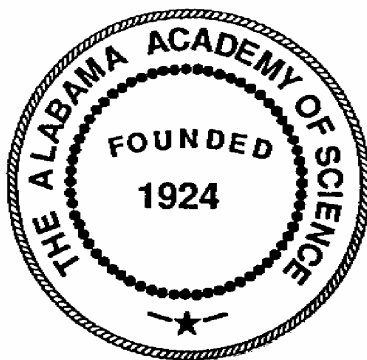


**PROGRAM**  
**EIGHTY-SECOND ANNUAL MEETING**  
**of the**  
**ALABAMA ACADEMY OF SCIENCE, INC.**



**JOINT MEETING**  
**with the**  
**ALABAMA JUNIOR ACADEMY OF SCIENCE**  
**GORGAS SCHOLARSHIP AWARDS**  
**ALABAMA STATEWIDE CHEMISTRY UNDERGRADUATE**  
**RESEARCH SYMPOSIUM**

**March 30 – April 2, 2005**  
**Birmingham Southern College**  
**Birmingham, Alabama**

**[www.alabamaacademyofscience.org](http://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:**

**Birmingham Southern College police number: 226-4700**

**Dial 4700 from any courtesy phone; blue light phones connect directly to campus police**

**\*Off-campus police: 911**

**\*Off-campus emergencies (Police, Fire, Medical): 911**

## CONTENTS

Welcome Messages .....	1
Local Arrangements Committee .....	3
General Information .....	4
Posters and Vendors.....	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:.....	7, 15, 32, 38
SECTION I.    Biological Sciences .....	12
SECTION II.    Statewide Chemistry Undergraduate Research Symposium....	18
Chemistry .....	18
SECTION III.    Earth Science <i>[No Program]</i>	
SECTION IV.    Geography, Forestry, Conservation and Planning .....	20
SECTION V.    Physics and Mathematics .....	21
SECTION VI.    Industry and Economics .....	22
SECTION VII.    Science Education .....	24
SECTION VIII.  Behavioral and Social Sciences .....	26
SECTION IX.    Health Sciences .....	28
SECTION X.    Engineering and Computer Sciences .....	32
SECTION XI.    Anthropology .....	35
SECTION XII.   Bioethics & History & Philosophy of Science .....	37
Objectives of the Alabama Academy of Science.....	39
Educational Activities of the Academy .....	39
2005 Regional, State, and International Science & Engineering Fairs .....	40
2004-05 Regional Science Olympiads .....	41
William H. Mason Science Teacher Fellowship Recipients.....	43
Wright A. Gardner Award Recipients .....	43
Section Officers .....	45
Elected Officers and Committees of the Academy .....	47
Chairpersons, Appointed Committees .....	49
Past Presidents .....	56
83 <sup>rd</sup> Annual Meeting (2006) .....	Inside Back Cover



March 17, 2005

Dear Academy Participants:

On behalf of Birmingham-Southern College's faculty, staff, and students it is my pleasure to welcome you to our campus for the annual meeting of the Alabama Academy of Science. We are thrilled to share our campus and most specifically our new Stephens Science Center with you.

As a four-year, private liberal arts college affiliated with the United Methodist Church, Birmingham-Southern has a long and rich history as one of the nation's most recognized liberal arts colleges. For nearly 150 years, this institution has been preparing young men and women for bright and productive futures.

Our mission is to provide a liberal arts education of distinctive quality—one that challenges our students to think independently, to examine the arts and sciences aesthetically and critically, and to communicate clearly. We accomplish this mission through offering educational experiences that prepare students to be lifelong and participatory learners and leaders, to be active and successful in their careers and communities, and to be individuals who better understand and shape the world around them.

We hope that you will get a sense of this during your time here as well as find your stay on the campus enjoyable and come back to visit us often.

Sincerely,



G. David Pollick  
President

**Dear AAS Members and Guests:**

**In 1924, the scientists of Alabama organized and developed a venue for the exchange of scientific knowledge to promote science and science education in the state. Today, we continue this tradition as Birmingham Southern College graciously hosts the 82<sup>nd</sup> annual meeting of the Alabama Academy of Science.**

**This 82<sup>nd</sup> annual meeting has much to offer each attendee. There will be eleven different sections in which many informative papers and posters will be presented. The Chemistry, Biology, Physics, Behavioral Science, and Health Science sections continue to be well represented in the state. The Science Education section is a venue for teachers to be updated on innovative teaching methods. The Bioethics section is the newest section that provides a welcomed expansion of the traditional science disciplines and is a reminder that science impacts many other disciplines. The 82<sup>nd</sup> meeting will also host many young scientists involved in the Gorgas Scholarship Competition and the Junior Alabama Academy of Science.**

**New at the 82<sup>nd</sup> meeting is a joint meeting of the Chemistry section and three Alabama American Chemical Society local sections in an Statewide Chemistry Undergraduate Research Symposium. This cooperative effort will highlight and recognize chemical research being conducted by our college students. Additionally, the Academy is pleased to host the symposium entitled *Frontiers of Stem Cell Medicine, Research and Ethics*. As is the mission of the Academy, everyone (scientist or not) interested in this divisive topic is invited to attend and participate.**

**I would like to extend my appreciation to the trustees, officers, committee members and section chairs for their fine work in organizing the many parts of this meeting. A special recognition goes to Dr. Clyde Stanton and the members of the local arrangement committee of Birmingham Southern College. Above all, the hard work of Dr. Larry Krannich, the executive director, has made this year a progressive year for the Academy and has been a valued counsel on matters of the Academy.**

**On behalf of the trustees, officers and section chairs, I welcome each of you to the 82<sup>nd</sup> annual meeting of the Alabama Academy of Science. I hope this meeting is challenging and inspires you to continue your interest in scientific research and teaching.**

**Sincerely yours,**



**Ronald L. Jenkins, President  
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 82<sup>nd</sup> Annual Meeting.

### **Local Chairperson**

Dr. Clyde Stanton  
205-226-2880  
[cstanton@bsc.edu](mailto:cstanton@bsc.edu)

### **AJAS Program Coordinator**

Dr. Laura Stultz  
[lstultz@bsc.edu](mailto:lstultz@bsc.edu)  
(205) 226-4877

### **AAS Program Coordinators**

Ms. Anne Curry  
[acurry@bsc.edu](mailto:acurry@bsc.edu)  
(205) 226-4904

Ms. Patty Henry  
[pHenry@bsc.edu](mailto:pHenry@bsc.edu)  
(205) 226-4870

Dr. Clyde Stanton  
[cstanton@bsc.edu](mailto:cstanton@bsc.edu)  
(205) 226-4880

### **Registration**

Ms. Michelle Hampton  
[mhampton@bsc.edu](mailto:mhampton@bsc.edu)  
(205) 226-3040

Ms. Susie O'Dell  
[sodell@bsc.edu](mailto:sodell@bsc.edu)  
(205) 226-4994

### **Web Page Design**

Mr. Mike Hamilton  
[mhamilto@bsc.edu](mailto:mhamilto@bsc.edu)  
(205) 226-7790

### **Gorgas Scholarship Competition**

Dr. Rodney Dunning  
[rdunning@bsc.edu](mailto:rdunning@bsc.edu)  
(205) 226-4875

### **Audiovisual/Computers**

Dr. Rodney Dunning  
[rdunning@bsc.edu](mailto:rdunning@bsc.edu)  
(205) 226-4875

### **Symposium Coordinators**

Dr. Jeannette Runquist  
[jrunquist@bsc.edu](mailto:jrunquist@bsc.edu)  
(205) 226-4882

### **Vendors Coordinator**

Dr. Scott Dorman  
[sdorman@bsc.edu](mailto:sdorman@bsc.edu)  
(205) 226-4878

### **Poster Coordinator**

Dr. Andy Gannon  
[agannon@bsc.edu](mailto:agannon@bsc.edu)  
(205) 226-4899

## 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 the 1<sup>st</sup> floor atrium of the Elton B. Stephens Science Center. Authors for the session posters should be present for discussions with viewers as follows:

Thursday:

- 11:30 – 12:00 Noon , Science Education (Section VII)
- 11:45 – 1:00 PM, Health Sciences (Section IX)
- 1:00 – 2:00 PM, Geography, Forestry, Conservation & Planning (Section IV)
- 3:30 – 4:30 PM, Biological Sciences (Section I)
- 3:30 – 5:00 PM, Chemistry (Section II)
- 3:30 – 5:00 PM, Chemistry Undergraduate Research Symposium (Section II)
- 4:45 – 5:30 PM, Engineering and Computer Science (Section X)

Friday:

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

Posters must be removed by 5:30 P.M. of the respective day.

**Vendors** display from 8:00 AM – 4:00 PM in the 1<sup>st</sup> floor atrium of the Elton B. Stephens Science Center (SSC) on Thursday and Friday.

**PROGRAM  
of the  
ALABAMA ACADEMY OF SCIENCE  
March 30 - April 2, 2005**

**Wednesday**

4:00 - 6:00 PM Registration.....EBS Science Center Ground Floor Lobby  
6:30 - 10:00 PM Exec. Committee Dinner/ Meeting.....Executive Dining Room Norton Center

**Thursday Morning**

7:00 - Noon Registration.....EBS Science Center Ground Floor Lobby  
Continental Breakfast .....Norton Center Cafeteria Dining Hall  
8AM - 4:00 PM Vendor Exhibits ..... EBS Science Center 1st Floor Atrium  
8:30 AM Academy of Science Program Sessions .....Elton B. Stephens Science Center (SSC)

*Section Program Sessions:*

8:30 *Biological Sciences I (Section I)*..... SSC 138  
9:00 *Geography, Forestry, Conservation, &Planning (Section IV)* .....SSC 336  
10:00 *Industry and Economics I (Section VI)* .....SSC 238  
8:30 *Science Education I (Section VII)*.....SSC 201  
8:30 *Behavioral and Social Sciences I (Section VIII)*.....SSC 130  
8:30 *Health Sciences I (Section IX)* .....SSC 134  
8:15 *Engineering and Computer Sciences I(Section X)*..... SSC 334

Slide Preview Room ..... SSC 240

11:30 - 1:00 PM Poster Viewing .....EBS Science Center 1st Floor Atrium  
Authors present to discuss these section posters from  
11:30 – 12:00 PM ..... *Science Education* poster  
11:45 – 1:00 PM ..... *Health Sciences* posters

Noon – 1:00 PM

Lunch ..... Norton Center Cafeteria Dining Hall  
Lunch (Trustees, Elected Officers, Exec. Dir.).....Norton Center Executive Dining Room

