

PROGRAM
EIGHTY-THIRD ANNUAL MEETING
of the
ALABAMA ACADEMY OF SCIENCE, INC.



Meeting Jointly With
ALABAMA JUNIOR ACADEMY OF SCIENCE
GORGAS COMPETITION AWARDS
ALABAMA STATEWIDE CHEMISTRY UNDERGRADUATE
RESEARCH SYMPOSIUM
SOUTHEASTERN SOCIETY FOR ENVIRONMENTAL
TOXICOLOGY AND CHEMISTRY

March 15-18, 2006
Troy University
Troy, AL

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 or 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.

***On-campus police, fire, medical service:**

Troy University police number: 334-670-3215 (Ext. 3215 from on-campus system)

334-670-1999 (after hours)

Ambulance: 334-566-6604

***Off-campus emergencies (Police, Fire, Medical): 334-566-0600 or 911**

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84 th Annual Meeting (2007).....	Inside Back Cover

Office of the
Executive Vice
Chancellor
and Provost

216 Adams
Administration
Building

334-670-3104
334-670-3774 FAX



Dear Friends and Colleagues,

Troy University is delighted to welcome you to our Troy Campus for your annual meeting. We are pleased to extend our hospitality to fellow scholars, professors, and investigators in every aspect of science. You have a varied and vital program, and we consider it a privilege to host your meeting. We want you to enjoy yourself. Commune with our students and faculty, enjoy the grounds, and our facilities.

Meetings such as yours offer scholars a chance to touch base with friends and coworkers. We hope you find time for active and interesting collaborations, and we hope that many fruitful and interesting projects are initiated as part of the intellectual exchanges that happen while you are with us. We are eager to help in any way we can.

We have tried to make your stay comfortable. There are many inviting activities. The symposium highlights topics of critical importance to our state, nation, and society beyond our local interests. The appeal to the investigator is very real on pure scientific grounds. However, the topics also let us benchmark our contributions in social, economic, environmental, and ethical endeavors as well. We congratulate you on your work, and we thank you for allowing us to assist you in your endeavors.

Good luck, enjoy your stay with us, and we hope to meet again in person and as scholars in pursuit of our goals and in furtherance of our professions.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ed D. Roach".

Ed D. Roach
Executive Vice Chancellor and Provost





Dear AAS Members and Guests:

In 1924, the scientists of Alabama created a venue for the promotion and exchange of scientific knowledge in our state. Today, we continue this tradition as Troy University graciously hosts the 83rd annual meeting of the Alabama Academy of Science.

This meeting has much to offer each one of you. There are eleven different sections in which informative papers and posters will be presented. The Biology, Chemistry, Physics, Behavioral Science, and Health Science sections are particularly well represented. The Science Education section offers a place for teachers to be updated on innovative teaching methods, while Bioethics reminds us that science impacts many other disciplines. This meeting will also host many young scientists involved in the Gorgas Scholarship competition and the Junior Academy of Science.

In addition, the Chemistry section and three American Chemical Society local chapters have joined together in a Chemistry Undergraduate Research Symposium. And the Academy again hosts a Friday morning symposium on a topic of immediate concern, "Canaries in the Environment: Nature's Monitors of Global Change." We especially encourage "the public-at-large" to attend and participate in this important discussion.

By this letter, I extend my appreciation to the many individuals who contributed their time and energy to the planning and organizing of this meeting. Special thanks go to Dr. Ken Sundberg and the Local Arrangements Committee of Troy University and to Dr. Larry Krannich, Executive Director of the Academy.

On behalf of the trustees, officers and section chairs, I welcome each of you to this 83rd annual meeting of the Academy. I hope that this meeting will both challenge you and inspire you to continue your interest in scientific research and teaching.

Sincerely yours,

A handwritten signature in black ink, appearing to read "L. J. Davenport". The signature is fluid and cursive, with a large initial "L" and "J".

L. J. Davenport, Ph.D.
President, Alabama Academy of Science

LOCAL ARRANGEMENTS COMMITTEE

The officers and members of the Academy express their appreciation to Birmingham Southern College and the Local Arrangements Committee for their efforts in planning and hosting this 83rd Annual Meeting.

Local Chairperson

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Gorgas Scholarship Competition

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GENERAL INFORMATION

- 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. At least one of the authors of a presented paper or poster must be a member of the Academy.
- Tickets for the Joint AJAS/AAS banquet may be purchased at the registration desk until 9:30 Friday morning.
- Computers will be provided where needed for presentations. If presenters bring their own, they are responsible for their computer.

POSTERS & VENDORS

Posters are to be available for viewing in Room 300 McCall Hall. Authors for the session posters should be present for discussions with viewers as follows:

Thursday:

1:00 – 1:45 PM, Behavioral and Social Sciences (Section VIII)

3:00 – 4:30 PM, Biological Sciences (Section I)

3:15 – 4:30 PM, Chemistry Undergraduate Research Symposium (Section II)

3:30 – 4:30 PM, Southeastern Society for Environmental Toxicology & Chemistry

3:30 – 4:00 PM, Geography, Forestry, Conservation & Planning (Section IV)

Friday:

2:00 – 3:00 PM, Health Sciences (Section IX)

4:15 – 5:00 PM, Biological Sciences (Section I),

Posters should be removed as soon as your respective poster session has concluded and must be removed by 5:30 P.M. of the respective day.

Vendors display from 8:00 AM – 4:00 PM in the McCall Hall Foyer on Thursday and Friday

**PROGRAM
of the
ALABAMA ACADEMY OF SCIENCE
March 15 – 18, 2006**

Wednesday

4:00 - 6:00 PM Registration..... McCall Hall Foyer
6:30 - 10:00 PM Executive Committee Dinner/ Meeting..... Hall of Honor

Thursday Morning

7:00 - Noon Registration..... McCall Foyer
Continental Breakfast McCall Atrium
8AM - 4:00 PM Vendor Exhibits McCall Foyer
8:30 AM Academy of Science Program Sessions McCall Hall

Section Program Sessions:

8:30 *Biological Sciences I (Section I)*..... 112 McCall
8:30 *Physics and Mathematics I (Section V)* 318 McCall
8:30 *Science Education I (Section VII)*..... 214 McCall
9:00 *Health Sciences I (Section IX)* 116 McCall
10:00 *Behavioral and Social Sciences I (Section VIII)*..... 114 McCall
11:00 *Industry and Economics I (Section VI)*..... 216 McCall

Slide Preview Room 319 McCall

Noon – 1:00 PM
Lunch McCall Foyer
Lunch (Trustees, Elected Officers, Exec. Dir.)..... Hall of Honor

Thursday Afternoon

12:00 - 4:00 PM Vendor exhibits McCall Foyer
1:00 - 4:00 PM Registration..... McCall Foyer
Snacks McCall Foyer
1:00 - 5:00 PM Poster Viewing 300 McCall

Authors present to discuss these section posters from

- 1:00 – 1:45 PM *Behavioral and Social Sciences'* posters
- 3:00 – 4:30 PM *Biological Sciences'* posters
- 3:15 – 4:30 PM *Chemistry Undergraduate Research Symposium* posters
- 3:30 - 4:00 PM *Geography, Forestry, Conservation & Planning* posters
- 3:30 – 4:30 PM *Southeastern Soc, for Environmental Toxicology & Chem.* posters

1:00 PM Academy of Science Program Sessions McCall Hall

Program Sessions:

- 1:00 *Biological Sciences II (Section I)*..... 112 McCall
- 1:00 *Chemistry (Section II)*..... 318 McCall
- 1:00 *Alabama Statewide Chemistry Undergraduate Research Symposium (Section II)* 318 McCall
- 1:00 *Health Sciences II (Section IX)*..... 116 McCall
- 1:00 *Southeastern Society for Environmental Toxicology and Chemistry* 224 McCall
- 1:15 *Geography, Forestry, Conservation, & Planning (Section IV)* 214 McCall
- 1:40 *Industry and Economics II (Section VI)*..... 216 McCall
- 2:00 *Behavioral and Social Sciences II (Section VIII)* 114 McCall

Thursday Evening

5:00 PM Section Officer's Meeting 330 McCall

6:00 PM Social for All Registrants..... Alabama Pioneer Museum
Single day registrants can purchase a ticket for \$5 at registration

Friday Morning

7:00 – Noon Registration..... McCall Foyer
Continental Breakfast McCall Atrium

8 AM - 4:00 PM Vendor exhibits McCall Foyer

8:30 – Noon SYMPOSIUM..... Claudia Crosby Theater



**8:30 AM to 12:00 noon
Claudia Crosby Theater**

**Symposium Sponsored by Biological Sciences (Section I), Science Education (Section VII),
and Southern Society for Environmental Toxicology and Chemistry**

“Canaries in the Environment: Nature’s Monitors of Global Change”

1. What the Salamander Taught the Canary: Alabama’s Amphibians as Bioindicators. *Megan E. Gibbons*, Birmingham-Southern College, Birmingham, Alabama.
2. Medicine for the Canary: Two Parts Adaptive Management and One Part Science. *R. Scot Duncan*, Birmingham-Southern College, Birmingham, Alabama.
3. The Loss of Springs in the Birmingham-Canoe Valley: An Historical and Biological Perspective. *Daniel J. Drennen*, U. S. Fish & Wildlife Service, Jackson, Mississippi.
4. A Threshold for Air Quality: USG (Unhealthy for Sensitive Groups). *Samuel L. Bell*, Jefferson County Department of Health, Birmingham, Alabama.
5. The Loss of Freshwater Mollusks in Alabama: A Global Conservation Crisis. *Paul D. Johnson*, Alabama Aquatic Biodiversity Center, Marion, Alabama.



