

**NINETY-FOURTH ANNUAL  
MEETING**  
of the  
**ALABAMA ACADEMY OF SCIENCE, INC.**



**Meeting Jointly With**

**ALABAMA JUNIOR ACADEMY OF SCIENCE  
GORGAS SCHOLARSHIP COMPETITION**

**February 22-24, 2017  
Student Center  
University of South Alabama  
Mobile, AL**



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

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Dear AAS, AJAS, and Gorgas Participants,

I would like to personally welcome you to the University of South Alabama for the 94<sup>th</sup> Annual Meeting of the Alabama Academy of Sciences. It is a great honor and privilege for us to host this distinguished group of scholars, industry leaders, bright students, parents, and honored guests to our campus. We are natural partners with the Academy here at South Alabama, and share its mission of promoting awareness of scientific matters throughout the state of Alabama and beyond. At South we are committed to developing innovative programs and research experiences to prepare the next generation of scientists.

Here at South Alabama our mission is to provide outstanding education and excellence in health care for Alabama and the greater Gulf Coast region. Home to more than 16,000 students and more than 100 academic programs, our University is a dynamic community of leaders and learners who support and challenge one another to be actively engaged citizens who advance the Gulf Coast region and the world.

Founded in 1963, South's vision is to foster an environment that couples engaging learning experiences with high-level research, enabling our faculty and students to be leaders in their disciplines. The unique and beautiful Gulf Coast region is a catalyst for discovery and innovation, and South's 1,200-acre campus has been transformed over the past decade with new facilities and resources for housing and recreation, health sciences, the arts, engineering, computer science and athletics.

The coastal region is healthier because of the USA Health system. Through its five components — USA Children's & Women's Hospital, USA Medical Center, USA Mitchell

Cancer Institute, USA Physicians Group and the College of Medicine — USA Health provides care to hundreds of thousands of people and is a training ground for future physicians and health care professionals.

We are also very proud of our newly founded Office of Undergraduate Research (OUR), your host for this meeting. Dr. Shelley-Tremblay has launched the new Student Organization for Undergraduate Research, garnered continued support from NASA, started the new Journal of Undergraduate Research and Creative Activities, and expanded the paid Summer Undergraduate Research Fellows program to 60 participants annually, each doing mentored research with top faculty.

Thank you for advocating for the value of science and factual thinking, and for your advocacy for evidence-based decision making. We thank you also for coming to Mobile, the birthplace of Mardi Gras, here at Mardi Gras season. I wish you a stimulating, safe, and enjoyable conference and stay in Mobile.

Again, welcome, and we welcome you to our newly renovated student center and campus, and hope that you feel right at home in Jaguar country.



G. David Johnson, Provost and Senior Vice President for Academic Affairs



## ALABAMA ACADEMY OF SCIENCE, INC

February 1, 2017

Dear AAS Members and Guests,

Welcome to 94th annual meeting of the Alabama Academy of Science. Since its inception in 1924, the academy has been very instrumental in bringing students, researchers and educators from across the state of Alabama and giving opportunity to nurture their scientific interest. I feel very proud of being a part of this academy.

There are oral and poster presentations in ten different sections (disciplines) of the senior academy. The students in senior academy will compete in poster and oral presentation sessions.

The young researchers from the different schools in the state of Alabama will also be presenting their research in the junior academy paper contest and Gorgas Competition.

I am sure you will find these presentations very interesting and full of new scientific research ideas.

In addition, you can take some time to go out and look at different attractions in the University of South Alabama (USA) campus and throughout the city of Mobile. I wish your stay in this meeting to be very fruitful and convenient.

The local organizing committee members have done huge amount of work to organize this meeting. I want to appreciate and extend my special thanks to Dr. John (Jack) F. Shelley-Tremblay from University of South Alabama (USA), Dr. Ellen Buckner from the Samford University and all the members of the local arrangement committee from USA campus.

I want to express my sincere thanks to the trustee, officers, committee members; section chairs all those made immense contribution to make this event very special and successful. Dr. Larry Krannich (AAS Executive Director) has been playing a very special role to make this academy run successfully for past many years and a very special thanks to him for putting his efforts and time.

After the meeting when you return to your institution, please share your experience with your colleagues and students and encourage them to join as member of the Alabama Academy of Science and be part of the next meeting.

Sincerely,

*Akshaya Kumar.*

Akshaya Kumar, Ph.D.

President, Alabama Academy of Science

## **LOCAL ARRANGEMENTS COMMITTEE**

The Academy expresses its appreciation to the University of South Alabama and the Local Arrangements Committee for their efforts in planning and hosting this 94<sup>th</sup> Annual Meeting.

### **Local Arrangements Chair:**

Dr. Jack Shelley-Trembley  
Professor of Psychology  
Director of Undergraduate Research

### **AAS Program Coordinator**

Donna Cleveland  
Professor, USA Pat Capps Covey College of Allied Health Professions

### **AJAS/ Gorgas Coordinator**

Dr. Bettina Riley, RN, Assistant Professor, Mental Health Nursing Coordinator, Community Mental Health, College of Nursing

### **AJAS Local Judge Chair**

Dr. Doug Haywick, Associate Professor, Earth Sciences

### **University Liaison Officer, Registration and Signage**

Melva L. Jones, CMP  
Director, University Special Events

### **Posters**

Dr. Doug Haywick, Associate Professor, Earth Sciences

### **Promotion & Publicity**

Joy Crawford-Washington  
Associate Director, Marketing and Communications

### **Speaker Coordination**

Dr. David Forbes, Chair, USA Chemistry Department  
Dr. Tom Meyer, Associate Professor, USA College of Nursing

### **Audio Visual and Venue Management**

Rachael Bolden, Associate Director, USA Student Center

### **Parent Program**

Christopher Lynch  
Associate Vice President, Enrollment Services

## GENERAL INFORMATION

- Registration badges will be required for admission to paper/poster scientific sessions, the Thursday evening Sci-Mix, and the banquet.
- Applications for membership and payments of annual dues will **not** be accepted at registration. Payment must be made on at <http://www.alabamaacademyofscience.org/join-aas-2/> and is separate from registration payment. 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 AM Thursday.
- Computers will be provided where needed for presentations (PCs for PowerPoint). If presenters bring their own, they are responsible for their computer.
- Parking is in the designated space (entrance on USA South Drive just after the intersection with Campus Drive) indicated on the downloadable, <http://www.southalabama.edu/programs/our/aas2017/images/aasparkingpass.pdf> parking pass, which shows you exactly where to park at the Student Center. Also, [here are instructions](#) from the conference hotel to the Student Center (or paste <http://www.southalabama.edu/programs/our/aas2017/images/mapfromhotel.pdf> into your browser. The last page of this booklet contains a tear out page of the parking pass.
- A map of the USA campus can be found on the outside cover of the program booklet. Also, an interactive map of the USA campus can be found at <http://www.southalabama.edu/campusmap/>

## LOCAL RESOURCES

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

- All Emergencies (Fire, Ambulance, Police):..... 911
- USA POLICE: ..... (251) 460-6312
- USA Medical Center: .....(251) 471-7000
- USA Children's and Women's Hospital..... (251) 415-1000
- USA Sexual Assault Victim Advocacy ..... (251) 460-7151
- Lifeline Counseling Services: Rape Crisis ..... (251) 473-7273

### Off-campus emergencies (Police, Fire, Medical): ..... 911

- Mobile Police Department: ..... (251) 208-1700

## POSTERS

Poster set-up can begin at 8:00 AM in the **Student Center 2<sup>nd</sup> Floor Lobby**. Each poster is allotted 3' x 4' of display space. Posters are to be available for viewing on Thursday from 10:00 AM until 4:30 PM. Prior to the joint banquet, **Gorgas Scholars and Junior Academy posters** will be available for viewing at the **Sci-Mix** from 6:00 – 7:00 PM on Thursday in the **Student Center 2<sup>nd</sup> Floor Lobby**. Authors for the section posters should be present for discussions with viewers and competition judges as shown below:

### Poster Viewing Times

#### **Thursday: [Student Center 2<sup>nd</sup> Floor Lobby]**

<i>Biological Sciences, I</i> .....	11:30 AM – 1:30 PM
<i>Chemistry, II</i> .....	10:00 AM – 12:00 PM
<i>Physics and Mathematics III</i> .....	12 Noon – 2:00 PM
<i>Engineering &amp; Computer Science, IV</i> .....	2:00 PM – 4:00 PM
<i>Social Sciences, V</i> .....	1:00 PM – 3:00 PM
<i>STEM Education, VII</i> .....	3:30 PM – 4:30 PM
<i>Anthropology, VI</i> .....	3:00 PM – 4:00 PM
<i>Environmental and Earth Sci., VIII</i> .....	10:00 AM – 12:00 Noon
<i>Health Sciences, IX</i> .....	1:00 PM – 3:00 PM
<i>Gorgas Scholars and Junior Academy</i> .....	6:00 PM – 7:00 PM

**NOTE:** Posters may be set up in the **Student Center 2<sup>nd</sup> Floor Lobby** beginning at 8:00 AM. Locate posters by cards on poster boards indicating Section and poster # in program booklet (eg. V-10).

**Program of the Alabama Academy of Science  
February 22-24, 2017  
Student Center (SC)**

**Wednesday, February 22, 2017**

5:00 – 7:00 PM Registration ..... Student Center Lobby  
6:00 – 7:00 PM Executive Committee Dinner ..... Wintzell’s Oyster House  
7:00 – 9:00 PM Executive Committee Meeting ..... Wintzell’s Oyster House  
Wintzell’s Oyster House address: 6700 Airport Blvd., Mobile, AL 36608;  
(251) 341-1111

**Thursday, February 23, 2017**

7:00 AM – 4 PM Registration ..... Student Center Lobby & Concierge Desk

**8:00 AM – Noon: Academy of Science Program Paper Sessions** (All rooms are in Student Center - SC)

8:00 AM Biological Sciences I (Section I)..... SC Terrace  
8:00 AM Health Sciences (Section IX) ..... SC 253  
8:00 AM Physics and Mathematics (Section III) ..... SC 203  
9:00 AM Anthropology ..... SC 142  
9:00 AM Chemistry (Section II) ..... SC 254  
9:00 AM Environmental and Earth Science (Section VIII) ..... SC 254  
9:30 AM Engineering and Computer Science (Section IV)..... SC 211  
9:30 AM Social Sciences I (Section V) ..... SC 212

10:00 AM Coffee and Refreshments ..... SC Ballroom

**AAS Posters**

8:00 – 10:30 AM Poster Set-Up (All Sections) ..... SC 2<sup>nd</sup> Floor Lobby  
9:00 AM – 5:30 PM Poster Viewing (All Sections)..... SC 2<sup>nd</sup> Floor Lobby  
(All posters must be removed by 4:30 PM)

Authors present:

10:00 AM – 12:00 Noon ..... Environmental and Earth Science (Section VIII)  
10:00 AM – 12:00 Noon ..... Chemistry (Section II)  
11:30 AM – 1:30 PM ..... Biological Sciences (Section I)  
12:00 Noon – 2:00 PM ..... Physics and Mathematics (Section III)  
1:00 PM – 3:00 PM ..... Social Sciences (Section V)  
1:00 PM – 3:00 PM ..... Health Sciences (Section IX)  
2:00 PM – 4:00 AM ..... Engineering and Computer Science (Section IV)  
3:00 PM – 4:00 PM ..... Anthropology (Section VI)  
3:30 PM – 4:30 PM ..... STEM Education (Section VII)



12:00 Noon – AAS/AJAS Joint Annual Business Meeting..... SC Terrace  
 12:00 Noon -- 1:00 PM Lunch.....On Your Own

**1:00 - 5:00 PM: Academy of Science Program Sessions** (All rooms are in Student Center Building)

1:00 PM Anthropology .....SC 142  
 1:40 PM Biological Sciences II (Section I) ..... SC Terrace  
 1:40 PM Bioethics & History & Philosophy of Science (Section X) .....SC 102  
 1:30 PM STEM Education (Section VIII) .....SC 205

3:00 PM Coffee ..... SC Lobby

4:00 – 4:30 PM Remove all AAS posters from SC 2<sup>nd</sup> Floor Lobby

5:00 PM Group Photograph AAS/AJAS ..... SC Northside Lobby

5:30 – 6:45 PM Sci-Mix; Viewing of AJAS and  
 Gorgas Scholars’ Posters .....SC 2<sup>nd</sup> Floor Lobby

7:00 PM Joint AJAS/AAS Banquet..... Student Center Ballroom  
 .....2<sup>nd</sup> Floor of Student Center

Akshaya Kumar (AAS President), Lucas Lynn (AJAS President), and Mark Jones (AJAS Counselor) Welcome

Dr. David Johnson, Provost and Senior Vice President for Academic Affairs,  
 University of South Alabama, Welcome

Dr. E.O. Wilson, University Professor Emeritus  
 Harvard University

Presentation of Alabama Academy of Science Honors and Awards

Presentation of Gorgas Finalists

**Friday, February 24, 2017**

7:00 – 10:00 AM      Registration..... SC Lobby & Concierge Desk  
10:00 AM Coffee..... SC Lobby  
Noon – 1:00 PM Keynote Luncheon ..... SC Ballroom

