PROGRAM
EIGHTIETH ANNUAL MEETING
of the
ALABAMA ACADEMY OF SCIENCE, INC.

JOINT MEETING
with the
ALABAMA JUNIOR ACADEMY OF SCIENCE
GORGAS SCHOLARSHIP AWARDS

March 19 – March 22, 2003
Jacksonville State University
Jacksonville, Alabama 36265

local:
www.jsu.edu/depart/biology/body_aasmeetinghome.html
www.alabamaacademyofscience.org

Tips for a safe stay:

*When walking, stick to the main thoroughfares and well-lit areas.
*If walking, don't wear fancy jewelry in plain sight.
*Don't wear your meeting badge outside the motels.
*Be cognizant and alert to surroundings. Look alert.
*When walking after dark, don't hug the buildings or cars; walk in the open near the curb
*Carry your purse close to your body.
*Don't leave valuables in your room. Get a motel safe deposit box.
*Travel in groups. Don't be a loner, particularly in the evening.
*Abide by common sense: If something looks suspicious, report it and/or avoid it.
*For on-campus fire or police emergencies dial 911
*On-campus police or fire service:
  JSU police number 782-5050
  JSU Police emergencies 782-6000.
*Off-campus police or fire: Jacksonville Police 435-6448; Jacksonville Fire Dept. 435-2310.
Welcome Messages ..........................................................1
Local Arrangements Committee ........................................3
General Information .......................................................4
Program of the Alabama Academy of Science .......................5
Program of the Alabama Junior Academy of Science ...............9
Gorgas Scholarship Program ..........................................11

Scientific Sessions ........................................................12
SYMPOSIUM: ...............................................................6
SECTION I. Biological Sciences .........................................12
SECTION II. Chemistry ....................................................19
SECTION III. Earth Science ......................................[No Program]
SECTION IV. Geography, Forestry, Conservation, and Planning ........................................19
SECTION V. Physics and Mathematics ..............................24
SECTION VI. Industry and Economics ...............................26
SECTION VII. Science Education ......................................27
SECTION VIII. Behavioral and Social Sciences ....................29
SECTION IX. Health Sciences ..........................................31
SECTION X. Engineering and Computer Sciences .................36
SECTION XI. Anthropology .............................................39

Objectives of the Alabama Academy of Science .................... 41
Educational Activities of the Academy .................................41
2003 Regional Science Fairs ............................................42
2002-03 Regional Science Olympiads .................................43
William H. Mason Science Teacher Fellowship Recipients ........44
Wright A. Gardner Award Recipients .................................45
Section Officers ............................................................45
Elected Officers and Committees of the Academy ...................48
Chairpersons, Appointed Committees .................................50
Past Presidents ............................................................52
Next Year’s Meeting .......................................................55
Dear Academy Members,

Eighty years ago scientists in Alabama organized and developed a venue for the exchange of scientific knowledge in order to promote science and science education in the State of Alabama. Eighty years later we continue this tradition at Jacksonville State University. In a rapidly changing world, science and science education are more important than ever, and we would like to welcome those participants traveling from across the state to share both their science interests and friendships. Members of the Executive Committee greatly appreciate the time and efforts of the community of scholars at Jacksonville State University in hosting the 80th Annual Meeting of the Alabama Academy of Science, the Alabama Junior Academy of Science, and the Gorgas Scholarship Foundation. Welcome!

Stephen A. Watts, Ph.D.
President, Alabama Academy of Science

LOCAL ARRANGEMENTS COMMITTEE

The officers and members of the Academy express their appreciation to Jacksonville State University and to the Local Arrangements Committee for their efforts in planning and hosting this 80th Annual Meeting.

Local Chairpersons
Dr. Mark Meade, 256-782-5638
mmeade@jsucc.jsu.edu

Dr. Frank Raomano, 256-0782-5038
fromano@jsucc.jsu.edu

Registration
Dr. James Rayburn
256-782-5638
jrayburn@jsucc.jsu.edu

Audiovisual/Computers:
Dr. Charles Olander
256-782-5797
olander@jsucc.jsu.edu

Web Page Design
Dr. Cole Benton
256-782-5964
cbenton@jsucc.jsu.edu

Vendors Coordinator*
Veronica Little
256 782 5791
vlittle@jsucc.jsu.edu

AJAS Program Coordinator
Dr. Mijitaba Hamissou
256-782-5040
taba@jsucc.jsu.edu

Symposium Coordinators
Dr. Barry Cox, 256-782-5926
bcnx@jsucc.jsu.edu

Dr. Jane Kushma, 256-782-5927
jkushma@jsucc.jsu.edu

Poster Coordinator
Dr. George Cline
256-782-5798
gcline@jsucc.jsu.edu

Gorgas Scholarship Competition
Dr. Benjie Blair
256-782-5643
bblair@jsucc.jsu.edu
GENERAL INFORMATION

- Please bring your copy of this program to the meeting. You may not be able to get another copy.

- Registration badges will be required for admission to all scientific paper sessions, the Thursday evening social, and the banquet.

- Applications for membership and payments of annual dues will be accepted by the Secretary in the registration area.

- Tickets for the Joint AJAS/AAS banquet may be purchased at the registration desk until 9:30 Friday morning.

- Presenters using computer presentations are responsible for their own computer.

POSTERS & VENDORS

Posters should be available for viewing on the permanent poster boards in the first floor hallway of Martin Hall from 1:00 to 4:00 P.M. Thursday and Friday. Authors should be present from 1:00 P.M. to 2:00 P.M. for discussions with viewers. Posters must be removed by 5:00 P.M. of the respective day. Vendors display in the lobby of Martin Hall.

PROGRAM

of the
ALABAMA ACADEMY OF SCIENCE
March 19 - March 22, 2003

Wednesday

5:00 - 7:00 PM Registration .........................................................Martin Hall Lobby
6:30 - 10:00 PM Executive Committee Dinner and Meeting ......................JSU President’s Dining Hall

Thursday Morning

7:00 - Noon Registration .........................................................Martin Hall Lobby
Breakfast and Lunch Snacks .............................................................Martin/McGee Science Center 2nd floor lounge
8AM - 4:00 PM Vendor Exhibits...................................................Martin Hall Lobby
8:30 Program Sessions: .................................................................Martin Hall
8:15 Biological Sciences I (Section I) .............................................130 Martin Hall
8:30 Health Sciences I (Section IX) ................................................234 Martin Hall
9:00 Industry and Economics I (Section VI) .................................332 Martin Hall
9:30 Engineering and Computer Sciences I (Section X) .....................250 Martin Hall

Slide Preview Room............................................................................TBA Martin Hall

