



95th Annual Meeting

Alabama Academy of Science

Meeting jointly with
Alabama Junior Academy of Science
Gorgas Scholarship Competition

March 14-16, 2018

hosted by
Samford University
College of Health Sciences
Birmingham, Alabama 35229

alabamaacademyofscience.org



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



Meeting Jointly With

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

March 14-16, 2018

**COLLEGE OF HEALTH SCIENCES
SAMFORD UNIVERSITY**

www.alabamaacademyofscience.org

<http://alabamajunioracademyofscience.org>

<http://alabamajunioracademyofscience.org/home/gorgas-scholarship-competition/>

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800 Lakeshore Drive
Birmingham, AL 35229
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www.samford.edu

OFFICE OF THE VICE PROVOST

March 14, 2018

Dear AAS colleagues:

It is with great excitement that I welcome you to the 95th meeting of the Alabama Academy of Science! Our faculty, staff, and students have been actively preparing for your visit for some time and are thrilled this year's conference is finally here. On behalf of Samford University and the College of Health Sciences, welcome to our campus.

As Vice Provost for the College of Health Sciences at Samford University, it is an especially exciting opportunity for me to welcome you to this year's meeting. As Alabama's oldest science organization, the Alabama Academy of Science serves a vital role in its commitment to the study and understanding of science and to those called to serve our world through science-related professions, such as those serving in healthcare.

Samford University's College of Health Sciences has a 95-year history of academic excellence and leadership in health care education. The college is comprised of four schools—School of Health Professions, Ida Moffett School of Nursing, McWhorter School of Pharmacy and School of Public Health. Together, these schools offer more than 30 academic programs at the baccalaureate, master's and doctoral levels, preparing graduates in an interprofessional, Christ-centered learning community. The College of Health Sciences facilities, including its 22,000 square-foot Experiential Learning and Simulation Center, is designed to foster interprofessional education and cutting-edge experiential learning so our graduates are prepared to practice collaboratively, safely and effectively in the ever-evolving health care environment.

Welcome and best wishes to you for a successful 95th meeting!

Kindest Regards,

Nena F. Sanders, PhD, RN, FAAN
Vice Provost, College of Health Sciences
Ralph W. Beeson Dean and Professor, Ida Moffett School of Nursing

Office of the President

March 14, 2018

Dear Friends:

With the spirit of Alabama hospitality, it is our privilege to welcome you to Samford University for the 95th meeting of the Alabama Academy of Science. Our students, faculty, and staff have eagerly prepared for your visit, and we hope that our efforts will prove effective in meeting the needs of the conference during your time with us.

It is a special honor for us to host this event, calling together the brightest scientific researchers in Alabama who are committed to finding solutions and making advancements that will offer hope to a world in need. Your challenges are vast, but I find encouragement by the fact that this burden is shouldered by such intelligent and devoted people.

Our best wishes to you for a successful conference.

Sincerely,


Andrew Westmoreland



Samford University

Office of the Provost and Vice President for Academic Affairs

800 Lakeshore Drive
Birmingham, AL 35229
205-726-2718 office
205-726-4053 fax
samford.edu

March 14, 2018

Dear Alabama Academy of Science members and guests:

On behalf of Samford University, we welcome you and are honored to host the 95th annual meeting of the Alabama Academy of Science. I would like to express my appreciation for the good work that has continued over the years by this organization to promote academic excellence in science education.

We hope that you find your time here at Samford to be productive and enjoyable as you continue working toward the goals of your mission and purpose in the field of science.

All the best,

J. Michael Hardin, Ph.D.
Provost and Vice President for Academic Affairs



Samford University

Center for Faith and Health

800 Lakeshore Drive
Birmingham, AL 35229
samford.edu
samford.edu/healthsciences

Dear AAS Participant:

On behalf of the College of Health Sciences' Center for Faith and Health, welcome to Samford University! At Samford we hope to help our health sciences students make an intentional head-to-heart connection. Calling and service to humankind is a part of who we are as individuals, and being able to explore that call while receiving an excellent science foundation is an important consideration. Thus, for those especially who focus on a career in the health sciences, don't forget about how you can use that career to improve the lives of others. We believe that combining these two components (Faith and Health) together will lead to a fulfilling career and life!

We hope that you experience a wonderful time of learning while you are here at Samford, and our best wishes, hopes and prayers for your bright future!

Sincerely,

Michael D. Hogue, Pharm.D., FAPhA, FNAP
Associate Dean
Center for Faith and Health



ALABAMA ACADEMY OF SCIENCE, INC

Greetings to the Alabama Academy of Science Family and Guests,

It is a pleasure to welcome you to the 95th Annual Meeting of the Alabama Academy of Science (AAS)! It is an honor to be a part of a tradition that connects and recognizes the work of scientists from across this State.

In Mobile, Alabama in 1924, forty charter members came together to establish the AAS. Today AAS is composed of 300 plus members representing all disciplines of science and age groups. This year's annual meeting, hosted by Samford University's College of Health Sciences, is nothing short of the spirit of excellence that embodies the individuals that attend and participant in this event. AAS meetings are a place where college undergraduates, graduate students and faculty who have conducted scientific research can present their noteworthy findings in oral and poster presentations. High school students who are involved in scientific research also present their findings in the Alabama Junior Academy of Sciences and the highly respected Gorgas Scholarship Competition.

During this three-day event, a lot is discussed and accomplished, from the executive board meetings on day-one to the awards banquet on day-two and AJAS/Gorgas competitions on day three. But, all of this and everything that happens before this meeting and everything in between would not come together without the hard work and dedication of trustees, committee members, section chairs, the local arrangements committee at Samford University, and AAS's Executive Director, Dr. Larry Krannich. I am so grateful to have an opportunity to work alongside these individuals.

So, whether you are attending the AAS meeting for the first time or a previous participant, I pray that you will have a great time and your networking opportunity here at this event will allow you to become even more successful in the future.

Sincerely,

Ketia Shumaker, Ph.D.

PRESIDENT ■ Ketia Shumaker
Department of Biological and Environmental Sciences ■ University of West Alabama
Livingston, AL 35470 ■ (205) 652-3406
E-mail: kshumaker@uwa.edu

LOCAL ARRANGEMENTS COMMITTEE

The Academy expresses its appreciation to the Samford University College of Health Sciences (CHS) and the Local Arrangements Committee for planning and hosting this 95th Annual Meeting.

Local Arrangements Chair:

Dr. Ellen Buckner, Professor of Nursing, Ida Moffett School of Nursing, CHS

AAS Program Coordinator

Dr. Brad Bennett, Assistant Professor and Dr. Grant Gentry, Assistant Professor, Biological and Environmental Sciences, Howard College of Arts and Sciences

AJAS/ Gorgas Coordinator/Judges

Dr. Morgan Ponder, Professor and Chair, Department of Chemistry & Biochemistry, Howard College of Arts and Sciences, Dr. Christopher Ballmann, Assistant Professor, Kinesiology, and Dr. Jonathan Waugh, Professor and Chair, Department of Cardiopulmonary Sciences, School of Health Professions, CHS

University Liaison Officers

Dr. Drew Hataway, Associate Professor, Department of Biological and Environmental Sciences Howard College of Arts and Sciences, and Research Compliance Officer and Dr. Denise Gregory, Assistant Provost for Diversity and Intercultural Initiatives

Posters

Dr. Michael Kendrach, Associate Dean Academic Affairs, McWhorter School of Pharmacy; Dr. Rachel Casiday, School of Public Health, and Dr. Suresh Matthews, Nutrition and Dietetics, CHS

Promotions & Publicity

Ms. Sarah Waller, Coordinator of Marketing and Communication and Dr. Jill Pence, Executive Director, Experiential Learning and Simulation Center, CHS

Speaker Coordination

Dr. Ron Hunsinger, Professor of Biological and Environmental Sciences, Retired; Dr. Brad Bennett, Assistant Professor, Biological and Environmental Sciences, Howard College of Arts and Sciences; Dr. Michael Hogue, Associate Dean, Center for Faith and Health, CHS, and Dr. Scott Bickel, Associate Professor, Department of Physical Therapy, School of Health Professions, CHS

Audio Visual and Venue Management

Mr. Chad Owens, Director Learning Applications Group and Mr. Doug Davis, Technology Services

Registration & Student Support

Ms. Kim Eckert, Center for Faith and Health, CHS; Dr. Renee DeHart, Professor and Associate Dean Student Affairs, McWhorter School of Pharmacy; Dr. Laura Promer, Communication Sciences and Disorders; Dr. Marian Carter, Assistant Dean of Enrollment Management and Student Services; Mr. Patrick Allen, Senior Advancement Officer, Pharmacy; Mr. Aaron Hux and Jonathan Parker, Pharmacy Admissions; Ms. Angela Grace, Ms. Janis La Velle, Ms. Suzanne Scarf, College of Health Sciences.

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 (CHS Parking Lot) (map attached). You do not need a parking pass.
- A map of the Samford-CHS campus can be found on the outside cover of the program booklet. Also, a map of the Samford-CHS campus can be found at <http://www.alabamaacademyofscience.org/campus-map/>

LOCAL RESOURCES

On-campus police, fire, medical service:

- All Emergencies (Fire, Ambulance, Police):..... 911
- Samford Public Safety(205) 726-2020
- The HUB: Samford Information Center(205) 726-2407
- Title IX Coordinator/Sexual Assault Counselor(205) 726-2837

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

- Homewood Police Department:(205) 332-6200

POSTERS

Alabama Academy of Science Poster set-up begins at 7:30 AM Thursday, March 15th in the College of Health Sciences Lobby. **AAS Posters are available for viewing on Thursday from 8:00 AM until 3:00 PM.** Each poster is allotted **3' (wide) x 4' (tall) of display space.** Authors for the section posters should be present for discussions with viewers and competition judges as designated by section chairs. **All posters must be removed by 3:00 PM.**

Gorgas Scholars and Junior Academy Posters may be set up beginning at 4 PM Thursday **in the Howard Room in the University Center on main campus.** Each poster is allotted **3' (wide) x 4' (tall) of display space.** Posters will be available for viewing in the **Sci-Mix from 5:30 – 6:45 PM on Thursday,** prior to the joint banquet, **in the Howard Room,** adjacent to the banquet location in The Caf in the University Center on main campus of Samford University.