8:30 - 11:30 AM Academy of Science Program Session McCall Hall

Program Sessions:

8:30 *Physics and Mathematics II (Section V)*..... 114 McCall
9:00 *Anthropology I (Section XI)*..... 318 McCall

12:00 Noon Group Picture Troy Quad and Fountain
Noon – 1:00 PM Lunch McCall Foyer

Friday Afternoon

12:00 - 4:00 PM	Vendor exhibition area	McCall Foyer
1:00 - 2:00 PM	Registration.....	McCall Foyer
1:00 - 4:00 PM	Poster Viewing	300 McCall
	Authors present to discuss these section posters from	
2:00 – 3:00 PM	<i>Health Sciences</i> posters
4:15 - 5:00 PM	<i>Biological Sciences</i> posters
1:00 PM	Academy of Science Program Sessions	McCall Hall

Program Sessions:

1:00	<i>Biological Sciences IV (Section I)</i>	212 McCall
1:00	<i>Biological Sciences V (Section I)</i>	214 McCall
1:00	<i>Science Education II (Section VII)</i>	318 McCall
1:00	<i>Health Sciences III (Section IX)</i>	116 McCall
1:00	<i>Engineering and Computer Science (Section X)</i>	124 McCall
1:00	<i>Anthropology II (Section XI)</i>	118 McCall
1:00	<i>Bioethics and History & Philosophy of Science (Section XII)</i>	218 McCall
1:00	<i>Southeastern Society for Environmental Toxicology & Chemistry</i>	216 McCall
1:30	<i>Physics and Mathematics III (Section V)</i>	114 McCall
	Slide Preview Room	319 McCall

Friday Evening

6:00	AJAS/AAS Annual Business Meeting	330 McCall
7:00	Joint AJAS/AAS Banquet.....	Trojan Center Ballroom

Larry Davenport, Presiding

Dr. Paul Michael Stewart
ALFA Eminent Scholar, Biology and Environmental Sciences
Troy University
Sustainable Development

Presentation of the AJAS and Gorgas Awards
B. J. Bateman and Ellen Buckner

**PROGRAM of the
ALABAMA JUNIOR ACADEMY OF SCIENCE
B.J. Bateman, State Counselor
March 16 – March 18, 2006**

Thursday

3 - 5:00 PM Early Arrival Registration..... Hampton Inn
6:00 PM Social for all Registrants..... Alabama Pioneer Museum

Friday

7:00 AM Continental Breakfast Hampton Inn
7:45 PM Registration..... McCall Foyer
7:45 AM Paper Reading
Orientation 118 McCall
Judges Orientation 330 McCall
8:15 AM Paper Competition McCall
 Biology..... 116 McCall
 Humanities 214 McCall
 Mathematics/Engineering 118 McCall
 Physical Science 218 McCall
11:00 AM Caucus..... 118 McCall
12:00 Noon Lunch McCall Foyer
1:30 PM Troy University Science Activity:
5:00 PM Meeting with officers and candidates for office to explain
 responsibilities 330 McCall
6:00 PM Joint AJAS/AAS Business Meeting 330 McCall
7:00 PM Joint AJAS/AAS Banquet and
 Presentation of Awards..... Trojan Center Ballroom
9:30 PM AJAS Social..... Hampton Inn

Saturday

7:00 AM Continental Breakfast Hampton Inn

8:00 AM Paper Competition Finals..... 118 McCall

10:30 AM Elections, Awards, and Business Meeting..... 118 McCall
Group Photograph..... Troy Quad & Fountain

GORGAS SCHOLARSHIP COMPETITION
Friday, March 17, 2006
Math and Science Complex, McCall Hall

Ellen Buckner, Chair, Judges

12:45 – 1:30	Set Up Science Exhibits.....	103 McCall
1:45	Demonstrations for Judges	103 McCall
3:00	Individual and Private Judging	TBA (offices)
3:00 - 5:00	Public Showing of Exhibits	103 McCall
7:00	Joint AJAS/AAS Banquet..... Announcement of Winners Ellen Buckner	Trojan Center Ballroom

The Gorgas Scholarship Competition is supported by the Alabama Power Foundation, Incorporated, and administered by the Alabama Academy of Science, Inc. The Gorgas Scholarship Competition website, www.GorgasScholar.org, contains detailed information on the annual competition.

SECTION I - BIOLOGICAL SCIENCES

Session I

Thursday Morning

Room 112 McCall

George Cline, Presiding

1. 8:30 New and interesting plants from Alabama. *Michael Woods* and Alvin R. Diamond, Troy University.
2. 8:45 DNA testing of E-coli forms in surface waters using BOX and REP PCR techniques. *Stephanie Hood* and Brian S. Burnes, Judson College.
3. 9:00 Use of principal components analysis to describe water quality in thirteen streams in central and west-central Alabama. *Rosine W. Hall* and John M. Aho, Auburn University Montgomery.
4. 9:15 Examination of contaminated watersheds near the Anniston, AL Monsanto site using the FETAX assay and development of additional developmental toxicity assays. *Roger Sauterer*, Jacksonville State University.
5. 9:30 The relationship of large woody debris and macroinvertebrate communities in wadeable streams in the Choctawhatchee River System. Sameer Bhattarai and *Michael William Mullen*, Troy University.
6. 9:45 Ethoxyresorufin-O-deethylase (EROD) activity in channel catfish (*Ictalurus punctatus*) exposed to Troy (Alabama) wastewater treatment plant effluent. *Alicia Whatley*, Smriti Bhattarai; Paul M. Stewart, Christi Magrath, and Philip Reynolds, Troy University.
- 10:00 INTERMISSION
7. 10:15 Summer resting areas of the gulf sturgeon, *acipenser oxyrinchus desotoi*, in the Conecuh/Escambia river system. *Bo Sawyer*, Paul M. Stewart, and Frank Parauka, Troy University.
8. *10:30 Crevice use by salamanders in northeastern Alabama with an emphasis on the green salamander. *Aneides aeneus*. *Sara Viernum* and George Cline, Jacksonville State University.
9. *10:45 Habitat use by plethodontid salamanders in Northeast Alabama. *Clifford J. Webb* and George Cline, Jacksonville State University.
10. 11:00 Variations of life cycles among burrowing crayfish in the *cambarus diogenes* (girard) complex. *Jonathan Miller* and Paul M. Stewart, Troy University.

- 11. 11:15 Distribution patterns and cellular localizations of acid and alkaline phosphatases in mosquitofish gills. *Glenn M. Cohen*, C. Jiang and E.G. Spokas, Troy University.
- 12. 11:30 Status of candidate mussel species in the Gulf coastal plains, SE Alabama. *Paul M. Stewart* and Megan M. Pilarczyk, Troy University.
- 13. 11:45 Survival of white-tailed deer fawns in a suburban area of Alabama. *Sarah T. Saalfeld* and Stephen S. Ditchkoff, Auburn University.
- 12:00 LUNCH