**ALABAMA JUNIOR ACADEMY OF SCIENCE**  
**February 23-24, 2017**  
**Student Center (SC)**

**Thursday, February 23, 2017**

12:00 Noon	Joint AAS/AJAS Business Meeting.....	SC Terrace
3:00 – 5:00 PM	Registration .....	SC Lobby & Concierge Desk
3:00 – 5:00 PM	Poster Set-up and Orientation .....	SC 2 <sup>nd</sup> Floor Lobby
5:00 PM	Group Photo AAS/AJAS .....	Northside Lobby
5:30 – 6:45 PM	“Sci-Mix” Viewing of AJAS and Gorgas Scholars’ Posters .....	SC 2 <sup>nd</sup> Floor Lobby
7:00 PM	Joint AJAS/AAS Banquet .....	Student Center Ballroom, 2 <sup>nd</sup> Floor SC

Akshaya Kumar (AAS President), Lucas Lynn (AJAS President), and Mark Jones (AJAS  
Counselor) Welcome

Dr. David Johnson, Provost and Senior Vice President for Academic Affairs,  
University of South Alabama, Welcome

Dr. E. O. Wilson, University Professor Emeritus  
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Presentation of Alabama Academy of Science Honors and Awards  
Presentation of Gorgas Finalists

**ALABAMA JUNIOR ACADEMY OF SCIENCE**  
**February 23-24, 2017**  
**Student Center (SC)**  
**Friday, February 24, 2017**

Breakfast on your own; hotel and town locations

7:00 AM	Registration .....	SC Lobby & Concierge Desk
7:30 AM	Paper Reading Orientation .....	SC 211
7:30 AM	AJAS Judges Orientation .....	SC 212
8:00 AM	Paper Competition	
	Life Sciences .....	SC 205
	Physical Science .....	SC 102
	Engineering and Mathematics and Computer Science .....	SC 203
	Environmental Science, Earth Science, and Space Science .....	SC 142
	Medicine and Health, Behavioral, and Social Sciences .....	SC 253
8:00 AM	Prepare for AJAS 2019 (Mentoring for Future Paper Competitions).....	SC 254
11:30 AM	Elections and Business Meeting .....	SC 211
12:00 Noon	Lunch; Box Lunches .....	SC Ballroom
	Lunch Speaker .....	SC Ballroom
	Catherine Zivanov, Goldwater Scholar, Phi Kappa Phi Marcus L. Urann Fellowship, " <i>A Journey through Uncharted Territory</i> "	
1:00 PM	Group Photograph (AJAS/Gorgas).....	SC Gallery
1:15 PM	AJAS Paper Competition Finals .....	Student Center Ballroom
2:55 – 3:15 PM	AJAS Judges meeting: .....	SC 212
3:15 PM	Awards Reception, Joint AJAS/Gorgas .....	Student Center Ballroom

## **GORGAS SCHOLARSHIP COMPETITION**

**February 23-24, 2017**

**Student Center (SC)**

**Thursday, February 23, 2017**

3:00 – 5:00 PM	Registration.....	SC Lobby & Concierge Desk
3:00 – 5:00 PM	Poster Set-up and Orientation .....	SC 2 <sup>nd</sup> Floor Lobby
5:00 PM	AJAS Orientation .....	SC 211
5:30 – 6:45 PM	“Sci Mix” Viewing of AJAS and Gorgas Scholars’ Posters .....	SC 2 <sup>nd</sup> Floor Lobby
7:00 PM	Joint AJAS/AAS Banquet.....	Student Center Ballroom, 2 <sup>nd</sup> floor SC

Akshaya Kumar (AAS President), Lucas Lynn (AJAS President), and Mark Jones (AJAS Counselor) Welcome

Dr. David Johnson, Provost and Senior Vice President for Academic Affairs,  
University of South Alabama, Welcome

Dr. E. O. Wilson, University Professor Emeritus  
Harvard University

Presentation of Alabama Academy of Science Honors and Awards  
Presentation of Gorgas Finalists

## GORGAS SCHOLARSHIP COMPETITION

February 23-24, 2017

Student Center (SC)

Friday, February 24, 2017

Breakfast on your own; hotel and town locations

7:00 AM	Registration.....	SC Lobby & Concierge Desk
7:30 AM	Gorgas Judges Orientation .....	SC 212
7:30 – 8:45 AM	Set Up Science Exhibits/Display/Poster/Orientation.....	SC Ballroom
8:45 – 9:45 AM	Demonstrations for Judges .....	SC Ballroom
10:00 AM – Noon	Individual Interviews with Judges will be conducted at the poster presentation sites.....	SC Ballroom
12:00 Noon	Lunch; Box Lunches .....	SC Ballroom
	Lunch Speaker .....	SC Ballroom

Catherine Zivanov, Goldwater Scholar, Phi Kappa Phi Marcus L. Urann Fellowship, “*A Journey through Uncharted Territory*”

12:00 – 1:00 PM	Gorgas Judges Executive Session.....	SC 212
1:00 PM	Group Photograph (AJAS/Gorgas).....	SC Gallery
1:15 PM	AJAS Paper Competition Finals .....	Student Center Ballroom
2:45 PM	Remove Posters and Displays.....	SC Mall
3:15 PM	Awards Reception, Joint AJAS/Gorgas .....	Student Center Ballroom

The Alabama Science Scholar Talent Search and 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](http://www.GorgasScholar.org), contains detailed information on the annual competition and awards available to winners and finalists.

## SECTION I – BIOLOGICAL SCIENCES

### Paper Session I

Thursday Morning, 8:00 AM

Student Center Terrace

Mary Anne Sahawneh, Presiding

1. 8:00 Ecology of Bald Eagles (*Haliaeetus leucocephalus*) in Alabama. *Andrew Coleman*, Birmingham Audubon Society.
2. 8:20 \*\*g Subtle Temperature Differences May Well Determine Who Wins: A Story of Four Submerged Aquatic Plant Species. *Molly Miller*, University of South Alabama, University of South Alabama; David Nelson, University of South Alabama; James Mahan, 2Plant Stress and Water Conservation Laboratory USDA/ARS; Timothy Sherman, University of South Alabama.
3. 8:40 \*\*g Molecular Cloning of a cDNA Encoding A Sarco/Endoplasmic Reticulum Ca<sup>2+</sup> Atpase (SERCA) From Y-Organs Of The Blue Crab (*Callinectes Sapidus*) And Analysis Of Spatial And Temporal Patterns Of Mrna Abundance. *Megan Roegner*, University of Alabama at Birmingham; H. Y. Chen, Japanese International Research Center for Agricultural Sciences; R. D. Watson, University of Alabama at Birmingham.
4. 9:00 \*\*u Capturing Cavity-Nesting Ants with Artificial Nest Trap Constructed out of Plaster. *Isaac Heinkel*, Glenn Marvin, Paul Davison, University of North Alabama.
5. 9:20 \*\*u Age Specific Patterns in Window Mortality in Avian Populations. *Emma Rhodes*, Joel Borden, John McCreadie, University of South Alabama.
- 9:40 BREAK
6. 10:00 \*\*u Impaired Social Behavior In Mice With Tyrosinemia Type I Is Associated With Increased Myelination Of The Cerebral Cortex. *Marissa Moore*, Gordon MacGregor, University of Alabama in Huntsville.
7. 10:20 Reverse Engineering Worm Muscle Using CRISPR Gene Editing. *Ryan Littlefield*, University of South Alabama.
- 10:40 BUSINESS MEETING  
Elect a Section Vice-Chair for the 2017-19 term.
- 11:00 LUNCH

\*\*u or \*\*g Denotes presentation entered in student competition as an undergraduate or graduate student, respectively.

## SECTION I – BIOLOGICAL SCIENCES

### Paper Session II

Thursday Afternoon, 1:40 PM

Student Center Terrace

Brad Bennett, Presiding

8. 1:40 \*\*g Analysis Of Manatee Periosteal Bone Microchemistry As A Tool To Track West Indian Manatee Migrations In The Northcentral Gulf of Mexico. *Kayla DaCosta*, Ruth Carmichael, Dauphin Island Sea Lab/University of South Alabama; Katie Brill, NOAA Affiliate.
9. 2:00 Citizen-Science Provides Data On Seasonal Occupancy Of West Indian Manatees (*Trichechus Manatus*) In The Northcentral Gulf of Mexico. *Elizabeth Hieb*, Dauphin Island Sea Lab; Ruth H. Carmichael, Dauphin Island Sea Lab, University of South Alabama; Allen Aven, Dauphin Island Sea Lab, University of South Alabama; Courtney Nelson-Seely, Dauphin Island Sea Lab; Nicole Taylor, Dauphin Island Sea Lab.
10. 2:20 How Retrotransposons Have Shaped The Gibbon Genome. *Thomas Meyer*, Lucia Carbone, Oregon Health & Science University.
11. 2:40 \*\*g The Effect of Incubation Temperature on Sex and Morphology in a Lizard. *Ariel Steele*, Auburn University; Daniel Warner, Auburn University .
12. 3:00 Sedimentary Records of Recurrent Phosphate Spills to a Coastal Estuary. *Ruth Carmichael*, University of South Alabama, Dauphin Island Sea Lab; Jacob Hall, Dauphin Island Sea Lab; Elizabeth Hieb, Dauphin Island Sea Lab; Pavel Dimens, Dauphin Island Sea Lab; Elizabeth D. Condon, University of North Carolina at Wilmington; Kimberly Cressman, Grand Bay National Estuarine Research Reserve.
- 3:20 BREAK
13. 3:40 \*\*g Thermal Spikes Caused By The Urban Heat Island Effect Result In Differential Egg Survival Of A Non-Native Lizard (*Anolis cristatellus*). *Joshua Hall*, Daniel Warner, Auburn University.
14. 4:00 \*\*u Geographical Distribution of Animal-Road Mortality Incidents in Mobile County, Alabama: A Preliminary Analysis. *Adam Stern*, Stephanie Jett, University of South Alabama.
15. 4:20 \*\*g Optimizing Body Composition In Laboratory Fed Sea Urchin *Lytechinus Variegatus*. *Yuan Yuan*, Laura Heflin, Mickie Powell, Stephen Watts, University of Alabama at Birmingham.
16. 4:40 Trouble in the Galapagos: Are Black Flies Native Or Invasive. *John McCreadie*, University of South Alabama; C. Brockhouse, Crieghton University; P. H. Adler, Clemson University.

\*\*u or \*\*g Denotes presentation entered in student competition as an undergraduate or graduate student, respectively.



## SECTION I – BIOLOGICAL SCIENCES

### Poster Session

Thursday Morning/Afternoon

2<sup>nd</sup> Floor Lobby SC

Drew Hataway, Presiding

Authors Present: 11:30 AM – 1:30 PM

17. Current Status of ALNHS: The Herbarium of the Alabama Natural Heritage Section. *Wayne Barger*, Chris Taylor, Natural Heritage Section, AL-DCNR.
18. A State Record For The Mygalomorph Spider *Sphodros Abboti* (Araneae: Atypidae) From Baldwin Co., AL, Kristin Bakkegard, Samford University; Jim Egbert, Orange Beach, AL; *W. Mike Howell*, Samford University.
19. BioRubeBot, A Molecular Biology Game, Is Associated With Some Educational Gains In The College Classroom. *Sara Cline*, Adam Lewis, Leigh Hester, Athens State University.
20. \*\*g Spontaneous Rhythmic Spiking At The Tentilla And Tentacular Bulb Of *Mnemiopsis leidyi*. *Gen Dong*, Anthony Moss, Auburn University.
21. \*\*g Developing a 21st Century Skills Inventory. *Jennifer Brantley*, Charles Brown, Laura Powell, University of South Alabama.
22. \*\*g Differential Production and Secretion of Potentially Toxigenic ECPs from an Epidemic Strain of *Aeromonas hydrophila*. *Priscilla Barger*, Joseph Newton, Mark Liles, Auburn University.
23. \*\*g 50 Shades of Morality. *Cassandra Fignar*, University of South Alabama.
24. \*\*u Survey and Phylogenetic Identification of Endophytic Fungi on two Aquatic Plants found in Mobile Bay. *Gray F. Scarbrough*, Joseph M. Cortopassi, Juan L. Mata, University of South Alabama.
25. \*\*u Evidence of Climate Change: Reduction in Sugar Maple Growth. *Brittany Butcher*, University of West Alabama; *Ketia Shumaker*, University of West Alabama; *Carolyn Copenheaver*, Virginia Tech.
26. The Potential Neuroprotective Effect of 24-Epibrassinolide on PC12 Cells. *Mary Anne Sahawneh*, Shannon Gilstrap, Kristian Martinez, Samford University.
27. Green Synthesis of Silver Nanoparticles, Their Characterization, and Assessment of their Antimicrobial Activity against Gram-positive and Gram-negative Bacteria. *Afef Janen*, Florence Okafor, Tatiana Kukhtareva, Alabama A&M University.
28. Testing the Cytotoxicity Effects of the Raw Venom from *Ctenus hibernalis*. *Brad Bennett*, Samford University; *Jonathan Berkuta*, Samford University; *Adam Krahn*, Hope College; *Shannon Gilstrap*, Samford University; *Robert Hataway*, Samford University; *Mary Anne Sahawneh*, Samford University.

