

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



Meeting Jointly With

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

PROGRAM BOOK

March 16-18, 2022



Athens, AL

www.alabamaacademyofscience.org

<http://alabamajunioracademyofscience.org>

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

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100 th Annual Meeting (2023).....	Inside Back Cover
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ATHENS STATE UNIVERSITY

Philip K. Way
President
Tel: 256-233-8201
Philip.Way@athens.edu

Greetings Alabama Academy of Science and Alabama Junior Academy of Science Members and Guests!

On behalf of our University Board of Trustees, faculty, staff and students, I welcome you to our beautiful historic campus! We are honored to host the 99th Annual Meeting of the Alabama Academy of Science and the Alabama Junior Academy of Science Gorgas Scholarship Competition, and to assist the Academy in promoting the sciences in the state of Alabama.

As an institution that has dedicated over 200 years to educating the citizenry of Alabama, we are committed to providing access to a variety of programs and services that focus on creating a successful and meaningful academic experience for all our students, and to meeting the needs of regional employers. In northern Alabama, science and technology are fundamental to many of our manufactured products and our production processes, as well as our services, such as health care. We strive to create a pipeline of STEM graduates and teachers trained to educate K-12 students in STEM.

Athens State University graduates are employed throughout the region in various STEM fields in industries such as NASA, Dynetics, HudsonAlpha, Raytheon, and Boeing.

We seek to make a difference. We recognize the importance of engaging children in active STEM learning at an early age. Hence we are committed to providing our K-6 teacher candidates with access to STEM educational tools and lessons. Recently, the University received a significant donation from Northrop Grumman that will provide the technology and supplies needed to allow Athens State to update the STEM Learning Lab and provide hands-on training and experience to an estimated 1,000 teacher candidates and early in-service teachers over five years.

While in northern Alabama, please take time to explore area attractions that reflect this emphasis on science, technology, mathematics and engineering such as the Alabama School of Cyber Technology and Engineering, HudsonAlpha Institute, Intuitive Planetarium, U.S. Space and Rocket Center and the Von Braun Astronomical Society Planetarium.

It gives us great pleasure to host this conference which will further educate our students in STEM. Thank you for visiting with us and sharing a mutual vision!

Sincerely,

Philip K. Way, PhD
President



ACADEMIC AFFAIRS

Catherine Wehlburg, Ph.D., Provost and VPAA
300 N. Beaty Street | Athens, AL 35611

Greetings Alabama Academy of Science and Alabama Junior Academy of Science Participants!

On behalf of all of our faculty, staff, and students, I am thrilled to welcome you to Athens State University and the 99th Annual Meeting of the AAS and the AJAS. We are delighted to have you on our beautiful and historic campus.

Athens State University is the oldest institution of higher learning in the state of Alabama and is built on traditions of the past while building an innovative and exciting future. As you walk across campus, you will see our iconic buildings with historic columns and beautiful architecture that invites you to stop and stay awhile. While you are on our campus, I hope you will learn about the role that the University is playing in providing our students with educational opportunities and experiences in the many fields of STEM. With our feet grounded in our history and our eyes on the future, Athens State University is thriving as we enter into our 200th anniversary celebration.

For example, we have focused on and developed several programs such as a Master of Science in Computer Science, a Master of Science in Cybersecurity and a Master of Science track in Artificial Intelligence. Our graduate programs complement our undergraduate programs that prepare our graduates to take their place in our local, state, and regional workforce.

Please enjoy your visit to our campus and know that Athens State University stands ready to support the AAS in strengthening educational opportunities across our state. Along with the AAS, Athens State University will be the “catalyst for positive change in the lives of its students.”

Sincerely,

A handwritten signature in blue ink that reads "Catherine Wehlburg".

Catherine Wehlburg, PhD
Provost/Vice President for Academic Affairs



COLLEGE OF ARTS & SCIENCES

ATHENS STATE UNIVERSITY

Dear Alabama Academy of Science Conference Participants,

On behalf of the faculty, staff, and students in the College of Arts and Sciences at Athens State University, I sincerely welcome you to our historic campus.