Poster Viewing Times

Thursday: CHS Lobby

<i>Biological Sciences, I</i>	11:30 AM – 1:30 PM
<i>Chemistry, II</i>	11:00 AM – 12:00 Noon
<i>Physics and Mathematics III</i>	10:30 AM – 12 Noon
<i>Engineering & Computer Science, IV</i>	1:00 PM – 2:30 PM
<i>Social Sciences, V</i>	1:00 PM – 3:00 PM
<i>STEM Education, VII</i>	11:00 AM – 1:00 PM
<i>Environmental and Earth Sci., VIII</i>	1:00 PM – 2:00 PM
<i>Health Sciences, IX</i>	10:00 AM – 12:00 Noon
<i>Bioethics and History & Philosophy of Science</i>	1:00 PM – 1:30 PM

NOTE: Posters may be set up in **College of Health Sciences Lobby** beginning at 7:30 AM, Thursday, March 15th. Locate posters by cards on poster boards indicating Section and poster # in program booklet (eg. V-10).

Acknowledgements

Thanks to organizations providing poster boards—The McWhorter School of Pharmacy and the Alabama Society of Health Systems Pharmacists.

Special thanks to Mr. Phil Andrews, Retired, for reconditioning of boards.

**Program of the Alabama Academy of Science
March 14-16, 2018
College of Health Sciences, Building 1, Samford University
Wednesday, March 14, 2018**

4:00 – 5:30 PM Registration..... CHS Lobby
6:00 – 7:00 PM Executive Com. Mtg...Buckner Home: 1524 Shades Crest Rd, Hoover, 35226
7:00 – 9:00 PM Executive Committee MeetingBuckner Home (Cell: 205-910-9877)

Thursday, March 15, 2018

7:00 AM – 3 PM Registration..... CHS Lobby
7:00 AM – 3 PM Silent Auction.....CHS 1104

8:00 AM – Noon: Academy of Science Program Paper Sessions (All rooms are in CHS)

8:00 AM Health Sciences (Section IX)CHS 1249
9:00 AM Biological Sciences I (Section I).....CHS 1222
9:00 AM Physics and Mathematics (Section III)CHS 1460
9:00 AM Anthropology.....CHS 1117
9:00 AM Chemistry (Section II)CHS 1214
9:00 AM Social Sciences I (Section V)CHS 1116

10:00 AM Coffee and Refreshments CHS Lobby

AAS Posters

7:30 -11:30 AM Poster Set-Up (All Sections) CHS Lobby
7:00 AM – 3 PM Silent Auction.....CHS 1104
8:00 AM – 3 PM Poster Viewing (All Sections)..... CHS Lobby
(All posters must be removed by 3:00 PM)

Authors present:

10:00 AM – Noon..... Health Sciences (Section IX)
10:30 AM – Noon..... Physics and Mathematics (Section III)
11:00 AM – Noon..... Chemistry (Section II)
11:00 AM – 1:00 PM.....STEM Education (Section VII)
11:30 AM – 1:30 PM..... Biological Sciences (Section I)
1:00 PM – 1:30 PM Bioethics and History & Philosophy of Science (Section X)
1:00 PM – 2:00 PM Environmental and Earth Science (Section VIII)
1:00 PM – 3:00 PM Social Sciences (Section V)
1:00 PM – 2:30 PM Engineering and Computer Science (Section IV)

12:00 Noon	Group Photograph AAS	CHS Lobby
Noon – 1:00 PM	Lunch.....	CHS Atrium
Noon – 12:30 PM	Trustees lunch	CHS 2A02 (in Atrium)
12:30 - 1:00 PM	AAS/AJAS Joint Annual Business Meeting	CHS 1222

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

1:00 PM	STEM Education (Section VIII).....	CHS 1213
1:00 PM	Health Science (Section IX)	CHS 1249
1:30 PM	Bioethics & History & Philosophy of Science (Section X)	CHS 1215
1:40 PM	Biological Sciences II (Section I)	CHS 1222
2:00 PM	Environmental and Earth Science (Section VIII)	CHS 1118
2:30 PM	Engineering and Computer Science (Section IV).....	CHS 1464
3:00 PM	Remove all AAS posters from CHS Lobby	
5:30 – 6:45 PM	Sci-Mix; Viewing of AJAS and Gorgas Scholars’ Posters	Howard Room, University Center
7:00 PM	Joint AJAS/AAS Banquet	The Caf, University Center

Welcome by

Ketia Shumaker, (AAS President)

Nena Sanders, Vice Provost, College of Health Sciences, Samford University

Scott Bickel, Invocation, Center for Faith and Health, College of Health Sciences
Symphony in Knife, Fork & Spoon

Alexis Jones and Rohan Badve (AJAS Co-Presidents), and Mark Jones (AJAS State Director)
Scott McBrayer, Mayor, City of Homewood

Presentation of Alabama Academy of Science Honors and Awards

Presentation of Gorgas Finalists

Introduction of Speaker Lucas Lynn (AJAS President 2015-2017)

“Research Highlights from the Genomics Age”

Cheryl D. Cropp, Pharm.D., Ph.D.

Associate Professor, Department of Pharmaceutical, Social and Administrative Sciences
McWhorter School of Pharmacy, College of Health Sciences, Samford University

Friday, March 16, 2018

7:00 – 7:30 AM AJAS Judges Registration CHS Lobby
7:30 – 8:00 AM Judges OrientationCHS 1460

Noon – 1:00 PM Keynote LuncheonCHS 1222

“...Where there is no path...”

Bradley Y. Dennis MD

Chief Medical Officer, Retired, Brookwood Medical Center

ALABAMA JUNIOR ACADEMY OF SCIENCE
March 15-16, 2018
University Center, Howard Room & The Caf
College of Health Sciences (CHS)
Thursday, February 23, 2017

12:30-1:00PM	Joint AAS/AJAS Business Meeting.....	CHS 1222
4:00 – 5:00 PM	Registration.....	Howard Room
4:00 – 5:00 PM	Poster Set-up and Orientation	Howard Room
5:00 PM	AJAS Orientation	Howard Room
5:30 – 6:45 PM	“Sci Mix” Viewing of AJAS and Gorgas Scholars’ Posters	Howard Room
7:00 PM	Joint AJAS/AAS Banquet	The Caf, University Center

Welcome

Ketia Shumaker, (AAS President)

Nena Sanders, Vice Provost, College of Health Sciences, Samford University

Scott Bickel, Invocation, Center for Faith and Health, College of Health Sciences
Symphony in Knife, Fork & Spoon

Alexis Jones and Rohan Badve (AJAS Co-Presidents), and Mark Jones (AJAS State Director)
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Presentation of Alabama Academy of Science Honors and Awards

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McWhorter School of Pharmacy, College of Health Sciences, Samford University

ALABAMA JUNIOR ACADEMY OF SCIENCE
March 15-16, 2018
College of Health Sciences (CHS), Samford University
Friday, March 16, 2018

Breakfast on your own; hotel and town locations

7:00 AM	Registration	CHS Lobby
7:30 AM	Paper Reading Orientation	CHS 1222
7:30 AM	AJAS Judges Orientation	CHS 1460
8:00 AM	Paper Competition	
	Life Sciences	CHS 1116
	Physical Science	CHS 1117
	Engineering and Mathematics and Computer Science.....	CHS 1464
	Environmental Science, Earth Science, and Space Science	CHS 1213
	Medicine and Health, Behavioral, and Social Sciences	CHS 1460
8:00 AM	Prepare for AJAS 2019 (Mentoring Workshop for Future Paper Competitions, Dr. Mark Jones, State AJAS Director).....	CHS 1222
11:30 AM	Elections and Business Meeting	CHS 1222
12:00 Noon	AJAS-Gorgas Group Photo	CHS Lobby
12:00 Noon	Lunch; Box Lunches	CHS Lobby/Balcony
	Lunch Speaker	CHS 1222
	“...Where there is no path...”	
	Bradley Y. Dennis MD	
	Chief Medical Officer, Retired, Brookwood Medical Center	
1:15 PM	AJAS Paper Competition Finals	CHS 1222
2:55 – 3:15 PM	AJAS Judges meeting	CHS 1460
3:15 PM	Awards Reception, Joint AJAS/Gorgas	CHS 1222

GORGAS SCHOLARSHIP COMPETITION
March 15-16, 2018
Samford University Center, Howard Room and The Caf
Thursday, March 15, 2018

4:00 – 5:00 PM	Registration.....	Howard Room
4:00 – 5:00 PM	Poster Set-up and Orientation	Howard Room
5:00 PM	AJAS Orientation	Howard Room
5:30 – 6:45 PM	“Sci Mix” Viewing of AJAS and Gorgas Scholars’ Posters	Howard Room
7:00 PM	Joint AJAS/AAS Banquet	The Caf, University Center

Welcome

Ketia Shumaker, (AAS President)

Nena Sanders, Vice Provost, College of Health Sciences, Samford University

Scott Bickel, Invocation, Center for Faith and Health, College of Health Sciences
Symphony in Knife, Fork & Spoon

Alexis Jones and Rohan Badve (AJAS Co-Presidents), and Mark Jones (AJAS State Director)
Scott McBrayer, Mayor, City of Homewood

Presentation of Alabama Academy of Science Honors and Awards

Presentation of Gorgas Finalists

Introduction of Speaker Lucas Lynn (AJAS President 2015-2017)

“Research Highlights from the Genomics Age”

Cheryl D. Cropp, Pharm.D., Ph.D.

Associate Professor, Department of Pharmaceutical, Social and Administrative Sciences

McWhorter School of Pharmacy, College of Health Sciences, Samford University

GORGAS SCHOLARSHIP COMPETITION

March 15-16, 2018

College of Health Sciences (CHS) Building 1

Samford University

Friday, March 16, 2018

Breakfast on your own; hotel and town locations

7:00 AM	Registration.....	CHS Lobby
7:30 AM	Gorgas Judges Orientation	CHS 1460
7:00 – 8:45 AM	Set Up Science Exhibits/Display/Poster/Orientation	CHS 1249
8:45 – 9:45 AM	Demonstrations for Judges	CHS 1249
10:00 AM – Noon	Individual Interviews with Judges will be conducted at the poster presentation sites	CHS 1249
12:00 Noon	AJAS-Gorgas Group Photo	CHS Lobby
12:00 Noon	Lunch; Box Lunches	CHS Lobby/Balcony
	Lunch Speaker	CHS 1222

“...Where there is no path...”