29. \*\*g A Study Of Some Kinds Of Vibrio And The Extent Of Resistances To Antibiotics. *Asim Barnawi*, Hussain Majrshi, Mohammed Alahmadi, Brian Burnes, University of West Alabama.
30. \*\*g Using Video Manipulation And Video Playback To Study The Influence Of Color On Communication In Geckos. *Nathan Katlein*, Ylenia Chiari, Maria Byrne, University of South Alabama.
31. \*\*g Factors Directing Feed Intake and Satiety in the Sea Urchin Model, *Lytechinus variegatus*. *Marlee Hayes*, University of Alabama at Birmingham; Ben McCafferty, University of Alabama at Birmingham; Laura Heflin, University of Alabama at Birmingham; John M. Lawrence, University of South Florida; David Raubenheimer, University of Sydney; Stephen A. Watts, University of Alabama at Birmingham.
32. \*\*g Identification and Initial Characterization of Triclosan Degradation Genes in Bacteria Isolated from Alabama Soils. *Trenton O'Neal*, Sinéad M. Ní Chadhainn, University of South Alabama.
33. \*\*g Evolution of the GCH Gene Family In Vertebrates And Its Importance For Xanthophore Differentiation. *Trenton O'Neal*, University of South Alabama; Scott Glaberman, University of South Alabama; Tony Gamble, Marquette University; Ylenia Chiari, University of South Alabama.
34. \*\*g Phylogenetic Relationship Of 13 Species Of Emberizidae (Aves, Passeriformes) Based On Complete Mitochondrial Genome. *Janine Antalffy*, Yong Wang, Fangqing Liu, Longying Wen, Alabama A&M University.
35. \*\*g Evolutionary Biogeography of the White-browed Laughingthrush in China's Sichuan Basin. *Janine Antalffy*, Yong Wang, Longying Wen, Alabama A&M University.
36. \*\*g Interactions Of Nitrogen And Carbon Metabolism In The Submerged Aquatic Plant, *Hydrilla Verticillata*. *Molly Miller*, Nelson, Kelly Major, Timothy Sherman, University of South Alabama.
37. \*\*g The Structure And Organization Of Tentacular Bulb And Tentilla Of Ctenophore *Mnemiopsis Leidyi*. *Dong Gen*, Anthony Moss, Auburn University.
38. \*\*g Assessment of Urbanization in the Range of *Pseudemys alabamensis* (Alabama red-bellied turtle). *Nickolas Moreno*, Scott Glaberman, David Nelson, Ylenia Chiari, University of South Alabama.
39. \*\*g Characterization of Novel Small Non-coding RNAs Expressed by *Salmonella* in Response to Stress. *Mika Houserova*, Aline Crucello, Michael Spector, Glen Borchert, University of South Alabama.
40. \*\*g Genomic Variation Of Breeding Meta-Populations Of Cerulean Warblers (*Setophaga cerulea*). *Richard Borthwick*, Yong Wang, Alabama A&M University.

41. \*\*u Anabolic Glucose Metabolism is Significantly Enhanced in Pancreatic Cancer During the Evolution of Distant Metastasis. *Alex Coley*, University of South Alabama; Oliver McDonald, Vanderbilt University; Glen Borchert, The University of South Alabama.
42. \*\*u C. Elegans Thick Filaments Assemble With A Decapitated Myosin A. *Hallea Ward*, Ryan Littlefield, University of South Alabama.
43. \*\*u Use of Fluorescence Excitation-Scanning Hyperspectral Imaging to Detect Differences in Spectral Patterns Between Normal Colon and Colon Cancer Tissues. *Malvika Lall*, Shante Hill, Paul Rider, Carole Boudreaux, Thomas Rich, Silas Leavesley, University of South Alabama.
44. \*\*u Amino Acid Residue Movement Similarities Between Plant, Invertebrate, And Vertebrate MBD Proteins. *C. Joy Shepard*, Athens State University; Sara Cline, Athens State University; Jeremy Prokop, HudsonAlpha Institute for Biotechnology.
45. \*\*u The Study of E-Coli in Lake Martain. *Artchandra Marks*, Brian Burnes, Univesity of West Alabama.
46. \*\*u The Impact of Soil Compaction and Soil Moisture on Silphid Abundance Along an Urban Rural Gradient. *Hope Reamer*, Samford University; Tori Mezbish, University of Maryland:College Park; Grant Gentry, Samford University.
47. \*\*u Mechanistic Insights On The Role Of Humic Acid On Bladder Cancer Cells. *Hannah Brooks*, Hannah Brooks, University of South Alabama; Jimmie McGehee, Shahrzad Badri, Alexandra Stenson, Padmamalini Thulasiraman, University of South Alabama.
48. \*\*u Genetic Identification of Blood Parasites in Galápagos Marine Iguanas (Amblyrhynchus cristatus). *Shirley Zhang*, Regis Burkhardt,; Ylenia Chiari, Scott Glaberman, University of South Alabama.
49. \*\*u Anabolic Glucose Metabolism is Significantly Enhanced in Pancreatic Cancer During the Evolution of Distant Metastasis. *Alexander Coley*, University of South Alabama; Oliver McDonald, Vanderbilt University; Glen Borchert, University of South Alabama.
50. \*\*u Estimates of Relative Preferred Temperatures in Turtles. *Austin Ray*, University of South Alabama; Ylenia Chiari, University of South Alabama; Scott Glaberman, University of South Alabama; Pierre Moisson, A Cupulatta, Véro, 20133 Ucciani, Corsica, France; Miguel Carretero, CIBIO/Universidade do Porto Campus Agrário de Vairão 4485-661 Vairão, Portugal.
51. \*\*u Antibiotic Resistance of Vibrio vulnificus On the Alabama-Florida State Line. *Sierra Fischer*, University of West Alabama.
52. \*\*u Chicken Processing Plant Contributions To Nutrient Pollution In Graves Creek Were Modified By Rainfall And Seasonal Growth Of Wetland Plants. *Emily Bridge*, Annie Smith, Betsy Dobbins, Samford University.

53. **\*\*u** Antibiotic Discovery In The Saline Gradient Of The Simpson Wild Life Sanctuary Via Understanding The Biological Diversity Of Bacteria, Riley King, *Mara Deluca*, Mustafa Morsy, University of West Alabama.
54. **\*\*u** Crop Production On The Rise As Fungal Endophytes Help With The Cause, *Mantricia Densmore*, Austin Tubbs, Mustafa Morsy, University of West Alabama.
55. Source-tracking *E. coli* in Lake Windermere, England, *Brian Burnes*, University of West Alabama.
56. **\*\*g** Intercellular Signaling by Microparticles Containing Cyclic AMP, *April Scruggs*, Thomas Rich, Natalie Bauer, University of South Alabama.

**\*\*u** or **\*\*g** Denotes presentation entered in student competition as an undergraduate or graduate student, respectively.

## SECTION II – CHEMISTRY

### Paper Session

Thursday Morning

254 SC

Cameron Gren, Presiding

1. 9:00 \*\*u Environmental Remediation of Cadmium, Chromium and Copper using Tea waste. *Micaela Truett*, Nicholas Helms, Nixon Mwebi, Jacksonville State University.
2. 9:20 \*\*u Solvent Effect on the Extraction of Antioxidants. *Wyvolyn Kirkland*, Nixon Mwebi, Jacksonville State University.
- 9:30 BUSINESS MEETING

## SECTION II – CHEMISTRY

### Poster Session

Thursday Morning

2<sup>nd</sup> Floor Lobby, SC

Authors Set-up: Begin at 8:00 AM

Authors Present: Paper Session (9:00 AM)

and Poster Session (10:00 AM – Noon); Viewing and Judging

3. \*\*u Fractionation of Humic Acid Using High Performance Liquid Chromatography. *Jimmie McGehee*, Dominika Houserova, Alexandra Stenson, University of South Alabama .
4. \*\*u Synthesis of Isoquinoline Analogs as Chemical Probes for Serine/Threonine Protein Phosphatase 5. *Madison Tuttle*, Larry Yet, William Swann, David Giddens, LiaCastillo, Richard Honkanen, Mark Swingle, University of South Alabama.
5. \*\*u Synthesis, Structure, and Photoluminescence of Novel Lanthanide Coordination Complexes Containing Auophilic Interactions. *Taylor Hamby*, Richard Sykora, Jeffrey Hendrich, University of South Alabama .
6. \*\*u Novel Protein Substrates for Thin-Layer Chromatography. *Nicholas Helms*, Micaela Truett, Donna Perygin. Jacksonville State University.
7. \*\*u Characterization of Suwannee River Fulvic Acid By Alternative Total Organic Carbon Analysis and Mass Spectrometry. *Shahrazad Badri*, Alexandra Stenson, immie McGehee, University of South Alabama .
8. \*\*u Survey of Active Biomolecules in Fertility Plants. *Amanda Crumpton*, Nixon Mwebi, Jacksonville State University .
9. \*\*u Investigation of Adsorptive Materials for Use in Remediating Crude Oil Spills. *Kenneth Livermore*, Christopher Bates, Ashlee Milam, Alfred Nichols, David Steffy, Jacksonville State University. [from SECTION VIII]

\*\*u or \*\*g Denotes presentation entered in student competition as an undergraduate or graduate student, respectively.

### SECTION III – PHYSICS AND MATHEMATICS

#### Paper Session

Thursday Morning, 8:00 – 12:00 NOON

Meeting Room 203 SC

Zengjun Chen, Presiding

1. 8:00 **Invited Talk:** On Schur's Unitary Triangularization Theorem. *Wen Yan*, Tuskegee University.
2. 8:40 **\*\*u** Creating Diffraction Gratings with Transmission Holography. *James McKee*, David Thompson, University of North Alabama.
3. 9:00 An Inversion Algorithm for Subsurface Sensing Problem. *Yijun Yu*, Tuskegee University; Nailong Guo, Benedict College.
4. 9:20 High Pressure Methane Sorption in MOF-199 and Activated Carbon MSC-30. *Jacob Burress*, Donald Bethea, University of South Alabama.
5. 9:40 A Novel Theoretical Model for Atoms Inspired by Communication Theory. *Serkan Güldal*, Lurong Pan, Murat Tanik, University of Alabama at Birmingham.
- 10:00 BUSINESS MEETING. [Elect a Vice-Chair for 2017-19]
6. 10:20 **\*\*g** XPS Studies of Surface Degradation of CZT Due to Thermal Treatments. *Jonathan Lassiter*, Raequane Jones, Robert Smith II, Beatriz Gutierrez-Cerezo; KalenMumford; Melissa Smith; Stephen Babalola, Alabama A&M University.
7. 10:40 **\*\*g** Effects of CNT/MWCNT on PVDF Optical Characteristics. *Powell Rachel*, Padmaja Guggilla, Alabama A&M University.
8. 11:00 **\*\*g** A Consideration Of the Soliton Solution to the Korteweg-DeVries Equation and the Use of Green's Functions to Solve Inhomogeneous Differential Equations With Variant Boundary Conditions. *Samuel Uba*, Matthew Edwards, Fayequa Majid, Yinshu Wu, Alabama A&M University.
9. 11:20 **\*\*u** Current Voltage Characteristics of CdZnTe-based Radiation Detectors. *Robert Smith*, Alabama A&M University; Melissa Smith, Beatriz Gutierrez-Cerezo, Kalen Mumford, JonathanLassiter, Stephen Babalola, Alabama A&M University.
10. 11:40 **\*\*u** Hamiltonian Structures on Spin(7)-Geometry. *Kevin Ingles*, A. J. Todd, University of South Alabama.

**\*\*u or \*\*g** Denotes presentation entered in student competition as an undergraduate or graduate student, respectively.

### SECTION III – PHYSICS AND MATHEMATICS

#### Poster Session

Thursday Morning

2<sup>nd</sup> Floor Lobby SC

Authors Present: 12:00 PM –2:00 PM

11. A Product Property for Discrete Time Laguerre Functions. *Philip Olivier*, University of South Alabama.
12. \*\*u Use of Electrochemical Impedance Spectroscopy for Diagnostic of Lithium Ion Batteries. *Kumasi Salimu*, Akshaya Kumar, Prakash Sharma, Tuskegee University.
13. Calculating The Dimensions Of The Pear-Shaped Earth's Hemispheres. *Almuatasim Alomari*, Arjun Tan, Marius Schamschula, Alabama A&M University.
14. \*\*g Moderate Temperature Dielectric Surface and Volume Currents and Low-Frequency Dielectric Constant Measurements of Pure and Multi-Walled Carbon Nanotubes (MWCNT) Doped Amorphous Polyvinyl Alcohol Thin Films. *Angela Reedy*, Matthew Edwards, Alabama A&M University; Quratulann Ijaz, Troy University; Padmaja Guggilla, Afef Janen, Alabama A&M University.
15. \*\*u Infrared Microscopy and Image Analysis of CZT. *Melissa Smith*, Beatriz Gutierrez-Cerezo, ; Kalen Mumford; Robert Smith II; Kristina Williams; Jonathan Lassiter; Stephen Babalola, Alabama A&M University.
16. \*\*u Optimization of Photocatalytic Air Disinfection. *Salimu Kumasi*, Prakash Sharma, Tuskegee University.
17. \*\*u Nanomaterials Driven Energy. *Salimu Kumasi*, Prakash Sharma,; Akshaya Kumar, Tuskegee University.
18. \*\*u Oxidation Enhancement by Utilizing the Solar Energy. *Salimu Kumasi*, Prakash Sharma, Akshaya Kumar, Tuskegee University.
19. \*\*g Energy Harvesting and Storage Using Smart Nanocomposite Films, *Jamilia Polius*, Mohan Aggarwal, Alabama A&M University.

\*\*u or \*\*g Denotes presentation entered in student competition as an undergraduate or graduate student, respectively.