Thursday Afternoon

12:00 - 4:00 PM Vendor exhibits...................................................Martin Hall Lobby
1:00 - 4:00 PM Registration .........................................................Martin Hall Lobby
Lunch Snacks ....Martin/McGee Science Center 2nd floor lounge
1:00 - 4:00 PM Poster Viewing ..........................................................
1:00 PM  Alabama Academy of Science Section Program

Program Sessions:
1:00  Biological Sciences II (Section I) ...........................................130 Martin Hall
1:00  Industry and Economics II (Section VI) .................................332 Martin Hall
1:00  Geography, Forestry, Conservation, & Planning I (Section IV) 105
      Martin Hall
1:00  Physics and Mathematics (Section V) ..................................319 Martin Hall
1:00  Health Sciences II (Section IX) ..............................................234 Martin Hall
1:30  Engineering and Computer Sciences II (Section X) ............250 Martin Hall

Thursday Evening
5:00 PM  Section Officer's Meeting............................................130 Martin Hall
6:00 PM  Social for All Registrants .............................................Anniston Museum of Natural History

Friday Morning
7:00 AM  Dutch Breakfast (Past and present officers, Gardner
         Awardees, and Gorgas participants) ......................................TBA
7:00 - Noon  Registration ..............................................Martin Hall Lobby
            Breakfast and Lunch Snacks .............................................
            Martin/McGee Science Center 2nd floor lounge
8 AM - 4:00 PM  Vendor exhibits ..............................................Martin Hall Lobby
8:00 - Noon  Symposium – “Homeland Security and Domestic
             Preparedness” ..................................................122 Martin Hall
1:15  Health Sciences III (Section IX) .........................234 Martin Hall

1:20  Geography, Forestry, Conservation, and Planning III (Section IV) .................................105 Martin Hall
Slide Preview Room............................................TBA Martin Hall

**Friday Evening**

6:00  AJAS/AAS Annual Business Meeting ...............130 Martin Hall

7:00  Joint AJAS/AAS Banquet..............JSU Leon Cole Auditorium

Stephen A. Watts, Presiding
Mr. Bruce Baughman, Director of the Office of National Preparedness
Washington, DC

Presentation of the AJAS and Gorgas Awards
Ellen Buckner

**Thursday**

3:00 - 6:00 PM  Early Arrival Registration.........................JSU University Inn
........................................................................... Phone 256-435-3300

6:00 PM .  Social for all Registrants..Anniston Museum of Natural History

**Friday**

7:00 AM  Breakfast................................. JSU Theron Montgomery Building

7:30 AM  Registration ......................11th Floor, JSU’s Houston Cole Library

8:00 AM  Paper Competition.............11th Floor, JSU’s Houston Cole Library

<table>
<thead>
<tr>
<th>Subject</th>
<th>Room</th>
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<tbody>
<tr>
<td>Biology</td>
<td>1101A</td>
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<td>Engineering</td>
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10:00 AM  Intermission Break,

11:45 AM  Caucus .................JSU Theron Montgomery Auditorium

12:00 Noon  Lunch ..................JSU Jack Hopper Cafeteria

1:30 PM  JSU Science Activity:
“Meet Linnaeus on the Ladiga” – Dr. Robert Carter

5:00 PM  Meeting with officers and candidates for office to explain responsibilities........................................TBA
6:00 PM  Joint AJAS/AAS Business Meeting .....................130 Martin Hall

7:00 PM  Joint AJAS/AAS Banquet and  
Presentation of Awards ............................. JSU Gamecock Center

9:30 PM  AJAS Social ......................JSU Theron Montgomery Auditorium

Saturday

7:00 AM  Breakfast............................JSU Theron Montgomery Auditorium

8:00 AM  Paper Competition Finals ................................................JSU Theron Montgomery Auditorium

10:30 AM  Elections, Awards, Group Photograph and  
Business Meeting ..........................Theron Montgomery Auditorium

1:00  Set Up Science Exhibits .........................................110 McGee Hall

2:00  Demonstrations for Judges ..............................110 McGee Hall

3:15  Individual and Private Judging ......................................TBA

5:00  Public Showing of Exhibits .............................110 McGee Hall

7:00  Joint AJAS/AAS Annual  
Business Meeting ..........................JSU Leon Cole Auditorium  
Announcement of Winners  
Ellen Buckner

The Gorgas Scholarship Program is supported by the Alabama Power  
Foundation, Incorporated, and administered by the Alabama Academy of  
Science, Inc.
SECTION I: BIOLOGICAL SCIENCES

Thursday Morning
130 Martin Hall
Donald W. Salter, Presiding

1. 8:15 Plant stress identification by remote sensing. Safaa Al-Hamdani, Jacksonville State University.

2. 8:30 Bottlenose dolphins use of Perdido Bay. Claire M. Pabody, Spring Hill College.

3. 8:45 Molecular analyses of plant defense factors (PDF) of Arabidopsis thaliana in response to simulated insect feeding. Pamela A. Swaim and Mijitaba Hamissou, Jacksonville State University.

4. 9:00 Induction of callose biosynthesis in Arabidopsis thaliana. Mijitaba Hamissou, Jacksonville State University.

5. 9:15 Are mitochondrial dehydrogenases involved in aluminum tolerance? Mijitaba Hamissou, Jacksonville State University.

6. 9:30 Biostability of wheat straw as a sulfide-enhanced biofilter. Lisa Ann Blankinship, Sandra Nunezs, Robert Peters, and Joseph J. Gauthier, University of Alabama at Birmingham.


10:00 INTERMISSION

8. 10:15 A bottlenose dolphin in fresh water. Gerald T. Regan, Marterra Foundation Inc.


11. 11:00 What is the next step in the biological monitoring of streams and rivers? Janna Owens, Ken Marion, Robert Angus, Melinda Lalor, Eric Meyer, and Steve McKinney, University of Alabama at Birmingham.


14. 11:45 Expression patterns for aromatase and SF-1 in the developing gonads of the red-eared pond slider turtle. Chris A. Murdock and Thane Wibbels, University of Alabama at Birmingham.

12:00 LUNCH
SECTION I – BIOLOGICAL SCIENCES
Session II
Thursday Afternoon
130 Martin Hall
Mark Meade, Presiding

15. 1:00 Egg discrimination in female red-backed salamanders. Meredith Humber, Allison Hargett, and Megan Peterson, Birmingham-Southern College.


17. 1:30 Proposed relationships between the surfactant properties and the developmental toxicity induced in frog embryos of humic acid. James Rayburn and David Steffy, Jacksonville State University.

18. 1:45 Anuran calling communities in northeastern Alabama. George Cline, Jacksonville State University.

19. 2:00 Activity of cytochrome-P-450 in early Xenopus laevis embryos as determined by modified enzyme assay. Gregg Gibson and James Rayburn, Jacksonville State University.