Bradley Y. Dennis MD

Chief Medical Officer, Retired, Brookwood Medical Center

12:00 – 1:00 PM	Gorgas Judges Executive Session	CHS 1249
1:15 PM	AJAS Paper Competition Finals	CHS 1222
2:55 PM	Remove Posters and Displays.....	CHS 1249
3:15 PM	Awards Reception, Joint AJAS/Gorgas	CHS 1222

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,
<http://alabamajunioracademyofscience.org/home/gorgas-scholarship-competition/>,
contains detailed information on the annual competition and awards available to winners and finalists.

SECTION I – BIOLOGICAL SCIENCES

Paper Session I

Thursday Morning, 9:00 AM
College of Health Sciences 1222
Gordon MacGregor, Presiding

1. 9:00 ****u** Using Antioxidant Drug Tempol to Enhance Metabolic Modifications of Gut Microbiota in Mice. *Darnella Cole*, University of West Alabama; Jingwei Cai, Pennsylvania State University; Robert Nichols, Pennsylvania State University; Andrew Patterson, Pennsylvania State University.
2. 9:20 Severe Drought may enhance oak reproduction through effects on acorn weevil populations. *Malia Fincher*, Ashton Edwards, Marisa Garrett; Wesley Walters, Samford University.
3. 9:40 ****g** The regulation of an intracellular Ca²⁺ signal in molting glands of the blue crab, *Callinectes sapidus*, and its role in ecdysteroid production. *Megan Roegner*, University of Alabama at Birmingham; Hsiang-Yin Chen, National Taiwan Ocean University; Robert Roer, UNC Wilmington; Watson R. Douglas, University of Alabama at Birmingham.
- 10:00 BREAK
4. 10:20 Single Cell Proteins as Fish Meal Replacement in Zebrafish Diets. *Stephen Watts*, Robert Barry, UAB; Sophie Bru, Yuan Yuan, Lauren Fowler, Mickie Powell, Addison Lawrence, University of Alabama at Birmingham.
5. 10:40 Urban Turtle Project. *Andrew Coleman*, Birmingham Audubon Society.
- 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

College of Health Sciences 1222

Brad Bennett, Presiding

6. 1:40 **g Feed Intake as an Estimation of Attractability in Shrimp. *Yuan Yuan*, Sophie Bru, Karen Jensen, Robert Barry, Adele Fowler, Robert Makowsky, Mickie Powell, Addison Lawrence, Stephen Watts, University of Alabama at Birmingham.
7. 2:00 **u Single Cell Proteins Promote Weight Gain in Cultured Shrimp. *Sophie Bru*, Yuan Yuan, University of Alabama at Birmingham; Karen Jensen, Robert Barry, Mickie Powell, Addison Lawrence, Stephen Watts, University of Alabama at Birmingham.
8. 2:20 **g Protein and Lipid Preferences in *Lytechinus variegatus*. *Jacksyn Clanton*, Ben McCafferty, Marlee Hayes, Yuan Yuan, Stephen Watts, University of Alabama at Birmingham.
- 2:40 BREAK
9. 3:00 **g Variations in Patterns of Feed Intake in a Sea Urchin. *Marlee Hayes*, University of Alabama at Birmingham; Robert Makowsky, University of Alabama at Birmingham; Jessica M. Hoffman, University of Alabama at Birmingham; John M. Lawrence, University of South Florida; Stephen Watts, University of Alabama at Birmingham.
10. 3:20 **g Inflammatory Pain causes Male Zebrafish to Seek Cooler Water. *Chris Taylor*, Stephen Watts, Robert Sorge, University of Alabama at Birmingham.
11. 3:40 Arabidopsis Bax Inhibitor 1 (AtBI-1) Interacts with AtIRE1a to Execute Pro-survival Function. *Xiaoyu Liu*, Karolina Mukhtar, University of Alabama at Birmingham.

**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
CHS Lobby
Authors Set-up: Begins at 7:30 AM
Authors Present: 11:30 AM – 1:30 PM
Gordon MacGregor & Brad Bennett, Presiding

12. **u Phylogenetic and morphological analyses of the Everglades pygmy sunfish (*Elassoma evergladei*). *Abby Hawkins*, John Larrimore, Joseph Sammons, Michael Sandel, Kayla Fast, University of West Alabama.
13. **u Prospecting for Actinobacteriophage Presence in Human Breast milk and Neonate Chyle. *Mitchell Disharoon*, Michael Sandel, Kayla Fast, University of West Alabama.
14. **u Bioinformatic Research into Phage Host Specificity. *Rakim Ali*, Kayla Fast, Michael Sandel, University of West Alabama.
15. Impacts of severe drought on remnant montane longleaf pine communities at Oak Mountain State Park. *Malia Fincher*, Samford University; Emily Repas, Elmira College.
16. **g Catalase Production and Future Mutagenesis of *V. fischeri*. *Julian Jackson*, Rachel Rock, Jeffrey Morris, University of Alabama at Birmingham.
17. **u Isolation, Purification, Modeling, and binding site analysis of the Salmonella Bacteriophage $\epsilon 34$ repressor for subsequent crystallization and structure-function studies. *Richardria Goodson*, Huntingdon College; Doba Jackson, Huntingdon College; Milan Branch, Huntingdon College; Meagan Clausell, Huntingdon College; Logan Gildea, Huntingdon College; Robert Villafane, Alabama State University.
18. **g Dietary Saturated Fat Source Differentially Affects Weight Gain in Zebrafish. *Audrey D. Powers*, L. Adele Fowler, R. Jeff Barry, Michael B. Williams, Louis A.D'Abramo, Stephen A. Watts, University of Alabama at Birmingham.
19. A Rapid Method for the Identification of Alabama *Cuscuta* Using PCR-RFLP. *David Johnson*, Samford University; Javier Carrillo-Cortez, Humboldt State University.
20. **g Effects of Chemical Dispersant (Corexit 9500A) on the Structure and Ion Transport Function of Blue Crab (*Callinectes sapidus*) Gills. *Amanda Weiner*, University of Alabama at Birmingham; Megan Roegner, University of Alabama at Birmingham; R. Douglas Watson, University of Alabama at Birmingham.
21. **u The effect of $\alpha 2A$ Adrenergic Receptor on Alzheimer's Disease (AD) Pathology in an AD Mouse Model. *Itzel Mendoza*, Samford University; Mary Gannon, Department of Cell, Developmental, & Integrative Biology; Yin Ping, Department of Genetics; Uzma Nur, Summer Science Institute: Student Research Internship Program; KaiJiao, Department of Genetics; Qin Wang, Department of Cell, Developmental, & Integrative Biology.
22. **u Gonad Growth in Sea Urchin *Lytechinus variegatus* Exposed to *Vibrio natriegens*. *Amy Seymour*, Uduak Afangideh, Faulkner University.

23. **u Southern Porcini: a putative new variety in the genus *Boletus*. *Sahar Delghandi*, Juan L Mata, University of South Alabama.
24. **u Developing a Microbrewery Accessible Evolution Protocol, *Elliott Greene*, University of Alabama at Birmingham, Cahaba Brewing Company; Eric Meyer, Cahaba Brewing Company; Jeffrey Morris, University of Alabama at Birmingham
25. **g A Preliminary Investigation of the Vascular Flora of Geneva County, Alabama. *Cameron Byrd*, Alvin Diamond, Troy University.
26. **u Investigating histone deacetylation during chorion gene amplification in *Drosophila* oogenesis. *Erin Brown*, Kristopher McConnell, Judson College.
27. **u Effects of Heat Shock and Gal4 on *Drosophila* Oogenesis. *Katie Owens*, Kristopher McConnell, Judson College.
28. Muskogee Medicine: Native Plants Commonly Used in Muskogee Ceremonies and Healing. *Alvin Diamond*, Robert Pullen, Troy University.
29. **u *Limnodrilus* sp. Living in Toxic Hydrogen Sulfide. *Shelby Lauzon*, Judson College; David Johnson, Samford University.
30. **u Differences in Frequency and Intensity of Canopy Disturbance Across the Range of Eastern Hemlock. *Isaiah Byrd*, Carolyn Copenheaver, Virginia Tech; Ketia Shumaker, The University of West Alabama.
31. Rare Earth Metal Oxides: Synthesis, Characterization, and Antimicrobial Activity. *Afef Janen*, Alabama A&M University; Kuzhivelil Joseph Arun, Department of Physics, Sree Kerala Varma College, Thrissur, Kerala 680011, India; Mohan Aggarwal, Department of Physics, Chemistry and Mathematics, Alabama A&M University; Kadiatou Keita, Department of Biological and Environmental Sciences, Alabama A&M University,.

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

SECTION II – CHEMISTRY

Paper Session

Thursday Morning, 9:00 AM

CHS 1214

Cameron Gren, Presiding

1. 9:00 **u Optimization of a Tetrachloroethylene-Methyl Methacrylate Copolymer System under pH 7 Buffer. *Loren Cheatwood*, Justin Tinker, Donna Perygin, Jacksonville State University.
 2. 9:20 **u The Pyrolysis of BP Tarballs. *Amber Smith*, Jacksonville State University.
 3. 9:40 **u Identification of Odorous Volatile Compounds in Recycled Plastic Resins. *Jon Fuller*, Troy University; *Zane Vickery*, Troy University; *Jason Colley*, University of Georgia; *David Norman*, Emory University; *ShaoyangLiu*, Troy University.
 4. 10:00 **g Synthesis, Characterization and Reactivity Studies of Copper (II) and Nickel (II) Complexes. *Niharika Botcha*, University of Alabama in Huntsville, *Nirupama Singh*, AmbioPharm Inc.; *Anusree Mukherjee*, The University of Alabama in Huntsville.
 5. 10:20 The Life and Legacy of Rachel Carson. *Amanda Coffman*, University of North Alabama.
- 10:40 BUSINESS MEETING Election of a section vice-chair for the 2018-20 term

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

SECTION II – CHEMISTRY

Poster Session

Thursday Morning

CHS Lobby

Authors Set-up: Begins at 7:30 AM

Authors Present: Poster Session (11:00 AM – Noon); Viewing and Judging

Cameron Gren, Presiding

6. ****g** Generating A State Diagram of Langmuir Films of Quantum Dots. *Cuong Nguyen*, Jeffrey Weimer, University of Alabama in Huntsville.
7. ****u** Effects of Solvent Variation to Functionalize Glass with Chlorotrimethylsilane. *Jonathan Cookston*, Jeffrey Weimer, University of Alabama in Huntsville.
8. ****u** Cyclic Asymmetric Aldol Additions and Dehydrations in Hot Pressurized Water. *Olivia den Besten*, John Berch, Huntingdon College.
9. ****u** Green Modifications to the Hajos Pathway to an Important Steroid Intermediate. *Caroline Cooper*, John Berch, Huntingdon College.