## Thursday Afternoon

- 12:00 - 4:00 PM Vendor exhibits ..... EBS Science Center 1<sup>st</sup> Floor Atrium
- 1:00 - 4:00 PM Registration..... EBS Science Center Ground Floor Lobby  
Snacks ..... EBS Science Center 1<sup>st</sup> Floor Atrium
- 1:00 - 5:00 PM Poster Viewing ..... EBS Science Center (SSC) 1<sup>st</sup> Floor Atrium  
Authors present to discuss these section posters from
- 3:30 – 4:30 PM ..... *Biological Sciences*' posters
  - 3:30 – 5:00 PM ..... *Chemistry* poster
  - 3:30 – 5:00 PM ..... *Chemistry Undergraduate Research Symposium* posters
  - 4:45 – 5:30 pm ..... *Engineering and Computer Science* posters
- 1:00 PM Academy of Science Program Sessions ..... Elton B. Stephens Science Center (SSC)

### *Program Sessions:*

- 1:00 *Biological Sciences II (Section I)*..... SSC 138
- 1:00 *Chemistry (Section II)*..... SSC 336
- 1:40 *Alabama Statewide Chemistry Undergraduate Research  
Symposium (Section II)* ..... SSC 336
- 1:00 *Physics and Mathematics II (Section V)* ..... SSC 134
- 1:00 *Industry and Economics II (Section VI)*..... SSC 238
- 1:00 *Behavioral and Social Sciences II (Section VIII)* ..... SSC 130
- 1:00 *Health Sciences II (Section IX)*..... SSC 201
- 1:00 *Engineering and Computer Sciences II (Section X)* ..... SSC 334

## Thursday Evening

- 5:00 PM Section Officer's Meeting ..... SSC 130
- 6:00 PM Social for All Registrants..... Southern Environmental Center  
Single day registrants can purchase a ticket for \$5 at registration

**Friday Morning**

7:00 – Noon Registration ..... EBS Science Center Ground Floor Lobby  
Continental Breakfast ..... Norton Center Cafeteria Dining Hall

8 AM - 4:00 PM Vendor exhibits ..... EBS Science Center 1<sup>st</sup> Floor Atrium

8:30 – Noon SYMPOSIUM ..... Norton Center Theater



**8:30 AM to 12:00 noon  
Norton Center Theater**

**Symposium Sponsored by Biological Sciences (Section I), Health Sciences (Section IX), and  
Bioethics and History and Philosophy of Science (Section XII)**

***“Frontiers of Stem Cell Biology, Medicine and Ethics”***

1. Therapeutic Cloning: What? How? Why? Applications for treatment of sickle cell disease and thalassemias. *Tim M. Towns*, James C. and Elizabeth T. Lee Professor and Chair, Department of Biochemistry and Molecular Genetics, University of Alabama at Birmingham.
2. Cellular replacement therapies using adult stem cells. *Chris Klug*, Associate Professor, Department of Microbiology, University of Alabama at Birmingham.
3. Stem cells and the brain: new frontiers in regenerative medicine. *Kevin Roth*, Professor and Director, Division of Neuropathology, University of Alabama at Birmingham.
4. The moral status of the human embryo and the embryonic stem cell debates. *James Bradley*, Department of Biological Sciences, Auburn University.
5. The dignity of the human embryo: The moral limits to embryonic research. *Dennis Sansom*, Professor and Chair, Department of Philosophy, Samford University.



9:00 - 11:30 AM Academy of Science Program Session ..... Elton B. Stephens Science Center

*Program Session:*

9:00 *Anthropology I (Section XI)* ..... SSC 201

12:00 Noon Group Picture ..... Norton Center Atrium  
Noon – 1:00 PM Lunch ..... Norton Center Cafeteria Dining Hall

## Friday Afternoon

- 12:00 - 4:00 PM Vendor exhibition area ..... EBS Science Center 1<sup>st</sup> Floor Atrium
- 1:00 - 2:00 PM Registration..... EBS Science Center Ground Floor Lobby
- 1:00 - 4:00 PM Poster Viewing ..... EBS Science Center (SSC) 1<sup>st</sup> Floor Atrium  
Authors present to discuss these section posters from
- 1:00 – 2:00 PM ..... *Geography, Forestry, Conservation and Planning* posters
- 3:00 – 4:00 PM ..... *Biological Sciences* posters
- 1:00 PM Academy of Science Program Sessions ..... Elton B. Stephens Science Center (SSC)

### *Program Sessions:*

- 1:00 *Biological Sciences IV (Section I)* ..... SSC 138
- 1:00 *Biological Sciences V (Section I)*..... SSC 134
- 1:00 *Physics and Mathematics II (Section V)* ..... SSC 336
- 1:00 *Science Education II (Section VII)*..... SSC 238
- 1:00 *Anthropology II (Section XI)*..... SSC 201
- 1:00 *Bioethics and History & Philosophy of Science (Section XII)*..... SSC 334
- Slide Preview Room ..... SSC 240

## Friday Evening

- 6:00 AJAS/AAS Annual Business Meeting ..... SSC 130
- 7:00 Joint AJAS/AAS Banquet..... Norton Center Great Hall

Ron Jenkins, Presiding

R. Scot Duncan, Birmingham Southern College

*Fire on the mountain: Ecology and Conservation of Longleaf Pine Forests in Oak Mountain State Park*

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 31 – April 2, 2005**

**Thursday**

3 - 5:00 PM	Early Arrival Registration..... Best Western Medical Center Birmingham
6:00 PM	Social for all Registrants.....Southern Environmental Center
7:45 PM	Paper Competition ..... Elton B. Stephen’s Science Center Orientation ..... SSC 138 Judges Orientation ..... SSC 238
	Registration..... EBS Science Center
8:00 PM	Paper Competition ..... Elton B. Stephens Science Center Biology..... SSC 138 Engineering..... SSC 336 Humanities ..... SSC 238 Mathematics..... SSC 338 Physical Science ..... SSC 134

**Friday**

7:00 AM	Continental Breakfast ..... Norton Center Cafeteria Dining Hall
11:00 AM	Caucus..... SSC 138
12:00 Noon	Lunch ..... Norton Center Cafeteria Dining Hall
1:30 PM	Birmingham Southern College Science Activity:
5:00 PM	Meeting with officers and candidates for office to explain responsibilities ..... SSC 134
6:00 PM	Joint AJAS/AAS Business Meeting ..... SSC 130
7:00 PM	Joint AJAS/AAS Banquet and Presentation of Awards..... Norton Center Great Hall

**Saturday**

7:00 AM	Continental Breakfast .....	On your own
8:00 AM	Paper Competition Finals and Wrap-up.....	SSC 138
10:30 AM	Elections, Awards, Group Photograph and Business Meeting.....	SSC 138

**GORGAS SCHOLARSHIP PROGRAM**  
**Friday, April 1, 2005**  
**Elton B. Stephens Science Center**

Ellen Buckner, Chair, Judges

1:00	Set Up Science Exhibits.....	SSC 105/108
1:45	Demonstrations for Judges .....	SSC 105/108
3:00	Individual and Private Judging .....	TBA (offices)
5:00	Public Showing of Exhibits .....	SSC 105/108
7:00	Joint AJAS/AAS Banquet.....	Norton Center Great Hall
	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

### Session I

Thursday Morning

Room SSC 138

Brian Burnes, Presiding

1. 8:30 Improved growth performance of fish larvae fed anaerobic probiotics. *Mark Meade* and Benjie Blair, Jacksonville State University.
2. 8:45 A longitudinal survey of bacterial antibiotic profiles in surface waters. *Ivy Kastner* and Brian Burnes, Judson College.
3. 9:00 Stability of antibiotic profiles in environmental bacteria. *Brandi Evans* and Brian Burnes, Judson College.
- \*4. 9:15 Community structure and ecological significance of sponge-associated bacteria. *Patrick M. Erwin* and Robert W. Thacker, University of Alabama at Birmingham.
5. 9:30 Comparison of the effects of phloxine B, copper sulfate, and formalin on growth of *Tetrahymena pyriformis*. *Dustin Morin*, Veronica Little, Mark Meade, and Charles Olander, Jacksonville State University.
- 9:45 INTERMISSION
6. 10:15 Herbicide control of *Cannabis sativa* L. and *Papaver somniferum* L. *Norman J. Doorenbos* and Maynard Quimby, Auburn University.
7. 10:30 The effects of the brassinosteroid, 24-epibrassinolide, on the mitotic index of onion root tips. *W. Mike Howell*, Diane Kirkpatrick, Ronald Hunsinger, and Ronald L. Jenkins, Samford University.
8. 10:45 Brassinosteroids and their effects on plant growth. *Natalie J. Warren*, Samford University.
9. 11:00 Development of a field test for detection of cyanide in plants. *H. Wayne Shew* and Mary Helen Ferguson, Birmingham Southern College.
10. 11:15 Brine shrimp as test animals, *L.* *Norman J. Doorenbos*, Ryan Horner, Auburn University.
- 11:30 LUNCH BREAK

\*Denotes presentation is entered in competition

## SECTION I - BIOLOGICAL SCIENCES

### Session II

#### Thursday Afternoon

#### Room SSC 138

#### James Rayburn, Presiding

- \*11. 1:00 Selenium toxicity in the regular sea urchin, *Lytechinus variegatus*. *Warren T. Jones*, S. A. Watts, V. Gibbs, H. Hammer, M. Powell, J.M. Lawrence, and A. Lawrence, University of Alabama at Birmingham.
12. 1:15 Frogs on herbal ecstasy. *Bernice Moser* and James Rayburn, Jacksonville State University.
13. 1:30 The urban life of darters: the status of springs in the Birmingham area and three imperiled fish. *Daniel J. Drennen*, U.S. Fish and Wildlife Service, Jackson Field Office.
- \*14. 1:45 Yearly variation in hatchling sex ratios of Kemp's Ridley sea turtles. *Amber Park*, T. Wibbels, A. Salgado-Q., L. Vega-M, D. Lira-R, P. Burchfield, J. Pena-V, and B. Shroeder, University of Alabama at Birmingham.
- 2:00 INTERMISSION
15. 2:15 Herpetofauna of the Mobile-Tensaw Delta, Alabama: with an analysis of the effects of forest management practices. *Gabriel J. Langford*, Joel A. Borden, and David H. Nelson, University of South Alabama.
16. 2:30 Vertebrate road-kill survey of the Mobile Bay causeway. *David H. Nelson* and Cynthia Scardamalia-Nelson, University of South Alabama.
17. 2:45 Cyanobacteria and predator cues influence habitat selection and survivorship of a freshwater amphipod. *Frank A. Camacho* and Robert W. Thacker, University of Alabama at Birmingham.
- 3:00 BUSINESS MEETING

\*Denotes presentation is entered in competition

## SECTION I - BIOLOGICAL SCIENCES

### Poster Session I

#### Thursday Afternoon

Authors present from 3:30 PM to 4:30 PM, SSC 1<sup>st</sup> Floor Atrium

- \*18. Pharmacological and immunological studies which examine the effects of cholinergic agents on the regulation and characterization of the muscarinic 3 receptor subtype in the embryonic chick pancreas. *Rakesha Davis*, Adriel D. Johnson Sr., and Jacqueline U. Johnson, University of Alabama at Huntsville.
- \*19. Monitoring of bacterial populations in an aerobic digester by gradient gel electrophoresis. *Lisa Ann Blankinship* and Joseph J. Gauthier, University of Alabama at Birmingham.
- 20. Sperm production in *Gambusia affinis* as a biomarker for endocrine disruption. *Paul D. Melvin, III*, Amy Boyd, and Robert Angus, University of Alabama at Birmingham.