2:30 INTERMISSION


22. 3:00 Evaluation of the Alabama water watch citizen level macroinvertebrate protocol for Alabama coastal plains streams. Christa Collins, Holly Bennett, Michael Mullen, and Michael Stewart, Troy State University.

23. 3:15 The annual reproductive cycle of the sea urchin Lytechinus variegatus from the Florida panhandle. Adele Cunningham and Stephen A. Watts, University of Alabama at Birmingham.

24. 3:30 Cryopreservation of Tetrahymena pyriformis. Jason Hill, Jason Glenn, Christa Collins, Mark Meade and C. P. Olander, Jacksonville State University.

25. 3:45 A comparison of the effects of phloxine b and eosin yellow under various light conditions on population growth of Tetrahymena pyriformis. Jason Glenn, Jason Hill, Christa Collins, Mark Meade and C. P. Olander, Jacksonville State University.

26. 4:00 Temporal and spatial patterns in fecal coliform sources. Brian S. Burns and Jessica Worthington, Judson College.

27. 4:15 High levels of androsteneione and progesterone in the sediment of a river receiving paper mill effluent. Ronald L. Jenkins, Elizabeth Wilson, and W. Mike Howell, Samford University, Robert Angus and marione Kirk, University of Alabama at Birmingham.


4:45 BUSINESS MEETING

SECTION I – BIOLOGICAL SCIENCES
Session III
Friday Afternoon
130 Martin Hall
Mark Meade and Donald W. Salter, Presiding

29. 1:00 A survey of the mammals of the E.V. Smith Wetland Research Wetland Research Area, Macon Co., AL. Emily Hudson and W. Folkerts, Auburn University.
30. 1:15  Jubilees and hypoxic events in Mobile Bay. *Tina Miller-Way,* University of Mobile.


32. 1:45  Exposure temperature affects ovarian development in the regular sea urchin *Lytechinus variegates.* *Victoria K. Gibbs* and Stephen A. Watts, University of Alabama at Birmingham.

33. 2:00  Verongid sponge phylogenetics and specificity of associated cyanobacteria. *Patrick M. Erwin* and Robert W. Thacker, University of Alabama at Birmingham.

34. 2:15  Effects of low dose ionizing radiation on *Giardia lamblia* trophozoites. *Scott Lenaghan,* Auburn University.

35. 2:30  INTERMISSION

36. 2:45  Freshwater cyanobacterial resistance to herbivory by a generalist grazer: structural versus chemical defense. *Frank A. Camacho* and Robert W. Thacker, University of Alabama at Birmingham.

37. 3:00  Competition between the cyanobacterium *Lyngbya wollei* and green algae: effects of secondary metabolites and herbivory. *Kevin P. Bevis* and Robert W. Thacker, University of Alabama at Birmingham.


39. 3:30  Rapid detection of *Vibrio parahaemolyticus* in Gulf water using real-time PCR. *Amy V. Rizvi* and A. K. Bej, University of Alabama at Birmingham.

40. 3:45  Effect of 4-ethyl-4-aza-5alpha-cholestane (nd-497) on the carbohydrate metabolism of *Staphylococcus aureus.* *Norman J. Doorenbos,* Samia A. El Dardiry and Lyman Magee, Auburn University.

41. 4:00  Histochemical localization of dehydrogenases in plant cells. *Mijitaba Hamissou,* Jacksonville State University.

42. 4:15  Effects of chronic exposure to nitrite on the respiratory physiology of post-larval prawn, *Macrobrachium rosenbergii.* *Dustin Morin* and Mark Meade, Jacksonville State University.

43. 4:30  hTERT promoter methylation in primary human urethral epithelial cells. *Joel Berletch,* William K. Woodfin, and Mitchell S. Pate, University of Alabama at Birmingham.


45. 5:00  Retinoic acid inhibition of DNMT expression and activity in HL-60 cells. *William K. Woodfin,* Joel Berletch, and Mitchell S. Pate, University of Alabama at Birmingham.


47. 5:30  Effects of water and sediment extracts from watersheds near the Monsanto plant (Anniston, AL) on early embryonic development of the frog *Xenopus laevis.* *Mary Millwood,* Elizabeth Gilbert, Joseph Sikes, Robin Hardy, Roger Sauterer, and James Rayburn, Jacksonville State University.
47. The effects of acute exposure to nitrate and nitrite on the metabolic physiology of Nile tilapia, *Oreochromis nilotica*. Chenein Segalas, Cherie Maxwell, Mark Meade, Jacksonville State University.

48. Effect of diet quality on metabolic physiology in red tilapia fry. *Allison Odom* and Mark Meade, Jacksonville State University.

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**SECTION I – BIOLOGICAL SCIENCES**  
**Poster Session II**  
**Friday Afternoon**  
**1st Floor, Martin Hall**

49. Torus lignification in hardwoods. *Roland Dute*, Michael Miller, Christina Coleman, and Brian Prather, Auburn University.


52. In vitro studies examining the effects of cholinergic compounds on the developing chick pancreas. *Rakesha Davis*, J. U. Johnson, and A. D. Johnson, Sr., University of Alabama at Huntsville.


54. The toxicity effects of rose bengal on *Tetrahymena pyriformis*. *Mark Haygood, Kevin Jenne*, Benjie Blair, Tiffany Bohlmann, Mark Meade, and Charles Olander, Jacksonville State University.

55. An undescribed *Cyclotella* species (Bacillariophyceae) from Clarke County, AL. *Lisa A. Muellner* and Roland R. Dute, Auburn University.

56. Evaluation of a PCR method for identifying sources of fecal pollution in environmental waters. *Donald W. Salter* and Grant W. Goldenstar III, University of West Alabama.
1. 1:00 Chemical synthesis of amorphous silicon. *P. Ward* and J. Gryco, Jacksonville State University.

2. 1:20 Determination of precious metals in automobile catalytic converters. *Ch. Loveless*, M. Parker and J. Gryco, Jacksonville State University.

3. 1:40 Synthesis of silicon and germanium clathrates. *M. Bandy* and J. Gryco, Jacksonville State University.

4. 2:00 Thermoelectric properties of cesium filled germanium clathrate. *N. Ellison* and J. Gryco, Jacksonville State University.

5. 2:20 INTERMISSION

6. 2:40 Synthesis of some 4-alkyl and 3,4-dialkyl-4-azacholestanes and 4-alkyl and 3,4-dialkyl-4-azapregnanes. *Norman J. Doorenbos* and Vithal C. Patel, Auburn University School of Pharmacy.

7. 3:00 The effect of solvent on the absorption spectroscopy of p-N,N-dimethylaminocinnamonic acid. *Adam S. Olia* and Steven E. Arnold, Auburn University Montgomery.