SECTION I – BIOLOGICAL SCIENCES

Session II

Thursday Afternoon

Room 112 McCall

Brian Burnes, Presiding

- 14. 1:00 Inner workings of equus caballus: The effects of common-usage medications on the natural flora of the equine gastrointestinal tract. *Christy Spearman* and Brian S. Burnes, Judson College.
- 15. 1:15 Reproductive parameters of an Alabama/Georgia feral pig population. *D. Buck Jolley* and Stephen S. Ditchkoff, Auburn University.
- 16. 1:30 Mitochondrial DNA variation in walleye and sauger. *Neil Billington*, Troy University.
- 17. 1:45 Gopher tortoise (*Gopherus polyphemus*) populations on state lands in Mobile and Baldwin Counties, Alabama. *Lindsey A. Timmerman*, David H. Nelson and Joel A. Borden, University of South Alabama.
- 18. 2:00 Comparison of the herpetofauna at two sites in northeastern Alabama. *George R. Cline*, Jason R. Adams and Melissa J. Dunaway, Jacksonville State University.
- 19. 2:15 Activity of the Mississippi diamondback terrapin (*malaclemys terrapin pileata*) in southern Mobile County, Alabama. *David H. Nelson*, Joel Borden and Gabriel Langford, University of South Alabama.
- 20. 2:30 *Commelina erecta* – Its flower structure, reproductive biology, and its interactions with herbivores. *Roland Dute* and Debbie Folkerts, Auburn University.
- 21. 2:45 Kidney stones in an Atlantic Bottlenose Dolphin, *Gerald T. Regan*, Marterra Foundation, Mobile, AL.
- 3:00 BUSINESS MEETING

SECTION I – BIOLOGICAL SCIENCES

Poster Session

Thursday Afternoon, Room 300 McCall

Authors Present – 3:00 – 4:30 PM

22. Northern blot analysis of differentially induced transcription termination reporter genes. *Yoon Cho*, Dan Bai, and Christi Magrath, Troy University.
23. Microarray analysis of lead treated *saccharomyces cerevisiae*. *In Ki Cho* and Christi Magrath, Troy University.
24. Transcription termination capacity of intergenic regions from *S. cerevisiae*. *Pranjal Nahar*, Kevin Flinn and Christi Magrath, Troy University.
25. DNA sequence analysis of a putative cytochrome p450 from waste water treated channel catfish. *Robert McHugh*, James Noble, Smriti Bhattarai, Christi Magrath, and Alicia Whatley, Troy University.
26. Economic utilization of potato peel waste for bioremediation of perchlorate in water. *Benedict C. Okeke*, Auburn University Montgomery, and William T. Frankenberger, University of California Riverside.
27. The concentration of lead within the soil profile at Troy University Arboretum. *Charlotte Fafa Tay*, Dr. Sigurdur Greipsson and Dr. Chris King, Troy University.

SECTION I – BIOLOGICAL SCIENCES

Session III

Friday Morning

Claudia Crosby Theater

8:30 AM until 12:00 noon

Symposium Sponsored by Biological Sciences (Section I), Science Education (Section VII), and Southern Society for Environmental Toxicology and Chemistry

“Canaries in the Environment: Nature’s Monitors of Global Change”

1. What the Salamander Taught the Canary: Alabama’s Amphibians as Bioindicators. *Megan E. Gibbons*, Birmingham-Southern College, Birmingham, Alabama.
2. Medicine for the Canary: Two Parts Adaptive Management and One Part Science. *R. Scot Duncan*, Birmingham-Southern College, Birmingham, Alabama.

3. The Loss of Springs in the Birmingham-Canoe Valley: An Historical and Biological Perspective. *Daniel J. Drennen*, U. S. Fish & Wildlife Service, Jackson, Mississippi.
4. A Threshold for Air Quality: USG (Unhealthy for Sensitive Groups). *Samuel L. Bell*, Jefferson County Department of Health, Birmingham, Alabama.
5. The loss of freshwater mollusks in Alabama: A Global Conservation Crisis. *Paul D. Johnson*, Alabama Aquatic Biodiversity Center, Marion, Alabama.

12:00 LUNCH

SECTION I – BIOLOGICAL SCIENCES

Session IV

Friday Afternoon

Room 212 McCall

Mark Meade, Presiding

28. 1:00 Gametophytic and sporophytic responses of *Pteris* spp. to arsenic. *T. Justun Durham*, T. Wayne Barger, Hollings T. Andrews, and Matthew S. Wilson, Tennessee Technological University.
29. 1:15 Photodynamic dye treatment of fish pathogens. *Mark Meade*, Benjie Blair and Charles Olander, Jacksonville State University.
30. *1:30 Rotifer diversity in ponds and lakes at Troy University. *Eric S. Harris* and Stephen C. Landers, Troy University.
31. *1:45 The effect of dietary carbohydrate on weight gain and gonad production in juvenile *Lytechinus variegatus* (Echinodermata). *Anna L. Morris*, Mickie L. Powell, Stephen A. Watts and Addison L. Lawrence, University of Alabama at Birmingham.
32. *2:00 Carlson's trophic state index as applied to southeastern Alabama fish ponds. *P. Taylor Ezell* and Neil Billington, Troy University.
- 2:15 INTERMISSION
33. 2:30 Effects of environmental stress on levels of cyanide production in selected plants. *Anna Chandler* and H. Wayne Shew, Birmingham-Southern College.
34. 2:45 A comparison of herpetofaunal communities between two upland mosaic habitats bordering the Mobile-Tensaw delta. *Joel A. Borden*, David H. Nelson and Lindsey A. Timmerman, University of South Alabama.

35. 3:00 Genetic variation in Montana sauger and hybridization with walleye. *Rachael Koig, J. Xiong, N. Billington, and W. Gardner, Troy University.*
- 3:15 INTERMISSION
36. 3:30 Benthic feeding behavior in the coastal lobate ctenophore *Mnemiopsis mccradyi*. *Christopher Taylor, Deborah Odom and Anthony Moss, Auburn University.*
37. 3:45 Analysis of ciliary and flagellar activity with a laser scattering microscope. *Anthony Moss and Margaret West, Auburn University.*
38. 4:00 Photosynthetic symbiont of panamanian coral reef sponges. *Patrick M. Erwin and Robert W. Thacker, University of Alabama at Birmingham.*

SECTION I – BIOLOGICAL SCIENCES

Session V

Friday Afternoon

Room 214 McCall

Donald Salter, Presiding

39. *1:00 Protein electrophoretic distribution of genetic variation in sauger populations. *Amy Barr and Neil Billington, Troy University.*
40. 1:15 Hybridization and introgression between sauger and walleye determined by protein electrophoresis. *Janet Gaston, R. N. Koigi, R. E. Creech, P. T. Ezell, and N. Billington, Troy University.*
41. 1:30 The combined application of sonication and advanced chemical oxidants as a method to treat introduced aquatic macroinvertebrates transported via ballast water. *Meghana Gavand, James B. McClintock, Charles D. Amsler, Robert W. Peters, University of Alabama at Birmingham.*
42. 1:45 Seasonal variations of reproductive functions in male mosquitofish, *Gambusia affinis*. *Paul D. Melvin III and Robert Angus, University of Alabama at Birmingham.*
- 2:00 INTERMISSION
43. 2:15 The oncogene N-myc and its regulatory role in the transcription of N-acetylglucosaminyltransferase VB in neuroblastoma. *Marae Bernard, Karen Abbott, Michael Pierce, and Jeannette Runquist, Birmingham-Southern College.*
44. 2:30 Update on the bacteriological content of Dry Creek: Origin and amount. *Lydia Dews Glasscock and Brian S. Burnes, Judson College.*

45. 2:45 Further evaluation of a published PCR technique in tracking the source of fecal contamination in Alabama and Wisconsin environmental waters. *Donald W. Salter*, Maurice Arrington, Quentin Sonnier, Grant Goldenstar III and Mary Leuther, University of West Alabama.
- 3:00 INTERMISSION
46. 3:15 Characterization of a Mycoplasma Pulmonis Transposon Mutagenesis Library. *Abha Soni*, C. T. French, K. Dybvig, and J. Runquist, Birmingham-Southern College.
47. 3:30 Determination of the incidence of cervical dysplasia in an Honduran population using two different techniques. *Thomas F. Garth*, Luis Zuniga, George B. Inge, Jeannette Runquist, Birmingham-Southern College.
48. 3:45 Understanding molecular cloning and the study of GFAP expression within astrocytes. *David V. Yokum* and J. Runquist, Birmingham-Southern College, and M. Brenner, J. Morello, and Y. Lee, University of Alabama at Birmingham.
49. 4:00 Microtubule Involvement in Balbiani Bodies of Acheta domesticus Oocytes. *Thomas G. McFaden* and James T. Bradley, Auburn University.
50. 4:15 Structure and function of fish assemblages in beaver ponds of the Choctawhatchee-Pea and Conecuh River watersheds, Alabama. *Amanda McCall*, Jimmy Aplin, Wes Robertson, and Paul M. Stewart, Troy University.