\*Denotes presentation is entered in competition

## **SECTION I – BIOLOGICAL SCIENCES**

### **Session III**

**Friday Morning**

**8:30 AM to 12:00 noon**

**Norton Center Theater**

### **Symposium Sponsored by Biological Sciences (Section I), Health Sciences (Section IX), and Bioethics and History and Philosophy of Science (Section XII)**

1. Therapeutic Cloning: What? How? Why? Applications for treatment of sickle cell disease and thalassemias. *Tim M. Towns*, James C. and Elizabeth T. Lee Professor and Chair, Department of Biochemistry and Molecular Genetics, University of Alabama at Birmingham.
2. Cellular replacement therapies using adult stem cells. *Chris Klug*, Associate Professor, Department of Microbiology, University of Alabama at Birmingham.
3. Stem cells and the brain: new frontiers in regenerative medicine. *Kevin Roth*, Professor and Director, Division of Neuropathology, University of Alabama at Birmingham.
4. The moral status of the human embryo and the embryonic stem cell debates. *James Bradley*, Department of Biological Sciences, Auburn University.
5. The dignity of the human embryo: The moral limits to embryonic research. *Dennis Sansom*, Professor and Chair, Department of Philosophy, Samford University.

## SECTION I - BIOLOGICAL SCIENCES

### Session IV

Friday Afternoon

Room SSC 138

Mickie Powell, Presiding

21. 1:00 Introgressive hybridization between walley and sauger in Lake Diefenbaker, Saskatchewan, Canada. *Ronald E. Creech*, Ron Jensen, Janet Gaston, P. Taylor Ezell, Tanya J. Johnston, and Neil Billington, Troy University.
22. 1:15 Enzyme cytochemical localizations in the mosquitofish gill using plastic sections. *Glenn M. Cohen* and Chen Jian, Troy University.
23. 1:30 Changes in proximate composition of the gonad during the reproductive cycle of *Lytechinus variegatus*. *Adele Cunningham* and Stephen Watts, University of Alabama at Birmingham.
24. 1:45 Development of least-cost feeding regimes for polyculture of the sea urchin *Lytechinus variegatus* and Pacific white shrimp *Litopenaeus vannamei*. *Anthony J. Siccardi, III*, S.A. Watts, and A.L. Lawrence, Texas A&M.
- \*25. 2:00 Biochemical changes in response to starvation in the channel catfish, *Ictalurus punctatus*. *Randy J. Watts*, Stephen A. Watts, Tim R. Nagy, and Hugh S. Hammer, University of Alabama at Birmingham.
26. 2:15 The effects of dietary copper on survival and growth parameters on the regular sea urchin, *Lytechinus variegatus*. *Mickie L. Powell*, W.T. Jones, V.K. Gibbs, H.S. Hammer, J.M. Lawrence, A.L. Lawrence, and S.A. Watts, University of Alabama at Birmingham.

\*Denotes presentation is entered in competition

## SECTION I - BIOLOGICAL SCIENCES

### Session V

Friday Afternoon

Room SSC 134

Mijitaba Hamissou, Presiding

27. 1:00 The effects of perchlorate on duckweed growth and metabolic activities. *Mijitaba Hamissou*, Jacksonville State University.
28. 1:15 Trophic state index for waterbodies in southeastern Alabama. *P. Taylor Ezell*, Benjamin M. Coale, A. Mack Brett, and Neil Billington, Troy University.
29. 1:30 Activity of the Mississippi diamondback terrapin (*Malaclemys terrapin pileata*)

along the Alabama coast. *Joel A. Borden*, Gabriel J. Langford, and David H. Nelson, University of South Alabama.

30. 1:45 Development of a QC-RT-PCR assay for evaluating Sox9 expression during temperature dependent sex determination. *Keela L. Dodd*, Chris Murdock and Thane Wibbels, University of Alabama at Birmingham.
- 2:00 INTERMISSION
- \*31. 2:15 Simultaneous comparison of temperatures on loggerhead sea turtle nesting beaches throughout Florida. *Jennifer Estes*, Thane Wibbels, Jeanette Wyneken, Llewellyn Ehrhart, Ray Carthy, R. Erik Martin, Micheal Bresett, Russell Scarpino, and Jason Scott, University of Alabama at Birmingham.
- \*32. 2:30 Palatability of antarctic sponges to a sympatric, omnivorous sea star. *Kevin J. Peters*, Charles D. Amsler, James B. McClintock, and Bill J. Baker, University of Alabama at Birmingham.
- \*33. 2:45 The effects of prescribed fire on the Herpetofauna of a southern Mississippi pine savanna. *Gabriel J. Langford*, Joel A. Borden, C. Smoot Major, and David H. Nelson, University of South Alabama.

## **SECTION I - BIOLOGICAL SCIENCES**

### **Poster Session II**

#### **Friday Afternoon**

**Authors present from 3:00 to 4:00 PM, SSC 1<sup>st</sup> Floor Atrium**

34. Metabolism in 24 hour old Cope's gray treefrog (*Hyla chrysoscelis*) larvae among three temperatures. *Anissa Delecki*, George Cline, Mark Meade, and James Rayburn, Jacksonville State University.
35. Variations in North American turtle shell shape. *David Delecki*, Anissa Delecki, , and George Cline, Jacksonville State University.

\*Denotes presentation is entered in competition

**SECTION II – CHEMISTRY**

**Session I**

**Thursday Afternoon**

**Room 336**

**Jan Gryko, Presiding**

1. 1:00 Air pollution rainbows in photographic prints. *Norman Doorenbos*, Auburn University
2. 1:20 Investigation of algorithms for rejecting discordant data. *M. B. Moeller* and *J. D. Downey*, University of North Alabama

**SECTION II – CHEMISTRY**

**Session II**

**Alabama Statewide Chemistry Undergraduate Research Symposium**

**Jointly Sponsored with Alabama, North Alabama and Wilson Dam ACS Local Sections**

**Thursday Afternoon**

**Room 336**

**Jan Gryko, Presiding**

- 1:40 Opening Remarks
3. 2:00 Synthesis of silicon clathrates. *Kristen Williams* and *Jennifer Timmons*, Jacksonville State University.
4. 2:20 Study of the effects of ruthenium-based cytotoxins on *saccharomyces cerevisiae*. *Alan Wade Mincher*, Taylor Preston, Pamela Hanson, and Laura K. Stultz, Birmingham Southern College.
5. 2:40 Comparative osteology of selected marine fishes using scanning electron microscopy. *Bernice Moser*, Jacksonville State University
6. 3:00 Magnetic anisotropy in thin films and membranes. *Chris Redden*, Jacksonville State University.
- 3:20 BUSINESS MEETING

**SECTION II – CHEMISTRY**  
**Poster Session,**  
**Thursday Afternoon**  
**Authors Present, 3:30 PM – 5 PM, SSC 1<sup>st</sup> Floor Atrium**

7. Ion transport across a bilayer lipid membrane. *Albert J. Osei* and Alexander Volkov, Oakwood College.

**Alabama Statewide Chemistry Undergraduate Research Symposium**  
**Jointly Sponsored with Alabama, North Alabama and Wilson Dam ACS Local Sections**  
**Poster Session,**  
**Thursday Afternoon**  
**Authors Present, 3:30 PM – 5 PM, SSC 1<sup>st</sup> Floor Atrium**

- \*8. Mercury analysis of plants and soils in the Oxford City Park. *Chris Redden*, Mitchell Cordell, Daniel Jackson, Adam Lynch, Alfred Nichols, David Steffy, and Charles Stinson, Jacksonville State University.
9. Quantitative determination of surface mole fractions in mixed self-assembled films, *Ashley Baehne* and Brian W. Gregory, Samford University.
- \*10. Eutrophication source detection using GIS and remote sensing technology. *Katherine Cotney*, Steven B. McKinney, and Janna Owens, Storm Water Management Authority and Samford University.
11. Testing for a discordant point in data fit to a straight line. *Nathan C. Thacker*, R. J. Johnson, and M. B. Moeller, University of North Alabama.
12. Peer presentations through technology. *Ryan Ammons* and Joe Timmons, University of Alabama at Birmingham.
13. Unraveling the molecular choreography of memory, smell, and structure, *Amanda Ousley*, Ashely Clark, Amanda Gilbert, and Maureen Murphy, Huntingdon College.
14. DNA as a wire: Using the electron-in-a-box formalism to calculate potential damage to the base pairs in the DNA helix. *Maureen Murphy*, Ashley Clark, Amanda Gilbert, and Amanda Ousley.
15. Binding of mesoporous silica films to metal substrates. *James William Snider, III*, Martin G. Bakker, and Roger Campbell, University of Alabama.
16. Synthetic peptide synthesis using UV detection. *David Mendoza* and Lesli Bordas, Spring Hill College.

\*Denotes presentation is entered in competition

**SECTION IV – GEOGRAPHY, FORESTRY, CONSERVATION, AND PLANNING**  
**Thursday Morning**  
**Room SSC 336**  
**William K. McAllister, Presiding**

1. 9:00 Mountain longleaf pine communities of oak mountain. *R. Scot Duncan*, Chris Clayton, and Rich Williams. Birmingham-Southern College.
2. 9:20 Issues in wildlife habitat conservation: The current initiatives in the Southeast, the case of Mississippi. *Edmund C. Merem* and Yaw A. Twumasi. Jackson State University.
3. 9:40 Planning policies for land use and urban transportation planning coordination in Nigeria: A case study of Port Harcourt. *Chukudi V. Izeogu*. Alabama A & M University.
4. 10:00 New demands on old roadways: Analyzing residential growth in Madison County, Alabama. *Nikkya Moore*. Alabama A & M University.
- 10:20 INTERMISSION
5. 10:40 Housing unit change in Huntsville, Alabama. *William K. McAllister*. Alabama A & M University.
6. 11:00 Leapfrog analysis at the urban-rural fringe. *Brent Cunningham* and William K. McAllister. Alabama A & M University.
7. 11:20 Crime and revitalization: The challenges of community development organizations to revitalize high crime communities in Huntsville, Alabama. *Elton J. Thomas*. Alabama A & M University.
- 11:40 BUSINESS MEETING

## SECTION V – PHYSICS AND MATHEMATICS

Thursday Afternoon

Room SSC 134

Kenneth Roblee, Presiding

1. 1:00 From the history of graph coloring. *V. Voloshin*, Troy University
2. 1:20 A generalization of the chromatic polynomial of a cycle. *Julian Allagan*, Troy University.
3. 1:40 Some extremal problems for edge-regular graphs. *K.J. Roblee*, P.D. Johnson, Jr., and T.D. Smotzer, Troy University.
4. 2:00 Using linear algebra to balance various chemical reactions. *Jason Bell*, Troy University.
5. 2:20 Binomial trees for option pricing. *Jun Zhang*, Troy University.