4:00 BUSINESS MEETING
SECTION IV - GEOGRAPHY, FORESTRY, CONSERVATION, AND PLANNING
Session I
Thursday Afternoon
105 Martin Hall
Priscilla Holland, Presiding

1. 1:00 Forests of Calhoun County in the 21st Century. Wilbur B. De Vall, Proxy Services LTD., Auburn, AL.
3. 1:40 Soil morphology used as evidence in a PCB-contamination lawsuit. Kelly D. Gregg, Jacksonville State University.
4. 2:00 INTERMISSION
5. 2:20 Hurricane Isidore impacts at Gulf Shores and Dauphin Island, AL. Philip L. Chaney, Auburn University.
6. 2:40 The Victorian Front Porch Christmas tour. Tom L. Martinson, Auburn University.
7. 3:00 Factors resulting in the declining population in Calhoun County, AL. Alison Prater, Jacksonville State University.
8. 3:20 Factors in restaurant choice in Jacksonville, AL. Clarence Blalock, Jacksonville State University.
9. 3:40 1990-2000 residential growth in Madison County, Alabama and the effects it has on minor and major collectors. Thomas Nunez, Alabama A&M University.

SECTION IV - GEOGRAPHY, FORESTRY, CONSERVATION, AND PLANNING
Session II
Friday Morning
105 Martin Hall
William K. McAllister, Presiding

9. 8:00 Environmental initiatives of community-based development organization: The case of the Federation of Southern Cooperatives of Alabama. Edmund C. Merem, Jackson State University, Jackson, Mississippi and Yaw A. Twumasi, Alabama A&M University.
10. 8:20 An analysis of changes in commute time between the workplace and home from 1980 to 1990: Selected metropolitan statistical areas in Alabaman. Patrice Ruffin, Alabama A&M University.
12. 9:00 The effects of urbanization on rare species in Muscogee, Harris, and Meriwether Counties in Georgia. Amanda Kravand and Selima Sultana, Auburn University.
14. 9:40 INTERMISSION
15. 10:20 Monitoring urban growth in the Accra Metropolitan Area, Ghana using satellite Imagery. Yaw A. Twumasi, Tommy L. Coleman, A&M University and Andrew Manu, Iowa State University, Iowa.
16. 10:40 A geographic analysis and application of the property and trails map project at Camp Winnataska, Birmingham. Jake White, University of Alabama.
17. 11:00 Impact of El-Nino on peanut production in Alabama. Rob Owen,
17. 11:20  The impact of storm origins on snowfall events in the south. 
Brad Gordon, Jacksonville State University.
SECTION VI – INDUSTRY AND ECONOMICS  
Session I  
332 Martin Hall  
Thursday morning  
Eric Rahimian, Presiding

1. 9:00 North Alabama regional analysis: social and economic characteristics. Carlos Finkley, Teshome Gabre, and Constance Wilson, Alabama A&M University.

2. 9:20 The prospect of common market for eastern and southern Africa. Aggrey Bigala and Eric Rahimian, Alabama A&M University.

3. 9:40 The characteristic of Korean venture capital. SeYoung Kwack, Chungju University, and Eric Rahimian, Alabama A&M University.

4. 10:00 A regression model of new housing units’ construction in the United States. Yarah Abdallah and Eric Rahimian, Alabama A&M University.

5. 10:20 INTERMISSION


7. 11:00 Women and money in the 21st century. Kathy Lewis-Adler, University of North Alabama.

8. 1:00 Colleges in business: trend in graduate school education. Maria E. Winter and Keith Absher, University of North Alabama.


11. 2:00 The relationship of crime and poverty. Fesseha Gebremikael and Eric Rahimian, Alabama A&M University.


13. 2:40 INTERMISSION

14. 3:00 A regression model of causes of poverty. Eric Rahimian, Alabama A&M University.


17. 4:00 Stabilization and growth. Linda A. Carr, University of West Alabama, and James G. Alexander, Alabama A&M University.
SECTION VII – SCIENCE EDUCATION
Friday Afternoon
336 Martin Hall
Perry A. Tompkins, Presiding

1. 1:00 Real-time experimentation over the internet at Samford University. *Perry A. Tompkins*, Samford University.


4. 2:10 Building connections between university and high school physics. *Laura M. Weinkauf* and *Nouredine Zettili*, Jacksonville State University.


6. 2:50 INTERMISSION


9. 3:50 Technology in the chemistry curriculum. *Cindy Willingham*, University of Alabama at Birmingham.


12. 4:10 Using scholarly journals and statistical reasoning in basic science classes. *Jan Case*, Jacksonville State University.

13. 4:30 BUSINESS MEETING

14. Posters Session
First Floor Hallway, Martin Hall


## SECTION VIII - BEHAVIORAL & SOCIAL SCIENCES
### Session I
#### 338 Martin Hall
**Friday Morning**
**Janice Clifford Wittekind, Presiding**

1. **9:00** Older adults with arthritis: Exercise perceptions. *Nadine T. James* and Kenneth Saag, University of Alabama at Birmingham.

2. **9:15** Newspaper reading behavior and attitudes on race relations. *Larry Powell*, University of Alabama at Birmingham.

3. **9:30** Predictors of health behaviors in college students. *Diane Von Ah* and Duck-Hee Kang, University of Alabama at Birmingham.


10:10 **INTERMISSION**


11:30 **BUSINESS MEETING**

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### SECTION VIII - BEHAVIORAL & SOCIAL SCIENCES
### Session II
#### 338 Martin Hall
**Friday Afternoon**
**Arthur S. Wilke, Presiding**


2:20 **INTERMISSION**


1. 8:30 Knowledge, resilience and effectiveness of education in a young teen asthma camp. Ellen B. Buckner, A. Hawkins, L. Stover, J. Brakefield, S. Simmons, C. Foster, S. Payne, J. Newsome and G. Dubois, University of Alabama at Birmingham.

2. 8:45 Smoking behaviors and readiness to quit during pregnancy. Jodelle R. Martin, University of Alabama at Birmingham.

3. 9:00 Insights into ischemia reperfusion injury. Ruth A. Washington, Natasha Cox, Eric James and Brian Gibbs, Stillman College.

4. 9:15 The involvement, coping, and relationship of parents with a child in newborn follow-up clinic. Lindsay C. McCoy, University of Alabama at Birmingham.

5. 9:30 Characteristics of a positive experience for women who have unmedicated childbirth. Amanda Marie Hardin, University of Alabama at Birmingham.

6. 9:45 An academic/community-based AIDS service organization partnership: program evaluation of services to multicultural population. Joe Burrage, University of Alabama at Birmingham.