## SECTION IV- ENGINEERING AND COMPUTER SCIENCE

### Paper Session

211 SC

Thursday Afternoon, 1:00 PM

Brian Toone, Presiding

1. 1:00 \*\*g Vehicle detection using convolutional neural networks for semantic segmentation and multitask learning on a limited dataset of multispectral satellite images. *David Odaibo*, Zheng Zhang, Murat Tanik, University of Alabama at Birmingham.
2. 1:20 \*\*u A Simple Reliability Model for a Human Mission to Mars Using Monte Carlo Analysis. *Gayle Hagewood*, J. Wayne McCain, Athens State University.
3. 1:40 \*\*u A Brief Risk Assessment of Amelia Earhart's Attempted Flight Around the World. *Kevin P. Keenan*, J. Wayne McCain, Athens State University.
- 2:00 BUSINESS MEETING [Elect Section Chair and Vice-Chair, 2017-2019 term]

### POSTER SESSION

Thursday Afternoon

2<sup>nd</sup> Floor Lobby, SC

Authors Present: 2:00 PM – 4:00 PM, Viewing and Judging

Brian Toone, Presiding

4. \*\*g Field Emission Characteristics of Selective and Non-Selective Carbon Nanotubes (CNTs) Grown on Ceramic Substrate for High Temperature Applications. *Baha Yakupoglu*, Auburn University; Hulya Kirkici, University of South Alabama.
5. \*\*u Micro-prism Based Multi-/Hyper-spectral Imaging System. *Dallas Guffey*, Ravi Gollapalli, University of South Alabama.
6. \*\*g Graphene Based Spectral Amplification for Increased Sensitivity in Glucose Content Measurement in Diabetes Patients. *Anthony Portella*, University of South Alabama .
7. \*\*u Optimizing System Design Using SystemC and VHDL. *Tristen Higginbotham*, University of South Alabama .
8. \*\*u Optimizing Speed and Sensitivity of an LED-based Hyperspectral Imaging System. *Phiwat Klomkaew*, Sam Mayes, Thomas Rich, Silas Leavesley, University of South Alabama. .
9. \*\*u Predicting Soil Moisture In North Alabama Using An Artificial Neural Network. *Darius Keith*, Alabama A&M University, Calhoun Community College. [from SECTION VIII]
10. \*\*u Numerical Modeling of Human Thigh for Improved Tourniquet Design. *Luke Smith*, University of South Alabama.

\*\*u or \*\*g Denotes presentation entered in student competition as an undergraduate or graduate student, respectively.



**SECTION V – SOCIAL SCIENCE**  
**Paper Session**  
**Thursday Morning 9:30 – 12:00 Noon**  
**212 SC**  
**Susan D. Herring, Presiding**

1. 9:30 Paramedic Ethics v. Orders: A Case Study. *Michael Essary*, R. Bryan Kennedy, Susan D. Herring, Athens State University.
2. 10:00 Place and Identity in the 2016 Taiwanese Presidential Election. *Daniel McGowin*, Jacksonville State University.
3. 10:25 \*\*u Soccernomics: Salaries for World Cup Soccer Athletes. *Morgan Garris*, Bill Wilkes, Athens State University.
4. 10:50 The Unruly Advocate. *Thomas Pieplow*, R. Bryan Kennedy, Susan D. Herring, Athens State University.
5. 11:15 Foreign Military Sales Logistics Support. *Charles Roberts*, Susan D. Herring, R. Bryan Kennedy, Athens State University.
- 11:40 BUSINESS MEETING

**SECTION V – SOCIAL SCIENCE**  
**Poster Session**  
**Thursday Afternoon**  
**2<sup>nd</sup> Floor SC**  
**Authors Present: 1:00-3:00 PM Viewing and Judging**

6. Perceptions of the Use of Differentiated Instruction. *Dana Wilchcombe*, Alabama A&M University, Oakwood University .
7. Retrospective Evaluation of a Teacher’s Training Program. *Yanling Ma*, Yuantao Sun, Auburn University.
8. Validation of an Anti-White Prejudice Scale in a Rural Area. *Kelly Pivik*, Clinton Williams, Hakima Amerg, Alexis Harris, Victoria Harris, Jarius Rembert, University of West Alabama.
9. Troy Community Opinions Project: An Exercise in Applied Sociology. *Christopher Bradley*, Taylor Nowlin, Selena McEwen, Troy University .
10. Racial and Gender Disparities in Lending Practices in Alabama. *Ashi Agbogun*, Ntam Baharanyi, Yanling Ma, Nii Tackie, Robert Zabawa, Tuskegee University.
11. \*\*u Racial Perceptions of Car Locking Behaviors. *Mary Rivers*, Kelly Pivik, LaMia Hernandez, University of West Alabama. .

12. \*\*g The Relation Between the Mental Clutter Scale and Self-Reported Executive Dysfunction. *Sarah Taylor*, Stephen Aita, Benjamin Hill, Jameson Beach, Jo Holcombe, University of South Alabama.
13. \*\*g Inconsistency in Responding is Associated with Greater Self-Reported Executive Dysfunction. *Jameson Beach*, Stephen Aita, Benjamin Hill, Sarah Taylor, Jo Holcombe, University of South Alabama.
14. \*\*g Need for Cognition and its Relation to Self-Reported Executive Dysfunction. *Stephen Aita*, Benjamin Hill, Sarah Taylor, Jameson Beach, Jo Holcombe, University of South Alabama.
15. \*\*u Understanding the Psychosocial Factors that Influence Undergraduate Student Retention at Tuskegee University. *Jaleah Rutledge*, Adetoyosi Obikoya, Tuskegee University .
16. \*\*u A Preliminary Investigation of the Impact of Urbanization on Animal Assemblages in Mobile County. *Lauren Wheat*, Ashley Tatham, Adam Stern, Takia Smith, Stephanie Jett, University of South Alabama.
17. \*\*u Dog Days: University Animal Programs and Students' Mental Health. *Trenton Adams*, Catherine Clark, Victoria Crowell, Kolleen Duffy, Margaret Green, Selena McEwen, Allison Wrape, Frank Hammonds, Troy University.

**\*\*u or \*\*g** Denotes presentation entered in student competition as an undergraduate or graduate student, respectively.

**SECTION VI – ANTHROPOLOGY**  
**Paper Session I**  
**Thursday Morning, 9:00 AM -- Noon**  
**142 SC**  
**Harry O. Holstein Presiding**

- 9:00 Introduction -- Harry Holstein
1. 9:10 Current Cultural Resources Research USACE Mobile District. *Matthew Grunewald*, USACE Mobile District; Michael Fedoroff, USACE Mobile District; Alexandria Smith, USACE Mobile District.
  2. 9:30 \*\*uOldowan Stone Tools and Hominin Cognition: What Can Stone Age Technology Tell Us About Contemporary Learning?. *Brittney Highland*, University of South Alabama; Philip Carr, University of South Alabama.
  3. 9:50 \*\*uThe Potential for Archaeology at Antebellum Slave Houses in Alabama's Black Belt. *Natalie Mooney*, University of West Alabama .

**BREAK 20 Minutes**

4. 10:30 Citizen Science Water Quality Monitoring in Northeast Alabama. *Stephen Tsikalas*, Jacksonville State University.
  5. 10:50 \*\*uUtilizing GIS to gain a better understanding of Native features in Northeast Alabama: Morton Hill, Calhoun Co., Ala. (site-1CA671). *Jacob Bramlett*, Jacksonville State University; Mark Jones, Jacksonville State University; Harry Holstein, Jacksonville State University; Joe Morgan, Jacksonville State University.
  6. 11:10 Archaeological Investigations of Native American Stone Structure Prayer Seats Located Atop Choccolocco Mountain, Calhoun County, Alabama. *Harry Holstein*, Jacksonville State University.
  7. 11:20 \*\*u Tracking Industrial Metals and Contamination in the Chattahoochee River: Potential Point and Non-Point Source Pollution to the Apalachicola Blueway. *Emily Powell*, Joe Morgan, Jacksonville State University . [from Section VIII]
- 11:40 LUNCH / USA Museum Visit 1.5 hours

\*\*u or \*\*g denotes a paper or poster that entered in the student paper/poster competition.

**SECTION VI – ANTHROPOLOGY**  
**Paper Session II**  
**Thursday Afternoon, 1:00 PM –3:00 PM**  
**142 SC**  
**Harry O. Holstein Presiding**

- 7. 1:00 The Thrash Site: An Introduction to a Gulf Formational site in Pike County, Alabama. *Jason Mann*, Troy University.
- 8. 1:20 \*\*uSteatite Fragments at the Thrash Site. *Ray Jefcoat*, Troy University.
- 9. 1:40 \*\*uGulf Formational Lithic Tools Found at the Thrash Site. *Rachel Daly*, Troy University.
- 10. 2:00 \*\*uPottery at the Thrash Site. *Elizabeth Garrett*, Troy University.
- 11. 2:20 \*\*uAn Investigation Of A Wall Trench Structure At The Thrash Site. *Jessica Helms*, Troy University.
- 12. 2:40 \*\*uThe Benefits of Practicing Maritime Archaeology within Alabama. *Robert Elmore*, Troy University.
- 3:00 CLOSING REMARKS – Harry Holstein

**SECTION VI – ANTHROPOLOGY**  
**Poster Session**  
**Thursday Afternoon, 3:00 – 4:00 PM**  
**2<sup>nd</sup> Floor Lobby SC**  
**Harry O. Holstein Presiding**  
**Authors Present 3:00 – 4:00 PM for Viewing and Judging**

- 13. \*\*u The Organization of Early Archaic Technology in Southwest Alabama: An Aggregate Analysis of 1WN106. *James Norris*, University of South Alabama; *Philip Carr*, University of South Alabama. .
- 14. \*\*u El Niño Southern Oscillation and Tornado Frequency in Alabama. *Tiffany DeBoer*, Jacksonville State University; *Stephen Tsikalas*, Jacksonville State University.

\*\*u or \*\*g Denotes presentation entered in student competition as an undergraduate or graduate student, respectively.

## SECTION VII: STEM EDUCATION

### Paper Session

Thursday Afternoon 1:15 – 3:30 PM

205 SC

Mel Blake Presiding

1. 1:15 BUSINESS MEETING. [Elect Section Chair and Vice-Chair, 2017-19]
2. 1:40 STEM Outreach Opportunities for the August 2017 Total Solar Eclipse. *Mel Blake*, University of North Alabama.
3. 2:00 Combining an Authentic Research Experience with Discussion of the Primary Literature in an Undergraduate Microbiology Course. *Sinead Ni Chadhain*, University of South Alabama.
4. 2:20 \*\*g Microbial Art: An Emerging Scientific Inquiry Model. *Sarah Adkins*, Rachel Rock, J. Jeffrey Morris, University of Alabama at Birmingham.
5. 2:40 A Relationship Between Hamming Distance and 8-Queens Problem: A STEM Exercise. *Serkan Guldal*, Zekai Demirezen, Michael Limpscomb, Murat Tanik, University of Alabama at Birmingham.
6. 3:00 **Invited Talk:** Outreach at Dauphin Island Sea Lab. Dr. Tina Miller-Way, Director, Discovery Hall Programs, Dauphin Island Sea Lab.

## SECTION VII: STEM EDUCATION

### Poster Session

Thursday Afternoon

2<sup>nd</sup> Floor Lobby SC

Authors Present. 3:30 – 4:30 PM, Viewing and Judging

Mel Blake Presiding

7. \*\*g Integrating Research-Based Teaching in Secondary and Undergraduate Science Courses. *Nikki Patel*, Faulkner University; Uduak Afangideh, Faulkner University.
8. \*\*g Courseware Engagement in STEM and non-STEM Disciplines. *Robert Faulk*, Laura Powell, Charles Brown, University of South Alabama.
9. \*\*u Effectiveness of Study Habits in Undergraduate Introductory Biology. *Heather Sprowl*, Heather Tinsley, University of Montevallo.
10. Training The Next Generation: An Analysis And Comparison Of Curricula In Instrumental Music Education. *Destin Hinkel*, University of South Alabama.

\*\*u or \*\*g denotes a paper or poster that entered in the student paper/poster competition.

**SECTION VIII – ENVIRONMENTAL AND EARTH SCIENCE**

**Paper Session**

**Concurrent with ANTHROPOLOGY, SECTION VI**

**Thursday, 11:30 AM**

**142 SC**

1. **\*\*u** Tracking Industrial Metals and Contamination in the Chattahoochee River: Potential Point and Non-Point Source Pollution to the Apalachicola Blueway. *Emily Powell*, Joe Morgan, Emily Powell, Jacksonville State University . [See ANHROPOLOGY, SECTION VI]

**SECTION VIII –ENVIRONMENTAL AND EARTH SCIENCE**

**Poster Session**

**Thursday Morning 9:00 – 10:00 AM**

**2<sup>nd</sup> Floor Lobby, SC**

**Authors Present: See below; Judging and Viewing**

2. **\*\*u** Predicting Soil Moisture In North Alabama Using An Artificial Neural Network. *Darius Keith*, Alabama A&M University, Calhoun Community College; Huntsville Huntsville, Huntsville . [See ENGINEERING AND COMPUTER SCIENCE, SECTION III Poster Session, 2:00 PM – 4:00 PM]
3. **\*\*u** Investigation of Adsorptive Materials for Use in Remediating Crude Oil Spills. *Kenneth Livermore*, Jacksonville State University; Christopher Bates, Jacksonville State University; Ashlee Milam, jacksonville State University; Alfred Nichols, Jacksonville State University; DavidSteffy, Jacksonville State University. [See CHEMISTRY, SECTION II Poster Session, 10:00 AM - Noon]

**\*\*u or \*\*g** Denotes presentation entered in student competition as an undergraduate or graduate student, respectively.