## SECTION V – PHYSICS AND MATHEMATICS

Session II

Friday Afternoon

Room SSC 336

Kenneth Roblee, Presiding

6. 1:00 Deep approach as opposed to surface approach to enhance teaching skills in undergraduate mathematics courses. *Fayequa Majid*, Alabama A&M University.
7. 1:20 Rotating birefringent particles with an optical tweezers. *A.N. Herrmann*, J.M. Clegg, and D.B.Thompson, University of North Alabama.
- \*8. 1:50 Cluster and regression analysis of frog embryo reactions after exposure to selected chemical compounds. *Ron LaGrone*, Jacksonville State University.
9. 2:05 Optimizing an optical tweezers for trapping of microscopic particles. *D.B. Thompson*, J.M. Clegg, and A.N. Herrmann, University of North Alabama.
- 2:35 BUSINESS MEETING

\*Denotes presentation is entered in competition

## SECTION VI – INDUSTRY AND ECONOMICS

**Session I**  
**Thursday Morning**  
**Room SSC 238**  
**Marsha D. Griffin, Presiding**

1. 10:00 Economic dynamics of South Alabama in the 1990s. *Fesseha Gebremikael* and Eric Rahimian, Alabama A&M University
  2. 10:15 VoIP implementation strategies. *Paulette Alexander* and Jerome Gafford, University of North Alabama
  3. 10:30 Social Security dilemma: Is privatization of the system necessary? *Eric Rahimian*, Alabama A&M University
  4. 10:45 Social Security: Reconstruction or deconstruction? *James G. Alexander* and Marsha D. Griffin, Alabama A&M University
  5. 11:00 Measuring an organization's quality culture. *William A. Hailey*, University of North Alabama
  6. 11:15 The intersection of rotating work shifts and family quality of life. *Roland Porter*, Union University
- 11:30 LUNCH

**SECTION VI – INDUSTRY AND ECONOMICS**

**Session II**  
**Thursday Afternoon**  
**Room SSC 238**  
**James G. Alexander, Presiding**

7. 1:00 Super retailers: The good, the bad, and the ugly. *Keith Absher*, Don Christensen, and Roland Porter, Union University
8. 1:15 The impact of environmental forces on franchiser's choice of persuasive strategy. *Darin W. White*, Union University.
9. 1:30 The implication of poverty and crime in East Alabama. *Fesseha Gebremikael* and Eric Rahimian, Alabama A&M University
10. 1:45 Schools of business: 2005 and beyond. *Keith Absher*, Joe Harrison, and Scott Lawyer, Union University

- 2:00 INTERMISSION
11. 2:15 College students and credit cards. *Linda A. Carr*, University of West Alabama
- \*12. 2:30 The effects of information and incentives on a university flex dollar program.  
*Erion Hasanbelliu*, Jacksonville State University
13. 2:45 Schools of business admission requirements: A comparative study. *Marsha D. Griffin*, Dana R. Harris, and James G. Alexander, Alabama A&M University
- 3:00 BUSINESS MEETING

\*Denotes presentation is entered in competition

## SECTION VII – SCIENCE EDUCATION

### Session I

Thursday Morning, SSC 201

Loretta A. Cormier, Presiding

1. 8:30 Analysis of student performance on descriptive astronomy exams. *Anthony P. Blose*. University of North Alabama.
2. 8:50 The Associated Colleges of the South program for the reformation of introductory science courses for non-science majors. *Leo Pezzementi*. Birmingham Southern College.
- \*3. 9:10 Modeling and visualization in a marine biology classroom. *Warren T. Jones*, *Stephen A. Watts*, and *Gypsy Abbott*. University of Alabama at Birmingham.
4. 9:30 Tidbits in the teaching of nutritional supplement therapies. *Norman J. Doorenbos*. Auburn University.
- 9:50 INTERMISSION
5. 10:00 *Chata Imissa*: Public education in social science through the MOWA Choctaw Cultural Center. *Jacqueline A. Matte* and *Loretta A. Cormier*, MOWA Choctaw Cultural Center.
6. 10:20 Transition to an investigative laboratory program in chemistry at Birmingham Southern-College. *David J. Schedler* and *Laura K. Stultz*. Birmingham Southern College.
7. 10:40 Multiculturalism and service learning: The UAB Honors Program and Arrington Middle School partnership. *Rosie O'Beirne*. University of Alabama at Birmingham.
8. 11:00 Sloss Furnaces National Historic Landmark as a resource for social science education. *Karen Utz*. Sloss Furnaces National Historic Landmark

## SECTION VII - SCIENCE EDUCATION

### Poster Session

Thursday Morning, SSC 1<sup>st</sup> Floor Atrium

9. 11:40 Cancer - biology and beyond: A thematic course for Non-science majors. *Pamela Hanson*. Birmingham Southern College.
- 12:00 LUNCH

## SECTION VII – SCIENCE EDUCATION

**Session II**  
**Friday Afternoon**  
**Room SSC 238**  
**Loretta A. Cormier, Presiding**

10. 1:00 The UAB ADVANCE program for the advancement of women in science and engineering careers. *Jeannette Doeller*. University of Alabama at Birmingham.
11. 1:20 Academic opportunities for a new secondary physics teacher. *Bethany A. Knox* and Perry A. Tompkins. Samford University.
12. 1:40 Traditional vs. interactive exhibition: Presenting natural history collections in a hands-on, interactive environment. *Jun Ebersole*. McWane Center.
13. 2:00 Designing interactive science exhibits for children. *James P. Cormier*. McWane Center.
- 2:20 INTERMISSION
14. 2:30 Designing content courses for biology teachers. *Benjie Blair, Mark Meade, and Mijitaba Hamissou*. Jacksonville State University.
15. 2:50 GENEius: An innovative, inquiry-based molecular biology program for high school students. *Ryan Reardon* and Mary Williams. UAB Center for Community Outreach Development.
16. 3:10 Field settings as classrooms: Notes from a UAB study abroad program on ethnographic methods held in Southern Mexico. *Chris Kyle*, University of Alabama at Birmingham.
17. 3:40 The wellness garden project at Baptist Medical Center, Princeton. *Roald Hazelhoff*. Southern Environmental Center. Birmingham Southern College.
- 4:00 BUSINESS MEETING

\*Denotes presentation is entered in competition

## SECTION VIII -- BEHAVIORAL & SOCIAL SCIENCES

### Session I

Thursday Morning

Room SSC 130

Florence Wakoko, Presiding

1. 10:00 Scale analysis of a revision of the Computer Hassles Scale. *Richard A. Hudiburg*. University of North Alabama.
- \*2. 10-20 The effect of church members' beliefs and backgrounds as related to mission activities. *Tasha Niquel Thrower*. Jacksonville State University.
3. 10:40 Farm practices, migrant workers and gender roles: an ethnographic study of peach farming in middle Georgia. *Aisha Rex*, Susannah Ragan, and Florence Wakoko. Columbus State University.
4. 11:00 INTERMISSION
- 11:20 Survey of conflict resolution, needs, and styles on the university campus. *Cheryl Bullard*. Auburn University - Montgomery.
- \*5. 11:40 The effects of instructor, class time, and semester on absences in university algebra class. *Jim D. Roebuck III*. Jacksonville State University.
- 12:00 LUNCH

## BEHAVIORAL AND SOCIAL SCIENCES

### Session II

Thursday Afternoon

Room SSC 130

Terry Norris, Presiding

6. 1:00 Evaluation of Alabama's multijurisdictional drug and violent crime task force program: Results and recommendations. *William E. Osterhoff*, Anne Permaloff and Carl Grafton. Auburn University - Montgomery.
7. 1:20 Gov. George Wallace, Havard University, marihuana and the maximizer. *Norman J. Doorenbos*. School of Pharmacy, Auburn University.
8. 1:40 INTERMISSION
- 2:00 BUSINESS MEETING
9. 2:20 Bias-based policing: Comparing and contrasting citizen and police officers' views. *Ralph E. Ioimo*, Becton, Bret J., Meadows, Leslie A., Rachael S., Charles,

Michael. Auburn University - Montgomery.

10. 3:00 Instructor development: An emphasis on classroom process for criminal justice professionals. *Saundra Cassey*, Air University and Victor Ortloff, Troy University
11. 3:20 Child abuse in selected families: A survey of family violence and its implications for policy, in Columbus metropolitan area. *Victoria Smith*. Columbus State University.
12. 3:40 ISD-Instructional Systems Development: A decision-making model for developing new criminal justice courses. *Saundra Casey*, Air University, and Victor Ortloff, Troy University
13. 4:00 Social work ethics in codes and as discourse: Modern and postmodern interpretations. *Diane Carol Holliman*, Valdosta State University.

\*Denotes presentation is entered in competition

## SECTION IX -- HEALTH SCIENCES

### Session I

#### Thursday Morning

#### Room SSC 134

#### Ellen Buckner, Presiding

- \*1. 8:30 The needs of family members of critically ill patients. *Amy L. Brooks and J. Moss*, University of Alabama at Birmingham.
2. 8:45 Changing perceptions of self: A study of changes identified by pregnant women in a substance abuse treatment program. *Nelly Garcia* and E. Buckner, University of Alabama at Birmingham.
3. 9:00 Comparing differences in the AHRQ inpatient quality indicators in nursing shortage areas and nonshortage areas. *Susan R. Lacey* and D. Roth, University of Alabama in Huntsville.
- \*4. 9:30 Coping techniques used by pediatric oncology patients. *William Jerkins*, and E. Buckner, and J. Ross, University of Alabama at Birmingham.
5. 9:45 Early adventures with marihuana. *Norman Doorenbos*, Auburn University.
- 10:00 INTERMISSION
- \*6. 10:15 Religion, relationships, and real-pain-in-the-joints: in elders with arthritis. *Anna K. Murray*, E. Buckner, and J. Ross, University of Alabama at Birmingham.
7. 10:30 Genetic relatedness of pneumococcal isolates from an epidemiologic study in 1980 in the USA to international penicillin resistant clones. *Dorothy B. Payne*, D.E. Briles, and S. K. Hollingshead, University of Alabama at Birmingham.
8. 10:45 Using aviation cockpit management techniques to reduce clinical errors. *M. Peggy Hays*, University of Alabama in Huntsville.
- \*9. 11:00 Role modeling of hand hygiene: Influence of nurses' attitudes and confidence. *Bettina H. Riley*, E. Buckner, and B. Vason, University of Alabama at Birmingham.
10. 11:15 Learning pharmacology calculations with technology integration. *Ina Warboys*, University of Alabama in Huntsville
- \*11. 11:35 Psychosocial needs of parents before and after their child's heart surgery. *Ying Xiong*, and E. Buckner, University of Alabama at Birmingham.
- 11:45 LUNCH

**SECTION IX – HEALTH SCIENCES**

**Poster Session**

**Thursday**

**Authors Present, 11:45 AM – 1:00 PM, SSC 1<sup>st</sup> Floor Atrium**

12. Asthma responsibility and psychosocial outcomes in adolescents attending young teen asthma camp., *Christine Feeley*, E. Buckner, S. Simmons, L. Gibson, A. Hawkins, and J. Brakefield, University of Alabama at Birmingham.
13. Choroidal melanoma: Signs, symptoms and treatments. *Briana S. Lucas*, Oak Mountain.
14. Effect of hydrophilic liner in the microtensile bond strength to dentin. *Miguel Nunez, J. Broome, Jr.*, and D. Cakir, University of Alabama at Birmingham.