10:00 INTERMISSION - Martin/McGee Science Center 2nd floor lounge


9. 10:45 Predictors of health behaviors in college students. Diane Von Ah and Duck-Hee Kang, University of Alabama at Birmingham.

10. 11:00 The invisible Americans: primary caregivers in the home setting. Kathy Lewis Adler, University of North Alabama.

11. 11:15 Steroid induced pathological fracture: A case study. Melinda Redmon, University of Alabama in Huntsville.

12. 11:30 Self-perception of adolescents with diabetes: a comparison of those who have attended camp and those who have not. Andi Rigsby, University of Alabama at Birmingham.

11:45 LUNCH AT JSU CAFETERIA

SECTION IX - HEALTH SCIENCES
Session II
Martin Hall, Room 234
Thursday Afternoon
M. Peggy Hays and Tom Denton, Presiding

13. 1:00 Hypcholesterolemic 3Beta-Benzyl-4-Methyl-4-Aza-Cholesterol Methiodide. Norman J. Doorenbos and Masako Nakagawa, Auburn University.

14. 1:15 Comparison of the knowledge and practices of Zimbabwe's trained and untrained traditional midwives. Keratiloe Gwebu, Oakwood College.


16. 1:45 Generational diversity in the workforce. Paige Watwood, St. Vincent’s Hospital, Birmingham, AL.

17. 2:00 Parental views of the social environment of an outpatient bone marrow transplant clinic. Jennifer Pritchett, University of Alabama at Birmingham.

2:15 INTERMISSION - - Martin/McGee Science Center 2nd floor lounge

18. 2:30 Anticipation and acceptance: perceptions of pet therapy by hospitalized children and their parents. Alicia Weddington, University of Alabama at Birmingham.


20. 3:00 Supportive and self-reliant coping in mothers and fathers who experienced a loss. Amy Williams, University of Alabama at Birmingham.

21. 3:15 Emergent behaviors at shift report: the protagonists as theme carriers. M. Peggy Hays, University of Alabama in Huntsville.

22. 3:30 The role of first physical contact and parent neonatal perception in the establishment of parent-infant attachment. Amy V. Wright, University of Alabama at Birmingham.

4:00 BUSINESS MEETING

SECTION IX - HEALTH SCIENCES
Poster Session
Thursday Afternoon
Martin Hall, 2nd Floor Hallway


**SECTION IX- HEALTH SCIENCES**

**Session III**

**Martin Hall, Room 234**

**Friday afternoon**

**Tom Denton, Presiding**


35. 2:00  Leadership styles of nursing administrators in long-term care. *Dorothy Gargis Foote*, University of Alabama in Huntsville.


37. 2:30  INTERMISSION - Martin/McGee Science Center 2nd floor lounge

38. 2:45  Let’s pretend hospital. *Marilyn S. Hargrave*, University of Alabama in Huntsville.

39. 3:00  Streptococcus sanguis adherence to damaged endothelial cells. *Alphonso Morton*, Qshequilla Parham and Ruth A. Washington, Stillman College.


41. 3:30  Analysis of transfusion-associated immunosuppression by measuring ATP production in CD4 cells. *Virginia C. Hughes* and Harvey J. Alter, Auburn University at Montgomery.


43. 4:00  Grammaticality effects in acquired dyslexic patients. *Nicole Sanders* and Helen Southwood. University of Alabama at Birmingham.

43. 4:15  Exercise induced analgesia. *Steven Ruble*, Jill Sampson, and Amberly Crowe, Samford University.
SECTION X -- ENGINEERING AND COMPUTER SCIENCE
Session I
Thursday Morning
250 Martin Hall
Robert Pitt, Presiding

1. 9:30 Fuzzy web planning models with genetic algorithm solutions. Xidong Zheng, Kevin Reilly, and James Buckley, University of Alabama at Birmingham.

2. 9:45 Source quantification of inappropriate discharges to storm drainage systems. Veerabhadra Rao Karri, University of Alabama.

3. 10:00 Characterization of sources of bacteria in stormwater. Sumandeep Singh Shergill, University of Alabama.


10:30 INTERMISSION

5. 10:45 Identifying probable exons and introns. Derwei Venable, University of Alabama at Birmingham.

6. 11:00 Heavy metal associations with stormwater particulates. Renee Morquecho, University of Alabama.

7. 11:15 Effects of synthetic detergents and surfactants and ways to identify these pollutants in nature. Sanju Kurian Jacob, University of Alabama.


9. 11:45 Model-based specification and synthesis of CORBA component models (CCM). Jing Zhang, University of Alabama at Birmingham.

12:00 BUSINESS MEETING

SECTION X -- ENGINEERING AND COMPUTER SCIENCE
Session II
Thursday Afternoon
250 Martin Hall
Marietta Cameron, Presiding

10. 1:30 Gamma shapes. Ying Sun, K.R. Sloan, and Marietta E. Cameron, University of Alabama at Birmingham.


12. 2:00 Reconstruction of unorganized point sets using planar slices. Matt Emerson, Birmingham-Southern College.

13. 2:15 A language-independent approach to refactoring through program transformation engines. Hui Wu, University of Alabama at Birmingham.


2:45 INTERMISSION

15. 3:00 Catching flies with honey: an introduction to honeypots. Lora M. Vaughn, Birmingham-Southern College.


17. 3:30 Interactive silhouette of triangular meshes. Chuanxi Xu and John K. Johnstone, University of Alabama at Birmingham.

18. 3:45 Text mining. Ying Liu and Alan Sprague, University of Alabama at Birmingham.

19. 4:00 Formal disambiguation of unrestricted requirement specifications. Beum-Seuk Lee, University of Alabama at Birmingham.

1. 9:00 Two Decades of Investigations at the Davis Farm Archaeological Complex in Calhoun County, Alabama. *Harry O. Holstein*, Jacksonville State University.


3. 9:40 The Battle of Tallaseehatchee Site, 1Ca162, Reanalysis and a 21st Century Perspective. *Hunter Johnson*, Jacksonville State University.

10:00 INTERMISSION


5. 11:00 An Archaeological Investigation of 1Dk49, a Rockshelter in DeSoto State Park, DeKalb County, Alabama. *Amy Eberhart*, Jacksonville State University.


OBJECTIVES OF THE ALABAMA ACADEMY OF SCIENCE

The objectives of the Academy are to:

- Promote the development of interest in scientific matters in the state,
- Provide means for publication of papers and abstracts,
- Provide opportunity for increased cooperation and fellowship among its members,
- Cooperate with other organizations having similar aims,
- Render public service in scientific matters,
- Promote the interest in and study of science by the youth of Alabama,
- Provide for and award scholarships to deserving youth of Alabama.