**SECTION IX: HEALTH SCIENCES**

**Paper Session**

**Thursday Morning**

**253 SC**

**Donna Cleveland, Presiding**

1. 8:00 Computed Tomography Contrast Injections. *Donna Cleveland*, University of South Alabama .
2. 8:20 Major Disease Mortality Rates in Alabama Watersheds. *Ronald Hunsinger*, Suzanne Oberholster, Samford University.
3. 8:40 School-based Interprofessional Asthma Self-Management Program for Middle School Students: A Feasibility Trial. *Donna Copeland*, University of South Alabama; Ellen Buckner, Samford University; Tim Op't Holt, Kristina Miller, Kim Norris, Rhonda Lucas, University of South Alabama.
4. 9:00 \*\*uh Homelessness: Attitudes of Nursing Students. *Meghan Sergeant*, University of South Alabama.
5. 9:20 \*\*uh Self-Efficacy and Self-Management of Children Transitioning to Insulin Pumps. *Anesha Lee*, University of South Alabama .
6. 9:40 \*\*uh The Transition: Disease Knowledge and Transition Readiness. *Johnson Ebony*, University of South Alabama.
7. 10:00 Ileal Interposition Surgery Cannot Prevent the Onset of Type 2 Diabetes in Rats. *Ping Zhao*, University of North Alabama; April Strader, Southern Illinois University Carbondale.

10:20 BREAK and JUDGES MEETING

\*\*u, \*\*uh or \*\*g Denotes presentation is entered in competition as undergraduate, undergraduate honors or graduate student, respectively

**SECTION IX: HEALTH SCIENCES**

**Poster Session**

**Thursday Afternoon**

**2<sup>nd</sup> Floor Lobby, SC**

**Authors Present: 1:00 pm-3:00 pm for Viewing and Judging**

8. Establishing the Relationship Between Mild Kyphosis and Self-Efficacy in College Students. *John Shelley-Tremblay*, Omar Mulla, Coral Gubler, Larry Gurchiek, Sarah Schrenk. University of South Alabama .
9. \*\*u Characterization of Extracellular RNA in the Lung. *Rajendra Ravi*, Valeria King, Mark Gillespie, Glen Borchert, University of South Alabama.
10. \*\*u Fusion Imaging in Endomyocardial Biopsy. *Jason Oman*, Hanna Johnson, University of South Alabama .
11. \*\*u Speech Recognition Errors: Implications for Aging. *Rachael Short*, Kimberly Smith, University of South Alabama.
12. The Impact of Community Health Workers on Promoting Healthy Lifestyle Behaviors. *Justin Alexander*, Jennifer Prater, Latrice Lewis, Don Bogie, Cynthia Bisbee, Jerry Ingram, The Montgomery Area Wellness Coalition.

2:30 pm JUDGES MEETNG 253 SC

\*\*u, \*\*uh or \*\*g Denotes presentation is entered in competition as undergraduate, undergraduate honors or graduate student, respectively.



## SECTION X. BIOETHICS AND HISTORY & PHILOSOPHY OF SCIENCE

### Paper Session

Thursday Afternoon

102 SC

Clark Lundell, Presiding

1. 1:40 Periodic Table of Design: Elements and Principles. *Brian LaHaie*, University of Georgia; *Clark Lundell*, Auburn University.
  2. 2:00 Creation. *Clark Lundell*, Auburn University.
  3. 2:20 Changing the Definitions for the Kilogram and the Chemical Mole. *Michael Moeller*, University of North Alabama.
  4. 2:40 Biotechnology and Humankind's Need for Long-Range Goals. *James T. Bradley*, Auburn University.
  5. 3:00 Keeping Playing Fields Level: Drugs, Cheaters, and Other Ethical Issues in Sports, *Lewis Barker*, Auburn University.
  6. 3:20 Peter Rabbit Meets the Deadly Myxomatosis Virus which Hints at the Red Queen Hypothesis. *Kenneth Nusbaum*, Auburn University; Ormond Beach.
- 3:40 BUSINESS MEETING [Elect a Section Vice-Chair for 2017-19 term]

## ALABAMA JUNIOR ACADEMY OF SCIENCE

Mark Jones, State Director

Posters at Sci-Mix Session

Thursday Evening, 6:00 PM – 7:00

PM SC 2<sup>nd</sup> Floor Lobby

### Engineering/Mathematics

1. \*Rupa Palanki, Hydrogen Generation in an Ammonia Decomposition Microreactor for Portable Power Applications, *W.P. Davidson High School, Mobile*.
2. \*Summer Vo, The Robustness of Voice Biometrics Systems and Algorithms against Attacks, *Alabama School of Fine Arts, Birmingham*.
3. Lucas Lynn, Shear Radial Strength: Using Web Geometry to Create a Better Body Armor, *Wetumpka High School, Wetumpka*.
4. Rahul Lall, Battery System Optimization and Development of a Novel Rapid-Response Bioelectronics Device, *Auburn High School, Auburn*.
5. Zykeria Agge Measuring Noise Pollution and Designing an Architectural Damper, *Auburn Junior High School, Auburn*.
6. Scotty Dennis, Design of an Efficient and Cost-effective Rover for the Pollination of Cash Crops, *Wetumpka High School, Wetumpka*.

### Environmental Earth and Space Science

7. \*Tomeka Frieson, The Effect of Burned Soil on *Lolium perenne* and Soil Properties, *Jefferson County IB, Irondale*.
8. \*Margaret Knight, Impact of Ocean Acidification on Relative Fitness and Interspecies Interactions of Picophytoplankton, *Alabama School of Fine Arts, Birmingham*.
9. Janna Oh, Nanotechnology-applied Biodegradable Packaging, *Auburn High School, Auburn*.
10. Noel Lange, Development and Testing of a Non-Woven Cotton Filter Capable of Reducing Sulfur Dioxide in Indoor Air, *Auburn Junior High School, Auburn*.
11. Rachael Brooks, The Effect of Proximity to Human Activity on the Water Quality in Rivers like the Cahaba, *Jefferson County IB, Irondale*.
12. Samantha Harris, Assessing benthic parameters as potential vectors of *Batrachochytrium dendrobatidis* in Alabama Ephemeral Pools, *Jefferson County IB, Irondale*.

### Life Science

13. Alexis Jones, Assessment of Macro and Micro-Nutrients of a Recycled Supplement for Canines, *Auburn High School, Auburn*.
14. Viraj Kacker, Effect of Various Liquids on the Growth of Plants, *Jefferson County IB, Irondale*.
15. Clayton Hutsler, Filtering Turbidity of Silt Out of Water, *Wetumpka High School,*

Wetumpka.

16. *Nikitha Sridhar*, Brain's Processing of Novelty Information: Effects of Working Memory Resources, *Auburn Junior High School*, Auburn.

### **Medicine Health Behavioral and Social Science**

17. \**Tyler Huang*, Central Nervous System Sensitization is Associated with Chronic Pain in HIV, *Alabama School of Fine Arts, Birmingham*.
18. \**Hermant Srivastava*, ABT263 (Navitoclax) and the IPF-Treatment Drugs for a Healthier Aging, *Alabama School of Fine Arts, Birmingham*.
19. \**Leila Yang*, Can Norcantharidin Derivatives Substituted not at C5 but at C2 be Developed as Selective, Yet Potent Inhibitors of PP5 which can be Utilized as Breast Cancer Drugs? *W.P. Davidson High School, Mobile*.
20. *Sarathi Shah*, The Effect of Phosphoric, Sulfuric, and Hydrochloric Acid on the formation of Acetylsalicylic Acid as a Precursor to Aspirin, *Jefferson County IB, Irondale*.
21. *Rohan Badve*, The Misleading Nature of SPF Calculations, *W.P. Davidson High School, Mobile*.
22. *Madeleine Forbes*, A Diabetics Guide: A Method for Determining Total Sugar Content, *W.P. Davidson High School, Mobile*.
23. *Nandita Dey*, The Effect of Bitter Melon (*Momordica charantia*) on Melanoma Cells in Vitro, *W.P. Davidson High School, Mobile*.
24. *Sherii Riggs*, Food for the Future: A Study of Insects as a Protein Source, *Wetumpka High School, Wetumpka*.
25. *Avinash Anshumali*, Theorem and Disulfiram, *W.P. Davidson High School, Mobile*.

### **Physical Science**

26. \**Noel Dudeck*, Examining the Polymorphs of Single Crystal Paracetamol under High Pressure, *Alabama School of Fine Arts, Birmingham*.
27. \**Davina Ho*, The Effects of Catalysts in the Depolymerizations of Chitin Using Ionic Liquid, *Murphy High School, Mobile*.
28. \**Varsha Sridhar*, Generalization of the Marcus Model for in vivo Electron Transfer, *Jefferson County IB, Irondale*.
29. *Aniket Pant*, Effect of the Material used on the Amount of Sound Absorbed, *Jefferson County IB, Irondale*.
30. *Larissa Duke*, The Egg-cellent Way to Whiten Teeth, *Wetumpka High School, Wetumpka*.
31. *Hunter Wingard*, We Put the TT in Lettuce! Got Pee? *Wetumpka High School, Wetumpka*.

\* Denotes AJAS student who is also entered in the Gorgas Scholarship Competition.

## GORGAS SCHOLARSHIP COMPETITION

**Sci-Mix Session**  
**Thursday Evening, 6:00 PM – 7:00 PM**  
**SC 2<sup>nd</sup> Floor Lobby**

**Ellen Buckner, Presiding**

Finalists in the 2017 Alabama Science Scholar Search and Gorgas Scholarship Program will discuss their projects.

1. *Skandan Ananthasekar*, Bacterial Profile of Various Illnesses in Order to Determine Distinct Bacterium, St. Paul's Episcopal School, Mobile
2. *Noel Dudeck*, Examining the Polymorphs of Single Crystal Paracetamol under High Pressure, Alabama School of Fine Arts, Birmingham
3. *Tomeka Frieson*, The Effect of Burned Soil on *Lolium perenne* and Soil Properties, Jefferson County International Baccalaureate School, Birmingham
4. *Davina Ho*, The effects of Catalysts in the Depolymerizations of Chitin using ionic liquid, Murphy High School, Mobile
5. *Tyler Huang*, Central Nervous System Sensitization is Associated with Chronic Pain in HIV\, Alabama School of Fine Arts, Birmingham
6. *Ethan Kinnaird*, Is CRISPR/cas9 a Viable Genome Editing Tool to be Used for Clinical Genetic Treatments?, Jefferson County International Baccalaureate School, Birmingham
7. *Margaret Knight*, Impact of Ocean Acidification on Relative Fitness and Interspecies Interactions of Picophytoplankton, Alabama School of Fine Arts, Birmingham
8. *Rupa Palanki*, Analysis of Glycerol Reactor to Produce Hydrogen for Fuel Cell Applications, W.P. Davidson High School, Mobile
9. *\*Varsha Sridhar*, The Determination and Applications of Potential Carcinogens, Bisphenol A (BPA) and Bisphenol S (BPS), Jefferson County International Baccalaureate School, Birmingham
10. *Hemant Srivastava*, ABT263 (Navitoclax) and the IPF-Treatment Drugs for a Healthier Aging, Alabama School of Fine Arts, Birmingham
11. *Summer Vo*, The Robustness of Currently Deployed Voice Authentication Systems, Alabama School of Fine Arts, Birmingham
12. *Leila Yang*, Can norcantharidin derivatives substituted not at C5 but at C2 be developed as selective, yet potent inhibitors of PP5 which can be utilized as breast cancer drugs?, W.P. Davidson High School, Mobile

*\*Intel National Science Talent Search Semi-Finalist*

## **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.

## 2017 REGIONAL SCIENCE FAIRS

1. **Central Alabama Regional Science & Engineering Fair**, [web](#), March 4, 2017  
Kevin Jarrett, coordinator  
The University of Alabama at Birmingham  
Community Outreach, 5th Fl., CHSB 19  
933 19th Street South  
Birmingham, AL 35294-2041
2. **West Alabama Regional Science Fair**, [web](#), March 3, 2017.  
Roger Campbell, Ph.D. [rcampbell@uwa.edu](mailto:rcampbell@uwa.edu)  
Chairperson, Department of Physical Sciences  
The University of West Alabama  
Station 23  
Livingston, AL 35470  
(205) 652-3873
3. **North Alabama Regional Science and Engineering Fair**, [web](#), March 22-23,  
2017 Jacob Kerstiens, coordinator  
[jacob.kerstiens@uah.edu](mailto:jacob.kerstiens@uah.edu)  
The University of Alabama in Huntsville  
College of Engineering  
Huntsville, AL 35899
4. **Greater Eastern Alabama Regional Science and Engineering Fair**, [web](#), March 9,  
2017  
Josh King  
GEARSEF Fair Coordinator  
(334) 844-8123  
[josh.king@auburn.edu](mailto:josh.king@auburn.edu)
5. **Mobile Regional Science and Engineering Fair**, [web](#), March 10, 2017  
[Engineering@southalabama.edu](mailto:Engineering@southalabama.edu)  
David T. Allison, Ph.D.  
Department of Earth Sciences  
136 LSCB, 307 N. University Blvd.  
University of South Alabama  
Mobile, AL 36688
6. **Alabama Science & Engineering Fair**, [web](#),  
Vanessa Colebaugh, coordinator  
[vanessa@nsstc.uah.edu](mailto:vanessa@nsstc.uah.edu)  
The University of Alabama in Huntsville  
Earth System Science Center, CRH 3078  
Huntsville, AL 35899

## 2017 INTERNATIONAL SCIENCE AND ENGINEERING FAIR

An activity of Intel Science Service, 1719 N Street, NW, Washington, DC 20036, (202) 785-2255, FAX (202) 785-1243. <https://student.societyforscience.org/intel-isef>.

The Intel 2017 ISEF will be held May 14-19, 2017 in Los Angeles, CA at the [Los Angeles Convention Center](#).

Virginia Vilardi, Intel/ISEF and State Coordinator, 1251 Coosa River Parkway, Wetumpka H.S., 36092, (334) 799-0104, [Virginia.vilardi@elmore.k12.al.us](mailto:Virginia.vilardi@elmore.k12.al.us).