SECTION I – BIOLOGICAL SCIENCES

Poster Session

Friday Afternoon

Room 300 McCall

Authors Present – 4:15 – 5:00 PM

51. Effects of Nanoparticles on Gill Function. *Roxana Weil*, Kelly Hyndman, Nancy Denslow and David Barber, University of Florida.
52. *Antimicrobial activity of antarctic sponge extracts to sympatric microorganisms. *Kevin J. Peters*, Charles D. Amsler, James B. McClintock, and Bill J. Baker, University of Alabama at Birmingham.
53. Effects of symbiotic soil microorganisms of different ecotones in the invasion of kudzu in south Alabama. *Patricia Kinney*, Dr. S.Greipsson (Troy University) and Dr. H. El-Mayas (Georgia State University).
54. *Rudbeckia auriculata* (Perdue) Kral parasitized by *Asphondylia rudbeckiaeconspicua* Osten Sacken (Diptera: Cecidomyiidae) in Alabama. *Alvin Diamond*, Troy University

55. Hymenomycetes from the Mobile Bay area. *Juan Luis Mata*, University of South Alabama.
56. Some effects of Phyloxine B on *Tetrahymena pyriformis* in vitro. *Misty Chapman*, Mark Meade, Benji Blair and C. P. Olander, Jacksonville State University.
57. Pit membrane structure in the wood of two species of gymnosperms. *Roland Dute*, LaToya Hagler, and Adam Black, Auburn University

*Denotes presentation is entered in competition

SECTION II – CHEMISTRY
Alabama Statewide Chemistry Undergraduate Research Symposium
Session I
Thursday Afternoon
Room 318 McCall
Jan Gryko, Presiding

1. *1:00 Equilibrium constant calculator for chemical reactions at high temperatures, *E. B. Garner* and M. B. Moeller, University of North Alabama
2. 1:20 Clathrates derived from lithium silicide, *Kristen Williams*, Jacksonville State University
3. 1:40 Validation of Alabama water watch test methods for turbidity and pH via comparison of paired test kit and meter data, *Michael William Mullen*, Troy University
4. 2:00 Room temperature ionic liquids, *Chris Loveless*, Jacksonville State University.
5. 2:20: Chemistry of glucosinolates: extraction and characterization, *Tahirah Farrer-Bradley*, N. Paul Nolen; Bernadette Early; Ayesha J. Mindingall; Monica Frazier, and Pamela M. Leggett- Robinson, Tuskegee University
6. 2:40 Synthesis of biodiesel fuels, *Hunter Cowing*, Jacksonville State University
- . 3:00 BUSINESS MEETING (Selection of Section Vice-Chair)

SECTION II – CHEMISTRY
Alabama Statewide Chemistry Undergraduate Research Symposium
Poster Session
Thursday Afternoon
Room 300 McCall
Authors Present – 3:15 – 4:30 PM

7. Investigating the uptake of mercury from contaminated soil by deciduous trees in Calhoun county, Alabama, *C. Loveless*, B. Driggers, J. Kent, , K. Nishant, E. Pentecost, L. Pentecost, D. Steffy, and A. Nichols, Jacksonville State University
8. Fabrication of gold colloid films on glass substrates for Raman studies of alkanethiol self-assembled monolayers, *Leila Joy Roberson*, B.W. Gregory, S. Shanmukh, and R.A. Dluhy, Samford University
9. Evaluations of cellulose supported palladium catalyst, *Fatima Carmichael* and Kevin Shaughnessy, University of Alabama

10. Palladium-catalyzed reactions for nucleoside modification, *Caitlin D. Prickett*, Joon-Hyung Cho, and Kevin H. Shaughnessy, University of Alabama
11. Synthesis and structural determination of urea formaldehyde condensation products, *Ryan J. Johnson*, Thomas P. Murray, Jason P. Weisenseel, University of North Alabama
12. *Polypeptide synthesis using crown ethers to inhibit hydrogen bonding, *James True Merrill* and Lesli Bordas, Spring Hill College
13. Determination of total mercury in freshwater mussel tissue from the Tennessee River in Northwest Alabama, *Nathan C. Thacker* and Jason P. Weisenseel, University of North Alabama
14. Investigating the activities of α -glucosidase and insulin potentiating factor, IPF in bitter melon (*Momordica charantia*), *Amanda L. Henderson*, Mijitaba Hamissou and Nagarajan Vasumathi, Jacksonville State University
15. Synthesis of 4-amino derivatives of 5,7-dichlorokinurenic acid that led to unexpected products via detosylation, *Stephen Craig*, Al Nichols, and Nagarajan Vasumathi, Jacksonville State University
16. Solvent effects on dipole moments of a homologous series of chlorinated aromatics: experiment vs. theory, *Dawn M. Yanker* and Shawn B. Allin, Spring Hill College
17. Chemistry of glucosinolates: extraction and characterization, *Tahirah Farrer-Bradley*, N. Paul Nolen, Bernadette Early, Ayesha J. Mindingall, Monica Frazier, and Pamela M. Leggett-Robinson, Tuskegee University

SECTION II – CHEMISTRY
Poster Session
Thursday Afternoon
Room 300 McCall
Authors Present – 3:15 – 4:30 PM

18. Analysis of alkylphenols in wastewater using solid-phase extraction and gas chromatography/mass spectrometry, *Yassin A. Jeilani* and Victor M. Ibeanusi, Spelman College
19. Analysis of alkylphenols in wastewater using solid-phase extraction and gas chromatography/mass Spectrometry, *Yassin A. Jeilani* and *Victor M. Ibeanusi*, Spelman College

*Denotes presentation is entered in competition

SECTION IV – GEOGRAPHY, FORESTRY, CONSERVATION, AND PLANNING

Thursday Afternoon

Room 214 McCall

William K. McAllister, Presiding

1. 1:15 The employment of geographical information systems to investigate trichloroethylene ground water contamination on or near the Anniston Army Depot. *William Ronald LaGrove*, Thomas Baucom, and Brian S. Murray. Jacksonville State University.
2. 1:35 Evaluating the HAZUS Hurricane Model: Ivan 2004. *Greg Gaston*, Stacey, and Ryan Brown. University of North Alabama.
3. 1:55 Baselines studies of Cypress Pond Creek: A distressed urban watershed. *J. Cody Mayberry*, Rosine W. Hall and John M. Aho. Auburn University Montgomery
4. 2:10 The Impact of African American churches on the social and economic development of their communities in Huntsville and Madison County, AL. *Kindell Anderson* and Teshome Gabre. Alabama A & M University.
5. 2:30 Alabama regional economic performance (1980-2000). *Amber Overstreet* and Chukudi Izeogu. Alabama A & M University.
6. 2:45 Defining peri-urban residential development using participatory GIS: Example from Africa. *Francis Koti* and Daniel Weiner. University of North Alabama.
- 3:05 BUSINESS MEETING (Selection of Section Chair and Vice-Chair)

SECTION IV – GEOGRAPHY, FORESTRY, CONSERVATION, AND PLANNING

Poster Session

Thursday Afternoon

Room 300 McCall

Authors Present – 3:30 – 4:00 PM

7. Hurricanes of the Southeast and the HAZUS Model. *Stacey Witten and Ryan Brown* and Greg Gaston. University of North Alabama.

SECTION V – PHYSICS AND MATHEMATICS

Session I

Thursday Morning

Room 318 McCall

Kenneth Roblee, Presiding

1. 8:30 Fluorescence study of sunscreens in heterogeneous nanosphere media, *Rajagopal Krishnan* and Thomas Nordlund,, University of Alabama at Birmingham.
2. 8:50 Plasma diagnostics with electrical probes, Nirmol Podder, *Anastasia Tarasova*, and Ralph Wilson IV, Troy University.
3. 9:15 Analysis of fluctuations in plasma potentials, Nirmol Podder and *Ralph Wilson IV*, Troy University.
4. 9:40 Recent shock wave dynamics research in Troy, *Nirmol Podder*, *Anastasia Tarasova*, and Ralph Wilson IV, Troy University.
- 10:10 INTERMISSION
5. 10:30 Radiated fields of disc ultrasonic transducers, Albert J. Osei, Oakwood College.
6. 10:55 Some elementary proofs of the sums of some convergent series, Hussain Elalaoui-Talibi, Tuskegee University.
7. 11:15 Invited talk: Monitoring of trace elements in liquid and biological samples using laser induced breakdown spectroscopy, *A. Kumar* and P. C. Sharma, Department of Physics, Tuskegee University.
- 12:00 LUNCH

SECTION V – PHYSICS AND MATHEMATICS

Session II

Friday Morning

Room 114 McCall

Kenneth Roblee, Presiding

8. 8:30 Black holes: probing the boundaries of the universe, Govind Menon, Troy University.
9. 8.50 Use of web-based repository and other technology in enhancing undergraduate mathematics teaching, Fayequa Majid, Alabama A&M University.
10. 9:25 On conditional difference asymmetry models in square contingency tables with nominal categories, Bayo H. Lawal, Auburn University Montgomery.