We chose "Space" as this year's theme to recognize Northern Alabama's significant contributions to science and technology. As you read this, Voyager I and Voyager II, using technologies developed in Huntsville, are flying in interstellar space, further from earth than any human-made object has ever been. Traveling at the speed of light and taking more than twenty-one hours to reach earth, information from these spacecraft continues to expand our understanding of the universe.

Such scientific advances represent what humans are capable of achieving through cumulative knowledge and collective endeavor. My hope is that scientific advances continue to inspire young people to dream of possibilities and to imagine what they might do as future science researchers and educators to change the world.

This meeting provides the opportunity to share knowledge and inspire the next generation of scientists. We are honored to host the annual meeting of the Alabama Academy of Science, an organization committed for nearly a century to promoting the interest and study of science.

Sincerely,

Stephen Spencer, Ph.D.
Dean of the College of Arts and Sciences

March 16, 2022

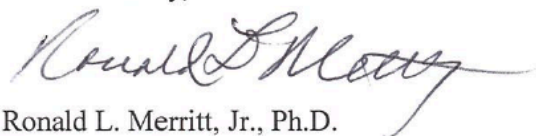
On behalf of the faculty, staff, and students of the Department of Mathematical, Computer, and Natural Sciences, I greet you, the participants of the 99th meeting of the Alabama Academy of Science, the annual convention of the Alabama Junior Academy of Science, and the Gorgas Scholarship Competition. As the convention of the Alabama Academy of Science approaches its centennial, the membership converges on the campus of Athens State University with its faculty, staff, students, and affiliates while Athens State University celebrates its bicentennial. For nearly 200 years near Alabama's northern border, Athens State has been known for its commitment to STEM education since nearly the time it opened its doors as Athens Female Seminary. This can be observed in the following excerpt of the article published on November 23, 1844 in the *The Dollar Whig* newspaper:

“... We had supposed, from the difficulty of learning [sic] young girls the first principles of numbers, that they could never be made proficient in the higher branches of the mathematics. But we witnessed on this occasion the complete triumph of female intellect over the most abstruse portions of geometry, as well as algebra... We heard gentlemen, who had been engaged for several years as professor of languages and mathematics, say that better classes they had never seen than they witnessed during this searching examination. The examinations took place in the new Institute building, which is a noble establishment for school purposes.”

Athens State's 20th century faculty possessed vast experience in science and mathematics from dynamic entities such as NASA, Redstone Arsenal, and the Food and Drug Administration, and they endeavored to share their theoretical and experimental educations with their students. A principal goal of Athens State University of the 21st century is to provide STEM students with meaningful experiential education that will propel them into success in their chosen fields as they enter the workforce.

The Alabama Academy of Sciences emphasizes space this year. Space...the final frontier...how appropriate to celebrate space. Who would have thought that a television star on a series perceived by the public to be science fiction in the 1960s will have had its lead actor, a nonagenarian civilian, in a space capsule circumnavigating the globe in 2020? And now, much of what was on that television series is commonplace due to students who watched this series and grew up creating the fictional technology introduced by it. Those students are the same types of individuals the Athens State community has the honor to serve this week. Thank you, Alabama Academy of Science, Alabama Junior Academy of Science, and Gorgas Scholarship competitors, for affording our university this very special honor.