SECTION III – PHYSICS AND MATHEMATICS

Paper Session

Thursday Morning, 9:00 – 10:30 AM

CHS 1460

Mel Blake, Presiding

1. 9:00 Recent Progress in Holographic Imaging of Opals. *D. Brian Thompson*, University of North Alabama.
2. 9:20 ****g** In situ Current-Voltage Characteristics of CdZnTe in Extreme Thermal Environments. *Tyler Richardson*, Alabama A&M University; Matthew Dowdell, Alabama A&M University; Robert E. Smith II, Alabama A&M University; Emmanuel Joda, Alabama A&M University; Olasunkanmi Rowland, Alabama A&M University; Jonathan S. Lassiter, Alabama A&M University; Stephen O. Babalola, Alabama A&M University.
3. 9:40 ****g** The Fabrication of Zinc Oxide Films for Sensor Applications. *Jemilia Polius*, Alabama A&M University, 2002; Dr. Mohan Aggarwal, Alabama A&M University.
4. 10:00 Positive Semi-Definite 2 by 2 Block Matrices and Norm Inequalities, *Jianzhen Liu*, Mehmet Gumus, Samir Raouafi, and Tin-Yau Tam, Department of Mathematics and Statistics, Auburn University

10:20 BUSINESS MEETING

Elect a Section Vice-Chair for the 2018-19 Term

****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

CHS Lobby

Authors Set-up: Begins at 7:30 AM

Authors Present: 10:30 AM –12:00 Noon

Mel Blake and Wen Yan, Presiding

5. ****u** Measurement of Impedance of Lithium Ion Battery using Electrochemical Impedance Spectroscopy. *Salah Elafandi*, Akshaya Kumar, Prakash Sharma, Tuskegee University.
6. Utilization of UV-V's Photo- Reduction Processes. *Prakash Sharma*, Akshaya Kumar, Salah Elafandi, Tuskegee University.
7. Production of Hydrogen from Solar Energy. *Prakash Sharma*, Salah Elafandi, Akshaya Kumar, Tuskegee University.
8. ****U** Model For Photocatalytic Air Disinfection. *Salah Elafandi*, Akshaya Kumar, Prakash Sharma, Tuskegee University.
9. Probability and Statistics of the Rarest Phenomenon in Cricket. *Arjun Tan*, Almuatasim Alomari, Marius Schamschula, Alabama A&M University.
10. Obtaining Exact Values of $\sin(n\pi/7)$. *Arjun Tan*, Almuatasim Alomari, Marius Schamschula, Alabama A&M University.
11. ****u** Factors Affecting Resistivity of CdZnTe Crystals at Elevated Temperatures. *Matthew Dowdell*, Alabama A&M University; *Matthew Dowdell*, Alabama A&M University; *Omolola Ojewole*, Alabama A&M University; *Tyler Richardson*, Alabama A&M University; *RobertSmith II*, Alabama A&M University; *Jonathan Lassiter*, Alabama A&M University; *Stephen Babalola*, 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

CHS 1464

Thursday Afternoon, 2:30 PM

Brian Toone, Presiding

2:30 BUSINESS MEETING [Elect Section Chair and Vice-Chair, 2018-2020 term]

POSTER SESSION

Thursday Afternoon

CHS Lobby

Authors Set-up: Begins at 7:30 AM

Authors Present: 1:00 PM – 2:30 PM, Viewing and Judging

Brian Toone, Presiding

1. ****u** EOM of graphene for the development of a tunable filter. *John Wise*, Dylan McKelvey, Ravi Gollapoli, University of North Alabama.
2. ****u** Implementing Belief Propagation On a GPU Using the MERCATOR Framework. *Edgar Flores*, Samford University; Jeremy Buhler, Washington University in St. Louis; Stephen Cole, Washington University in St. Louis; Theron Howe, Washington University in St. Louis.
3. ****u** Uncertainties in Fitting Force-Distance Curves from Atomic Force Microscopy. *Stephen Morgan*, Jeffrey Weimer, University of Alabama Huntsville.
4. ****u** Emotional Intelligence and the Soul: Limitations to Strong AI. *Ethan Widen*, Faulkner University.

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

SECTION V – SOCIAL SCIENCE
Paper Session
Thursday Morning 9:00 – 12:00 Noon
CHS 1116
Susan D. Herring, Presiding

1. 9:00 Increasing Awareness of Terms of Service Agreements. *Kelly Pivik*, Mary Rivers, Jarius Rembert, Oliver Burrell, and Jessica Howard, University of West Alabama.
 2. 9:25 Security Clearance Issues in National Defense. *Charles Roberts*, R. Bryan Kennedy, and Susan D. Herring, Athens State University.
 3. 9:50 The Problem of Sexual Harassment in the Workplace. *Michael Essary*, R. Bryan Kennedy, and Susan D. Herring, Athens State University.
 4. 10:15 Does Warfare Change the Face of Ethics? *Thomas Pieplow*, R. Bryan Kennedy, and Susan D. Herring, Athens State University.
 5. 10:40 When Computers Force Us to Become More Human. *Benjamin Bush*, Auburn University.
 6. 11:05 Food Security and Local Food Systems for Healthy, Livable Communities in North Alabama. *Berneece Herbert* and Tabaris Smith, Alabama A&M University.
- 11:30 BUSINESS MEETING
Election of a Section Vice-Chair for 2018-2020 Term

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

SECTION V – SOCIAL SCIENCE
Poster Session
Thursday Afternoon
CHS Lobby
Authors Set-up: Begins at 7:30 AM
Authors Present: 1:00-3:00 PM; Viewing and Judging

7. **u The Effects of Rosemary's Essential Oil on Short-term Memory. *Jarius Rembert* and Kelly Pivik, University of West Alabama.
8. **u Grandiose and Vulnerable Narcissism Are Linked to Low Relationship Commitment. *Krisztina Szabo*, Jan-Louw Kotze, and Joshua Foster, University of South Alabama.
9. **g Age-Appropriate and Inappropriate Expressions of Narcissism in Older/Younger People. *Jan-Louw Kotze*, *Krisztina Szabo*, and Joshua Foster, University of South Alabama.
10. **u The Impact of Photojournalism on the Success of Social Movements. *Hillary Taylor* and Andrea Hunt, University of North Alabama.

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

SECTION VI – ANTHROPOLOGY
Paper Session
Thursday Morning, 9:00 AM -- Noon
CHS 1117
Jason Mann, Presiding

1. 9:00 Evidence for the endemic speciation of robust australopiths at Sterkfontein, South Africa. *Jason Heaton*, Birmingham-Southern College.
2. 9:20 Connecting the Public to Their Natural and Cultural Heritage. *Alexandria Smith*, University of South Alabama, US Army Corps of Engineers.
3. 9:40 **u Can Gorilla dental wear scores be used among fossil hominids?. *Sarah Catherine Murphy*, Jason Heaton, Birmingham-Southern College.
4. 10:00 **g Barbary Macaque Ethnoprimateology and Interdisciplinary Conservation in Northern Morocco. *Sherrie Alexander*, University of Alabama at Birmingham.
5. 10:20 **u A Bannerstone Production Kit from the Thrash Site. *Zachary Smith*, Troy University.
6. 10:40 **u The Artifacts of the Living Floor Area at the Thrash Site: 1Pk71. *Marinda Lawley*, Troy University.
7. 11:00 **u LiDAR in the Field of Alabama Archaeology, Brandon Duncan Roberts, Troy University.

SECTION VII: STEM EDUCATION

Paper Session

Thursday Afternoon 1:00 – 4:00 PM

CHS 1213

J. Wayne McCain, Presiding

1. 1:00 **g A Call for Science Educators to Dish Out the Art. *Sarah Adkins*, Rachel Rock, Jeffrey Morris, University of Alabama at Birmingham
2. 1:20 **g Using Internet of Things for an Alternative Pedagogy for Instructors. *Anthony Winchester*, Karthikeyan Lingasubramanian, The University of Alabama at Birmingham
3. 1:40 Understanding and Using Piaget-Popper Constructivism Method with Symbolic Mental Structures and Patterns to Implement Critical Thinking. *Matthew Edwards*, Alabama A&M University .
- 2:00 *INTERMISSION 10 MINUTES*
4. 2:10 “This could be a game!” : Energize and engage your classroom instruction with a gamified student response system. *Samiksha Raut*, University of Alabama at Birmingham .
5. 2:30 Improving Understanding of Natural Selection using Evolving Digital Organisms. *Mickie Powell*, Samiksha Raut, University of Alabama at Birmingham .
6. 2:50 Effects of instructional style on student performance: A comparative analysis of a non-majors biology course. *Uduak Afangideh*, Faulkner University, Bisoo Maranda, Alabama State Department of Education.
- 3:10 *INTERMISSION 10 MINUTES*
7. 3:20 Lessons form the War Zone: the 2017 Total Solar Eclipse Mania. *Mel Blake*, University of North Alabama
8. 3:40 A Radio Astronomy CubeSat For STEM Education. *J. Wayne McCain*, Athens State University; Collin Rogers McCain, Calhoun Community College .
9. 4:00 **u The Titanic Disaster - Poor Risk Management. *Logan Sulfridge*, J Wayne McCain, Athens State University .
- 4:20 *BUSINESS MEETING* – Elect Vice-Chair for 2018-2019 year.

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

SECTION VII: STEM EDUCATION

Poster Session

Thursday

CHS Lobby

Authors Set-up: Begins at 7:30 AM

Authors Present. 11:00 AM – 1:00 PM, Viewing and Judging

J. Wayne McCain, Presiding

10. ****u** Improving Supplemental Instruction Through Active-Learning Modules in Introductory Biology. *Sebastian Schormann*, James Boyett, Samiksha Raut, University of Alabama at Birmingham.
11. Sustained teaching mentoring works and benefits mentors as well as those mentored. An update on the Promoting Active Learning and Mentoring (PALM) Network. *Samiksha Raut*, University of Alabama at Birmingham; Sara Brownell, Arizona State University; Sue Wick, University of Minnesota-Twin cities; Amy Prunuske, Medical College of Wisconsin; Michael Wolyniak, Hampden Sydney College; Mark Peifer, University of North Carolina Chapel Hill.
12. ****u** A Radio Astronomy CubeSat For STEM Education. *Collin Rogers McCain*, Calhoun Community College; J. Wayne McCain, Athens State University .