In fulfilling these objectives, the Academy is devoted to nearly all aspects of science and science education.

EDUCATIONAL ACTIVITIES OF THE ACADEMY

The Academy sponsors:

- Alabama Junior Academy of Science, a statewide organization of high school science clubs
- Junior Science and Humanities Symposium, an activity supported by the United States Army, U.S. Navy, U.S. Air Force, and the U.S. Coast Guard
- Seven Regional Science Fairs at which high school students exhibit the results of their research or study projects. Regional Finalists compete in the Alabama State Science & Engineering Fair. Winners go to the International Science and Engineering Fair (ISEF)
- Science Olympiads in which regional winners compete at the state level. Alabama winners go to the National Competition.
- Visiting Scientist Network in which volunteer members, upon invitation by a teacher, go to high schools to present talks, demonstrations, or workshops
- Travel grants to enable students to attend the annual meetings where they can present their research results in the Student Research Award Competition
- Research grants to enable students to carry out mentored research
- Annual Science Teacher Fellowships ($1,000) to individuals in the fifth year program leading to Class A certification.
2003 REGIONAL SCIENCE FAIRS

North Alabama  March 10-13  Calhoun Community College, George Williams 256.306.2838, Sue Mitchell 256.306.2655

West Alabama  March 14-15  University of West Alabama, Richard D. Holland, 205.652.3414

South  March 21-23  University of South Alabama, Satya Mishra, PH: 251.461.1642, Fax: 251.460.7969, e-mail: mishra@jaguar1.usouthal.edu

Central  Feb. 28 -March 1  University of Alabama at Birmingham, James C. Martin, Physics, 205.934.8090

Northeast  Feb. 27-28  Talladega College, Leonard S. Cole, 256.761.6308

East Alabama  March 6-7  Chattahoochee Valley Community College, Phenix City, Susan Marie McCollum, 334.291.4953, Fax: 334.291.4980, Mobile: 706.332.3109, Home: 334.749.8101, e-mail: susan.mccollum@cvcc.cc.al.us

State Fair  April 4-6  University of Alabama at Huntsville, Jim Miller, 256.824.2846

THE ALABAMA STATE SCIENCE AND ENGINEERING FAIR will be held April 4-6 at The University of Alabama in Huntsville, Coordinator, Jim Miller, Physics, 256.824.2846 and Graeme Duthie, 256.824.6605.


ALABAMA SCIENCE OLYMPIAD 2002-2003

Elementary Science Olympiad Tournaments

Jacksonville High School, Saturday, February 22.  David Peters, 1000 George Douthit Drive SW, Jacksonville, AL 36265, 256.435.4177, ESOatJHS@hotmail.com

Auburn University, Saturday, April 26.  Greg Harris, Department of Mathematics, 218 Parker Hall, Auburn, AL 36830 harriga@mail.auburn.edu

Secondary Regional Science Olympiad Tournaments

University of Alabama, Tuscaloosa, Saturday, February 22. Dr. Kevin W. Whitaker, Associate Dean for Academic Programs, College of Engineering, Box 870200, University of Alabama, Tuscaloosa, AL 35487, kwhitaker@coe.eng.ua.edu 205.348.1598, Fax: 205.348.0591

Auburn University, Auburn, Saturday, February 22. Dr. Steve Stuckwisch, Department of Geology, 108 Tichenor Hall, Auburn University, AL 36830, 334.844.6575, sstuckwisch@charter.net

University of Alabama at Huntsville, Saturday, February 22. Mrs. Vanessa Colebaugh, 1315 Pratt Avenue, Huntsville, AL 35801, 256.922.5747, nessacita@comcast.net

University of South Alabama, Saturday, February 1. Dr. Steve Itaya, Dept. of Biomed Science, UCOM 6000, Univ. of South Alabama, Mobile, AL 36608, 334.380.2710, sitaya@jaguar1.usouthal.edu

Jacksonville State University, Saturday, February 22. Dr. David Steffy, Department of Physical and Earth Sciences, Jacksonville State University, 700 N Pelham Rd, Jacksonville, AL 36265, 256.782.5966, dsteffy@jsucc.jsu.edu

Secondary State Science Olympiad Tournaments

Huntingdon College, Montgomery, Saturday, April 5. Dr. Sidney Stubbs, 1500 E Fairview Ave, Montgomery, AL 36106, 334.833.4430, sstubbs@huntingdon.edu

Samford University, Birmingham, Saturday, April 5. Dr. Perry
**National Science Olympiad, Ohio State University (Columbus), May 9-10, 2003**

State Director: Jane Nall, 31110 Wakefield Drive, Spanish Fort, AL 36527, 251.621.2911, Fax: 251.625.7032, email drnall@hotmail.com
Alabama Science Olympiad web page: aso.jsu.edu

**WILLIAM H. MASON SCIENCE TEACHER FELLOWSHIPS**

The William H. Mason Science Teacher Fellowship Fund honors the late Dr. Mason's dedication and leadership in the Academy. Contributions to support this fund may be sent to Dr. Betsy Dobbins, Biology Department, Samford University, Birmingham, AL 35229, Treasurer, AAS. Gifts are tax deductible. Dr. Michael B. Moeller is Chair of the Mason Science Teacher Fellowship Committee, UNA, Bx 5049, 256.765.4479, mbmoeller@una.edu. Downloadable applications and further information can be found on the Academy web site, www.alabamaacademyofscience.org.

Fellowships have been awarded to the following:

1990 - 1991  Mrs. Amy Livengood Sumner, UAB
1991 - 1992  Mrs. Leella Holt, UNA.
1995 - 1996  Laura West Cochran, University of Montevallo.
1996 - 1997  Tina Anne Beams, UAT.
1997 - 1998  Carole Collins Crabbe Clegg, UAB
1998 - 1999  Cynthia Ann Phillips, UNA
1999 - 2000  Ruth Borden, UAB
2000 - 2001  Amy K. Murphy, UAB, Karen L. Celestine, AL A&M
2001 - 2002  Jeannine Ott, Eubanks, Auburn University
2002 - 2003  Not Awarded