Most Sincerely,



Ronald L. Merritt, Jr., Ph.D.
Department Chair and Professor

Dear Colleagues in Science,

It is my pleasure to welcome you to the Annual Meeting of the Alabama Academy of Science for 2022. We were looking forward to seeing you in person at the University of South Alabama in the spring of 2021, but COVID-19 had other plans. I am so excited to see you *in person* this year at our gracious host institution, the beautiful campus of Athens State University for AAS/AJAS/Gorgas 2022! I want to remind you of the importance of our mission of bringing together scientists, science educators, and students from high school through post-doctoral fellows in one, unique venue. The Alabama Academy of Science has a special place in the State, providing behind-the-scenes support for the State Science Fair System, the Science Olympiad, the Alabama Junior Academy of Science, and the Gorgas Scholarship Competition. In 2021, we were proud to be the primary host of the Alabama State Science Fair, also being held virtually, in partnership with Auburn University. We are proud to again be supporting the State and Regional Science Fairs, the Alabama Junior Academy of Science Paper Reading Competition, and the Gorgas Scholarship Competition. Here at AAS, we are very proud to organize the Gorgas competition, one of the very few fully endowed, privately organized science competitions for high school seniors in the United States. We are also proud to have founded the Alabama Science Trail, accessible through our main website, www.alabamaacademyofscience.org, which provides a listing of many of the best science destinations for students, educators, and families in the State of Alabama.

This year's meeting is designed to be highly interactive and to provide an excellent venue for the dissemination of original scientific and creative work from all STEAM disciplines through the use of live presentations in small, discipline-specific groups, poster sessions, and a distinguished Keynote speaker, Dr. Jan Davis, the NASA Exceptional Service Medal-winning former Director of the Human Exploration and Development of Space Independent Assurance Office for NASA Headquarters, and the Director of the Flight Projects Directorate at the Marshall Center until August 2003. Dr. Davis was selected to join the Astronaut Corps at the Johnson Space Center in Houston, Texas. She spent more than 670 hours in space as a mission specialist over the course of her three Space Shuttle flights: STS-47 (1992), STS-60 (1994), and STS-85 (1997). During these flights, she orbited the Earth 445 times.

We are especially pleased to be able to host the Alabama Junior Academy of Science, and the Gorgas Scholarship Competitions this year, with outstanding finalists from across the State coming to compete for thousands of dollars in scholarships and the prestigious designation of AJAS and Gorgas Winner. Won't you watch our video describing the programs [here](#)? Each year we help to launch the careers of young scientists in leading institutions both within the state and around the Nation, with our past winners going to such universities as Auburn, University of Alabama, Massachusetts Institute of Technology, and the University of Southern California. The hands-on, in-depth learning that these students engage in is life-changing and prepares our students for success in this world of rapid changes and big challenges. Please take the time to visit the Journal of the Alabama Academy of Sciences and catch up on cutting-edge science from authors right here in Alabama, and for our professional and student members, please consider submitting your own original research, reviews, and editorials for our next issue!

I hope you enjoy the meeting experience, and we look forward to seeing you in person next year!

Jack Shelley-Tremblay

President, Alabama Academy of Sciences 2021-22

LOCAL ARRANGEMENTS COMMITTEE

The Academy expresses its appreciation to Athens State University and the Local Arrangements Committee for planning and hosting this 99th Annual Meeting.