- 11. 10:00 The history of the most famous error in graph theory, V. Voloshin, Troy University.
- 12. 10:25 Realization problems in Pontryagin spaces, Sergey Belyi, Troy University.
- 13. 10:50 A greedy algorithm for constructing walking bass lines, Pat Rossi, Troy University.

SECTION V – PHYSICS AND MATHEMATICS

Session III

Friday Afternoon

Room 114 McCall

Kenneth Roblee, Presiding

- 14. 1:30 Earth-like planets around nearby stars, *Mark Bentley* and Rodney Dunning, Birmingham- Southern College.
- 15. 1:55 Analytical solutions for pressure and density of air in mines, V. Bhatnagar, *Arjun Tan*, and T.X. Zhang, Alabama A&M University.
- 16. 2:15 Bulk crystal growth of Piezoelectric $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3\text{-PbTiO}_3$ single crystals, M. D. Aggarwal, Ak. Batra, *F. Kochary*, R. Hawrami, R. B.Lal,, Alabama A&M University.
- 17. 2:40 Growth and physical characterization of Scintillator crystal for homeland security applications, M. D. Aggarwal, Ak. Batra, *F. Kochary*, *R. Hawrami*, Alabama A&M University.
- 19. 2:55 New results for extremal-type problems for edge-regular graphs, Kenneth Roblee, Troy University
- 3:20 BUSINESS MEETING

*Denotes presentation is entered in competition

SECTION VI – INDUSTRY AND ECONOMICS

Session I

Thursday Morning

Room 216 McCall

Marsha D. Griffin, Presiding

1. 11:00 An examination of factors related to consumer behavior influencing attendance at college sporting events. Fred Green, Troy University.
2. 11:20 An analysis of the effects of urban sprawl on social environmentalism and green marketing strategies. Dana Harris, Alabama A&M University.
3. 11:40 The immigration controversy. *James G. Alexander*, Alabama A&M University and Paulette S. Alexander, University of North Alabama.

12:00 LUNCH

SECTION VI – INDUSTRY & ECONOMICS

Session II

Thursday Afternoon

Room 216 McCall

James G. Alexander, Presiding

4. 1:40 Hybrid vehicles: History, current status, and sales forecast. *Marsha D. Griffin*, Qian Shen, and James G. Alexander, Alabama A&M University.
 5. 2:00 The macroeconomy in perspective. *James G. Alexander* and Marsha D. Griffin, Alabama A&M University.
- 2:20 BUSINESS MEETING (Selection of Section Vice-Chair)

*Denotes presentation is entered in competition

SECTION VII – SCIENCE EDUCATION

Session I

Thursday Morning

Room 214 McCall

Loretta A. Cormier, Presiding

1. 8:30 Ethnobotany in science education at the University of Alabama at Birmingham. *Loretta A. Cormier*, University of Alabama at Birmingham.
2. 8:50 Developing thermodynamics using a composite heat engine. *Christopher King*, Troy University.
3. 9:10 Cellular respiration: Concepts and laboratory exercises. *M. Sue Thomson*, Rosine W. Hall, and Janice B. Lynn, Auburn University Montgomery.
4. 9:30 Modeling and science: A history of GK-12. *Gypsy Abbott* and Warren T. Jones, University of Alabama at Birmingham.
- 9:50 INTERMISSION
5. 10:00 Tuskegee's "movable schools": Thomas M. Campbell and scientific agriculture in rural Alabama communities. *Laura Caldwell Anderson* and Kenneth Davis, Birmingham Civil Rights Institute.
6. 10:20 Social science education through after-school programming at Girls, Inc. *Rosie O'Beirne*, University of Alabama at Birmingham.
7. 10:40 Strategies for increasing the pipeline of girls in information sciences. *Gypsy Abbott* and Delores Carlito, University of Alabama at Birmingham.
8. 11:00 Launching a science and technology focused undergraduate honors program: Challenges and successes. *Diane C. Tucker*, University of Alabama at Birmingham.
- 12:00 LUNCH

SECTION VII – SCIENCE EDUCATION

Session II
Friday Morning
8:30 AM to 12:00 noon
Claudia Crosby Theater

**Symposium Sponsored by Biological Sciences (Section I), Science Education (Section VII),
and Southern Society for Environmental Toxicology and Chemistry**

“Canaries in the Environment: Nature’s Monitors of Global Change”

1. What the Salamander Taught the Canary: Alabama’s Amphibians as Bioindicators. *Megan E. Gibbons*, Birmingham-Southern College, Birmingham, Alabama.
2. Medicine for the Canary: Two Parts Adaptive Management and One Part Science. *R. Scot Duncan*, Birmingham-Southern College, Birmingham, Alabama.
3. The Loss of Springs in the Birmingham-Canoe Valley: An Historical and Biological Perspective. *Daniel J. Drennen*, U. S. Fish & Wildlife Service, Jackson, Mississippi.
4. A Threshold for Air Quality: USG (Unhealthy for Sensitive Groups). *Samuel L. Bell*, Jefferson County Department of Health, Birmingham, Alabama.
5. The Loss of Freshwater Mollusks in Alabama: A Global Conservation Crisis. *Paul D. Johnson*, Alabama Aquatic Biodiversity Center, Marion, Alabama.

SECTION VII – SCIENCE EDUCATION

Session III
Friday Afternoon
Room 318 McCall
Loretta A. Cormier, Presiding

9. 1:00 Graphic organizers as tools to differentiate science instruction in the secondary classroom. *Marla Johnson*, M. Parker, J. Anderson, and J. Gaston, Troy University.
10. 1:20 A microbiology laboratory exercise for the isolation and characterization of halophilic and halotolerant bacteria from Alabama saline environments. *Donald W. Salter*, University of West Alabama.
11. 1:40 Employers and new teacher's satisfaction with professional preparation in science: An investigation of science majors versus science education majors, *Janet Gaston* and Marian Parker. Troy University.
12. 2:00 Examples and strategies for teaching archaeology and field-based sciences.

Sharyn R. Jones and *Monyka Salazar de Weaver*, University of Alabama at Birmingham.

- 2:20 INTERMISSION
13. *2:30 Differences in gender for group behavior in public. *April Colley* and *Jan Case*. Jacksonville State University.
14. 2:50 Phytoremediation and Sloss Furnaces National Historic Landmark: An environmental exchange. *Sallie Lee* and *Ron Bates*, Sloss Furnaces National Historic Landmark.
15. 3:10 Edward A. Uehling: Alabama Humanitarian and Birmingham's Leading Industrial Engineer. *Karen Utz*, Sloss Furnaces National Historic Landmark.
- 3:30 BUSINESS MEETING (Selection of Section Vice-Chair)

*Denotes presentation is entered in competition

SECTION VIII -- BEHAVIORAL & SOCIAL SCIENCES

Session I

Thursday Morning

Room 114 McCall

Florence Wakoko-Studstill, Presiding

1. 10:00 Celluar telephone use behavior. *Richard A. Hudiburg*, University of North Alabama .
2. 10:20 A culture of chemicals: premature death in wrestling. *Jason W. Lee*, Troy University.
3. 10:40 LEAPS: A collaborative project between sport management and criminal justice at Troy University. *Jeffrey C. Lee* and Jason Lee, Troy University.

11:00 INTERMISSION

4. 11:20 Police undercover operations: a technique for drug enforcement at Raves. *Jeffrey C. Lee* and Brent Paterline, Troy University.
5. 11:40 Engaging students through study circles: survival or empowerment? *Florence Wakoko-Studstill*, Columbus State University.

12:00 LUNCH

SECTION VIII -- BEHAVIORAL & SOCIAL SCIENCES

Poster Session

Thursday Afternoon

Room 300 McCall

Author Present – 1:00 – 1:45 PM

6. Sentencing trends in child molestation cases. *Victoria L Mechtly*, Troy University.
7. Student hazing: a dangerous social behavior. *Traveis Guy*, Troy University.
8. Ravers and their culture of drugs. *Jeffrey C. Lee*, Jessica Cotton, and Sara Connor, Troy University.