## ALABAMA SCIENCE OLYMPIAD 2016-2017

The Alabama Science Olympiad site is at <http://www.alabamaso.org/>. Individuals can visit the [Tournaments](#) page for details. The following is the listing of tournaments with hot links to the various sites:

**Division A2, Elementary Science Olympiad, Grades 3-6 Elementary Science Olympiad at Jacksonville High School** Saturday, February 18, 2017

Details at the <http://www.esoatjhs.org/> web site. Maximum of one team per school.

**ESO at the University of West Alabama**

Tuesday, October 18, 2016

**ESO at Auburn University** Saturday, February 4, 2017. Details at the <http://www.auburn.edu/cosam/departments/outreach/programs/Science%20Olympiad/> web site.

**Division B, Middle School Science Olympiad, Grades 6-9 University of Alabama, Tuscaloosa**

Saturday, February 18, 2017

Link to additional information <http://scienceolympiad.as.ua.edu/>.

**University of Alabama at Huntsville**

Saturday, March 4, 2017

Link to additional information <http://nsstc.uah.edu/scienceolympiad/>.

**University of Alabama at Birmingham**

Saturday, February 18, 2017

Link to additional information [UAB Regional Information](#).

**Division C, High School, Grades 9-12**

**University of Alabama, Tuscaloosa**

Saturday, February 18, 2017

Link to additional information <http://scienceolympiad.as.ua.edu/>.

**University of Alabama at Huntsville**

Saturday, March 4, 2017

Link to additional information <http://nsstc.uah.edu/scienceolympiad/>.

**University of Alabama at Birmingham**

Saturday, February 18, 2017

Link to additional [UAB Regional Information](#).



## **State Tournaments**

### **Auburn University**

Division B and C State Olympiads

Saturday, April 1, 2017

<http://www.auburn.edu/cosam/departments/outreach/programs/Science%20Olympiad/>

## **ASO State Policies can be found at:**

- [Registration Information: http://www.alabamaso.org/registration.html.](http://www.alabamaso.org/registration.html)
- [Registration Form \(PDF\): http://www.alabamaso.org/asoreg15.pdf.](http://www.alabamaso.org/asoreg15.pdf)
- [Coaches Handbook and Policies: http://www.alabamaso.org/handbook.html.](http://www.alabamaso.org/handbook.html)
- [Division Descriptions: http://www.alabamaso.org/divisions.html.](http://www.alabamaso.org/divisions.html)
- [ASO News and Notes: http://www.alabamaso.org/index.html.](http://www.alabamaso.org/index.html)

## **National Science Olympiad Tournament**

The Science Olympiad National Tournament for Divisions B and C will be hosted by the Wright State University in Dayton, OH on May 19-20, 2017. Visit <https://www.wright.edu/event/science-olympiad-2017> for more information.

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

Alabama Science Olympiad web page: <http://alabamaso.org/>.

National Science Olympiad web page: <http://soinc.org/about>.

## 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 may be made online on the Alabama Academy of Science website. Michael B. Moeller serves as Chair of the Mason Science Teacher Fellowship Committee, [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 these individuals for study at the indicated institutions:

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, UA
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
2006 - 2007	Kelly Harbin, UAB
2007 - 2008	Michael Hallman, UA
2008 - 2009	Sherri Sanders Grosso, UNA
2009 - 2010	Not Awarded
2010 - 2011	Danielle Brooke Morlan, UWA
2011 - 2012	Cory Goble, University of Montevallo
2012 - 2013	Amber Foster, UA
2013 - 2014	Amy Bolding
2014 - 2015	Arpan Bosmia, UAB
2015 - 2016	Lacey McEwen, Samford
2016 - 2017	Tyler Rice, Auburn

## WRIGHT A. GARDNER AWARDEES

Recipients are selected for their 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 in 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, Biology, 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.
- 2006 Dan Holliman, Professor Emeritus, Birmingham Southern College
- 2007 No award
- 2008 No award
- 2009 No award
- 2010 No award
- 2011 J. Michael Wyss, Director of CORD, University of Alabama at Birmingham
- 2012 No award
- 2013 David B. Allison, Associate Dean for Science, School of Public Health, UAB, Birmingham.  
Ram Gupta, Chemical Engineering, Auburn University.
- 2014 Arnold Luterman, Ripps-Meisler Professor of Surgery, University of South Alabama
- 2015 Shaik Jeelani, Chair, Department of Materials Science & Engineering; Tuskegee University
- 2016 Pradeep Lall, John and Anne MacFarlane Endowed Professor, Department of Mechanical Engineering, Director, NSF-CAVE3 Electronic Research Center, Auburn University.

## FELLOWS OF THE ALABAMA ACADEMY OF SCIENCE

- 2007 Ellen Buckner (University of Alabama at Birmingham), Leven Hazlegrove (Samford University), Richard Hudiburg (University of North Alabama), Larry Krannich (University of Alabama at Birmingham), Eugene Omasta (Troy University), Prakash Sharma (Tuskegee University).
- 2008 Ram B. Gupta (Auburn University), Harry O. Holstein (Jacksonville State University), Adriane G. Ludwick (Tuskegee University), Ken Marion (University of Alabama at Birmingham), Michael B. Moeller (University of North Alabama)
- 2009 Stephen A. Watts (University of Alabama at Birmingham) and Jane Nall (State Director, Science Olympiad Program)
- 2010 George Cline (Jacksonville State University), David H. Nelson (University of South Alabama), and Virginia Vilaridi (State Coordinator, Science Fairs, Wetumpka High School)
- 2011 James T. Bradley (Auburn University), Anne Cusic (University of Alabama at Birmingham), James B. McClintock (University of Alabama at Birmingham)
- 2012 Benjamin J. Bateman (Troy University) and Edward E. Thomas (Auburn University)
- 2013 Safaa H. Al-Hamdani (Jacksonville State University) and Catherine D. Shields (Jefferson County International Baccalaureate School)
- 2014 Brian Burnes (University of West Alabama), Ronald N. Hunsinger (Samford University), and Pradeep Lall (Auburn University)
- 2015 Mickie Powell (University of Alabama at Birmingham) and David Brian Thompson (University of North Alabama)
- 2016 No award

## SECTION OFFICERS, 2016-2017

### Section I: Biological Sciences:

- Chair: (2017) Drew Hataway, Dept. of Biology, Samford University, Birmingham, AL 35229, (205)-726-4190, [rahatawa@samford.edu](mailto:rahatawa@samford.edu)
- Vice Chair: (2017) Gordon MacGregor, Department of Biology, University of Alabama in Huntsville, Huntsville, AL 35899, (256)-824-4925, [gm0009@uah.edu](mailto:gm0009@uah.edu)

### Section II: Chemistry:

- Chair: (2018) Cameron Gren, Dept. of Chemistry and Industrial Hygiene, Univ. of North Alabama, Florence, AL 35632, (256)-765-5027, [cgren@una.edu](mailto:cgren@una.edu).
- Vice Chair: (2018) Christopher Stopera, Dept. of Chemistry, Univ. of North Alabama, Florence, AL 35632, (256)-765-4479, [cstopera@una.edu](mailto:cstopera@una.edu)

### Section III: Physics and Mathematics:

- Chair: (2017). Zengjun Chen, Dept. Of Physics, Tuskegee Univ., Tuskegee, AL 36088, (334)-727-8299 [chenz@mytu.tuskegee.edu](mailto:chenz@mytu.tuskegee.edu)
- Vice Chair: (2017) Mel Blake, Dept. of Physics and Earth Science, Univ. of North Alabama, Florence, AL 35630, (256)-765-4284, [rdblake@una.edu](mailto:rdblake@una.edu)

### Section IV: Engineering and Computer Science:

- Chair: (2017), Pradeep Lall, Mechanical Engineering, Auburn University, Auburn, AL, 36849, 334-844-3424, [lall@auburn.edu](mailto:lall@auburn.edu)
- Vice Chair: (2017), Vacant

### Section V: Social Sciences:

- Chair: (2018) Susan Herring, (256)-851-8036, [sdherring@att.net](mailto:sdherring@att.net)
- Vice Chair: (2018) Bryan Kennedy, Dept. of Management and Psychology, Athens State Univ., Athens, AL 35611, (256) 216-5363, [Bryan.Kennedy@athens.edu](mailto:Bryan.Kennedy@athens.edu)

### Section VI: Anthropology:

- Chair: Harry Holstein, Dept. of Geography, Jacksonville State Univ., Jacksonville, Al 36265, (256)-782-5656 [holstein@jsu.edu](mailto:holstein@jsu.edu).
- Vice Chair: Phillip Koerper, Dept. of History, Jacksonville State Univ., Jacksonville, Al 36265, (256)-782-5604 [pkoerper@jsu.edu](mailto:pkoerper@jsu.edu).

### Section VII: STEM Education:

- Chair: (2017) Mel Blake, Dept. of Physics and Earth Science, Univ. of North Alabama, Florence, AL 35630, (256)-765-4284, [rdblake@una.edu](mailto:rdblake@una.edu)
- Vice Chair: (2017) Vacant

### Section VIII: Environmental and Earth Science:

- Chair: (2018) J. J. Wedgworth, Office of Sponsored Programs, Station 47, University of West Alabama, Livingston, AL 35470, (205)-652-5459, [jwedgworth@uwa.edu](mailto:jwedgworth@uwa.edu)
- Vice Chair: (2016) Vacant

### Section IX: Health Sciences:

- Chair: (2018) Donna Cleveland, Department of Radiologic Sciences, University of South Alabama, Mobile, AL, [dcleveland@southalabama.edu](mailto:dcleveland@southalabama.edu)
- Vice Chair: (2018) Ron Hunsinger, [rhunsin@samford.edu](mailto:rhunsin@samford.edu)

### Section X: Bioethics and History and Philosophy of Science:

- Chair: (2017) Clark Lundell, Department of Industrial & Graphic Design, Auburn University, Auburn, AL 36849, (334)-844-2369, [lundece@mail.auburn.edu](mailto:lundece@mail.auburn.edu).
- Vice Chair: (2017) Vacant

## ELECTED OFFICERS, 2016-2017

**President:** Akshaya Kumar, Department of Physics, Tuskegee University, Tuskegee, AL 36088, (334) 727 8968 [akumar@mytu.tuskegee.edu](mailto:akumar@mytu.tuskegee.edu).

**President-Elect:** Ketia Shumaker, Department of Biology, University of West Alabama, Livingston, AL 35470, (205) 652-3406 [kshumaker@uwa.edu](mailto:kshumaker@uwa.edu).

**Second Vice-President:** Nixon Mwebi, Department of Physical and Earth Sciences, Jacksonville State University, Jacksonville, AL 36265, (256) 782-5336, [nmwebi@jsu.edu](mailto:nmwebi@jsu.edu).

**Secretary:** Malia Fincher, Department of Biology, Samford, University, 900 Lakeshore Dr., Birmingham, AL 35229, (205) 726-2928 [rmfinche@samford.edu](mailto:rmfinche@samford.edu).

**Treasurer:** Bettina Riley, USA College of Nursing, 161 N. Section Street, Suite C, Fairhope, AL 36532, [briley@southalabama.edu](mailto:briley@southalabama.edu).

**Editor:** Safaa Al-Hamdani, Department of Biology, Jacksonville State University, Jacksonville, AL 36265 (256) 782-5801, [sah@jsu.edu](mailto:sah@jsu.edu).

**Coordinator of the Junior Academy:** Mark Jones, J. F. Drake Middle School, 655 Spencer Ave., Auburn, AL 36832, (334) 444-3099 [mtjones@auburnschools.org](mailto:mtjones@auburnschools.org).

**Associate Counselor to the Junior Academy:** Mary Williams, Altamont School, 4801 Altamont Rd., Birmingham, AL 35222, (205) 879-2006, [mawilliams@altamontschool.org](mailto:mawilliams@altamontschool.org).

**Associate Counselor to the Junior Academy:** Wanda Phillips, Brooks High School, 4300 Highway 72, Killen, AL 35645 (256) 757-2115, [wanda.phillips@lchschoools.org](mailto:wanda.phillips@lchschoools.org).

**Coordinator of State Science Fairs:** Virginia Valardi, Wetumpka High School, 1251 Coosa River Parkway, Wetumpka, AL 36092 (334) 799-0104, (334) 514-1770 [virginia.vilardi@elmore.k12.al.us](mailto:virginia.vilardi@elmore.k12.al.us).

**Coordinator of State Science Olympiad:** Jane D. Nall, 31110 Wakefield Drive, Spanish Fort, AL 36527 (251) 621-2911, [drnall@hotmail.com](mailto:drnall@hotmail.com); [jdnall@bcbe.org](mailto:jdnall@bcbe.org).

**AAAS Representative:** Stephen Watts, Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294-1170 (205) 934-2045, [sawatts@uab.edu](mailto:sawatts@uab.edu).

**Executive Director:** Larry Krannich, Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294 (205) 934-8017, [krannich@uab.edu](mailto:krannich@uab.edu).

### TRUSTEES:

- Ken Marion, Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294-1170 , [kmarion@uab.edu](mailto:kmarion@uab.edu).
- Prakash Sharma, Department of Physics, Tuskegee University, Tuskegee, AL 36088 (334) 727-8998, [pcsharma@mytu.tuskegee.edu](mailto:pcsharma@mytu.tuskegee.edu).
- James Bradley, Department of Biological Sciences, Auburn University, Auburn, AL 36849 , [bradljt@auburn.edu](mailto:bradljt@auburn.edu).
- David Nelson, Department of Biology, University of South Alabama, Mobile, AL 36688 (252) 460-6331, [dnelson@usouthal.edu](mailto:dnelson@usouthal.edu).
- Brian Burnes, Department of Biology, University of West Alabama, Livingston, AL 35470 (205) 652-3442, [bburnes@uwa.edu](mailto:bburnes@uwa.edu).
- Mike Howell, Department of Biological Sciences, Samford University, Birmingham, AL 35229 , [wmlhowell@samford.edu](mailto:wmlhowell@samford.edu).