Chairperson

Dr. Ronald Merritt

Dean of the College of Arts and Sciences

Dr. Stephen Spencer

AAS Program Coordinator and University Liaison Officer

Dr. Ronald Merritt

Ms. Nancy Croomes

AJAS/ Gorgas Program Coordinators

Dr. Sara Cline

Dr. Shannon Pittman

Dr. Leigh Hester

Food/ Hospitality

Dr. Leticia Bergantz

Ms. Nancy Croomes

Audio/ Visual/ Technical Support

Mr. David Walker

Mr. Adam St. John

Coordinating Student Assistance

Dr. Sara Cline

Dr. Leigh Hester

Ms. Ronda Kelly

Posters

Dr. Robert Torregrosa

Ms. Gabrielle Whitney

Signage

Ms. Bethlynn Sanders

Mr. Jesse Hudgins

Ms. Ronda Kelly

Speaker Coordination/ Banquet Program

Dr. Ronald Merritt

Dr. Leticia Bergantz

Ms. Nancy Croomes

AAS/ AJAS Room Assignments

Dr. Robert Torregrosa

Ms. Bethlynn Sander

Ms. Ronda Kelly

Promotions/ Publicity

Mr. Chris Latham

Lauren Blacklidge

Athens State University Student Ambassadors

Ms. Amy Garrison

GENERAL INFORMATION

- Registration badges will be required for admission to paper/poster scientific sessions, 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 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.
- The **paper or poster presenter must be registered for the meeting** and wear the registration badge.
- Tickets for the Joint AJAS/AAS banquet may be purchased at the registration desk until 9:30 AM Thursday.
- The Section Chairs and presenters are responsible for their computers.
- From the Pryor Street entrance, parking is available in front of Carter Gym, and alongside Classroom Building (CB) and Waters Hall, also across Pryor Street beside Kares Library, and other areas as shown on the campus map (See outside back cover).
- A map of the Athens State University campus can be found on the outside back cover of the program booklet. Also, here is the link: <https://www.athens.edu/about/campus/maps-and-directions/campus-map/>

LOCAL RESOURCES

On-campus police, fire, medical service:

- All Emergencies (Fire, Ambulance, Police):911
- **Athens State University Security:**(256) 233-8222
- Athens Urgent Care/ Walk-In Clinic:(256) 278-3000
- Athens Limestone Hospital:(256) 233-9292
- Counseling Services..... (256) 233-8144
- Athens Police Department(256) 233-8700

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

POSTER INFORMATION

Alabama Academy of Science Poster set-up begins at 8:00 AM Thursday, March 17th in the **Sandridge Student Center, Ballroom and Annex**. **AAS Posters are available for viewing on Thursday from 10:30 AM until 5:00 PM according to the Sections' schedule below**. Each poster is allotted **4' (horizontal) x 3' (vertical) of display space on mobile bulletin boards**. Thumbtacks will be provided. Authors for the section posters should be present for discussions with viewers and competition judges at the designated times below. **All posters should be removed at conclusion of the session, and all must be removed by 5:00 PM.**

Gorgas Scholars and Junior Academy Posters may be set up beginning at **4:30 PM Thursday in the Sandridge Student Center, Ballroom and Annex**. Each poster is allotted **4' (horizontal) x 3' (vertical) 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.

POSTER VIEWING TIMES

Thursday: All Posters are in Sandridge Student Center, Ballroom & Annex

<i>Biological Sciences, I, Session I</i>	10:30 AM – 12:00 Noon
<i>Biological Sciences, I, Session II</i>	3:00 PM – 5:00 PM
<i>Chemistry, II</i>	1:00 PM – 2:30 PM
<i>Physics and Mathematics III</i>	10:30 AM – 12:00 Noon
<i>Engineering & Computer Science, IV</i>	1:00 PM – 2:30 PM
<i>Anthropology, VI</i>	10:40 AM – 11:00 AM
<i>STEM Education, VII</i>	1:00 PM – 2:30 PM
<i>Environmental and Earth Sci., VIII</i>	1:00 PM – 2:30 PM
<i>Health Sciences, IX</i>	1:00 PM – 2:30 PM
<i>Sci-Mix (AJAS and Gorgas)</i>	5:30 PM – 6:45 PM

NOTE: Posters for AAS may be set up in the **Sandridge Student Center Ballroom and Annex** beginning at 8:00 AM, Thursday, March 17th. Locate posters by cards on poster boards indicating Section and Poster # in program booklet (e.g. V-10).

All Senior Academy posters must be removed by 5:00 PM for Sci-Mix program viewing at 5:30 PM.

ORAL PAPER PRESENTATION INFORMATION

All presentation rooms are equipped with very large touch screen computers. Presenters are asked to bring their **Windows compatible (PowerPoint, Word, etc.) presentations pre-loaded on a USB-A thumb drive**. If presenters log into their email to download presentations, their email will show up on the screen for all to see. All thumb drives are to be removed at the conclusion of the presentation.