**WRIGHT A. GARDNER AWARD RECIPIENTS FOR OUTSTANDING CONTRIBUTIONS TO SCIENCE WHILE IN RESIDENCE IN ALABAMA**

1984  Robert P. Bauman, Physics, University of Alabama at Birmingham
1985  Nolan E. Richards, Research Scientist, Reynolds Metals Company, Sheffield
1986  S. T. Wu, Mechanical Engineering and Aeronautic Research, University of Alabama at Huntsville
1987  Herbert H. Winkler, Microbiology, University of South Alabama
1988  Richard W. Comps, Microbiology and Senior Scientist, University of Alabama at Birmingham
1990  Max Cooper, Medicine and Immunology, University of Alabama at Birmingham
1991  Dan Urry, Biochemistry, University of Alabama at Birmingham
1992  Gail Cassell, Microbiology, University of Alabama at Birmingham
1994  Frank Rose, Electrical Engineering, Space Power Institute, Auburn University
1996  Prakash Sharma, Physics, Tuskegee University
1997  Robert E. Pieroni, Internal and Family Medicine, University of Alabama, Tuscaloosa
1998  Thomas J. Wdowiak, Physics and Space Exploration, University of Alabama at Birmingham
1999  Samuel B. Barker, Physiology, and Dean Emeritus, University of Alabama at Birmingham
2000  George Crozier, Dauphin Island Sea Lab, Mobile
2001  James B. McClintock, University of Alabama at Birmingham
2002  Sara C. & Wayne H. Finley, University of Alabama at Birmingham Medical School
2003  Leven S. Hazlegrove, Samford University, Executive Director, Alabama Academy of Science

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   Livingston, AL 35470  Jacksonville, AL 36265
   205.652.3416  256.782.5638
Chemistry  AUM Dept. of Phys. Sc. Dept. of Chemistry  
P O Box 244023 Troy State University  
Montgomery, AL 36124 Troy, AL 36082  
334.244.3328 334.670.3577  
dsalter@uwa.edu uschnupf@troyst.edu

Earth Science  Dept.Geology &Geography P. E. La Moreaux Assoc, Inc.  
LSCB 136 P O Box 2310  
Univ. South Alabama Tuscaloosa AL 35401  
Mobile, AL 36688 205.752.5543  
251.460.6381 lgeorge@dbtech.net  
dallison@jaguar1.usouthal.edu

Geography  Univ. of North Alabama  
Forestry UNA Box 5121 Huntsville AL 35801  
Conservation & Planning Florence, AL 35632 256.534.8354  
256.765.4221 wmcallister@aamu.edu  
pholland@unanov.una.edu

Physics and Mathematics  Troy State University  
Troy, AL 36082 Troy, AL 36082  
334.670.3467 205.726.2450  
sbelyi@troyst.edu hwglotfe@samford.edu

Industry and Economics  Chair, Economics Dept Chair, Economics Dept.  
AL A&M University Univ. of West Alabama  
Normal, AL 35762 Livingston, AL 35470  
256.851.5084 or 5085 205.652.3476  
aamric01@aamu.edu lae@uwa.edu

Science  Physics Dept., Samford U. Biology Dept.,  
Education Birmingham, AL 35229 Stillman College  
205.726.4121 P O Box 4927  
patompki@samford.edu tuscaloosa, AL 35403  
205.366.8914 jaggison@stillman.edu

Behavioral Sciences  Auburn University  
Sociology Dept.  Auburn University  
Dept. of Sociology  7030 Haley Center  
Auburn, AL 36849  
334.844.5080 334.844.7837  
FAX 334.844.2851 wilkeas@auburn.edu  
wittejc@auburn.edu

Health Sciences  Univ. of AL in Huntsville  
308 Nursing Building at Montgomery  
Huntsville, AL 35899 Montgomery, AL 36124  
256.824.2441 334.244.3331  
Fax .256.824.6026 tdenton@mickey.aum.edu  
haysm@email.uah.edu

Engineering and Computer Science  Dept. of Comp./Info. Sci.  
U. of AL @ Birmingham  
Birmingham, AL 35294 205.934.2213  
FAX 334.844.3307 sprague@cis.uab.edu  
rpitt@coe.eng.edu
Anthropology  Dept. of Geography
Jacksonville State Univ.  Jacksonville State Univ.
Jacksonville, AL 36265  Jacksonville, AL 36265
256.782.5656  256.782.5604
holstein@jsucc.jsu.edu  pkoerper@jsucc.jsu.edu

ALABAMA ACADEMY OF SCIENCE
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2001-2002

President: Steven Watts [2002], Dept. of Biology, University of Alabama at
Birmingham, Birmingham, AL 35294-1170, 205.934.2045, FAX 205.975.6097 e-mail:
sawatts@uab.edu

President-Elect: Anne Cusic [2002], Dept. of Biology, University of Alabama at
Birmingham, Birmingham, AL 35294-1170, 205.934.9686, FAX 205.975.6097, e-mail:
acusic@uab.edu

First Vice-President: Ron Jenkins [2003] Dept. of Biology, Samford University,
Birmingham, AL 35229, 205.726.2947, FAX 205.726.2479, e-mail:
rljenkin@samford.edu

Secretary: Dail W. Mullins [2003] School of Education, University of Alabama at
Birmingham, Birmingham, AL 35294, 205.934.5371, FAX 205.934.4792 e-mail:
drdoom@uab.edu

Treasurer: Betsy Dobbins, Department of Biology, Samford University,
Birmingham, AL 35229, 205.726.2937 e-mail: egdobbins@samford [2003]

Editor: James Bradley, Department of Zoology and Wildlife Science, Auburn
University, Auburn, AL 36849, 334.844.9262. [2003]

State Counselor to the Junior Academy: B.J. Bateman, Physical Sciences
Department, Troy State University, Troy, AL 36082, 334.670.3572, FAX is the
same number. [2002]

Associate Counselor to the Junior Academy: Wanda Phillips, Brook High
School, Florence, AL. [2002]

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Coordinator of State Science Fairs: Virginia Vilardi [2003] 1251 Coosa River
Parkway, Wetumpka High School, Wetumpka, AL 36092, 334.567.5158, Cell 334.
313.4594, (H) 334.514.1770, e-mail: vilardi2@aol.com

Coordinator of State Science Olympiad: Jane D. Nall, [2002], 31110 Wakefield
Drive, Spanish Fort, AL 36527, (334) 621-2911 e-mail: dnmall@hotmail.com

Trustees:
Eugene Omasta, Chair, [2004] 113 Dendron Ave, Troy, AL 36081 e-mail:
ecomasta@trojan.troyest.edu
Michael Moeller, [2004], Box 5049, University of North Alabama, Florence, AL
35632, e-mail: mmoeller@unanov.una.edu
Adriane Ludwick, [2002], Dept. of Chemistry, Tuskegee University, Tuskegee,
AL 36088, e-mail: aludwick@acd.tusk.edu
Wayne Finley [2002], Lab. Medical Genetics, University of Alabama at
Birmingham Birmingham, AL 35294, e-mail: wfinley@uab.edu
Ken Marion [2002], Dept. of Biology, University of Alabama at Birmingham,
Birmingham, AL 35294, e-mail: kmarion@uab.edu
Prakash Sharma [2002], Dept. Of Physics, Tuskegee University, Tuskegee, AL
36088, e-mail: peshar@acd.tusk.edu
Walter Wilborn [2002], Structural Research Center, 120 Novatin Road, Mobile,
AL 36608, 251.649.9740
B. J. Bateman [2003], Physical Sciences Dept., Troy State University, Troy, AL
36082, e-mail: bbateman@trojan.troyest.edu
Joseph C. Thomas [2003], 216 Doubletree Lane, Florence, AL 35630
James Wilkes [2003], 113 Woodland Circle, Troy, AL 36081
Dan Holliman [2003], Dept. of Biology, Birmingham Southern College,
Birmingham, AL 35254, e-mail: dhollima@bsc.edu 205.824.4155
Larry Boots [2004], 2455 Mahaska Dr., Birmingham, AL 35244, 205.988.0745, e-
mail: bootsfam@msn.com
CHAIRPERSONS
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2001-2002