- Richard Hudiburg, Department of Psychology, University of North Alabama Box 5187, Florence, AL 35632 (256) 765-4572, [rahudiburg@una.edu](mailto:rahudiburg@una.edu).
- Adriane Ludwick, Department of Chemistry, Tuskegee University, Tuskegee, AL 36088 , [aludwick@tuskegee.edu](mailto:aludwick@tuskegee.edu).
- Brian Toone, Department of Computer Sci., Samford University, Birmingham, AL 35229 (205) 726-2960, [brtoone@samford.edu](mailto:brtoone@samford.edu).
- Ellen B. Buckner, 5721 USA Drive North, College of Nursing, University of South Alabama, Mobile, AL, 36688, (205) 910-9877, [ebuckner@southalabama.edu](mailto:ebuckner@southalabama.edu).
- Stephen Watts, Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294–1170 (205) 934–2045, [sawatts@uab.edu](mailto:sawatts@uab.edu).
- Anne Cusic, Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294–1170 (205) 934-9686, [acusic@uab.edu](mailto:acusic@uab.edu).

## APPOINTED COMMITTEES 2016-17

### Archives

- John McCall (2018) Department of Biological and Environmental Sciences, University of West Alabama, 35470, [jmccall@uwa.edu](mailto:jmccall@uwa.edu).

### Auditing Senior Academy

- Budget and Finance Committee

### Auditing Junior Academy

- Budget and Finance Committee
- Mark Jones, J. F. Drake Middle School, 655 Spencer Ave., Auburn, AL 36832, (334) 444-3099 [mtjones@auburnschools.org](mailto:mtjones@auburnschools.org).

### Budget and Finance

- Ken Marion, Chair, (2016) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294-1170, [kmarion@uab.edu](mailto:kmarion@uab.edu)
- Ellen Buckner, (2018) College of Nursing, University of South Alabama, Mobile, AL 36688, [ebuckner@southalabama.edu](mailto:ebuckner@southalabama.edu).
- Melia Fincher, (2017) Department of Biology, Samford University, 900 Lakeshore Dr., Birmingham, AL 35229, (205) 726-2928 [rmfinche@samford.edu](mailto:rmfinche@samford.edu).
- Bettina Riley, (2016) USA College of Nursing, 161 N. Section Street, Suite C, Fairhope, AL 36532, [briley@usouthal.edu](mailto:briley@usouthal.edu).
- Mark Jones, (2016) Coordinator of AJAS, J. F. Drake Middle School, 655 Spencer Ave., Auburn, AL 36832, (334) 444-3099 [mtjones@auburnschools.org](mailto:mtjones@auburnschools.org).
- Larry Krannich, Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, [krannich@uab.edu](mailto:krannich@uab.edu)

### Development:

- Larry Krannich, co-Chair, Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294 [krannich@uab.edu](mailto:krannich@uab.edu)

#### Active Past Presidents

Adriane G. Ludwick .....	1989-90
Ken R. Marion .....	1991-92
Michael B. Moeller.....	1992-93
Prakash Sharma .....	1993-94
Eugene Omasta .....	1994-95
Ellen B. Buckner.....	1997-98
Richard Hudiburg .....	2000-01
Stephen A. Watts .....	2002-03
Anne M. Cusic.....	2003-04
Larry Davenport .....	2005-06
David Nelson .....	2006-07
George Cline.....	2007-08
D. Brian Thompson .....	2009-10
Brian Burnes .....	2010-11
Mickie Powell.....	2011-12
Ronald N. Hunsinger .....	2012-13
Emanuel Waddell .....	2013-14
John McCall.....	2014-15
Brian R. Toone .....	2015-16

- Two members appointed by the President



**Editorial Board: (staggered 3-yr terms)**

- Jim Bradley, (2016) Department of Biology, Auburn University, Auburn, AL , [bradljt@auburn.edu](mailto:bradljt@auburn.edu)
- David Myer, (2017) English Department, Jacksonville State University, Jacksonville, AL 37276, [dmyer@jsu.edu](mailto:dmyer@jsu.edu)
- Prakash Sharma, (2017) Department of Physics, Tuskegee University, Tuskegee, AL 36088, [pcsharma@tuskegee.edu](mailto:pcsharma@tuskegee.edu)
- Ad-Hoc Steering Committee formed for developing a mission statement and objectives for the journal and create a mechanism for assessing the success of the journal moving forward. Report at Spring 2017 Executive Committee meeting:  
Drew Hataway, Ellen Buckner, Cameron Gren, Jack Shelley-Tremblay, Jim Bradley, Akshaya Kumar, Adriane Ludwick, and Brian Toone.

**Electronic Media: (3-yr terms)**

- John Shelley-Tremblay, editor (2019), Department of Psychology, University of South Alabama, UCOM 1123, (251) 460-6883 Mobile, AL 36688, [jstremblay@southalabama.edu](mailto:jstremblay@southalabama.edu)
- Richard Hudiburg, Associate Editor, (2017) Department of Psychology, University of North Alabama, Box 5187, Florence, AL 35632, [rahudiburg@una.edu](mailto:rahudiburg@una.edu)
- Ad Hoc Committee for Electronic Media to consider Bylaw concerning associate editors, online JAAS publication, and Journal indexing:
- Brian Toone, John Shelley-Tremblay, and JAAS Editors

**Emmett B. Carmichael Award: (staggered 2-yr terms)**

- Richard Hudiburg, Chair, (2016) Department of Psychology, University of North Alabama, Box 5187, Florence, AL 35632, [rahudiburg@una.edu](mailto:rahudiburg@una.edu)
- David Nelson, (2018) Department of Biology, University of South Alabama, Mobile, AL 36688, [dnelson@usouthal.edu](mailto:dnelson@usouthal.edu)
- Safaa Al-Hamdani, Editor (ex officio), (2014) Department of Biology, Jacksonville State University, Jacksonville, AL 36265, [sah@jsu.edu](mailto:sah@jsu.edu)
- Larry Davenport, (2017) Department of Biological Sciences, Samford University, Birmingham, AL 35229, [ljdavenp@samford.edu](mailto:ljdavenp@samford.edu)

**Gorgas Scholarship Program: (staggered 3-yr terms)**

- Ellen Buckner, Co-chair, College of Nursing, University of South Alabama, Mobile, AL 36688, [ebuckner@southalabama.edu](mailto:ebuckner@southalabama.edu)
- Larry Krannich, Co-chair, Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, [krannich@uab.edu](mailto:krannich@uab.edu)
- Elizabeth Dobbins, (2018) Department of Biology, Samford University, Birmingham, AL 35229, [egdobbin@samford.edu](mailto:egdobbin@samford.edu)
- David H. Nelson, (2017) Department of Biology, University of South Alabama, Mobile, AL 36688, [dnelson@usouthal.edu](mailto:dnelson@usouthal.edu)
- Prakash Sharma, (2019) Department of Physics, Tuskegee University, Tuskegee, AL 36088, [pcsharma@mytu.tuskegee.edu](mailto:pcsharma@mytu.tuskegee.edu).
- Diane Tucker, (2016) Science and Technology Honors Program, University of Alabama at Birmingham, Birmingham, AL 35294, [dtucker@uab.edu](mailto:dtucker@uab.edu).
- Peggy Burnett, Alabama Power Foundation, 600 North 18th Street, Birmingham, AL 35203, [PEBURNET@southernco.com](mailto:PEBURNET@southernco.com).
- Andrea Hunt, (2019) Sociology and Family Studies, University of North Alabama, Florence, AL. 35632, [ahunt3@una.edu](mailto:ahunt3@una.edu)

**Junior Academy:**

- Mark Jones, J. F. Drake Middle School, 655 Spencer Avenue, Auburn, AL 36832, [mtjones@auburnschools.org](mailto:mtjones@auburnschools.org)

**Junior Academy Regional Counselors:**

- Virginia Valardi, Wetumpka High School, Wetumpka, AL, [virginia.vilardi@elmore.k12.al.us](mailto:virginia.vilardi@elmore.k12.al.us)

**Local Arrangements at University of South Alabama**

- John Shelley-Temblay, co-Chair (2017), Department of Psychology, University of South Alabama, UCOM 1123, (251) 460-6883 Mobile, AL 36688. [jstremblay@southalabama.edu](mailto:jstremblay@southalabama.edu)
- Ellen Buckner, co-Chair (2017), Ida V. Moffett School of Nursing, (205) 726-2092, Samford University, (205) 726-2092 [ellen.buckner@samford.edu](mailto:ellen.buckner@samford.edu)

**Long Range Planning: (staggered 4-yr terms, committee elects chair)**

- Matthew Edwards, Chair, (2018) Department of Physics, Chemistry and Mathematics, PO Box 338, Alabama A&M University, Normal, AL 35762, (256) 372-8119 [matthew.edwards@aamu.edu](mailto:matthew.edwards@aamu.edu)
- John McCall, (2019) Dean & Professor, Department of Biology, University of West Alabama, Livingstone, AL 35470 [jmccall@uwa.edu](mailto:jmccall@uwa.edu)
- Anne Cusic, (2014) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294-1170, [acusic@uab.edu](mailto:acusic@uab.edu)
- Yong Wang (2018) Center for Forestry and Ecology, Alabama A&M University, Normal, AL 35752 [yong.wang@aamu.edu](mailto:yong.wang@aamu.edu)

**Mason Scholarship: (staggered 3-yr terms)**

- Michael Moeller, Chair, Department of Chemistry, University of North Alabama, Box 5049, Florence, AL 35632, [mbmoeller@una.edu](mailto:mbmoeller@una.edu)
- Ronald Hunsinger (2018) 1070 Crest Rd., Leads, AL [rhunsin@samford.edu](mailto:rhunsin@samford.edu)
- Mickie Powell (2016) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294 [mpowell@uab.edu](mailto:mpowell@uab.edu)
- Jane Roy, (2018) School of Education, University of Alabama at Birmingham, Birmingham, AL 35294-1250, [jroy@uab.edu](mailto:jroy@uab.edu)
- R. Melvin Blake, (2017) Department of Physical and Earth Science, University of North Alabama, Florence, AL 35632, [rmlake@una.edu](mailto:rmlake@una.edu)

**Membership:** Vacant, Chair**Nominating:**

- Nixon Mwebi, Department of Physical and Earth Science, Jacksonville State University, Jacksonville, AL 36265, (256) 782-5336, [nmwebi@jsu.edu](mailto:nmwebi@jsu.edu).
- Section Chairs

**Place and Date of Meeting: (5 members, staggered 5-yr terms)**

- Rekha Lall (2017) Auburn Primary Care, East Alabama Medical Center, 1719 Catherine Ct, Auburn, AL 36830, 334-826-722-, [rlall@eamc.org](mailto:rlall@eamc.org), Chair,
- Larry Krannich, (2016) Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, [krannich@uab.edu](mailto:krannich@uab.edu)
- George Cline, (2015) Department of Biology, Jacksonville State University, Jacksonville, AL 36265, [gcline@jsu.edu](mailto:gcline@jsu.edu)
- Jimmy Triplett, (2016) Department of Biology, Jacksonville State University, Jacksonville, AL 36265, [jtriplett@jsu.edu](mailto:jtriplett@jsu.edu)
- vacant

**Public Relations: (staggered 4-yr terms)**

- Brian Burnes, Chair (2018) Department of Biology, University of West Alabama, Livingstone, AL 35470, [bburnes@uwa.edu](mailto:bburnes@uwa.edu)
- Ellen Buckner, (2015) College of Nursing, University of South Alabama, Mobile, AL 36688, [ebuckner@southalabama.edu](mailto:ebuckner@southalabama.edu)
- Ronald Hunsinger, (2017) 1070 Crest Road, Leeds, AL 35094, [rnunsin@samford.edu](mailto:rnunsin@samford.edu)
- Mickie Powell, (2016) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, [mpowell@uab.edu](mailto:mpowell@uab.edu)
- vacant

**Research: (5 members with staggered 5-yr terms)**

- Brian Burnes, Chair (2016) Department of Biology, University of West Alabama, Livingston, AL35470, [bburnes@uwa.edu](mailto:bburnes@uwa.edu)
- Bruce Smith, (2018) Scott-Ritchey Research Center, Auburn University, Auburn, AL 36849, [smithbf@auburn.edu](mailto:smithbf@auburn.edu)
- Stephen Watts, (2018) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, [sawatts@uab.edu](mailto:sawatts@uab.edu)
- Yong Wang, (2016) Center for Forestry and Ecology, Alabama A&M University, Normal, AL 35762, [yong.wang@aamu.edu](mailto:yong.wang@aamu.edu)
- Afef Janen, (2021) Alabama A&M University, [afef.janen@gmail.com](mailto:afef.janen@gmail.com)
- Berneece Herbert, (2021) Department of Community and Regional Planning, Alabama A&M University, Normal, AL 35762 (256) 372-4988, [berneece.herbert@ammu.edu](mailto:berneece.herbert@ammu.edu)

**Resolutions:**

- Ketia Schumaker, (2016) Department of Biology, University of West Alabama Station #7, Livingston, AL 35470, [kshumaker@uwa.edu](mailto:kshumaker@uwa.edu)