SECTION VIII -- BEHAVIORAL & SOCIAL SCIENCES

Session II

Thursday Afternoon

Room 114 McCall

Cheryl Bullard, Presiding

9. 2:00 A practitioner's view of the relevance of a homeland security degree. *Victor C. Orloff*, Troy University, and *Saundra L. Casey* (Air University).
 10. 2:20 Police officer safety and the 4th amendment. *Donald Brown*, Troy University
 11. 2:40 Edward A. Uehling, Alabama humanitarian and Birmingham's leading industrial engineer. *Karen R. Utz*, Sloss Furnaces National Historic Landmark/University of Alabama at Birmingham.
 12. 3:00 Writing across the curriculum (WAC) in criminal justice: it's a mystery. *Victor C. Orloff*, Troy University, and *Saundra L. Casey*, and Air University.
- 3:20 BUSINESS MEETING (Select a Section Vice Chair)

SECTION IX -- HEALTH SCIENCES

Session I

Thursday Morning

Room 116 McCall

Virginia C. Hughes, Presiding

1. *9:00 The newborn behavioral observations system as a nursing intervention to enhance engagement in first-time mothers: feasibility and desirability. *Leslie Sanders*, University of Alabama at Birmingham.
 2. 9:15 Making sense of the “madness” of mercury: an Alabama perspective. *M. Renee Coker*, Auburn University at Montgomery.
 3. 9:30 The effect of fear on myocardial infarction patients in an intensive care unit. *Geraldine Allen*, Troy University.
 4. *9:45 Identification of special care needs: the comparison of the CICU patient and nurse. *Brittany P. Godfrey*, *Connie Parten*, and *Ellen B. Buckner*, University of Alabama at Birmingham.
 5. 10:00 Accuracy and efficiency as outcomes of clinical scenarios by nurse practitioners using personal digital assistants. *Shelley Y. Huffstutler*, University of Alabama at Birmingham.
 6. 10:15 The forgotten griever: a qualitative analysis of how teachers deal with the death of students. *Ramona Browder Lazenby*, Auburn University at Montgomery.
 7. *10:30 Resilience and coping styles in parents of infants with craniofacial differences. *Rebecca Strick-Morrison* and *Ellen B. Buckner*, University of Alabama at Birmingham.
 8. *10:45 Changing hats: how intensive care nurses’ change approaches to meet diverse psychosocial needs of heart transplant patients. *Rebecca A. Fanguy*, University of Alabama at Birmingham.
 9. 11:00 Rural African American women’s perception of weight. *Carolyn G. Andrews*, Troy University.
 10. 11:15 Scaffolding for the experiential learning of nursing skills. *Michelle Schutt*, Auburn University at Montgomery.
 11. *11:30 Social support and the reframing of aspirations following unplanned pregnancy among single college women. *Jamie S. Davis*, University of Alabama at Birmingham.
- 12:00 LUNCH

SECTION IX - HEALTH SCIENCES

Session II

Thursday Afternoon

Room 116 McCall

Virginia C. Hughes, Presiding

12. *1:00 Castaways: the self-concept and role relationship issues of adolescents with immobilizing casts. *Courtney L. Middleton*, University of Alabama at Birmingham.
13. *1:15 Baby steps to motherhood: the effect of a sleep-in on maternal role attainment in mothers of preterm infants. *Sheri M. Lewis*, University of Alabama at Birmingham.
14. *1:30 Kangaroo care versus traditional methods to comfort crying: the mothers' perceptions. *Leslie Noojin*, University of Alabama at Birmingham.
- 2:00 BUSINESS MEETING
15. 2:15 Rural African American women's perception of exercise. *Carolyn G. Anderews*. Troy University.
16. *2:30 Increasing awareness: assessing expectant fathers for perceptions and knowledge of postpartum depression. *Jeannie T. Laurance*, Ellen B. Buckner, and Jill Ross, University of Alabama at Birmingham

SECTION IX - HEALTH SCIENCES

Session III

Room

Friday Afternoon

Room 116 McCall

Virginia C. Hughes, Presiding

17. *1:00 Effects of objective and subjective breast cancer risk, psychological distress, and dispositional optimism on immune responses in healthy women. *Na-Jin Park* and Duck-Hee Kang, University of Alabama at Birmingham.
18. 1:15 The relationship between pregnancy rates of 10-16 year old females, age of conceptual fathers and rape convictions in Alabama from January 1997 through December 2001. *Gayle L. Bush*, Kelley Swatzell, Ely Gordon, Terry Watkins, and Russell Kirby, Troy University.
19. 1:30 Memory and healthy aging center outcomes in diverse populations. *Arlene Morris* and Kathy Jo Ellison, Auburn University at Montgomery.
20. 1:45 Cross-reactivity of anti-Cw with Rh antigens in the indirect antiglobulin test.

Victoria Groves, Nicole Moore, and Virginia C. Hughes, Auburn University at Montgomery.

SECTION IX - HEALTH SCIENCES

Poster Session

Friday Afternoon

Room 300 McCall

Authors Present – 2:00 – 3:00 PM

21. Imaging of controlled thymic atrophy and regeneration in cats. *Leah Ann Kuhnt, R Jennings, W Brawner, J Hathcock, A Carreno, and C Johnson, Auburn University.*
22. Comparison of two delivery models for the memory and healthy aging center. *Arlene Morris, Auburn University at Montgomery.*

*Denotes presentation is entered in competition

SECTION X -- ENGINEERING AND COMPUTER SCIENCE

Session I

Fri day Afternoon

Room 124 McCall

Marietta E. Cameron, Presiding

1. 1:00 Barrier synchronization in parallel computations: Some implementation issues. *Srinivasarao Krishnaprasad*, Jacksonville State University.
2. 1:25 A simple machine proof of Euler's Formula. *Jun Zhang*, Troy University
3. *1:50 Clone detection with Microsoft Phoenix. *Robert Tairas*, University of Alabama at Birmingham.
4. 2:15 Computer-aided handwriting analysis. *Barbara N. Pusey*, Birmingham-Southern College.
- 2:40 INTERMISSION
5. 2:55 Preparing real world data for smooth visibility analysis. *David O'Gwynn*, University of Alabama at Birmingham.
6. 3:20 Exploring the Graphics Processing Unit. *Lei Chen*, University of Alabama at Birmingham.
7. *3:45 An automated segmentation method for microarray image analysis. *Wei-Bang Chen*, University of Alabama at Birmingham.
8. *4:10 Needs assessment for scientific visualization of multivariate, high-dimensional microarray data. *Vetria L. Byrd*, University of Alabama at Birmingham.
- 4: 30 BUSINESS MEETING.

*Denotes presentation is entered in competition

SECTION XI -- ANTHROPOLOGY

Session I

Friday Morning

Room 318 McCall

Harry O. Holstein, Presiding

- 9:00 Opening Remarks: Harry Holstein
1. 9:05 A preliminary analysis of the Terry Cove site. Rebecca Turley Ridley, Jacksonville State University.
 2. 9:25 Analysis of the Faunal remains from the east slope rim of Hacimusalar, Turkey. Jacob Bivona, Meg Gussette, Terri Young, and Jeannette Runquist, Birmingham-Southern College.
 3. 9:45 New prospectus on urban archaeology in Alabama.” Marcus Ridley, Jacksonville State University.
 4. 10:05 Analysis of the Faunal Remains from the central building at Hacimusalar, Turkey. Keith Jefferson, Andrew Sims and Jeannette Runquist, Birmingham- Southern College.
- 10:25 INTERMISSION
5. 10:40 Evidence of prehistoric homicide: murder or euthanasia? Mary Casandra Hill, Jacksonville State University.
 6. 11:00 Analysis of the Faunal Remains from a Byzantine church in Hacimusalar, Turkey. Heather Glover and Jeannette Runquist, Birmingham-Southern College.
 7. 11:20 Tropical forest settlement in the Americas: A retrospective view. James Sewastynowicz, Jacksonville State University.
 8. 11:40 Variation in the English tense/aspect system as an index of speaker attitude: A corpus-based linguistic analysis of academic writing. Catherine Smith, Troy University.
- 12:00 LUNCH

SECTION XI – ANTHROPOLOGY

Session II

Friday Afternoon

Room 118 McCall

Harry O. Holstein, Presiding

9. 1:00 Analysis of the Faunal Remains from the Bronze Age east slope excavation in Hacimusalar, Turkey. Clay Foster and Jeannette Runquist, Birmingham-Southern College.
10. 1:20 Problems and solutions for digital photography in archaeology. Sean Williamon, Jacksonville State University.
11. 1:40 Analysis of the Faunal Remains from the east slope rim of Hacimusalar, Turkey. Jordan Duchock, Trey Prickett, and Jeannette Runquist, Birmingham-Southern College.
12. 2:00 Benefits of GIS in cultural resource management. Jacob Kohute, Jacksonville State University.
13. 2:20 Analysis of the Faunal remains from Hacimusalar, Turkey, 1997-2001. Meg Guscette, Heather Glover, Jacob Bivona, and Jeannette Runquist, Birmingham-Southern College.
- 2:40 BUSINESS MEETING (Selection of Section Vice-Chair)