Committee on Budget and Finance:
Eugene Omasta, Chair, [2004], 113 Dendron Ave., Troy, AL 36081, e-mail: eomasta@trojan.troyst.edu

Committee on Membership:
Mark Meade, [2002], Dept. of Biology, Jacksonville State University, Jacksonville, AL 36265, 256.782.5638, email: mmeade@jsucc.jsu.edu

Committee on Research:
Larry Boots, [2004], 205.988.0745, email: bootsfam@msn.com

Committee on Long Range Planning:
Ken Marion, Chair [2005], UAB, Dept. of Biology, Birmingham, AL 35294, 205.934.3582, email: kmarion@uab.edu

Auditing Committees: (1 year)
Senior Academy:
David Schedler, Chair [2002], Birmingham Southern College, Box 549022, Birmingham, AL 35254, 205.226.4876, email: dschedule@bsc.edu

John Chestnut [2002], Dept. of Chemistry, The University of West Alabama, Mail Station 23, Livingston, AL 35470, email: jbcchesnut@att.net

Junior Academy:
Danice Costes, Chair [2002], Dept. of Biology, Troy State University, Troy, AL 36082, 334.670.3404, email: dcostes@trojan.troyst.edu

Editorial Board of the Journal
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James Alexander [2004], Dept. of Economics, Finance & Off. Sys. Mgt., Alabama A&M University, Normal, AL 35762, email: jgalexander@aamu.edu
Prakash Sharma [2004], Dept. of Physics, Tuskegee University, Tuskegee, AL 36088, email: pceshar@acd.tusk.edu
Helen Benford [2002], Dept. of Biology, Tuskegee University, Tuskegee, AL 36088, 334.727.8824, email: hbenford@acd.tusk.edu
James Bradley [2002], Editor, Dept. of Biological Sciences, Auburn University, Auburn, AL 36849, 334.844.9262, email: bradlijt@auburn.edu (ex-officio)

State Counselor to Junior Academy: 
B. J. Bateman, Chair [2002], Physical Sciences Dept., Troy State University, Troy, AL 36082, 334.670.3572, email: bbateman@trojan.troyst.edu

Associate Counselor to AJAS:
Wanda Phillips [2002], Brooks High School, Rt. 4, Box 428, Killen, AL 35645

Committee on Place and Date of Meeting:
Thomas Bilbo, Chair [2006], Dept. of Natural Sciences, University of Mobile, Mobile, AL 36616, 334.675.5990, email: thilbo@zebranet.com

Committee on Local Arrangements:
Donald Salter, Chair [2002], Dept. of Biology, University of West Alabama, Livingston, AL 35470, 205.652.3416, email: dsalter@univ.westal.edu

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Senior Editor: TBA

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Richard Hudiburg, [2003], Dept. of Psychology, University of North Alabama, Box 5187, Florence, AL 35632, 256.765.4572, FAX 256.765.4991, email: rhudibur@unanov.una.edu

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Velma Richardson [2003], Chair [2002], Dept. of Biology, Tuskegee University,
Tuskegee, AL 36088, 334.727.8825, email: VRICHARDSON@acd.tuskegee.edu

AAAS Representative: Steven Watts [2002], Dept of Biology, UAB, Birmingham
35294, 205.934.2045, FAX 205.975.6097, sawatts@uab.edu

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A. Priscilla Holland, [2003] Office of Research, University of North Alabama, Box
5121, Florence, AL 35632, 256.765.4221, pholland@unanov.una.edu

Nominating Committee:
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acusic@uab.edu

Mason Scholarship Committee:
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Executive Director:
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Birmingham, Birmingham, AL 35294, 205.934.8017, FAX 205.934.2543,
e-mail: krannich@uab.edu

PAST PRESIDENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>TERM</th>
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<tr>
<td>Wright A. Gardner (2 terms)</td>
<td>1924-26</td>
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<td>Stewart J. Lloyd</td>
<td>1926-27</td>
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<td>John R. Sampey</td>
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<td>Walter C. Jones</td>
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<td>Fred Allison</td>
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<td>Emmett B. Carmichael</td>
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<td>George J. Fertig</td>
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<td>J.F. Duggar</td>
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<td>J.L. Brakefield</td>
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<td>Russell S. Poor</td>
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<td>A.G. Overton</td>
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<td>P.H. Yancey</td>
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<td>Paul D. Bales</td>
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<td>W.M. Mobley</td>
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<td>E.V. Jones</td>
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<td>J.T. McKenzie</td>
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<td>J.M. Robinson</td>
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<td>James L. Kassner</td>
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<td>John Xan</td>
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<td>Eugene D. Emigh</td>
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<td>C.A. Basore</td>
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<td>Ralph Chermock</td>
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<td>Paul C. Bailey</td>
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<td>Louis J. Eisele</td>
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<td>E. Carl Sensenig</td>
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<td>William J. Barrett</td>
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<td>James F. Sulzby, Jr.</td>
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<td>David L. DeJarnette</td>
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<td>H. Ellsworth Steele</td>
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<td>Ruric E. Wheeler</td>
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<td>Wilbur B. DeVall</td>
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<td>W.L. Furman</td>
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<td>G.O. Spencer</td>
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<td>Joseph C. Thomas</td>
<td>1972-73</td>
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<td>Robert T. Gudauskas</td>
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<td>Reuben B. Boozer</td>
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Thomas E. Denton .......................................................1975-76
Urban L. Diener .....................................................1976-77
James C. Wilkes .....................................................1977-78
William F. Arendale .............................................1978-79
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PROGRAM

EIGHTY-FIRST ANNUAL MEETING

of the

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March 17 – March 20, 2004
University of Montevallo
Montevallo, Alabama 35115

Local Chair, Houston Byrd, Dept. of Chemistry
byrdh@montevallo.edu
PH 205.665.6478

C. Kay Watts, Continuing Education
watts@montevallo.edu
PH 205.665.6280

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