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

SECTION VIII – ENVIRONMENTAL AND EARTH SCIENCE

Paper Session

CHS 1118

Thursday afternoon, 2:00 – 3:30 PM

Steven Schultze, Presiding

1. 2:00 Benthic Foraminiferal Species Distributions in Eastern Lake, Walton Co., FL. *Kaylyn Bellais*, Murlene Clark, Steven Schultze, University of South Alabama.
 2. 2:20 ****u** Examination of Extreme Cold and Frost in Alabama Citrus. *Samantha Darring*, Steven Schultze, University of South Alabama.
 3. 2:40 Precision Agriculture and the Effect of Microclimates on Crop Development. *Steven Schultze*, University of South Alabama.
 4. 3:00 ****u** Feasibility of Growing Beer Hops in the Southern Alabama Region. *Wayne Williams*, Steven Schultze, University of South Alabama.
- 3:20 BUSINESS MEETING
Elect a Vice-Chair for 2018-19 Term

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

SECTION VIII – ENVIRONMENTAL AND EARTH SCIENCE

Poster Session

Thursday Afternoon, 1:00 – 2:00 PM

CHS Lobby

Authors Set-up: Begins at 7:30 AM

Authors Present: 1:00 – 2:00 PM; Judging and Viewing

Steven Schultze, Presiding

5. Impact of Invasive Ants (Hymenoptera: Formicidae) on Carrion Beetle Abundance Across an Urban-Rural Gradient. *Grant Gentry*, Samford University; Isaac Heinkel, University of North Alabama; Hope Reamer, Samford University.
6. ****g** A Novel Testing Method for Manganese Concentration in Drinking Water. *Anna Holmes*, Emanuel Waddell, Bernhard Vogler, University of Alabama in Huntsville.
7. ****u** Radial Growth Response of Coniferous and Deciduous Trees to Late Growing-Season Frosts in Michigan. *Abigail Coley*, University of West Alabama; Ketia Shumaker, University of West Alabama; Carolyn Copenheaver, Virginia Tech.

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

SECTION IX: HEALTH SCIENCES

Paper Session

Thursday Morning, 8:00 – 9:45 AM

CHS 1249

Donna Cleveland, Presiding

1. 8:00 Nursing Self-Assessment of IPEC Competencies After Interprofessional Education. *Ellen Buckner*, Lisa Gurley, Samford University.
2. 8:15 Integrating Information Literacy into Health Sciences Education. *Lauren Young*, Lance Day, Lori Northrup, Samford University.
3. 8:30 **g Team-based learning (TBL): A strategy for developing nursing students' NCLEX preparation. *Merrill Howard*, Grand Canyon University; *Ellen Buckner*, Samford University.
4. 8:45 **g Telehealth Services. *Laura Edwards*, Laura Edwards, Rebecca Huie, Birmingham VA Medical Center.
5. 9:00 A Qualitative Study of Nursing and Pharmacy Student Perceptions of an Interprofessional Pharmacokinetics Simulation. *Jennifer Beall*, Samford University; Cheryl Cropp, McWhorter School of Pharmacy; Frankie Wallis, Ida Moffett School of Nursing; *Ellen Buckner*, Ida Moffett School of Nursing.
6. 9:15 **u Sexual Differences in Effects of Ileal Interposition Surgery on Melanocortin-4 Receptor Deficient Rats. *Courtney Hunt*, University of North Alabama; Ping Zhao, University of North Alabama; Alicia Kiechler, Southern Illinois University Carbondale; Elliott Ziemann, Southern Illinois University Carbondale; *Courtney Hunt*, University of North Alabama; April Strader, Southern Illinois University.
7. 9:30 Effects of 4% blueberry diet on anxiety and ataxia in a mouse model of Rett Syndrome. *Suzanne Oberholster*, Ron Hunsinger, Samford University.

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

SECTION IX: HEALTH SCIENCES

Poster Session

Thursday Morning

CHS Lobby

Authors Set-up: Begins at 7:30 AM

Authors Present: 10:00 AM - 12:00 Noon for Viewing and Judging

Donna Cleveland, Presiding

8. **g Building Partnerships: A Collaborative Case of US and Kenyan Students. *Sylvia Waweru*, University of South Alabama
9. 10. **g Albumin Site Specific Protein Binding of Benzodiazepines. *Rachel Stogner*, Serena Clark, Gregory Gorman, Pamela Sims, Samford University.
10. **u Analysis of Health Insurance Status of Students at Samford University. *Jamond Glass*, Ashley Robertson, Samford University.
11. Service, Knowledge in Nurse Anesthesia Students after Service Learning Implementation. *Terri Cahoon*, Amy Snow, Samford University.
12. Evidence-Based Practice Supporting Current Cervical Cancer Screening Guidelines. *Rebecca Thomas*, Daphne Hutto, University of South Alabama.
13. **u Ethical Issues in Social Media: A Study of First Semester and Last Semester Nursing Students. *Frances Clarke*, University of South Alabama; Elizabeth VandeWaa, College of Nursing; David Turnipseed, College of Business.
14. **u Pediatric Hospice Care: The Effects of an Educational Program for Pediatric Hematology and Oncology Nurses on End-Of-Life Services. *Madeline Erickson*, Rebecca Thomas, University of South Alabama.

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

SECTION IX: HEALTH SCIENCES

Paper Session

Thursday Afternoon, 1:00 – 2:30 PM

CHS 1249

Donna Cleveland, Presiding

15. 1:00 Blockchain Applications in Health: Hype and Reality. *David Robbins*, Samford University.
16. 1:15 Diagnostic Imaging of Lung Disease. *Donna Cleveland*, University of South Alabama.
17. 1:30 An Electroencephalographic Study of Phonological Effects on Word Recognition. *John Shelley-Tremblay*, Donald Knapp, University of South Alabama.
18. 1:45 On Mission for Malaria: An Educational Guide. *Sherri Chatman*, Samford University.
- 2:00 BUSINESS MEETING: Elect a Section Vice-Chair for the 2018-2020 term

SECTION X. BIOETHICS AND HISTORY & PHILOSOPHY OF SCIENCE

Paper Session

Thursday Afternoon, 1:30 – 4:00 pm

CHS 1215

Clark Lundell, Presiding

1. 1:30 Global Migration: History, Necessity, Ethos. *Kenneth Nusbaum*, Clark Lundell, Auburn University.
 2. 1:45 The Technological Imperative and Medicine. *Dennis Sansom*, Samford University.
 3. 2:00 The Search for Knowledge: A Matter of Perspective and Time. *Brian LaHaie*, University of Georgia, College of Environment and Design; Clark Lundell, Auburn University.
 4. 2:15 Industrial Design Participation in Project Management. *Randall Bartlett*, Clark Lundell, Auburn University.
 5. 2:30 Enhancing Casual Learning of Science with Graphic Design. *David Smith*, Auburn University.
 6. 2:45 **u The Role of Creativity in Science. *Sarah McGhee*, Dennis Sansom, Samford University.
 7. 3:00 **g Babes in Toyland: Neglecting the Concrete Operational Phase in Toy Design. *Micah Gamache*, Auburn University .
 8. 3:15 Economic Climate and Contemporary Waters. *Clark Lundell*, Auburn University.
- 3:30 BUSINESS MEETING
Elect a Section Chair and Vice-Chair for 2018-2020 term.

SECTION X. BIOETHICS AND HISTORY & PHILOSOPHY OF SCIENCE

Poster Session

Thursday Afternoon

CHS Lobby

Authors Set-up: Begins at 7:30 AM

Authors Present 1:00 – 1:30 pm, viewing and judging

Clark Lundell, Presiding

9. ****g** Method for the Development of Alternative Agriculture. *Justin Murphy*, Auburn University.
10. Bioethical Consequences and Implications of CRISPR-Cas9 Technology. *Shuntele Burns*, Alabama State University.

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

ALABAMA JUNIOR ACADEMY OF SCIENCE

Mark Jones, State Director

Posters at Sci-Mix Session

Thursday Evening, 5:30 PM – 6:45 PM

Howard Room, University Center

Engineering/Mathematics

1. *Lucas Lynn, Hexagonal Loom: Building a Loom for the Hexagonal Weave and a Better Body Armor, *Wetumpka High School*, Wetumpka
2. Brayden Noh, Biomechanical Effect of 3D-Printed Passive-Elastic Knee Brace during Gait Cycle, *Auburn High School*, Auburn
3. Sarathi Shah, A Computational Approach to Protein Diffusion on the Golgi Membrane, *Jefferson County International Baccalaureate School*, Birmingham
4. Jared Callen, Developing a Solution to Personal Computer Security, *Wetumpka High School*, Wetumpka
5. Ethan Hines, Cost Efficiency and Environmental Benefits of Autonomous Landscaping, *Wetumpka High School*, Wetumpka
6. Matthias Rathbun, Fixed Beam Natural Frequencies of Ceramic Nanofibrous Membranes from Electrospinning, *Jefferson County International Baccalaureate*, Irondale
7. John Dennis, A Novel Robotic Fire Extinguishing Device Utilizing Machine Vision for Fire Detection, *Wetumpka High School*, Wetumpka
8. Ryan Ketring, Rocket Fuel. Less is More, *Auburn High School*, Auburn
9. Jacob Glidewell, The Effect of Various Machine Learning Regression Algorithms on the Outcome of Predicted Data via Modeling the Effect of the Distance from a Light Source on the Carbon Dioxide Emissions of *Cornus florida*, *Jefferson County International Baccalaureate*, Irondale