**Program of the Alabama Academy of Science
 March 16-18, 2022
 Athens State University
 See Campus Map (Outside Back Cover) for Building Locations
 Wednesday, March 16, 2022**

4:00 – 5:30 PM Registration..... Sandridge Student Center Annex
 6:00 – 7:00 PM Executive Committee Dinner..... Center for Lifelong Learning (CLL)
 7:00 – 9:00 PM Executive Committee Meeting Center for Lifelong Learning (CLL)
**Center for Lifelong Learning (CLL), 121 South Marion Street, Athens, AL 35611,
 Phone: 256.233.8260**

Thursday, March 17, 2022

7:00 AM – 3 PM Registration..... Sandridge Student Center Annex

8:00 AM – Noon: Academy of Science Program Paper Sessions [All rooms are in Waters Hall]

8:30 – 10:30 AM Biological Sciences I (Section I) N 202
 9:30 – 10:30 AM Physics and Mathematics (Section III) N 201
 10:00 AM – Noon Engineering and Computer Science (Section IV) N 205
 10:00 – 11:00 AM Anthropology (Section VI) N 105
 10:00 AM – Noon STEM Education (Section VII)..... S 105
 10:00 AM – Noon Health Sciences (Section IX) S 104
 10:00 AM Coffee Break 1st Floor Classroom Building (CB)
 Coffee Break and Sandridge Student Center

AAS Posters

8:00 AM - 3:30 PM Poster Set-Up (All Sections)... Sandridge Student Center Ballroom & Annex

10:30 AM–4:30 PM Poster Viewing (All Sections) ...Sandridge Student Center Ballroom & Annex

(All posters must be removed at the close of each session.)

Authors present:

10:30 AM – Noon..... Biological Sciences (Section I)
 10:30 AM – Noon..... Physics and Mathematics (Section III)
 10:40 – 11:00 AM..... Anthropology (Section VI)
 1:00 PM – 2:30 PM Chemistry (Section II)
 1:00 PM – 3:00 PM Engineering and Computer Science (Section IV)
 1:00 PM – 3:00 PM STEM Education (Section VII)
 1:30 PM – 2:30 PM Environmental and Earth Science (Section VIII)
 1:00 PM – 3:00 PM Health Sciences (Section IX)
 3:00 PM – 5:00 PM Biological Sciences (Section II)
 Noon – 1:00 PM Lunch Carter Gymnasium
 12:45 PM Group Photograph AAS Founders Hall

1:00 – 5:00 PM: Academy of Science Program Paper Sessions [All rooms are in Waters Hall]

1:00 PM - 3:30 PM	Biological Sciences II (Section I).....	N 202
1:00 PM - 1:30 PM	Environmental/Earth Science (Section VIII).....	N 201
1:00 PM - 4:30 PM	Social Sciences (Section V)	N 105
4:30 PM	AAS/AJAS Joint Annual Business Meeting	Waters Hall N 202
5:30 – 6:45 PM	Sci-Mix/Viewing of AJAS & Gorgas Scholars' Posters	Sandridge Student Center
7:00 PM	Joint AJAS/AAS Banquet	Carter Gymnasium
	Banquet speaker: Dr. Jan Davis, Former NASA Astronaut and Senior Technical Fellow at Bastion Technologies, Inc. NASA Exceptional Service Medal-winning former Director of the Human Exploration and Development of Space Independent Assurance Office for NASA Headquarters Topic Title: " <i>STEM to Stars</i> "	

Guests of Honor:

Dr. Philip Way, President
Athens State University

Dr. Catherine Wehlburg, Provost and Vice President for Academic Affairs

Dr. Stephen Spencer, Dean, College of Arts and Sciences

Dr. Ronald Merritt, Department Chair, Mathematics, Computer and Natural Sciences

Presided by: John Shelley-Tremblay, President, AAS
Julian Vilardi and Adrianna Orsi, Co-Presidents, AJAS

ALABAMA JUNIOR ACADEMY OF SCIENCE
March 17-18, 2022
Athens State University
See Campus Map (Outside Back Cover) for Building Locations