**Science and Public Policy:**

- Scott Brande, Chair, (2016) Department of Geology, University of Alabama at Birmingham, Birmingham, AL 35294, [sbrande@uab.edu](mailto:sbrande@uab.edu)
- Steven Carey, (2017) Department of Natural Sciences, University of Mobile, Mobile, AL 36616,
- Boakai Robertson, (2017) Department of Biology, Alabama State University, Montgomery, AL 36101, [brobertson@alasu.edu](mailto:brobertson@alasu.edu)
- James Bradley, (2016) Department of Biological Sciences, Auburn University, Auburn, AL 36849, [bradljt@auburn.edu](mailto:bradljt@auburn.edu)

**Steering:**

- Brian Toone (2017) Department of Computer Sci., Samford University, Birmingham, AL 35229 (205) 726-2960, [brtoone@samford.edu](mailto:brtoone@samford.edu).
- Akshaya Kumar (2018) Department of Physics, Tuskegee University, Tuskegee, AL 36088, (334) 727 8968 [akumar@mytu.tuskegee.edu](mailto:akumar@mytu.tuskegee.edu).
- Ketia Schumaker, (2016) Department of Biology, University of West Alabama Station #7, Livingston, AL 35470, [kshumaker@uwa.edu](mailto:kshumaker@uwa.edu)
- Bettina Riley, (2017) USA College of Nursing, 161 N. Section Street, Suite C, Fairhope, AL 36532, [briley@southalabama.edu](mailto:briley@southalabama.edu).
- Melia Fincher, (2017) Department of Biology, Samford University, 900 Lakeshore Dr., Birmingham, AL 35229, (205) 726-2928 [rmfinche@samford.edu](mailto:rmfinche@samford.edu)

**Wright A. Gardner Award: (4 members with staggered 2-yr terms)**

- Prakash Sharma, Chair, (2018) Department of Physics, Tuskegee University, Tuskegee, AL 36088, [pcsharma@mytu.tuskegee.edu](mailto:pcsharma@mytu.tuskegee.edu)

- Anne Cusic, (2016) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, [acusic@uab.edu](mailto:acusic@uab.edu)
- Gene Byrd, (2017) Department of Physics, University of Alabama, Tuscaloosa, AL 35487, [byrd@possum.astr.ua.edu](mailto:byrd@possum.astr.ua.edu)
- Vacant

## PAST PRESIDENTS

<i>NAME</i>	<i>TERM</i>
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

<i>NAME</i>	<i>TERM</i>
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. Jandebaur.....	1996-97
Ellen B. Buckner.....	1997-98
Moore Asouzu.....	1998-99
Larry R. Boots.....	1999-00
Richard Hudiburg.....	2000-01
Roland Dute.....	2001-02
Stephen A. Watts.....	2002-03
Anne M. Cusic.....	2003-04
Ronald L. Jenkins.....	2004-05
Larry Davenport.....	2005-06
David Nelson.....	2006-07
George Cline.....	2007-08
Kenneth Roblee.....	2008-09
D. Brian Thompson.....	2009-10
Brian Burnes.....	2010-11
Mickie Powell.....	2011-12
Ronald N. Hunsinger.....	2012-13
Emanuel Waddell.....	2013-14
John McCall.....	2014-15
Brian R. Toone.....	2015-16
Akshaya Kumar.....	2016-17

## **HOSTS FOR FUTURE ALABAMA ACADEMY OF SCIENCE MEETINGS**

2018 – College of Health Sciences, Samford University  
2019 – Tuskegee University  
2020 – Alabama A&M University  
2021 – University of South Alabama

The Local Arrangements Manual for planning Academy annual meeting can be found on the Academy website: [www.alabamaacademyofscience.org](http://www.alabamaacademyofscience.org).

## **EXHIBITORS**

**The University of Alabama Press**

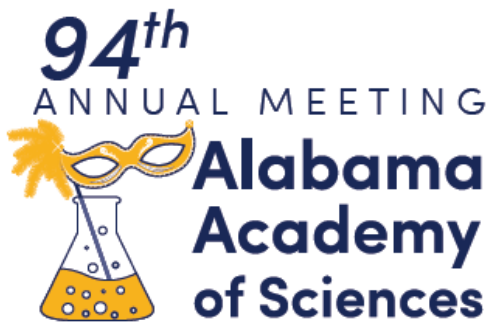




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February 22-24, 2017  
University of South Alabama





**NINETY-FIFTH ANNUAL MEETING**  
**of the**  
**ALABAMA ACADEMY OF SCIENCE, INC.**



**JOINT MEETING**  
**with the**  
**ALABAMA JUNIOR ACADEMY OF SCIENCE**  
**GORGAS COMPETITION AWARDS**

**March 14-16, 2018**

**College of Health Sciences  
Samford University**

**Birmingham, AL**

# Main Campus



ROOM	NUMBER
Admissions/Campus Tours	200
Career Services	200
Enrollment Services	2400
Financial Aid	2200
International Services	2200
New Student Orientation	2600
Registrar	1000
Student Accounting	2500
International Education Programs	1300

- S** Short Term Student Parking
- V** Visitor Parking
- P** Information and Parking Permits/USA Police
- Paw Print** Follow the paw prints to take your campus tour!

## ALPHABETICAL LISTING OF FACILITIES

Academic Services Center	87	Development and Services Building	18
Alpha Gamma Delta Sorority House	80	Dining Facility	109
Alpha Hall East	2	Engineering Laboratory Building	35
Alpha Hall South	3	Epilon Residence Hall 1	36
Archaeology Lab 1	63	Epilon Residence Hall 2	37
Archaeology Lab 2	64	FP Whiddon Administration Building	1
Archaeology Lab 3	65	Faculty Club	111
Archaeology Lab 4	66	Faculty Court East	4
Archaeology Lab 5	67	Faculty Court West	40
Archaeology Lab 6	68	Football Fieldhouse	103
Archaeology Lab 7	69	Gamma Residence Hall 5	45
Archaeology Lab 8	70	Gamma Residence Hall 6	46
Archaeology Lab 9	71	Gamma Residence Hall 7	47
Archaeology Lab 10	72	Gamma Residence Hall 8	48
Archaeology Lab 11	73	Gamma Residence Hall 9	49
Archaeology Lab 12	74	Gamma Residence Hall 10	50
Archaeology Lab 13	75	Gamma Residence Hall 11	51
Archaeology Lab 14	76	Gamma Residence Hall 12	52
Archaeology Lab 15	77	Gamma Residence Hall 13	53
Archaeology Lab 16	78	Gamma Residence Hall 14	54
Archaeology Lab 17	79	Gamma Residence Hall 15	55
Archaeology Lab 18	80	Gamma Residence Hall 16	56
Archaeology Lab 19	81	Gamma Residence Hall 17	57
Archaeology Lab 20	82	Gamma Residence Hall 18	58
Archaeology Lab 21	83	Gamma Residence Hall 19	59
Archaeology Lab 22	84	Gamma Residence Hall 20	60
Archaeology Lab 23	85	Gamma Residence Hall 21	61
Archaeology Lab 24	86	Gamma Residence Hall 22	62
Archaeology Lab 25	87	Gamma Residence Hall 23	63
Archaeology Lab 26	88	Gamma Residence Hall 24	64
Archaeology Lab 27	89	Gamma Residence Hall 25	65
Archaeology Lab 28	90	Gamma Residence Hall 26	66
Archaeology Lab 29	91	Gamma Residence Hall 27	67
Archaeology Lab 30	92	Gamma Residence Hall 28	68
Archaeology Lab 31	93	Gamma Residence Hall 29	69
Archaeology Lab 32	94	Gamma Residence Hall 30	70
Archaeology Lab 33	95	Gamma Residence Hall 31	71
Archaeology Lab 34	96	Gamma Residence Hall 32	72
Archaeology Lab 35	97	Gamma Residence Hall 33	73
Archaeology Lab 36	98	Gamma Residence Hall 34	74
Archaeology Lab 37	99	Gamma Residence Hall 35	75
Archaeology Lab 38	100	Gamma Residence Hall 36	76
Archaeology Lab 39	101	Gamma Residence Hall 37	77
Archaeology Lab 40	102	Gamma Residence Hall 38	78
Archaeology Lab 41	103	Gamma Residence Hall 39	79
Archaeology Lab 42	104	Gamma Residence Hall 40	80
Archaeology Lab 43	105	Gamma Residence Hall 41	81
Archaeology Lab 44	106	Gamma Residence Hall 42	82
Archaeology Lab 45	107	Gamma Residence Hall 43	83
Archaeology Lab 46	108	Gamma Residence Hall 44	84
Archaeology Lab 47	109	Gamma Residence Hall 45	85
Archaeology Lab 48	110	Gamma Residence Hall 46	86
Archaeology Lab 49	111	Gamma Residence Hall 47	87

## NUMERICAL LISTING OF FACILITIES

1	FP Whiddon Administration Building	60	Instructional Laboratory Building
2	Alpha Hall East	61	Michelle Learning Resource Center
3	Alpha Hall South	62	Marching Band Drill Field
4	Archaeology Lab 1	63	Property Inventory Warehouse
5	Archaeology Lab 2	64	Property Inventory Warehouse
6	Archaeology Lab 3	65	Life Sciences Lecture Hall
7	Archaeology Lab 4	66	Life Sciences Lecture Hall
8	Archaeology Lab 5	67	Maintenance Garage
9	Archaeology Lab 6	68	Maintenance Garage
10	Beta Apartment Residence Hall 1	69	Construction Soc. & Facilities Shoproom
11	Beta Apartment Residence Hall 2	70	Medical Sciences Building
12	Beta Apartment Residence Hall 3	71	Mobile Tavern House
13	Beta Apartment Residence Hall 4	72	Mobile Tavern House
14	Beta Apartment Residence Hall 5	73	Mobile Tavern House
15	Chloris M. Baugh Biomedical Library	74	Landscaping Grounds
16	USA DMA/Delta Center	75	Outdoor Recreation
17	Bookstore	77	Seaman's Bethel Theatre/Honors Program
18	Development and Services Building	78	Sigma Chi Fraternity House
19	Education and Outreach Building	79	Soccer Fields
20	Central Services Admin Building	80	Alpha Gamma Delta Sorority House
21	Central Utilities Plant	81	Alpha Omicron Pi Sorority House
22	Chemistry Building	82	Chi Omega Sorority House
23	Computer Services Center	83	Kappa Delta Sorority House
24	Thobos of Delphi Replica	84	Phi Mu Sorority House
25	Delta Commons	85	Student Center
26	New Hall	86	Visual Arts Complex
27	Delta Residence Hall 3	87	Visual Arts Complex
28	Delta Residence Hall 4	88	Academic Services Center
29	Delta Residence Hall 5	89	Telecommunications Building
30	Delta Residence Hall 6	90	Miesler Hall
31	Delta Residence Hall 7	91	Treatment Storage & Disposal
32	Delta Residence Hall 8	92	Mitchell Center
33	Athletics Annex	93	University Commons
34	Communication Building	94	Marx Library
35	Science Laboratory Building	94	Marx Library
36	Epilon Residence Hall 1	95	Varsity Tennis Courts
37	Epilon Residence Hall 2	96	Visual Arts Complex
38	Interaction in Learning Center	97	Intramural Fields
39	Student Health Center	97	Intramural Field House
40	Educational Services Building	99	Transportation Services
41	Pi Kappa Alpha Fraternity House	100	Technology and Research Park
42	Pi Kappa Phi Fraternity House	101	Softball Field
43	Pi Kappa Phi Fraternity House	102	The Grove
44	Gamma Residence Hall 5	103	Football Fieldhouse
45	Gamma Residence Hall 6	104	Softball/Soccer Fieldhouse
46	Gamma Residence Hall 7	105	Moulton Tower and Alumni Plaza
47	Gamma Residence Hall 8	106	Shelby Hall
48	Gamma Residence Hall 9	107	Health Sciences Building
49	Gamma Residence Hall 10	108	Student Recreation Center
50	USA Police/Beta-Gamma Commons	109	Dining Facility
51	Gamma Residence Hall 11	110	Slack Hall
52	Gamma Residence Hall 12	111	Faculty Club
53	Gamma Residence Hall 13	112	Laboratory of Infectious Diseases
54	Gamma Residence Hall 14	113	Band Practice Field Pavilion
55	Health & Physical Education Building	114	Glass Arts Building
56	Health & Physical Education Building	115	Glass Arts Building
57	Technology and Research Park, Building III	115	USA Mail Hub
58	Humanities Building	116	Kappa Sigma Chapter Room

**Main Number (251) 460-6101**

**Admissions (251) 460-6141 or (800) USA-JAGS**

**Alumni (251) 460-7084**

**Athletics (251) 460-7035**

**Financial Aid (800) 305-6828**

**Marketing and Communications (251) 460-6211**

## COLLEGES AND SCHOOLS

<b>Pot Capra Covey College of Allied Health Professions</b>	(251) 465-9260   3028 Health Sciences Building
<b>College of Arts and Sciences</b>	(251) 460-6282   118 Humanities Building
<b>Mitchell College of Business</b>	(251) 460-6419   103 Mitchell College of Business
<b>College of Education</b>	(251) 380-2738   3600 University Commons
<b>College of Engineering</b>	(251) 460-6410   2114 Shelby Hall
<b>College of Medicine</b>	(251) 460-7189   174 Central Services Administration Building
<b>College of Nursing</b>	(251) 445-9400   3082 Health Sciences Building
<b>Graduate School</b>	(251) 460-6310   301 F. P. Whiddon Administration Building
<b>School of Computing</b>	(251) 460-6390   2101 Shelby Hall
<b>School of Continuing Education and Special Programs</b>	(251) 460-6283   101 Alpha Hall East