Environmental Earth and Space Science

1. *Emily Pinkston, The Impact of Hurricanes on the Composition of Rainwater and Topsoil, *Wetumpka High School*, Wetumpka
2. *Katharine Lightfoot, Bioremediation of Eutrophication in Sewage Treatment Plants, *Jefferson County International Baccalaureate*, Irondale
3. *Rachael Brooks, An Exploration on the Ability of Riparian Buffer Systems to Filter Out Potential Pollutants and Enhance Water Quality in the Feeder Streams of the Cahaba River, *Jefferson County International Baccalaureate*, Birmingham
4. *Raegan Adams, The Effect of Seasonal Changes on the GPP of an Aquatic System, *Jefferson County International Baccalaureate School*, Birmingham
5. Clayton Hutsler, Optimizing Efficiency of Photovoltaic System Based on Solar Angle, *Wetumpka High School*, Wetumpka
6. Analise Chambers, Carbon Dioxide Removal in Coniferous and Deciduous Trees, *Jefferson County International Baccalaureate*, Irondale
7. Noel Lange, Factors Affecting the Discharge of Micro-Plastic Fibers from Household Laundry, *Auburn High School*, Auburn
8. Ashraf Mansour, Energy Harvesting from Radio Waves, *Auburn High School*, Auburn

Life Science

1. **Alexis Jones*, Designing a Recycled Food Supplement for Canines Through Nutritional Assessment and the Development of an Algorithm to Reduce Food Waste, *Auburn High School*, Auburn
2. *Sejal Srivastava*, Plant Growth-Promoting Rhizobacteria as Antibiotics/Antifungals for Phytopathogens, *Auburn High School*, Auburn
3. *Hunter Segrest*, Garden Production: Vertical vs. Horizontal, *Marbury High School*, Deatsville
4. *Jiho Lee and Suma Ejantkar*, The effect of Nitrogen, Phosphorus, and Potassium on *Lolium multiflorum*, *Auburn High School*, Auburn
5. *Ginger Guthrie*, The Effect of Wind on the Transpiration of Cut Flowers, *Jefferson County International Baccalaureate*, Irondale
6. *Hailey Holbert*, What's in Vents, *Wetumpka High School*, Wetumpka

Medicine Health and Behavioral Science

1. **Sharee Riggs*, Food for the Future: A Study of Insects as Global Food Security, *Wetumpka High School*, Wetumpka
2. **Richard Fu*, The Ketogenic Diet Promotes the Therapeutic Efficacy of Anti-PD-1 Therapy in Melanoma, *Vestavia High School*, Vestavia Hills
3. *Nandita Dey*, *P. aeruginosa* Induced Gap Formation in PMEC is Exacerbated by Bicarbonate, *W.P. Davidson High School*, Mobile
4. *Arshnoor Grewal*, The Effect of *Allium sativum* on the Growth of *Saccharomyces cerevisiae*, *Jefferson County International Baccalaureate*, Irondale
5. *Ritikraj Arya*, Abscisic Acid as a Therapeutic Agent in Breast Cancer, *LAMP High School*, Montgomery
6. *Sommer Carnes*, Music and Memorization Relations, *Jefferson County International Baccalaureate*, Irondale
7. *Sarathi Shah*, An Investigation of Protein Reactions on the Golgi Membrane Using Fluorescence Recovery After Photobleaching, *Jefferson County International Baccalaureate School*, Birmingham

Physical Science

1. **Madeleine Forbes*, The Synthesis and Testing of Potent Yet Selective Inhibitors of Protein Phosphatase 5, *W.P. Davidson High School*, Mobile
2. *Viraj Kacker*, Computational Investigation of Protein Diffusion on the Golgi Apparatus, *Jefferson County International Baccalaureate School*, Birmingham
3. *Aniket Pant*, Optical Studies of Nanostructures for Biosensing Applications, *Jefferson County International Baccalaureate School*, Birmingham
4. *Jaeyoung Lee*, Efficiency of Different Metal Oxides at Blocking Out UV Rays in Sunscreen, *Auburn Junior High School*, Auburn
5. *Peyton Crosby*, It's Electrifying! , *Wetumpka High School*, Wetumpka
6. *Hannah Beumer*, Increasing Reflectivity to Reduce Heat Emissions, *Wetumpka High School*, Wetumpka
7. *Nikitha Sridhar*, Effectiveness of Noise Reduction by Porous and Non-porous Materials, *Auburn High School*, Auburn

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

GORGAS SCHOLARSHIP COMPETITION

Sci-Mix Session
Thursday Evening, 5:30 PM – 6:45 PM
Howard Room, University Center
Ellen Buckner, Presiding

Finalists in the 2018 Alabama Science Scholar Search and Gorgas Scholarship Program will discuss their projects.

1. *Raegan Adams*, The Effect of Seasonal Changes on the GPP of an Aquatic System, Jefferson County International Baccalaureate, Birmingham, [Kelly Breland].
2. *Rachael Brooks*, An exploration on the ability of riparian buffer systems to filter out potential pollutants and enhance water quality in the feeder streams of the Cahaba River, Jefferson County International Baccalaureate, Birmingham, [Kelly Breland].
3. *Kimberly Chieh*, Temporospatial Patterns in Mobile Bay Physicochemical and Heavy Metal Parameters, Alabama School of Math and Science, Mobile, [Natalie Ortell].
4. *Madeleine Forbes*, The Synthesis and Testing of Potent Yet Selective Inhibitors of PP5, WP Davidson High School, Mobile, [Robin Stefurak].
5. *Richard Fu*, The Ketogenic Diet Promotes the Therapeutic Efficacy of Anti-PD-1 Therapy in Melanoma, Vestavia Hills High School, Vestavia Hills, [Katherine Scheirer].
6. ****Sophie Guo**, Highly Sensitive E. coli Bacteria Detection through the Integration of Gold Nanodisk and Nanocave Localized Plasmon Resonance and Antibody-Antigen Binding, James Clemens High School, [Carol Bohatch].
7. *Leanne Jeong*, Tracking Seasonal Changes of Specific Pathogenic Bacteria Around Mobile Bay, Alabama School of Mathematics and Science, Mobile, [Natalie Ortell].
8. *Alexis Jones*, Designing a Recycled Food Supplement for Canines Through Nutritional Assessments and the Development of an Algorithm, Auburn High School, Auburn, [Mark Jones].
9. *Kate Lightfoot*, Bioremediation of Eutrophication in Sewage Treatment Plants, Jefferson County International Baccalaureate, Birmingham, [Ryan Reardon].
10. *Lucas Lynn*, Shear Radial Strength: Using Tensile Strength Testing, Ballistic Testing, and a Hexagonal Loom to Create a Better Body Armor, Wetumpka High School, Wetumpka, [Virginia Vilardi].
11. *Emily Pinkston*, The Impact of Hurricanes on the Composition of Rainwater and Topsoil, Wetumpka High School, Wetumpka, [Virginia Vilardi].
12. *Sharee Riggs*, Food for the Future: A Study of Insects as a Protein Source for Global Food Security, Wetumpka High School, Wetumpka, [Virginia Vilardi].

**** Regeneron 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.

2018 REGIONAL SCIENCE FAIRS

1. **Central Alabama Regional Science & Engineering Fair**, [web](#), March 3, 2018
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**, March 2, 2018
Roger Campbell, Ph.D. 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 20-21, 2018
Jacob Kerstiens, coordinator
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 6, 2018
Josh King
GEARSEF Fair Coordinator
(334) 844-8123
josh.king@auburn.edu
5. **Mobile Regional Science and Engineering Fair**, [web](#), March 16, 2018
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](#), April 5 & 6, 2018
Vanessa Colebaugh, coordinator
asef@uah.edu
256.824.4510
The University of Alabama in Huntsville
Earth System Science Center, CRH 3078
Huntsville, AL 35899

2018 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.societyscience.org/intel-isef>.

The Intel 2018 ISEF will be held May 13-18, 2018 in Pittsburgh, PA at the [David L. Lawrence Convention Center](#). For details visit <https://student.societyscience.org/attendees>

Virginia Vilardi, Intel/ISEF and State Coordinator, 1251 Coosa River Parkway, Wetumpka H.S., 36092, (334) 799-0104, 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 at Jacksonville High School

Saturday, February 24th

Details at the <http://www.esoatjhs.org/> web site.

Maximum of one team per school.

University of West Alabama

Tuesday, October 17th

Auburn University

Saturday, February 24th

Details at the <http://www.auburn.edu/cosam/scienceolympiad> web site.

Division B – Middle School (6-9) Science Olympiad at

University of Alabama, Tuscaloosa

Saturday, February 24th

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

University of Alabama at Huntsville

Saturday, March 3rd

Link to additional <http://www.nsstc.uah.edu/scienceolympiad/index.html>

University of Alabama at Birmingham

Saturday, February 10th

Link to additional <http://www.uab.edu/sthonors/scienceolympiad>

Maximum of one team per school (per division).

University of South Alabama

Saturday, March 3rd

Link to additional <http://www.southalabama.edu/programs/our/scienceolympiad/index.html>

Division C – High School (9-12) Science Olympiad at

University of Alabama, Tuscaloosa

Saturday, February 24th

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

University of Alabama at Huntsville

Saturday, March 3rd

Link to additional <http://www.nsstc.uah.edu/scienceolympiad/index.html>

University of Alabama at Birmingham

Saturday, February 10th

Link to additional <http://www.uab.edu/sthonors/scienceolympiad>

Maximum of one team per school (per division).

University of South Alabama

Saturday, March 3rd

Link to additional <http://www.southalabama.edu/programs/our/scienceolympiad/index.html>

State Tournaments

Auburn University

Division B and C State Olympiads

Saturday, March 31st

Link to additional

<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/registration.html.](http://www.alabamaso.org/registration.html)
- [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 May 18-19, 2018, by Colorado State University in Ft. Collins, Colorado. For more information, visit <https://coloradoscienceolympiad.org/2018national>.

State Director: Jane Nall, 31110 Wakefield Drive, Spanish Fort, AL 36527 (251) 621-2911, email 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. Ronald Hunsinger serves as Chair of the Mason Science Teacher Fellowship Committee, rnhunsin@samford.edu. Downloadable applications and further information can be found on the Academy web site, 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
2017 - 2018	Celia Dozier, Samford

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.
- 2017 E. O. Wilson, University Professor Emeritus, Harvard 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
- 2017 No award

SECTION OFFICERS, 2017-2018

Section I: Biological Sciences:

- Chair: (2019) Gordon MacGregor, Department of Biology, University of Alabama in Huntsville, Huntsville, AL 35899, (256)-824-4925, gm0009@uah.edu
- Vice Chair: (2019) Brad Bennett, Department of Biology, Samford University, Birmingham, AL 35229, (205) 726-2303, bbennet1@samford.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.
- Vice Chair: (2018) Christopher Stopera, Dept. of Chemistry, Univ. of North Alabama, Florence, AL 35632, (256)-765-4479, cstopera@una.edu

Section III: Physics and Mathematics:

- Chair: (2019). Mel Blake, Dept. of Physics and Earth Science, Univ. of North Alabama, Florence, AL 35630, (256)-765-4284, rmlake@una.edu
- Vice Chair: Vacant

Section IV: Engineering and Computer Science:

- Chair: (2018), Brian Toone, Dept. of Mathematics and Computer Science, Samford University, Birmingham, AL 35229 (205) 726-2960, brtoone@samford.edu.
- Vice Chair: Vacant

Section V: Social Sciences:

- Chair: (2018) Susan Herring, (256)-851-8036, 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

Section VI: Anthropology:

- Chair: Jason Mann, Department of Social Studies, Troy University, Troy, AL 36082, (334) 670-3957, jmann@troy.edu
- Vice Chair: Phillip Koerper, Dept. of History, Jacksonville State Univ., Jacksonville, AL 36265, (256)-782-5604 pkoerper@jsu.edu.