Thursday, March 17, 2022

12:30 -1:00 PM	Joint AAS/AJAS Business.....	Sandridge Student Center Banquet Room 126
2:00 – 6:00 PM	Registration.....	Sandridge Student Center Annex
4:00 – 5:00 PM	Poster Set-up.....	Sandridge Student Center Ballroom and Annex
4:30 PM	AAS/AJAS Joint Annual Business Meeting	Waters Hall N 202
5:00 PM	AJAS & Gorgas Orientation	Sandridge Student Center Banquet Room 126
4:00 -5:30 PM	Poster Set-up.....	Sandridge Student Center Ballroom and Annex
5:30 -6:45 PM	“Sci-Mix”: Viewing of AJAS/ Gorgas Scholars’ Posters...	Sandridge Student Center
7:00 PM	Joint AJAS/AAS Banquet	Carter Gymnasium

Banquet speaker: Dr. Jan Davis, Former NASA Astronaut
and Senior Technical Fellow at Bastion Technologies, Inc.
NASA Exceptional Service, Medal-winning former Director of the Human Exploration and
Development of Space Independent Assurance Office for NASA Headquarters
Topic Title: “*STEM to Stars*”

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ALABAMA JUNIOR ACADEMY OF SCIENCE

March 17-18, 2022

Athens State University

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Friday, March 18, 2022

Breakfast on your own; hotel and town locations

7:15 – 8:00 AM	Paper Reading Orientation.....	McCandless Hall
7:15 – 8:00 AM	Judges Orientation	Classroom Building (CB) 104
8:00 AM	Paper Competition [<i>All rooms are in Waters Hall</i>]	
	Life Sciences	N 202
	Physical Science	N 105
	Engineering, Mathematics and Computer Science.....	N 201
	Environmental Science, Earth Science, and Space Science	S 104
	Medicine and Health, Behavioral, and Social Sciences	S 105
9:30 AM	Break.....	CB 114
10:30 AM-11:30 AM	Training on Experimental design, scoring rubrics, AEOP opportunities and college applications (Dr. Mark Jones, State AJAS Director).....	CB 104
11:30 AM	Elections and Business Meeting.....	Carter Gymnasium
12:00 Noon	Lunch; Box Lunches	Carter Gymnasium
Noon-1:00 PM	Luncheon Speaker: Dr. Richard M. Myers..... President and Science Director, HudsonAlpha Institute for Biotechnology, Huntsville, Alabama Topic Title: “My Life in Science”	Carter Gymnasium
1:00 PM	AJAS-Gorgas Group Photo	Founders Hall
1:15 PM	AJAS Paper Competition Finals.....	Sandridge Student Center Ballroom
2:30 - 3:15 PM	Afternoon Break	Sandridge Student Center
2:30 – 3:15 PM	AJAS Judges meeting.....	Sandridge Student Center Banquet Room 126
3:15 PM – 4:30 PM	Awards Reception, Joint AJAS/Gorgas.....	Sandridge Student Center Ballroom

GORGAS SCHOLARSHIP COMPETITION

March 17-18, 2022

Athens State University

See Campus Map (Outside Back Cover) for Building Locations

Thursday, March 17, 2022

4:00 - 5:00 PM	Registration.....	Sandridge Student Center Annex
4:00 PM	AJAS & Gorgas Orientation	Sandridge Student Center Room 126
4:00 - 5:30 PM	Poster Set-up.....	Sandridge Student Center Ballroom and Annex
5:30 - 6:45 PM	“Sci-Mix”: Viewing of AJAS and Gorgas Scholars’ Posters.....	Sandridge
7:00 PM	Joint AJAS/AAS Banquet	Carter Gymnasium

Banquet speaker: Dr. Jan Davis, Former NASA Astronaut and Senior Technical Fellow at Bastion Technologies, Inc. NASA Exceptional Service Medal-winning former Director of the Human Exploration and Development of Space Independent Assurance Office for NASA Headquarters

Topic Title: “*STEM to Stars*”

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GORGAS SCHOLARSHIP COMPETITION