**SECTION IX – HEALTH SCIENCES**

**Session II**

**Thursday Afternoon**

**Room SSC 134**

**Robert E. Pieroni, Presiding**

15. 1:00 Brain natriuretic peptide (BNP) mechanism of action and clinical utility. *Lee Armistead*, and R. Pieroni, University of Alabama.
16. 1:15 Rhabdomyolysis secondary to polypharmacy. *Anne Halli*, and R. Pieroni, University of Alabama.
17. 1:30 Evidenced based treatment modalities for Pressureulcers. *R. Pieroni*. University of Alabama.
18. 1:45 MELAS Syndrome: Patient presentation and management. *Ty Blackwell*, and R. Pieroni, University of Alabama.
- \*19. 2:00 Self-efficacy and self-management. Becoming an arthritis self-manager. *Jennifer J. Thomas*, and E. Buckner, University of Alabama at Birmingham.
20. 2:15 Inappropriate medication use in nursing home patients. *Robert Pieroni*, University of Alabama.
21. 2:30 Effect of an azasteroid on Leydig cells in vitro. *Norman Doorenbos*, Auburn University.
- 3:00 BUSINESS MEETING  
M. Peggy Hays, Presiding

22. 3:15 The effect of heparinized and on-heparinized capillary tubes on the spun microhematocrit. *Ritchie Cox*, C. Ernest, and V. Hughes, Auburn University Montgomery.
- \*23. 3:30 Professional development using computer technology for educating nurses on grief in the workplace. *Glenda A. DuBose*, University of Alabama at Birmingham.
24. 3:45 The lived experience of rural, 65-year and older, homebound, diabetics. *Sharon R. George*, University of Alabama in Huntsville.
25. 4:00 Determination of fibrinogen concentration in patients with polycythemia vera undergoing a therapeutic phlebotomy. *Virginia C. Hughes*, A. Anderson, and F. Hamrac, Auburn University Montgomery.
26. 4:15 A case study: What came first, the weight gain or the hyperinsulinism? *Melinda Lawson*, University of Alabama in Huntsville.
- \*27. 4:30 Medication adherence post-heart transplant: Adolescents and their issues. *Sara McAllister*, E. Buckner, J. A. Ross, and C. White-Williams, University of Alabama at Birmingham.
- \*28. 4:45 Open a door: Comparing family involvement in two children experiencing language acquisition through cochlear implant or English as second language. *Pan Cao*, and E. Buckner, University of Alabama at Birmingham.

\*Denotes presentation is entered in competition

**SECTION IX – HEALTH SCIENCES**

**Session III**

**Friday Morning**

**8:30 AM to 12:00 noon**

**Norton Center Theater**

**Symposium Sponsored by Biological Sciences (Section I), Health Sciences (Section IX), and Bioethics and History and Philosophy of Science (Section XII)**

1. Therapeutic Cloning: What? How? Why? Applications for treatment of sickle cell disease and thalassemias. *Tim M. Towns*, James C. and Elizabeth T. Lee Professor and Chair, Department of Biochemistry and Molecular Genetics, University of Alabama at Birmingham.
2. Cellular replacement therapies using adult stem cells. *Chris Klug*, Associate Professor, Department of Microbiology, University of Alabama at Birmingham.
3. Stem cells and the brain: new frontiers in regenerative medicine. *Kevin Roth*, Professor and Director, Division of Neuropathology, University of Alabama at Birmingham.
4. The moral status of the human embryo and the embryonic stem cell debates. *James Bradley*, Department of Biological Sciences, Auburn University.
5. The dignity of the human embryo: The moral limits to embryonic research. *Dennis Sansom*, Professor and Chair, Department of Philosophy, Samford University.

## SECTION X -- ENGINEERING AND COMPUTER SCIENCE

### Session I

#### Thursday Morning

#### Room SSC 334

#### Robert Pitt, Presiding

- \*1. 8:00 Intelligent control utilizing a planner based on type-2 fuzzy logic. *Dalton S. Nelson*, University of Alabama at Birmingham
- \*2. 8:15 A framework for system level simulation of an underwater distributed sensor network. *Anish Anthony*, Shripad Chandrachood, and Thomas C. Jannett, University of Alabama at Birmingham.
- 3. 8:30 G-BLAST: BLAST as a grid service. *Ziyang Xiong*, Zhijie Guan, Purushotham V. Bangalore, and Pravin R. Joshi, University of Alabama at Birmingham
- \*4. 8:45 Reasoning design requirements of distributed real-time and embedded systems by a quality of service parameter-centric approach. *Shih-Hsi Liu* and Barrett R. Bryant, University of Alabama at Birmingham
- \*5. 9:00 A testing framework for model transformations. *Yuehua Lin*, University of Alabama at Birmingham.
- 6. 9:15 Investigating the use of Erlang's loss formula in the design of a wide area network. *Dale Callahan*, Johnny Goode, and Greg Vaughn, University of Alabama at Birmingham.
- 7. 9:30 Minimum time heading reversal of an agile missile with a single neural network controller. *Mandar S. Kulkarni* and Thomas C. Jannett, University of Alabama at Birmingham.
- 9:45 INTERMISSION
- 8. 10:00 Fuzzy numbers, a novel representation using Bezier Curves. *Leonard J. Jowers*, University of Alabama at Birmingham.
- \*9. 10:15 Detection theory issues in the hierarchical design of distributed sensor networks. *Parag P. Joshi* and Thomas C. Jannett, University of Alabama at Birmingham.
- 10. 10:30 Building a health grid: A worthwhile venture in grid computing. William T. Jones, University of Alabama at Birmingham.
- \*11. 10:45 A multiple instance learning approach for content based image retrieval using one-class support vector machine. *Xin Chen* and Chengcui Zhang, University of Alabama at Birmingham.

- \*12. 11:00 Extensible resource broker for the grid. *Enis Afgan* and Purushotam Bangalore, University of Alabama at Birmingham.
- 13. 11:15 An efficient parallel implementation of the Fox algorithm. *Okon H. Akpan*, Jacksonville State University.
- 14. 11:30 Parallel implementation of Poisson system using MPI. *Mohamed Lahlou* and Okon Akpan, Jacksonville State University
- 15. 11:45 A new hybrid Particle Swarm Optimization (PSO) algorithm. *Mathew Mithra Noel* and Thomas C. Jannett, University of Alabama at Birmingham.
- 12:00 LUNCH

## SECTION X -- ENGINEERING AND COMPUTER SCIENCE

### Session II

**Thursday Afternoon**

**Room SSC 334**

**Robert Pitt, Presiding**

- \*16. 1:30 Four methods for choosing gamma. *Ying Sun*, Marietta E. Cameron, and Kenneth R.Sloan, University of Alabama at Birmingham.
- \*17. 1:45 Debugging domain-specific languages. *Hui Wu*, University of Alabama at Birmingham.
- 18. 2:00 An efficient hybrid clustering algorithm for molecular sequences classification. *Wei-Bang Chen*, University of Alabama at Birmingham.
- \*19. 2:25 Simulation of mercury speciation in coal combustion systems. *Neelesh S. Bhopatkar*, Heng Ban, and Thomas Gale, University of Alabama at Birmingham.
- 20. 2:30 Efficient treatment of stormwater at critical source areas using upflow filters. *Uday Khambhammettu* and Robert Pitt, University of Alabama.
- 21. 2:45 Sediment transport in grass swale. *Yuko Nara* and Robert Pitt, University of Alabama.
- 22. 3:00 Use of anodic stripping voltammetry to measure dissolved lead, copper, cadmium and zinc in stormwater. *Renee E. Morquecho* and Robert Pitt University of Alabama.
- 3:15 INTERMISSION

- \*23. 3:30 Linear, non-linear analysis and design of fiber reinforced polymer (FRP)-autoclaved aerated concrete (AAC) hybrid panels. *Kedar Shelar*, University of Alabama at Birmingham.
- 24. 3:45 Sodium metal speciation model for gasification system. *Pavankumar B Sonwane*, University of Alabama, Birmingham.
- \*25. 4:00 Experimental study of microinjection. *Zhuorui Song*, *Bochuan Lin*, and *Hen Ban*, University of Alabama at Birmingham.
- \*26. 4:15 Evaluation of singular value decomposition for clustering gene expression data. *Chun Wei*, University of Alabama Birmingham.
- 27. 4:30 Comparative analysis of roundabouts and conventional intersection designs. *Virginia P. Sisiopiku* and *Veera Gunda Prakash*, University of Alabama at Birmingham.
- 4:45 BUSINESS MEETING

**SECTION X – ENGINEERING AND COMPUTER SCIENCE**  
**Poster Session**  
**Thursday Afternoon**  
**Authors Present from 4:45 PM to 5:30 PM, SSC 1<sup>st</sup> Floor Atrium**

- 28. 3D surface construction using dualing cubes algorithm. *Vetria Byrd*, University of Alabama at Birmingham.
- 29. Sedimentation modeling: remote sensing and the RUSLE equation. *Scott Hofer* and *Steve McKinney*, Storm Water Management, Inc.

