlets just off campus.
- 1:30 - 5:00 p.m. Students and Teachers are encouraged to attend any of the OAS paper sessions in the areas listed below. Please check your program for titles of interest.
- 1:30 - 2:20 p.m. Video Presentation "Science Projects and Fairs: Tips for Teachers" (Handout)
- 2:30 - 3:05 p.m. Video Presentation "Invent It" (Handout)

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