March 17-18, 2022

Athens State University

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Friday, March 18, 2022

Breakfast on your own; hotel and town locations

7:00 AM	Registration.....	Sandridge Student Center Ballroom and Annex
7:15 – 8:00 AM	Paper Reading Orientation.....	McCandless Hall
7:15 AM – 8:00 AM	Gorgas Judges Orientation.....	Classroom Building CB 104
7:00 – 8:45 AM	Set Up Science Exhibits/Display/Poster/Orientation	Sandridge
8:45 – 9:45 AM	Demonstrations for Judges	Sandridge Ballroom and Annex
10:00 AM – Noon	Individual Interviews with Judges will be conducted at the poster presentation sites.....	Sandridge Ballroom and Annex
12:00 Noon	Lunch: Box Lunches	Carter Gymnasium
Noon – 1:00 PM	Keynote Speaker: Dr. Richard M. Myers.....	Carter Gymnasium

Science Director and Faculty Investigator,
HudsonAlpha Institute for Biotechnology,
Huntsville, Alabama
Topic Title: "My Life in Science"

12:00 – 1:00 PM	Gorgas Judges Executive Session.....	Carter Gymnasium P 106
1:00 PM	AJAS-Gorgas Group Photo	Founders Hall
1:15 PM	AJAS Paper Competition Finals.....	Sandridge Student Center Ballroom
2:30 - 3:15 PM	Afternoon Break	Sandridge Student Center
2:55 PM	Remove Posters and Displays.....	Sandridge Ballroom and Annex
3:15 PM	Awards Reception, Joint AJAS/Gorgas...	Sandridge Student Center Ballroom

The Alabama Science Scholar Talent Search and Gorgas Scholarship Competition are supported 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, 8:30 AM – 10:30 AM

Waters Hall, Room N 202

Andrew Coleman, Presiding

1. 8:30 *g Improving Rainbow Trout *Oncorhynchus mykiss* Growth Performance Through Optimization of Diet-Epigenetic Interactions. *Khalid Freij* and Serhat Turkmen, University of Alabama at Birmingham; Beth Cleveland, USDA; and Peggy Biga, University of Alabama at Birmingham.
2. 8:45 Social Networking in Marine Bacteria Leads to Emergence of Black Queen Metabolic Markets. J. Jeffrey Morris, University of Alabama at Birmingham; Anuradha Goswami, University of Alabama at Birmingham.
3. 9:00 Association of Antimicrobial Resistance Gene (AMR) Incidence and Heavy Metal Pollution. Anuradha Goswami, University of Alabama at Birmingham; J. Jeffrey Morris, University of Alabama at Birmingham; and Sarah J. Adkins-Jablonsky, Alabama College of Osteopathic Medicine, Dothan.
4. 9:15 A Novel Quantitative Method for Analyzing Antimicrobial Susceptibility Testing Data. *Drew Hataway*, Kwadwo Antwi-Fordjour, Bryce Pierce, and Brad Bennett, Samford University.
5. 9:30 *u Resistance to Commonly Prescribed Antibiotics via Weak Selective Pressure: An Adaptive Laboratory Evolution Study. *Bryce Pierce*, Camryn Pierce, Nicholas Hammond, Kwadwo Antwi-Fordjour, Drew Hataway, and Brad Bennett, Samford University.
6. 9:45 Single Cell Protein Can Be A Sustainable Replacement For Fish Protein In The Zebrafish *Danio rerio*. Michael Williams, University of Alabama at Birmingham; Addison Lawrence, Texas A & M, Agrilife Research; Sophie Chehade, Yuan Yuan, Adele Fowler, Jeff Barry, Mickie Powell, and Stephen Watts, University of Alabama at Birmingham.
7. 10:00 *g Zebrafish As A Nutritional Model For Injury and Wound Healing. *Jonathan Flowers*, Wenxia Ma, Nicole Conner, M. Murphy, Sophie Chehade, Kate Ledbetter, Anna Thalacker-Mercer, and Stephen Watts, University of Alabama at Birmingham.
8. 10:15 *g Challenges in Sea Urchin Culture. *Logan Holfelder*, University of Alabama at Birmingham; Sophie Chehade, Nicole Conner, Raven Edwards, Jonathan Flowers and Micheal Williams, University of Alabama at Birmingham; Katie Gibbs, Birmingham-Southern College; and M. L. Powell and Stephen Watts, 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 I
Thursday Morning, 10:30 AM – 12 noon
Sandridge Student Center, Ballroom/Annex
Andrew Coleman, Presiding