Section VII: STEM Education:

- Chair: (2019) J. Wayne McCain, Dept. of Technology, Athens State University, Athens, AL 35611, (256) 216-5369, wayne.mccain@athens.edu
- Vice Chair: (2018) Mel Blake, Dept. of Physics and Earth Science, Univ. of North Alabama, Florence, AL 35630, (256)-765-4284, rmlake@una.edu.

Section VIII: Environmental and Earth Science:

- Chair: (2019) Steven Shultze, Dept. of Earth Sciences, University of South Alabama, Mobile, AL 36688 (205) 652-5459, schultze@southalabama.edu
- Vice Chair: Vacant

Section IX: Health Sciences:

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

Section X: Bioethics and History and Philosophy of Science:

- Chair: (2018) Clark Lundell, Department of Industrial & Graphic Design, Auburn University, Auburn, AL 36849, (334)-844-2369, lundece@mail.auburn.edu.
- Vice Chair: (2018) Vacant

ELECTED OFFICERS, 2017-2018

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

President-Elect: Nixon Mwebi, Department of Physical and Earth Sciences, Jacksonville State University, Jacksonville, AL 36265, (256) 782-5336, nmwebi@jsu.edu.

Second Vice-President: Drew Hataway, Dept. of Biology, Samford University, Birmingham, AL 35229, (205)-726-4190, rahatawa@samford.edu

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

Treasurer: Bettina Riley, USA College of Nursing, 161 N. Section Street, Suite C, Fairhope, AL 36532, briley@southalabama.edu.

Editor: Brian Toone, Department of Computer Sci., Samford University, Birmingham, AL 35229 (205) 726-2960, brtoone@samford.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.

Associate Counselor to the Junior Academy: Mary Williams, Altamont School, 4801 Altamont Rd., Birmingham, AL 35222, (205) 879-2006, 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.

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.

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

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

TRUSTEES:

- Ken Marion, Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294-1170 , kmarion@uab.edu.
- Prakash Sharma, Department of Physics, Tuskegee University, Tuskegee, AL 36088 (334) 727-8998, pcsharma@mytu.tuskegee.edu.
- James Bradley, Department of Biological Sciences, Auburn University, Auburn, AL 36849 , bradljt@auburn.edu.
- David Nelson, Department of Biology, University of South Alabama, Mobile, AL 36688 (252) 460-6331, dnelson@usouthal.edu.

- Brian Burnes, Department of Biology, University of West Alabama, Livingston, AL 35470 (205) 652-3442, bburnes@uwa.edu.
- Mike Howell, Department of Biological Sciences, Samford University, Birmingham, AL 35229 , wmlhowell@samford.edu.
- Richard Hudiburg, Department of Psychology, University of North Alabama Box 5187, Florence, AL 35632 (256) 765-4572, rahudiburg@una.edu.
- Adriane Ludwick, Department of Chemistry, Tuskegee University, Tuskegee, AL 36088 , aludwick@tuskegee.edu.
- Brian Toone, Department of Computer Sci., Samford University, Birmingham, AL 35229 (205) 726-2960, 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.
- Stephen Watts, Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294–1170 (205) 934–2045, sawatts@uab.edu.
- Anne Cusic, Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294–1170 (205) 934-9686, acusic@uab.edu.

APPOINTED COMMITTEES 2017-18

Archives

- John McCall (2018) Department of Biological and Environmental Sciences, University of West Alabama, 35470, 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.

Budget and Finance

- Ken Marion, Chair, (2018) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294-1170, kmarion@uab.edu
- Ellen Buckner, (2018) College of Nursing, University of South Alabama, Mobile, AL 36688, ebuckner@southalabama.edu.
- Melia Fincher, (2019) Department of Biology, Samford University, 900 Lakeshore Dr., Birmingham, AL 35229, (205) 726-2928 rmfinche@samford.edu.
- Bettina Riley, (2019) USA College of Nursing, 161 N. Section Street, Suite C, Fairhope, AL 36532, briley@usouthal.edu.
- Mark Jones, (2018) Coordinator of AJAS, J. F. Drake Middle School, 655 Spencer Ave., Auburn, AL 36832, (334) 444-3099 mtjones@auburnschools.org.
- Larry Krannich, Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, krannich@uab.edu

Development:

- Larry Krannich, co-Chair, Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294 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
Akshaya Kumar	2016-17

Editorial Board: (staggered 3-yr terms)

- Jim Bradley, (2019) Department of Biology, Auburn University, Auburn, AL , bradljt@auburn.edu
- David Myer, (2020) English Department, Jacksonville State University, Jacksonville, AL 37276, dmyer@jsu.edu
- Prakash Sharma, (20178) Department of Physics, Tuskegee University, Tuskegee, AL 36088, 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 2018 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
- Richard Hudiburg, Associate Editor, (2017) Department of Psychology, University of North Alabama, Box 5187, Florence, AL 35632, 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
- David Nelson, (2018) Department of Biology, University of South Alabama, Mobile, AL 36688, dnelson@usouthal.edu
- Brian Toone, (ex officio) Department of Computer Sci., Samford University, Birmingham, AL 35229 (205) 726-2960, brtoone@samford.edu.
- Larry Davenport, (2019) Department of Biological Sciences, Samford University, Birmingham, AL 35229, 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
- Larry Krannich, Co-chair, Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, krannich@uab.edu
- Elizabeth Dobbins, (2018) Department of Biology, Samford University, Birmingham, AL 35229, egdobbin@samford.edu
- David H. Nelson, (2018) Department of Biology, University of South Alabama, Mobile, AL 36688, dnelson@usouthal.edu
- Prakash Sharma, (2019) Department of Physics, Tuskegee University, Tuskegee, AL 36088, pcsharma@mytu.tuskegee.edu.
- Diane Tucker, (2019) Science and Technology Honors Program, University of Alabama at Birmingham, Birmingham, AL 35294, dtucker@uab.edu.
- Peggy Burnett, Alabama Power Foundation, 600 North 18th Street, Birmingham, AL 35203, PEBURNET@southernco.com.
- Andrea Hunt, (2019) Sociology and Family Studies, University of North Alabama, Florence, AL. 35632, ahunt3@una.edu

Junior Academy:

- Mark Jones, J. F. Drake Middle School, 655 Spencer Avenue, Auburn, AL 36832, mtjones@auburnschools.org

Junior Academy Regional Counselors:

- Virginia Valardi, Wetumpka High School, Wetumpka, AL, virginia.vilardi@elmore.k12.al.us

Local Arrangements at College of Health Sciences, Samford University

- Ellen Buckner, Chair (2018), Ida V. Moffett School of Nursing, (205) 726-2092, Samford University, (205) 726-2092 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
- John McCall, (2019) Dean & Professor, Department of Biology, University of West Alabama, Livingstone, AL 35470 jmccall@uwa.edu
- Anne Cusic, (2017) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294-1170, acusic@uab.edu
- Yong Wang (2018) Center for Forestry and Ecology, Alabama A&M University, Normal, AL 35752 yong.wang@aamu.edu

Mason Scholarship: (staggered 3-yr terms)

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

Membership: Vacant, Chair**Nominating:**

- Drew Hataway (Chair), Dept. of Biology, Samford University, Birmingham, AL 35229, (205)-726-4190, rahatawa@samford.edu
- Section Chairs

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

- Donna Perygin (2020) Department of Chemistry and Geosciences, Jacksonville State University, Jacksonville, AL 36265, dperygina@jsu.edu
- Larry Krannich, (2018) Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, krannich@uab.edu
- George Cline, (2017) Department of Biology, Jacksonville State University, Jacksonville, AL 36265, gcline@jsu.edu
- Jimmy Triplett, (2016) Department of Biology, Jacksonville State University, Jacksonville, AL 36265, jtriplett@jsu.edu
- vacant

Public Relations: (staggered 4-yr terms)

- Brian Burnes, Chair (2018) bburnes01@gmail.com
- Ellen Buckner, (2019), Ida Moffett School of Nursing, Samford University, Birmingham, AL 35229 (205) 726-2092(w); (205) 810-9877(c), ebuckne2@samford.edu; ebbuckner@gmail.com.
- Ronald Hunsinger, (2017) 1070 Crest Road, Leeds, AL 35094, rhunsin@samford.edu

- Mickie Powell, (2016) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, mpowell@uab.edu
- vacant

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

- Brian Burnes, Chair (2021) bburnes01@gmail.com
- Bruce Smith, (2018) Scott-Ritchey Research Center, Auburn University, Auburn, AL 36849, smithbf@auburn.edu
- Stephen Watts, (2018) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, sawatts@uab.edu
- Afef Janen, (2021) Alabama A&M University, afef.janen@gmail.com
- Bernece Herbert, (2021) Department of Community and Regional Planning, Alabama A&M University, Normal, AL 35762 (256) 372-4988, bernece.herbert@ammu.edu

Resolutions:

- Brian Burnes, Chair (2021) bburnes01@gmail.com

Science and Public Policy:

- Scott Brande, Chair, (2018) Department of Geology, University of Alabama at Birmingham, Birmingham, AL 35294, sbrande@uab.edu
- Al Nichols (2019) Dept. of Chemistry and Geosciences, Jacksonville State Univ., Jacksonville, AL 36265 (334) 442-2346, anichols@jsu.edu.
- Boakai Robertson, (2019) Department of Biology, Alabama State University, Montgomery, AL 36101, brobertson@alasu.edu
- James Bradley, (2018) Department of Biological Sciences, Auburn University, Auburn, AL 36849, bradljt@auburn.edu