\*Denotes presentation is entered in competition

## SECTION XI -- ANTHROPOLOGY

### Session I

Friday Morning

Room SSC 201

Harry O. Holstein, Presiding

1. 9:00 A historic background search of the Davis Farm archaeological complex homestead in Calhoun County, Alabama. *Chris Young*, Jacksonville State University.
2. 9:20 A preliminary archaeological investigation at the Davis Farm Complex slave cabin site, 1Ca1635. *Rebecca Troyer*, Jacksonville State University.
3. 9:40 Archaeological investigations in the Talladega National Forest, Eastern Alabama. *John Noel*, Jacksonville State University.
4. 10:00 Mapping the Cherokee Trail of Tears. *Kelly Gregg*, Jacksonville State University.
- 10:20 INTERMISSION
5. 10:40 Missionaries, Cherokee removal and the Trail of Tears, *Gail King*, Jacksonville State University
6. 11:00 A speculative correlation of Muskogean language history and archaeology, *Charles Redwine*, Panamerican Consultants, Tuscaloosa.
7. 11:20 A brief history of the MOWA, Choctaw, *Rebecca Turley Ridley* Jacksonville State University.
- 11:40 LUNCH

**SECTION XI -- ANTHROPOLOGY**

**Session II**

**Friday Afternoon**

**Room SSC 201**

**Harry O. Holstein, Presiding**

8. 1:00 The Mayas of Guatemala: an ancient people in the modern world. *James Sewastynowicz*, Jacksonville State.
9. 1:20 Human osteology studies at the Hammonds Site, 1Dk71, Fort Payne, Alabama. *M. Cassandra Hill*, Jacksonville state University.
10. 1:40 Faunal analysis of the De Soto State Park Rockshelter, 1Dk49. *R. Jeannine Windham*, Jacksonville State University.
11. 2:00 Bouts and repetitions in studies of non-human primate handedness: A Test, *Jason L. Heaton*, Indiana University and Samford University.
- 2:20 INTERMISSION
12. 2:40 A modal of Alexandra pottery from the Alabama Valley and Ridge. *Steven Meredith*, University of Alabama.
13. 3:00 Prehistoric raw material selection in southwestern Alabama. *Matt Grunewald*, University of Alabama.
14. 3:20 The Shelton Stone Mound Complex, 1Ca637, Calhoun County, Alabama. *Harry O. Holstein*, Jacksonville State University
- 3:40 BUSINESS MEETING

## SECTION XII -- BIOETHICS AND HISTORY & PHILOSOPHY OF SCIENCE

### Session I

#### Friday Morning

8:30 AM to 12:00 noon

Norton Center Theater

### Symposium Sponsored by Biological Sciences (Section I), Health Sciences (Section IX), and Bioethics and History and Philosophy of Science (Section XII)

1. Therapeutic Cloning: What? How? Why? Applications for treatment of sickle cell disease and thalassemias. *Tim M. Towns*, James C. and Elizabeth T. Lee Professor and Chair, Department of Biochemistry and Molecular Genetics, University of Alabama at Birmingham.
2. Cellular replacement therapies using adult stem cells. *Chris Klug*, Associate Professor, Department of Microbiology, University of Alabama at Birmingham.
3. Stem cells and the brain: new frontiers in regenerative medicine. *Kevin Roth*, Professor and Director, Division of Neuropathology, University of Alabama at Birmingham.
4. The moral status of the human embryo and the embryonic stem cell debates. *James Bradley*, Department of Biological Sciences, Auburn University.
5. The dignity of the human embryo: The moral limits to embryonic research. *Dennis Sansom*, Professor and Chair, Department of Philosophy, Samford University.

## SECTION XII -- BIOETHICS AND HISTORY & PHILOSOPHY OF SCIENCE

### Friday Afternoon

Room SSC 334

Jim Bradley, Presiding

- 1:00 Welcome and Introduction. *Jim Bradley*, Section Chair. Auburn University.
1. 1:05 That which made us tall is killing us: Censuring the college cafeteria. *Kenneth E. Nusbaum*. College of Veterinary Medicine, Auburn University.
  2. 1:35 Teaching field biology with photography – there's an ethic in it somewhere. *Ronald Jenkins*, W. Mike Howel, Larry J. Davenport, and M. Linda Wood, Biology Department, Samford University.
  3. 1:45 The Baby Doe regulations: The impact of governmental mandates on personal and medical decision-making. *Jill Allard Ross*, School of Nursing, University of Alabama at Birmingham.

4. 2:15 Early adventures with marihuana. *Norman J. Doorenbos*, School of Pharmacy, Auburn University.
  5. 2:35 Deadly science. *Gerard Elfstrom*, Department of Philosophy, Auburn University.
  6. 3:00 From one code to another: metaphors and change in genetic research. *Michelle Sidler*, Department of English, Auburn University.
  7. 3:15 Transcending without contradicting the real: a model for combining scientific fact with ethical value. *Leonard W. Ortmann*, National Center for Bioethics in Research and Health, Tuskegee University.
  8. 3:40 Choice-making as a criterion for personhood: Responses to criticisms. *James T. Bradley*, Department of Biological Sciences, Auburn University.
- 4:05 BUSINESS MEETING. Election of a Vice-Chair.

## **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.

## 2005 REGIONAL SCIENCE FAIRS

- N Alabama March 14-17 Calhoun Community College, George Williams, 256.306.2838, [gow@calhoun.cc.al.us](mailto:gow@calhoun.cc.al.us); Sue Mitchell 256.306.2655, [sue@calhoun.edu](mailto:sue@calhoun.edu)
- W Alabama March 11-12 University of West Alabama, Becky Graham 205.652.3804, [bcg@uwa.edu](mailto:bcg@uwa.edu)
- Central Feb. 25-26 University of Alabama at Birmingham, James C. Martin, Physics, 205.934.8090, [jcmartin@uab.edu](mailto:jcmartin@uab.edu)
- Northeast Feb. 24-25 Talladega College, Mrs. Gladys Mayers Swain 256.761.6308, [gswain@talladega.edu](mailto:gswain@talladega.edu)
- Greater East March 4-5 Chattahoochee Valley Community College, Phoenix City, Susan Marie McCollum, 334.291.4953, [susan.mccollum@cv.edu](mailto:susan.mccollum@cv.edu)

## 2005 ALABAMA STATE SCIENCE AND ENGINEERING FAIR

March 31 – April 2 at The University of Alabama in Huntsville, Coordinator, John Dimmock, Physics, 256.824.6616, [dimmockj@email.uah.edu](mailto:dimmockj@email.uah.edu).

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

## 2005 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](mailto:sciedu@sciserv.org) FAX 202.785.1243. Internet: [www.sciserv.org](http://www.sciserv.org). The 55<sup>th</sup> Annual ISEF will be May 8-14, 2005 in Phoenix, Arizona. 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.

## ALABAMA SCIENCE OLYMPIAD 2004-2005

### Division A1 Grades K-3 Olympiad Tournament

**Mulkey Elementary School**, November 13. Grades K-3, Mr. Robert Chambless,  
[rchambless@alaweb.com](mailto:rchambless@alaweb.com)

### Division A2 Grades 3-6 Olympiad Tournaments

**University of West Alabama**, Saturday, February 19. 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](mailto:kshumaker@uwa.edu), [ESO@UWA.edu](mailto:ESO@UWA.edu).

**Jacksonville High School**, February 26, Grades 3-6, David Peters, 1000 George Douthit Drive SW, Jacksonville, AL 36265 (256) 435-4177, [ESOatJHS@hotmail.com](mailto:ESOatJHS@hotmail.com)

**Auburn University**, April 30. Grades 3-6, Greg Harris, Department of Mathematics, 218 Parker Hall, Auburn, AL 36830 [harriga@mail.auburn.edu](mailto:harriga@mail.auburn.edu)

### Division B Grades 6-9 Olympiad Tournaments

**University of Alabama**, February 19. Dr. Kevin Whitaker, College of Engineering. Box 870200, Tuscaloosa, AL 35486 (205) 348-2357. Contact Becky Snow, (205) 348-1598, [bsnow@coe.eng.ua.edu](mailto:bsnow@coe.eng.ua.edu).

**Auburn University**, February 19, Dr. Steve Stuckwisch, Department of Geology, 108 Tichenor Hall, Auburn University, AL 36830. (251) 844-6575  
[ssuckwisch@charter.net](mailto:ssuckwisch@charter.net)

**University of Alabama at Huntsville**, February 19, Mrs. Vanessa Colebaugh, 5019 Willow Creek Drive, Owens Cross Roads, AL 35763. (256) 922-5747  
[nessacita@comcast.net](mailto:nessacita@comcast.net).

**University of South Alabama**, February 26, Dr. Steve Itaya, Dept. of Biomed Science, UCOM 6000, Univ. of South Alabama, Mobile, AL 36608 (251) 380-2710  
[sitaya@jaguar1.usouthal.edu](mailto:sitaya@jaguar1.usouthal.edu).

### Division C Grades 9-12 Olympiad Tournaments

**University of Alabama**, February 19. Dr. Kevin Whitaker, College of Engineering. Box 870200, Tuscaloosa, AL 35486 (205) 348-2357. Contact Becky Snow, (205) 348-1598, [bsnow@coe.eng.ua.edu](mailto:bsnow@coe.eng.ua.edu).

**Auburn University**, February 19, Dr. Steve Stuckwisch, Department of Geology, 108 Tichenor Hall, Auburn University, AL 36830. (251) 844-6575  
[ssuckwisch@charter.net](mailto:ssuckwisch@charter.net)

**University of Alabama at Huntsville**, February 19, Mrs. Vanessa Colebaugh, 5019 Willow Creek Drive, Owens Cross Roads, AL 35763. (256) 922-5747

[nessacita@comcast.net](mailto:nessacita@comcast.net)

**Jacksonville State University**, February 26, Dr. Robert Carter, Dept. of Biology,  
Jacksonville State University, 700 N Pelham Rd, Jacksonville, AL 36265 (256)  
782-5144, [rcarter@jsucc.jsu.edu](mailto:rcarter@jsucc.jsu.edu).

**University of South Alabama**, February 26, Dr. Steve Itaya, Dept. of Biomed Science,  
UCOM 6000, Univ. of South Alabama, Mobile, AL 36608 (251) 380-2710  
[sitaya@jaguar1.usouthal.edu](mailto:sitaya@jaguar1.usouthal.edu).

### **State Science Olympiad Tournaments**

**Huntingdon College**, March 12, Division B, Dr. Sidney Stubbs, 1500 E Fairview Ave,  
Montgomery, AL 36106 (334) 833-4430 [sstubbs@huntingdon.edu](mailto:sstubbs@huntingdon.edu)

**Samford University**, April 2, 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](mailto:bwgregory@samford.edu).

### **National Science Olympiad**

**University of Illinois**, May 20-21, Urbana-Champaign, IL, <http://www.soinc.org/>

**State Director:** Jane Nall, 31110 Wakefield Drive, Spanish Fort, AL 36527 (251) 621-2911,  
Fax (251) 625-7032, email [drnall@hotmail.com](mailto: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](mailto:mbmoeller@una.edu). Downloadable applications and further information can be found on the Academy web site, [www.alabamaacademyofscience.org](http://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

## 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
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- 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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II. Chemistry	Jan Gryko (2006) Dept. of Chemistry Jacksonville State Univ. Jacksonville, AL 36265 <a href="mailto:jgryko@jsucc.jsu.edu">jgryko@jsucc.jsu.edu</a>	Houston Byrd (2006) Dept. of Chemistry University of Montevallo Montevallo, AL 35115 205.665.6478 <a href="mailto:byrdh@montevallo.edu">byrdh@montevallo.edu</a>
III. Earth Science	Inactive in 2004-05	
IV. Geography Forestry Conservation & Planning	William McAllister (2005) 3719 Railway Avenue Huntsville AL 35801 256.534.8354 <a href="mailto:william.mcallister@email.aamu.edu">william.mcallister@email.aamu.edu</a>	
V. Physics and Mathematics	Kenneth Roblee (2006) Dept of Mathematics Troy State Univ. Troy, AL 36082 334.670.3549 <a href="mailto:krblee@troy.edu">krblee@troy.edu</a>	Henry W. Glotfelty (2006) Dept. of Physics Samford University Birmingham AL 35229 205.726.2450 <a href="mailto:hwglotfe@samford.edu">hwglotfe@samford.edu</a>
VI. Industry and Economics	James Alexander (2005) Dept. of Economics, Finance, & OSM AL A&M University Normal, AL 35762 256.851.5084 or 5085 <a href="mailto:marsha.griffin@email.aamu.edu">marsha.griffin@email.aamu.edu</a>	Marsha Griffin (2005) Dept. of Economics Finance, & OSM AL A&M University Normal, AL 35762 256.851.5084 <a href="mailto:marsha.griffin@email.aamu.edu">marsha.griffin@email.aamu.edu</a>