SECTION XII -- BIOETHICS AND HISTORY & PHILOSOPHY OF SCIENCE

Session I

Friday Afternoon

Room 218 McCall

James T. Bradley, Presiding

1. 1:00 The Social Goals of Science Literacy: Ethics and Citizenship in Project 2061. *Michelle Sidler* and *Natasha Jones*, Department of English, Auburn University.
2. 1:30 Science and the Understanding of Consciousness. *Gerard Elfstrom*, Department of Philosophy, Auburn University.
3. 2:00 A Liberal Confronts Military Medicine: Progress Over Pain Through War. *Ken Nusbaum*, Department of Pathobiology, School of Veterinary Medicine, Auburn University.
- 2:30 – 2:45 BREAK
4. 2:45 Intelligent Design, and the Demarcation Problem. *Keith Gibson*, Department of English, Auburn University. Evolution,
5. 3:15 Why the Church Should Be Green: An Evolutionary Perspective. *Rosine Hall*, School of Sciences, Auburn University at Montgomery.
6. 3:45 Denying Darwin: A Risky “Trained Incapacity”. *Jim Bradley*, Department of Biological Sciences, Auburn University.
- 4:15 BUSINESS MEETING

**SOUTHEASTERN SOCIETY FOR ENVIRONMENTAL TOXICOLOGY AND
CHEMISTRY**

Session I

Thursday Afternoon

Room 224 McCall

Heather Sutton, Presiding

1. 1:00 Opening Remarks
2. 1:10 The developmental toxicity of resmethrin to embryos of *Xenopus laevis*. *James Rayburn*, Jacksonville State University.
3. 1:30 The concentration of three metals in tissues of select marine species from Mobile Bay. *Bernice Moser* and James Rayburn, Jacksonville State University.
4. 1:50 Acute toxicity of fipronil and its enantiomers to marine and freshwater non-targets. *Jay Overmeyer*, A.W. Garrison, J. Avants, M. DeLorenzo, P. Key, K. Chung, B. Konwick, W.A. Wilson, and M. Black, University of Georgia.
5. 2:10 National SETAC Presentation
- 2:30 INTERMISSION
6. 2:50 Molecular analyses of the effects of perchlorate in *Arabidopsis*, sorghum, and tobacco. *Mijitaba Hamissou*, Jacksonville State University.
7. 3:10 Molecular analyses of cadmium toxicity in *Arabidopsis* and sorghum. *Rachel Dunkerley* and Mijitaba Hamissou, Jacksonville State University.

Poster Session

Thursday Afternoon

Room 300 McCall

Authors Present – 3:30 – 4:30 PM

8. The effects of p',p'-DDE on reproduction of the fathead minnow (*Pimephales promelas*). *Elizabeth Ray* and David Barber, University of Florida.
9. Distribution of *Craspedacusta sowerbii* in central Alabama over the last 3 years. *Kaci Rodgers* and James Rayburn, Jacksonville State University.
10. The evaluation of cyr-protection on embryos of *Xenopus laevis*. *Marie Pierre-Louis* and James Rayburn, Jacksonville State University.

**SOUTHEASTERN SOCIETY FOR ENVIRONMENTAL TOXICOLOGY AND
CHEMISTRY**

Session II

Friday Morning

8:30 AM to 12:00 noon

Claudia Crosby Theater

**Symposium Sponsored by Biological Sciences (Section I), Science Education (Section VII),
and Southern Society for Environmental Toxicology and Chemistry**

“Canaries in the Environment: Nature’s Monitors of Global Change”

1. What the Salamander Taught the Canary: Alabama’s Amphibians as Bioindicators. *Megan E. Gibbons*, Birmingham-Southern College, Birmingham, Alabama.
2. Medicine for the Canary: Two Parts Adaptive Management and One Part Science. *R. Scot Duncan*, Birmingham-Southern College, Birmingham, Alabama.
3. The Loss of Springs in the Birmingham-Canoe Valley: An Historical and Biological Perspective. *Daniel J. Drennen*, U. S. Fish & Wildlife Service, Jackson, Mississippi.
4. A Threshold for Air Quality: USG (Unhealthy for Sensitive Groups). *Samuel L. Bell*, Jefferson County Department of Health, Birmingham, Alabama.
5. The Loss of Freshwater Mollusks in Alabama: A Global Conservation Crisis. *Paul D. Johnson*, Alabama Aquatic Biodiversity Center, Marion, Alabama.

**SOUTHEASTERN SOCIETY FOR ENVIRONMENTAL TOXICOLOGY AND
CHEMISTRY**

Session II

Friday Afternoon

Room 216 McCall

Heather Sutton, Presiding

11. 1:00 Gerontogene effects on the resistance of nematodes to hydrogen peroxide or nickel toxicity. *Jeffrey Zuiderveen*, Joanne Brown, and Aisha Kelley, Columbus State University.
12. 1:20 Comparative acute toxicity of heavy metals to dragonfly larvae. *Valerie Tollett* and Timothy Rice, University of South Alabama.
13. 1:40 Lead assessment within the soil, water, and invertebrates in association with

shooting ranges at the Grand Bay NERR. *Kathleen VanDeven* and Timothy Rice, University of South Alabama.

14. 2:00 Phytotoxicity of monomeric and polymeric aluminum to native wetland plant species. *Ivan Stefanov* and Heather Sutton, Kennesaw State University.

2:20 BUSINESS MEETING

2:40 INTERMISSION

3:00 AWARDS, WRAP UP

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.

2006 REGIONAL SCIENCE FAIRS

- N Alabama March 13-15 University of Alabama in Huntsville, Jorge Aunon 205.824.3564, dean@eng.uah.edu; web site: www.narsef.uah.edu
- W Alabama March 10-11 University of West Alabama, Becky Graham 205.652.3804, bcg@uwa.edu
- Central March 11 University of Alabama at Birmingham, J. Michael Wyss 205.934.5171, jmwyss@uab.edu, web site: www.uab.edu/cord
- Mobile March 17-18 University of South Alabama, James J. Connors, 251.461-1487, jconnors@usouthal.edu; web site: <http://www.mrsf.net>
- Northeast Feb. 23-24 Talladega College, Mrs. Gladys Mayers Swain 256.761.6308, gswain@talladega.edu
- Greater East March 9-10 Chattahoochee Valley Community College, Phoenix City, Susan Marie McCollum, 334.291.4953, susan.mccollum@cv.edu

2006 ALABAMA STATE SCIENCE AND ENGINEERING FAIR

April 6 – 8 at The University of Alabama in Huntsville, Coordinator, John Dimmock, Physics, 256.824.6616, dimmockj@uah.edu.

Alabama Science and Engineering Fair web site: <http://www.uah.edu/ASEF/regionals.htm>

2006 INTERNATIONAL SCIENCE AND ENGINEERING FAIR

An activity of Intel Science Service, 1719 N Street, NW, Washington, DC 20036, 202.785.2255, e-mail: sciedu@sciserv.org FAX 202.785.1243. Internet: www.sciserv.org. The 56th Annual ISEF will be May 7-13, 2006 in Indianapolis, Indiana. Virginia Vilardi, State Coordinator, 1251 Coosa River Parkway, Wetumpka H. S., 36092, 334.567.5158, Cell, 334.799.0104, FAX 334.567.1178, (H) 334.514.1770, Virginia.vilardi@elmore.k12.al.us.

ALABAMA SCIENCE OLYMPIAD 2005-2006

Division A2 Grades 3-6 Olympiad Tournaments

University of West Alabama, Saturday, November 12th. Grades 3-6, Dr. Ketia L. Shumaker, Department of Biology, Univ. of West Alabama, Station 7, Livingston, AL 35470. (205) 652-3406, kshumaker@uwa.edu, ESO@UWA.edu.