Steering:

- Ketia Shumaker, Department of Biology, University of West Alabama, Livingston, AL 35470, (205) 652-3406 kshumaker@uwa.edu.
- Akshaya Kumar (2018) Department of Physics, Tuskegee University, Tuskegee, AL 36088, (334) 727 8968 akumar@mytu.tuskegee.edu.
- Nixon Mwebi (2019), Department of Physical and Earth Sciences, Jacksonville State University, Jacksonville, AL 36265, (256) 782-5336, nmwebi@jsu.edu.
- Drew Hataway (2020), Dept. of Biology, Samford University, Birmingham, AL 35229, (205)-726-4190, rahatawa@samford.edu
- Bettina Riley, (2019) USA College of Nursing, 161 N. Section Street, Suite C, Fairhope, AL 36532, briley@southalabama.edu.
- Melia Fincher, (2019) Department of Biology, Samford University, 900 Lakeshore Dr., Birmingham, AL 35229, (205) 726-2928 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
- Anne Cusic, (2016) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, mamcusic@gmail.com
- Gene Byrd, (2017) Department of Physics, University of Alabama, Tuscaloosa, AL 35487, 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. Jandebeur.....	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
Ketia Shumaker.....	2017-18

HOSTS FOR FUTURE ALABAMA ACADEMY OF SCIENCE MEETINGS

- 2019 – Tuskegee University
- 2020 – Alabama A&M University
- 2021 – University of South Alabama
- 2022 – Need a Host
- 2023 – College of Health Sciences, Samford University

The Local Arrangements Manual for planning Academy annual meeting can be found on the Academy website: www.alabamaacademyofscience.org.

EXHIBITORS

**Camp McDowell
The University of Alabama Press**

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



JOINT MEETING
with the
ALABAMA JUNIOR ACADEMY OF SCIENCE
GORGAS COMPETITION AWARDS
February 20-22, 2019
Tuskegee University
Tuskegee, AL

Howard Room & The Caf

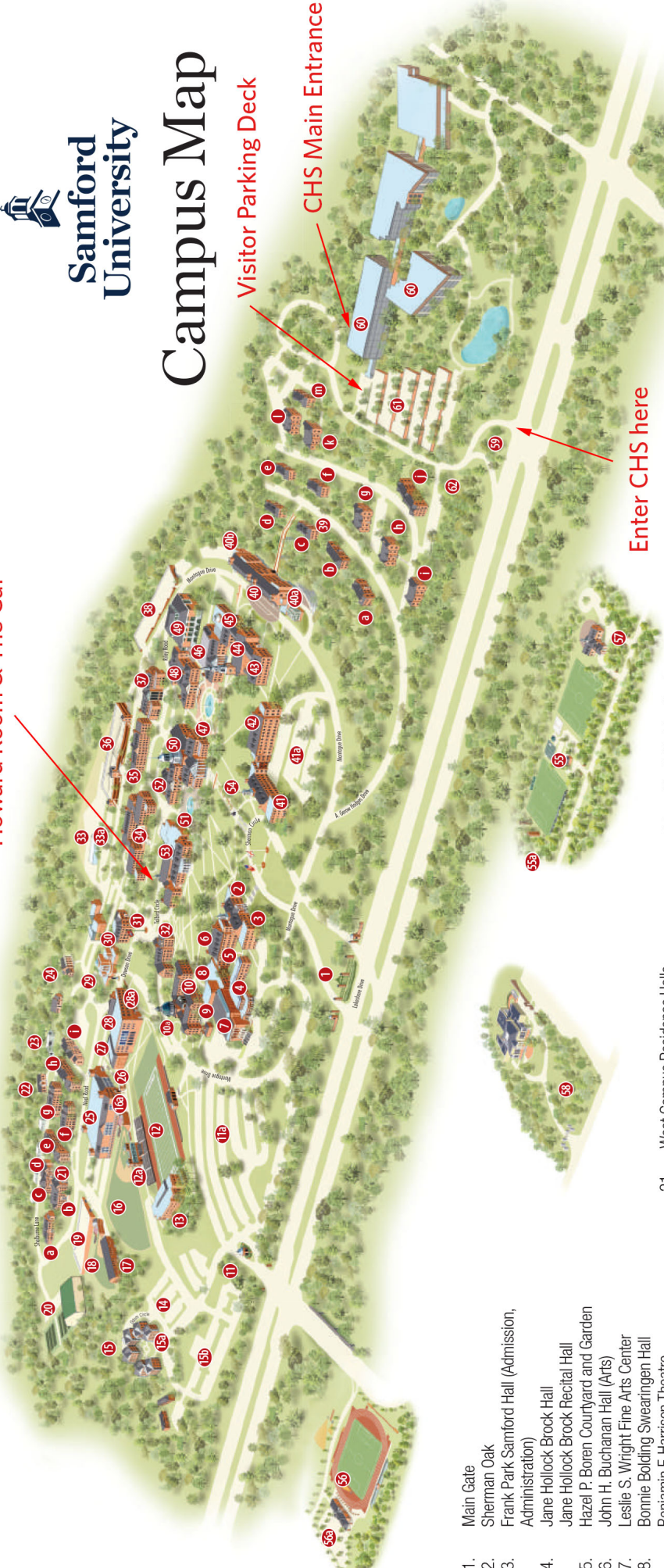


Campus Map

Visitor Parking Deck

CHS Main Entrance

Enter CHS here



1. Main Gate
2. Sherman Oak
3. Frank Park Samford Hall (Admission, Administration)
4. Jane Hollock Brock Hall
5. Jane Hollock Brock Recital Hall
6. Hazel P. Boren Courtyard and Garden
7. John H. Buchanan Hall (Arts)
8. Leslie S. Wright Fine Arts Center
9. Bonnie Bolding Swearingen Hall
10. Benjamin F. Harrison Theatre
11. Bolding Studio
12. Samford Art Gallery
13. Gertha Itasca Earwood Bolding Memorial Garden
14. Divinity Hall (Divinity)
15. Andrew Gerow Hodges Chapel
16. West Gate Entrance
17. Lower Leslie S. Wright Fine Arts Center
18. Parking Lot
19. F. Page Seibert Stadium
20. Leo E. Bashinsky Press Tower
21. Sullivan-Cooney Family Field House
22. South Stadium Parking Lot
23. West Village
24. Barbara Drummond Thorne Hall
25. West Village Parking
26. Joe Lee Griffin Baseball Field
27. Carl E. Miller Jr. Press Box
28. J. T. Haywood Field House
29. Bulldog Softball Field
30. West Parking Deck
31. Samford Tennis Center
32. Darwin E. Hardison Tennis Courts
33. Pat Murphy Courtyard
34. Tennis Pavilion
35. Tennis Pavilion

21. West Campus Residence Halls
 - a. Alpha Omicron Pi
 - b. Mountain View
 - c. Sigma Nu
 - d. Sigma Chi
 - e. Phi Mu
 - f. Chi Omega
 - g. Alpha Delta Pi
 - h. Zeta Tau Alpha
 - i. New Greek Housing
22. Pi Kappa Phi House
23. Air Force ROTC Detachment
24. Theta Alpha House
25. Pete Hanna Center (Athletics)
26. Thomas E. and Maria H. Cortis Arena
27. Fitness/Wellness Center
28. Bulldog Spirit Plaza
29. Leo E. Bashinsky Field House
30. F. Page Seibert Hall
31. University Health Services
32. Dwight M. and Lucille S. Beeson Center
33. Orleans Bullard Beeson Hall (Education)
34. Victory Flag
35. John D. Pittman Hall
36. Art Lofts
37. Upper Shop Lot
38. Lena Vail Davis Residence Hall
39. Marnie Mell Smith Residence Hall
40. West Campus Residence Halls
 - a. James Hall
 - b. Luther Hall
 - c. Malcolm Hall
 - d. Wesley Hall
 - e. Ralph Hall
 - f. Orlean Hall
 - g. Dwight Hall
 - h. Lucille Hall
 - i. Treetop Hall
 - j. Evergreen Hall
 - k. Rosa Hall
 - l. Ethel Hall
 - m. Marvin Hall
41. William Seif Propst Hall
42. Conservatory
43. Boyd E. Christenberry Planetarium
44. Robert I. Ingalls Sr. Hall
45. Ingalls Hall/Russell Hall Parking
46. Thomas D. Russell Hall
47. James Horton Chapman Hall
48. Percy Pratt Burns Hall
49. Elinor Messer Brooks and Marion Thomas
50. Brooks Hall (Arts and Sciences)
51. Martha F. and Albert P. Brewer Plaza
52. North Parking Deck
53. Facilities Management
54. Cooney Hall (Business)
55. Northeast Parking Deck
56. Beeson Woods Residence Halls
 - a. James Hall
 - b. Luther Hall
 - c. Malcolm Hall
 - d. Wesley Hall
 - e. Ralph Hall
 - f. Orlean Hall
 - g. Dwight Hall
 - h. Lucille Hall
 - i. Treetop Hall
 - j. Evergreen Hall
 - k. Rosa Hall
 - l. Ethel Hall
 - m. Marvin Hall
57. William Seif Propst Hall
58. Conservatory
59. Boyd E. Christenberry Planetarium
60. Robert I. Ingalls Sr. Hall
61. Ingalls Hall/Russell Hall Parking
62. Thomas D. Russell Hall
63. James Horton Chapman Hall
64. Percy Pratt Burns Hall
65. Elinor Messer Brooks and Marion Thomas
66. Brooks Hall (Arts and Sciences)
67. Martha F. and Albert P. Brewer Plaza
68. Memory Leake Robinson Hall (Law)
69. Lucille Stewart Beeson Law Library
70. Harwell G. Davis University Library
71. Ben Brown Plaza
72. Dwight M. Beeson Hall
73. Ralph W. Beeson University Center
74. Dining Hall
75. Bookstore
76. The Hub (Information Center)
77. Public Safety
78. Centennial Walk/University Quadrangle
79. Intramural/Recreation Complex
80. Alpine Tower
81. Track and Soccer Stadium
82. Track and Soccer Stadium Parking
83. Academy of the Arts
84. President's Home
85. College of Health Sciences Gate Entrance
86. College of Health Sciences (Health Professions, Nursing, Pharmacy, Public Health)
87. College of Health Sciences Parking
88. College of Health Sciences Main Campus Access