- VII.  
Science  
Education
- Lori Cormier (2006)  
Dept. of Anthropology  
Univ. of AL at Birmingham  
Birmingham, AL 35294  
205.975.6526  
[lcormier@uab.edu](mailto:lcormier@uab.edu)
- VIII.  
Behavioral  
Sciences
- Florence Wakoko (2006)  
Columbus State Univ.  
Dept. of Psychology, Sociology & Gerontology  
4225 University Ave.  
Columbus, GA 31907  
706.568.2116  
[Wakoko\\_Florence@colstate.edu](mailto:Wakoko_Florence@colstate.edu)
- IX.  
Health Sciences
- Robert Pieroni (2006)  
Internal Medicine & Family Practice  
PO Box 870326  
University of Alabama  
Tuscaloosa, AL 35487  
205.348.1287  
[rpieroni@cchs.ua.edu](mailto:rpieroni@cchs.ua.edu)
- X.  
Engineering and  
Computer  
Science
- Robert Pitt (2005)  
Civil & Env. Eng.  
P O Box 870205  
University of Alabama  
Tuscaloosa, AL 35487  
205.348.2684  
[rpitt@coe.eng.ua.edu](mailto:rpitt@coe.eng.ua.edu)
- Marietta Cameron (2005)  
Dept. of Computer Science  
Birmingham Southern College  
Birmingham, AL 35254  
205.226.3040  
[mcameron@bsc.edu](mailto:mcameron@bsc.edu)
- XI.  
Anthropology
- Harry Holstein (2005)  
Dept. of Geography  
Jacksonville State Univ.  
Jacksonville, AL 36265  
256.782.5656  
[holstein@jsucc.jsu.edu](mailto:holstein@jsucc.jsu.edu)
- Phillip E. Koerper (2005)  
Dept. of History  
Jacksonville State Univ.  
Jacksonville, AL 36265  
256.782.5604  
[pkoerper@jsucc.jsu.edu](mailto:pkoerper@jsucc.jsu.edu)
- XII.  
Bioethics, &  
History &  
Philosophy of  
Science
- James Bradley (2005)  
Dept. of Biological Sci.  
Auburn University  
Auburn, AL 36849  
334.844.9262  
[bradljt@mail.auburn.edu](mailto:bradljt@mail.auburn.edu)

**ALABAMA ACADEMY OF SCIENCE**  
**ELECTED OFFICERS**  
2004–2005

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President-Elect Larry Davenport (2005), Dept. of Biology, Samford University, 800 Lakeshore Drive, Birmingham, AL, 35229, (205) 726-2584, FAX (205) 726-2479, e-mail: [ljdavenp@samford.edu](mailto:ljdavenp@samford.edu)

Second Vice-President: David Nelson (2005), Dept. of Biology, University of South Alabama, Mobile, AL 36688, e-mail: [dnelson@usouthal.edu](mailto:dnelson@usouthal.edu)

Secretary: M. Peggy Hays (2007), College of Nursing – Nursing Building, University of Alabama in Huntsville, Huntsville, AL 35899, 256-824-2441, e-mail: [haysm@uah.edu](mailto:haysm@uah.edu)

Treasurer: Taba Hamissou (2008), Dept. of Biology, Jacksonville State University, Jacksonville, Alabama 36265, (205) 782-5040, e-mail: [taba@jsucc.jsu.edu](mailto:taba@jsucc.jsu.edu)

Editor: James Bradley (2005), Dept. of Biological Sciences, Auburn University, Auburn, AL 36849, (334) 844–9262, e-mail: [bradljt@auburn.edu](mailto:bradljt@auburn.edu)

State Counselor to the Junior Academy: B.J. Bateman (2005), Dept. of Math and Physics, Troy State University, Troy, AL 36082, (334) 670–3572, e-mail: [bbateman@troy.edu](mailto:bbateman@troy.edu)

Associate Counselor to the Junior Academy: Henry Barwood (2007)

Associate Counselor to the Junior Academy: Wanda Phillips (2005), Brooks High School, 4300 Highway 72, Killen, AL 35645, (256) 757-2115, FAX (256) 757-1136

Coordinator of State Science Fairs: Virginia Valardi (2006), Wetumpka High School, 1251 Coosa River Parkway, Wetumpka, AL 36092, (334) 799-0104 , home (334) 514-1770, e-mail: [whsd5a@elmomoreco.com](mailto:whsd5a@elmomoreco.com) or [vilardiv@hotmail.com](mailto:vilardiv@hotmail.com)

Coordinator of State Science Olympiad: Jane D. Nall (2007), 31110 Wakefield Drive, Spanish Fort, AL 36527, (251) 621–2911, FAX (251) 625–7032, e-mail: [drnall@hotmail.com](mailto:drnall@hotmail.com)

AAAS Representative: Stephen Watts (2004), Dept. of Biology, University of Alabama at Birmingham, Birmingham, AL 35294–1170, (205) 934–2045, FAX (205) 975–6097, e-mail: [sawatts@uab.edu](mailto:sawatts@uab.edu)

TRUSTEES:

- Wayne Finley (2005), Lab. Medical Genetics, University of Alabama at Birmingham, Birmingham, AL 35294, e-mail: [whfinley@bellsouth.net](mailto:whfinley@bellsouth.net)
- Ken Marion (2005), Dept. of Biology, University of Alabama at Birmingham, Birmingham, AL 35294–1170, e-mail: [kmarion@uab.edu](mailto:kmarion@uab.edu)
- Prakash Sharma (2005), Dept. of Physics, Tuskegee University, Tuskegee, AL 36088, e-mail: [pcsharma@tuskegee.edu](mailto:pcsharma@tuskegee.edu)
- Walter Wilborn (2005), Structural Research Center, 120 Novatan Road, Mobile, AL 36608, (251) 649-9740.
- B.J. Bateman (2006), Dept. of Math and Physics, Troy State University, Troy, AL 36082, e-mail: [bbateman@troy.edu](mailto:bbateman@troy.edu)
- Dan Holliman (2006), Dept. of Biology, Birmingham Southern College, Birmingham, AL 35254.
- Joseph C. Thomas (2006), 216 Doubletree Lane, Florence, AL 35630.
- Ellen B. Buckner (2006), 204 School of Nursing, University of Alabama at Birmingham, Birmingham, AL 35294, (205) 934-6799, FAX (205) 975-6142, e-mail: [bucknere@uab.edu](mailto:bucknere@uab.edu)
- Larry Boots (2007), 2455 Mahaska Drive, Birmingham, AL 35244, e-mail: [bootsfamily@hotmail.com](mailto:bootsfamily@hotmail.com)
- Eugene Omasta (2007), 113 Dendron Avenue, Troy, AL 36081, Chair, e-mail: [eomasta@troyst.edu](mailto:eomasta@troyst.edu)
- Adriane Ludwick (2007), Dept. of Chemistry, Tuskegee University, Tuskegee, AL 36088, e-mail: [aludwick@tuskegee.edu](mailto:aludwick@tuskegee.edu)
- Michael Moeller (2007), Box 5049, University of North Alabama, Florence, AL 35632, e-mail: [mbmoeller@una.edu](mailto:mbmoeller@una.edu)

**CHAIRPERSONS  
APPOINTED COMMITTEES  
2004-2005**

Steering Committee:

- B. J. Bateman, Physical Sciences Department, Troy State University, Troy, AL 36082, e-mail: [bbateman@troy.edu](mailto:bbateman@troy.edu)
- Larry Boots, 2455 Mahaska Dr., Birmingham, AL 35244, (205) 988-0745. e-mail: [bootsfamily@hotmail.com](mailto:bootsfamily@hotmail.com)
- James Bradley, Department of Biological Sciences, 306 Fuuchess Hall, Auburn University, Auburn, AL 36849, (334) 844-9262, e-mail: [bradljt@auburn.edu](mailto:bradljt@auburn.edu)
- Ellen B. Buckner, 204 School of Nursing, UAB, University Station, Birmingham, AL 35294-1210, (205) 934-6799, FAX (205) 975-6142 e-mail: [bucknere@uab.edu](mailto:bucknere@uab.edu)
- Anne Cusic, Dept. of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, (205) 934-9686, (205) 975-6097 (fax), e-mail: [acusic@uab.edu](mailto:acusic@uab.edu)
- Larry Davenport, Dept. of Biology, Samford University, 800 Lakeshore Drive, Birmingham, AL 35229, (205) 726-2584, FAX (205) 726-2479, e-mail: [ljdavenp@samford.edu](mailto:ljdavenp@samford.edu)
- Taba Hamissou (2008), Dept. of Biology, Jacksonville State University, Jacksonville, Alabama 36265, (205) 782-5040, e-mail: [taba@jsucc.jsu.edu](mailto:taba@jsucc.jsu.edu)
- Richard Hudiburg, Dept. of Psychology, University of North Alabama, Box 5187, Florence, AL 35632; (256) 765-4572, FAX (256) 765-4991 e-mail: [rahudiburg@una.edu](mailto:rahudiburg@una.edu)
- Ron Jenkins, Dept. of Biology, Samford University, 800 Lakeshore Drive, Birmingham, AL 35229, (205) 726-2947, FAX (205) 726-2479, e-mail: [rljenkin@samford.edu](mailto:rljenkin@samford.edu)
- Dan Holliman, 3476 Birchtree Drive Hoover, AL 35226, (205) 822-4155.
- Larry Krannich, Dept. of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294 (205) 934-8017, e-mail: [krannich@uab.edu](mailto:krannich@uab.edu)
- Ken Marion, Dept. of Biological Sciences, University of Alabama at Birmingham, Birmingham, AL 35294 e-mail: [kmarion@uab.edu](mailto:kmarion@uab.edu)
- Michael Moeller, Box 5049, University of North Alabama, Florence, AL 35632 e-mail: [mbmoeller@una.edu](mailto:mbmoeller@una.edu)
- Dail Mullins, Honors Program, University of Alabama at Birmingham, Birmingham, AL 35294, (205) 934-3228, (205) 934-4792 (fax), e-mail: [drdoom@uab.edu](mailto:drdoom@uab.edu)
- Eugene Omasta, 113 Dendron Ave., Troy, AL 36081. e-mail: [eomasta@troy.edu](mailto:eomasta@troy.edu)
- Stephen Watts, Dept. of Biology, University of Alabama at Birmingham, Birmingham, AL 35294-1170, (205) 934-2045, (205) 975-6097 (fax), e-mail: [sawatts@uab.edu](mailto:sawatts@uab.edu)

Committee on Budget and Finance:

- Eugene Omasta, Chair, (2005), 113 Dendron Ave., Troy, AL 36081 e-mail: [eomasta@troy.edu](mailto:eomasta@troy.edu)

- Anne Cusic (2004), Dept. of Biology, University of Alabama at Birmingham, Birmingham, AL 35294-1170, (205) 934-9686, (205) 975-6097 (fax), e-mail: [acusic@uab.edu](mailto:acusic@uab.edu)
- Dail Mullins (2004), Dept. of Education, University of Alabama at Birmingham, Birmingham, AL 35294, (205) 934-5371, (205) 934-4792 (fax), e-mail: [drdoom@uab.edu](mailto:drdoom@uab.edu)
- David Schedler (2004), Birmingham Southern College, Box 549022, Birmingham, AL 35254, (205) 226-4876 e-mail: [dschedle@bsc.edu](mailto:dschedle@bsc.edu)
- B. J. Bateman (2005), Physical Sciences Department, Troy State University, Troy, AL 36082 e-mail: [bbateman@troy.edu](mailto:bbateman@troy.edu)
- Ron Jenkins, (2005) Dept. of Biology, Samford University, 800 Lakeshore Drive, Birmingham, AL 35229, (205) 726-2947, FAX (205) 726-2479, e-mail: [rljenkin@samford.edu](mailto:rljenkin@samford.edu)
- Ellen Buckner (2006) 204 School of Nursing, University of Alabama at Birmingham, Birmingham, AL 35294-1210 e-mail: [bucknere@uab.edu](mailto:bucknere@uab.edu)
- Betsy Dobbins, (2006) Dept. of Biology, Samford University, 800 Lakeshore Drive, Birmingham, AL. 35229, (205) 726- 2937, FAX (205) 726-2479, e-mail: [egdobbin@samford.edu](mailto:egdobbin@samford.edu)
- Mijitaba Hamissou, Biology Department, Martin Hall, 700 Pelham Rd., Jacksonville State University, Jacksonville, AL 36265; (256) 782-5040; e-mail: [taba@jsucc.jsu.edu](mailto:taba@jsucc.jsu.edu).
- Larry Krannich, Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, (205) 934-8017 e-mail: [krannich@uab.edu](mailto:krannich@uab.edu)

#### Committee on Membership:

Mark Meade (2005), Dept. of Biology, Jacksonville State University, Jacksonville, AL 36265, (256) 782-5638, e-mail: [mmeade@jsucc.jsu.edu](mailto:mmeade@jsucc.jsu.edu)

Section Vice-Chairs are committee members

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- Steve Watts (2008) CHAIR Dept. of Biology, University of Alabama at Birmingham, Birmingham, AL 35294 (205) 934-2045 e-mail: [sawatts@uab.edu](mailto:sawatts@uab.edu)
- Larry Boots (2005), (205) 988-0745 e-mail: [bootsfamily@hotmail.com](mailto:bootsfamily@hotmail.com)
- Bruce Smith (2006), Scott-Ritchey Research Center, Auburn University, Auburn, AL 36849 (334) 844-5587 e-mail: [smithbf@auburn.edu](mailto:smithbf@auburn.edu)
- Alan Sprague (2007) Dept. of Computer and Information Science, University of Alabama at Birmingham, Birmingham, AL 35294-1170 (205) 934-2213 e-mail: [sprague@cis.uab.edu](mailto:sprague@cis.uab.edu)
- Robert Thacker (2007) Dept. of Biology, University of Alabama at Birmingham, Birmingham, AL 35294 (205) 943-4006 e-mail: [thacker@uab.edu](mailto:thacker@uab.edu)

#### Committee on Long Range Planning:

- Ken Marion, Chair, (2005), UAB, Dept. of Biology, Birmingham, AL 35294, (205) 934-3582 or 934-4290, e-mail: [kmarion@uab.edu](mailto:kmarion@uab.edu)
- Dan Holliman (2004), Dept. of Biology, Birmingham Southern College, Birmingham, AL 35254 e-mail: [dhollima@bsc.edu](mailto:dhollima@bsc.edu)
- Eugene Omasta (2005), 113 Dendron Ave., Troy, AL 36081, e-mail: [eomasta@troy.edu](mailto:eomasta@troy.edu)
- Adriane Ludwick (2007), Dept. of Chemistry, Tuskegee University, Tuskegee, AL 36088 e-mail: [aludwick@tusk.edu](mailto:aludwick@tusk.edu)

#### Auditing Committees (1 year)

##### *Senior Academy:*

- David Schedler, Chair, (2005), Birmingham Southern College, Box 549022, Birmingham, AL 35254 (205) 226-4876 e-mail: [dschedle@bsc.edu](mailto:dschedle@bsc.edu)
- Robert Angus (2005) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294-1170 (205) 934-4799 e-mail: [raangus@uab.edu](mailto:raangus@uab.edu)

##### *Junior Academy:*

- Govind Menon, Chair, (2005)
- Vacant 2 positions

#### Editorial Board:

- Thane Wibbels, Chair, (2006) Department of Biology, CH 255A, University of Alabama at Birmingham, Birmingham, AL 35294 (205) 934-4419 e-mail: [twibbels@uab.edu](mailto:twibbels@uab.edu)
- James Alexander (2004), Dept. of Economics, Finance & Off. Sys. Mgt., Alabama A & M University, Normal, AL 35762, e-mail: [james.alexander@email.aamu.edu](mailto:james.alexander@email.aamu.edu)
- Prakash Sharma (2005), Dept. of Physics, Tuskegee University, Tuskegee, AL 36088 email: [pcsharma@tuskegee.edu](mailto:pcsharma@tuskegee.edu)
- James Bradley (2005), Editor, Department of Biological Sciences, Auburn University, Auburn, AL 36849, (334) 844-9262. e-mail: [bradljt@auburn.edu](mailto:bradljt@auburn.edu) (ex-officio)

#### Committee on Junior Academy:

- B.J. Bateman, Chair, (2005), Physical Sciences Department, Troy State University, Troy, AL 36082, (334) 670-3572. e-mail: [bbateman@troy.edu](mailto:bbateman@troy.edu)
- Wanda Phillips (2005), Brooks High School, Rt. 4, Box 428, Killen, AL 35645

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North	Melanie Hanson, Johnson High School, 6201 Pueblo Dr. NW, Huntsville, AL 35810, (256) 428-8100 (O) (256) 882-7872 (H)
North East	---
North West	Linda Kanipe, Coffee High School, Florence, AL. 35630, (256) 764-7452 (O), (256) 764-2947 (H)
Central	Paula Beeton, Jefferson Country International Baccalaureate School, 6100 Old Leeds Rd., Irondale, AL 35210, (205) 379-5350 Jim Johnson, The Altamont School, 4801 Altamont Road, Birmingham, AL 35222 (205) 879-2006
South Central	---

West Cynthia Phillips, 607 Hwy 80 W, Demopolis, AL 36732, (256) 289-8777  
South East Donnie Hatcher, P.O. Box 90, Tuskegee, AL 36083, (Home) 2405 Charles,  
(334) 727-1600 ext (O): 232, (334) 727-6533 (H)  
South ---  
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36527 (251) 621-2911

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- Mark Meade, (2007) Dept. of Biology, Jacksonville State, University, Jacksonville, AL 36265, (254)782-5638, e-mail: [mmeade@jsucc.jsu.edu](mailto:mmeade@jsucc.jsu.edu)
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- Program Coordinators: Ms. Anne Curry, (205) 226-2904, [acurry@bsc.edu](mailto:acurry@bsc.edu); Ms. Patty Henry, (205) 226-4870, [phenry@bsc.edu](mailto:phenry@bsc.edu); Dr. Clyde Stanton
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- Gorgas Scholarship: Dr. Rodney Dunning, (205) 226-4875, [rdunning@bsc.edu](mailto:rdunning@bsc.edu)

#### Editor for Electronic Media

Richard Hudiburg, Dept. of Psychology, University of North Alabama, Box 5187, Florence, AL 35632, (256) 765-4572, fax (256) 765-4991 e-mail: [rahudiburg@una.edu](mailto:rahudiburg@una.edu)

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- Paul D. Kittle (2004), Dept. of Biology, University of North Alabama, Florence, AL 35632, (256) 765-4395 e-mail: [pkittle@unanov.una.edu](mailto:pkittle@unanov.una.edu)
- Scott Brande (2005), Dept. of Geology, University of Alabama at Birmingham, 910 15<sup>th</sup> Street South, Birmingham, AL 35291, (205) 934-8280 e-mail: [sbrande@uab.edu](mailto:sbrande@uab.edu)

Wright A. Gardner Award Committee:

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- Barrett Bryant (2004), Dept. of Computer and Information Sciences, University of Alabama at Birmingham, Birmingham, AL 35294, (205) 934-2213 e-mail: [Bryant@cis.uab.edu](mailto:Bryant@cis.uab.edu)
- Richard Shoemaker (2005), 1411 Shipp Rd., Hayden, AL 35079, (205) 647-7962
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- Linda Reed (2004), School of Nursing, University of Alabama at Birmingham, Birmingham, AL 35294-1210, (205) 934-6835, e-mail: [reedl@son.uab.edu](mailto:reedl@son.uab.edu)
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AAAS Representative:

Stephen Watts, Dept. of Biology, University of Alabama at Birmingham, Birmingham, AL 35294-1170, (205) 934-2045, (205) 975-6097 (fax) e-mail: [sawatts@uab.edu](mailto:sawatts@uab.edu)

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- Larry K. Krannich, Co-chair. Dept. of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294 (205) 934-8017 e-mail: [krannich@uab.edu](mailto:krannich@uab.edu)
- William J. Barrett, Southern Research Institute, Retired, 3850 Galleria Woods Dr., Apt. 236, Birmingham, AL 35244-3063 (205) 982-5206
- Elizabeth G. Dobbins, Dept. of Biology, Samford University, 800 Lakeshore Drive, Birmingham, AL 35229 (205) 726-2937 e-mail: [egdobbin@samford.edu](mailto:egdobbin@samford.edu)
- Leven Hazlegrove Samford University, Retired, 208 Rockaway Road, Birmingham, AL

35204-6626 (205) 879-0004 (205) 975-9146

- David H. Nelson, Dept. of Biology, University of South Alabama, Mobile, AL 36688 (256) 460-6331 e-mail: [dnelson@usouthal.edu](mailto:dnelson@usouthal.edu)
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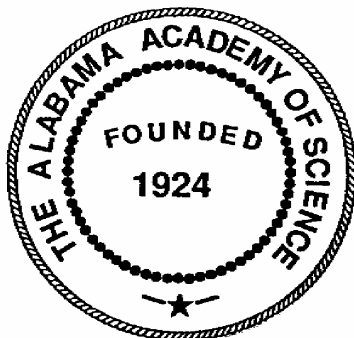
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**Local Chair, Ken Sundberg**  
**Department of Chemistry**  
**Troy University, Troy, AL 36082**

(334) 670-3577

[ksundberg@troy.edu](mailto:ksundberg@troy.edu)