Jacksonville High School, February 25, Grades 3-6, David Peters, 1000 George Douthit Drive SW, Jacksonville, AL 36265 (256) 435-4177, www.esoatjhs.org

Auburn University, March 11. Grades 3-6, Greg Harris & Terry Tidwell, Department of Mathematics, 218 Parker Hall, Auburn, AL 36830 harriga@auburn.edu or tidweto@auburn.edu

Division B Grades 6-9 Olympiad Tournaments

University of Alabama, February 18. Dr. Joe Benson, College of Arts & Sciences, Box 870268, Tuscaloosa, AL 35486 (205) 348-7007, dbenson@as.ua.edu

Auburn University, February 25, Dr. Steve Stuckwisch, Department of Geology, 108 Tichenor Hall, Auburn University, AL 36830. (334) 844-6575
sstuckwisch@charter.net; <http://www.auburn.edu/~stuckse/ScienceOlympiad/>

University of Alabama at Huntsville, February 18, Mrs. Vanessa Colebaugh, 5019 Willow Creek Drive, Owens Cross Roads, AL 35763. (256) 922-5747
nessacita@comcast.net, <http://www.uah.edu/sciolympiad/index.php>

University of South Alabama, February 25, Dr. Cindy Stanfield, Dept. of Biomedical Science, UCOM 6000, Univ. of South Alabama, Mobile, AL 36608 (251) 380-2710 cthursto@usouthal.edu,
<http://www.southalabama.edu/alliedhealth/biomedical/SO/Index.htm>

Division C Grades 9-12 Olympiad Tournaments

University of Alabama, February 18. Dr. Joe Benson, College of Arts & Sciences, Box 870268, Tuscaloosa, AL 35486 (205) 348-7007, dbenson@as.ua.edu

Auburn University, February 25, Dr. Steve Stuckwisch, Department of Geology, 108 Tichenor Hall, Auburn University, AL 36830. (334) 844-6575
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University of Alabama at Huntsville, February 18, Mrs. Vanessa Colebaugh, 5019 Willow Creek Drive, Owens Cross Roads, AL 35763. (256) 922-5747
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Jacksonville State University, February 11, Dr. Andrew Brent Helms, Physical and Earth Sciences, 700 N Pelham Rd, Jacksonville, AL 36265 (256) 782-5233, ahelms@jsu.edu.

University of South Alabama, February 25, Dr. Cindy Stanfield, Dept. of Biomedical Sciences Science, UCOM 6000, Univ. of South Alabama, Mobile, AL 36608 (251) 380-2710 cthursto@usouthal.edu, <http://www.southalabama.edu/alliedhealth/biomedical/SO/Index.htm> .

State Science Olympiad Tournaments

Huntingdon College, March 11, Division B, Dr. Sidney Stubbs, 1500 E Fairview Ave, Montgomery, AL 36106 (334) 833-4430 sstubbs@huntingdon.edu

Samford University, April 1, Division C, Dr. Brian W. Gregory, Department of Chemistry, Samford University, 800 Lakeshore Drive, Birmingham, AL 35229-2245, FAX (205) 726-2479, bwgregory@samford.edu.

National Science Olympiad

Indiana University, May 19-20, Bloomington, IN, <http://www.indiana.edu/~nso/>

State Director: Jane Nall, 31110 Wakefield Drive, Spanish Fort, AL 36527 (251) 621-2911, email drnall@hotmail.com

Alabama Science Olympiad web page: <http://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, Box 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.
- 1992 - 1993 Mrs. Joni Justice Shanklee, Samford University.
- 1993 - 1994 Jeffrey Baumbach, Auburn University.
- 1994 - 1995 Not Awarded.
- 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
- 2003 - 2004 Kanessa Miller, Auburn University
- 2004 - 2005 Not Awarded
- 2005 - 2006 Mary Busbee, UAB, and Bethany Knox, UAB

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. Compans, 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
- 2004 William J. Barrett, Southern Research Institute, Retired, Birmingham
- 2005 Eugene Omasta, Professor Emeritus, Troy University.

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- Larry Boots (2005), (205) 988-0745 e-mail: bootsfamily@hotmail.com
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- Adriane Ludwick (2007), Dept. of Chemistry, Tuskegee University, Tuskegee, AL 36088 e-mail: aludwick@tusk.edu

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- Wanda Phillips (2006), Associate Counselor, 116 Evergreen Dr., Florence, AL 35632, (256) 757-2115 or 2116 (O), (256) 757-8981 (H).
- Henry Barwood, Associate Counselor, Department of Mathematics and Physics, Troy University, Troy, AL 36082, (334) 670-3574 (O).

Regional Counselors:

North	Rebecca Brown, Johnson High School, 6201 Pueblo Dr. NW, Huntsville, AL 35810, (256) 428-8100 (O) (256) 882-7872 (H), email: Rebecca_brown03@bellsouth.net
North East	---
North West	Linda Kanipe, Florence High School, Florence, AL. 35630, (256) 768-2200 (O), (256) 764-2947 (H), email: lkanipe@fcs.k12.al.us
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South Central	---
West	Nancy Tyson, 701 Hwy 80 W, Demopolis, AL 36732, (256) 289-0294 (O)
South East	Donnie Hatcher, P.O. Box 90, Tuskegee, AL 36083, (Home) 2405 Charles, (334) 727-1600 ext 2322 (O), (334) 727-6533 (H)
South	---
Mobile	Jane Nall, (Acting Regional Counselor) 31110 Wakefield Dr., Spanish Fort, AL 36527 (334) 621-2911

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Committee of Place and Date Meeting:

- Thomas Bilbo, Chair, (2006), Dept. of Natural Sciences, University of Mobile, Mobile, AL 36616, (334) 675-5990 e-mail: jetbilbo@bellsouth.net

- Donald Salter, (2005),, Dept. of Biology, University of West Alabama, Livingston, AL 35470, (205) 652-3416, e-mail: dsalter@uwa.edu
- Mark Meade, (2007) Dept. of Biology, Jacksonville State, University, Jacksonville, AL 36265, (254)782-5638, e-mail: mmeade@jsucc.jsu.edu
- Larry Krannich, Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, (205) 934-8017, e-mail: krannich@uab.edu

Committee on Local Arrangements:

- Local Chair: Kenneth R. Sundberg, Department of Physical Science, Troy University, 334-670-3577, e-mail: ksundberg@troy.edu
- Program/Symposium Coordinators: Kenneth R. Sundberg, Department of Physical Science, Troy University, 334-670-3577, e-mail: ksundberg@troy.edu and Larry Davenport, Department of Biology, Samford University, (205) 726-2584, FAX (205) 726-2479, e-mail: ljdavenp@samford.edu
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- Audiovisual/Computers: Micheal Mullins, 334-0670-3624, e-mail: yyyyy@troy.edu.
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Wright A. Gardner (2 terms).....	1924-26
Stewart J. Lloyd	1926-27
John R. Sampey	1927-28
Walter C. Jones	1928-29
Fred Allison	1929-30
Emmett B. Carmichael.....	1930-31
George J. Fertig	1931-32
J.F. Duggar	1932-33
J.L. Brakefield	1933-34
Russell S. Poor	1934-35
A.G. Overton	1935-36
Walter B. Jones	1936-37
Roger W. Allen	1937-38
P.H. Yancey	1938-39
George D. Palmer	1939-40
C.M. Farmer	1940-41
Paul D. Bales	1941-42
W.M. Mobley	1942-43
E.V. Jones	1943-44
J.T. McKenzie	1944-45
J.M. Robinson	1945-46
James L. Kassner	1946-47
John Xan	1947-48
Eugene D. Emigh	1948-49
C.A. Basore	1949-50
Harold E. Wilcox	1950-51
Henry Walker	1951-52
John A. Fincher	1952-53
Joseph F. Volker	1953-54
William T. Wilks	1954-55
Ralph Chermock	1955-56
J. Allen Tower	1956-57
Howard Carr	1957-58
Herbert A. McCullough	1958-59
Samuel B. Barker	1959-60
James R. Goetz	1960-61
Paul C. Bailey	1961-62
Louis J. Eisele	1962-63
E. Carl Sensenig	1963-64
William J. Barrett	1964-65
James F. Sulzby, Jr.	1965-66
David L. DeJarnette	1966-67

H. Ellsworth Steele	1967-68
Ruric E. Wheeler	1968-69
Wilbur B. DeVall	1969-70
W.L. Furman	1970-71
G.O. Spencer	1971-72
Joseph C. Thomas	1972-73
Robert T. Gudauskas	1973-74
Reuben B. Boozer	1974-75
Thomas E. Denton	1975-76
Urban L. Diener	1976-77
James C. Wilkes	1977-78
William F. Arendale	1978-79
Jack H. Moore	1979-80
Geraldine M. Emerson	1980-81
Kenneth Ottis	1981-82
Charles M. Baugh	1982-83
Raymond E. Isbell	1983-84
John F. Pritchett	1984-85
Stanley T. Jones	1985-86
Philip G. Beasley	1986-87
H. Dean Moberly	1987-88
Richard L. Shoemaker	1988-89
Adriane G. Ludwick	1989-90
Michael E. Lisano	1990-91
Ken R. Marion	1991-92
Michael B. Moeller	1992-93
Prakash Sharma	1993-94
Eugene Omasta	1994-95
Dan C. Holliman	1995-96
Thomas S. Jandebour	1996-97
Ellen B. Buckner	1997-98
Moore Asouzu	1998-99
Larry R. Boots	1999-00
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Stephen A. Watts	2002-03
Anne M. Cusic	2003-04
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2010 – Host Needed

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EIGHTY-FORTH ANNUAL MEETING
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GORGAS COMPETITION AWARDS

March 2007

Tuskegee University
Tuskegee, AL