9. *g Characterization of Cardiovascular Disease and Dietary Impact of Portulaca Oleracea in an Induced Model of Systemic Lupus Erythematosus. *Terrance Platt* and *Montessa Mitchell*, Tuskegee University; *Deangelo Mahone*, South University, Montgomery; and *Toufic Nashar*, *Marcia Martinez*, and *Chastity Bradford*, Tuskegee University.
10. *u Bacteriophage Host Range Assay. *Mason Anderson* and *Melissa Walker*, University of Alabama at Birmingham.
11. *u Identification of Novel Antibiotic Producing Bacteria. *Nia Booth*, *Sanchez Rolle*, *Etinosa Iyayi*, and *Sheritta Fagbodun*, Tuskegee University.
12. The Comparative Study of Homologous MicroRNA-Binding Sites in the Human Genes. *Alexander Kofman*, *Jahnavi Raval*, and *Summer Stephens*, Troy University.
13. *u Isolation of Novel Mycobacteriophages as Potential Sources of Phage Therapy Candidates. *Elin Zaman* and *Christopher Murdock*, Jacksonville State University.
14. Diversity of Freshwater Turtle Populations at Oak Mountain State Park. *Jenny Estes Layton*, Samford University; *Lizzie Grolle*, California State University, Stanislaus; *Kaylyn Swenson*, Massachusetts College of Liberal Arts; *Alex Armor*, Samford University; *Frank Gonzalez*, Samford University; *Aaron Hathcock*, Ruffner Mountain Nature Preserve.
15. *u DNA Barcoding Using Eggshells from Depredated Turtle Nests. *Alice Hunt* and *Catherine Gurley*, Samford University; *Mike Reynolds*, Share the Beach; *Drew Hataway*, and *Jenny Estes Layton*, Samford University.
16. *u Genetic Assessment of Congenital Stationary Night Blindness-Associated *TRPM1* Variants of Uncertain Significance in *C. elegans*. *Sara Morris* and *Ashley Turner*, Jacksonville State University.
17. *g Do Coastal Marine Bacteria Help Precipitate Settlement in Sea Urchins? *Melissa Walker*. *J. Jeffrey Morris*, *Sophie Chehade*, *Nicole Conner*, and *Stephen Watts*, University of Alabama at Birmingham.
18. *u Microbial Community Characterization in a Closed Microcosm Landfill System Designed at Laboratory Scale. *Halee Stewart*, *J. Jeffery Morris*, *Anuradha Goswami*, and *Kellen Cowen*, University of Alabama at Birmingham.
19. *u Demographic Modeling of the Endangered Morefield's Leather Flower, *Clematis morefieldii*. *Evan Marth*, *Tyler Williams*, and *Jewel Courson*, Athens State University; *Tracy Cook*, Huntsville Botanical Gardens; *Derek Newland*, Athens State University; *Drew Greenway*, University of Alabama in Huntsville; and *Shannon Pittman*, Athens State University.
20. *g Characterization of Anti-Microbial Properties of Excrement And Functional Microbiome of New World Vultures In Alabama. *Bee Gray* and *Ashley Turner*, Jacksonville State University.

21. ***u** A Search for the Borg: Using Environmental Sequencing to Survey the Subsoil Anaerobic Prokaryotic Biota at Blount Springs, AL. *Mattie Grace Holley* and David Johnson, Samford University.
22. ***u** Investigation of a Novel Planarian, *Phagocata* sp., Found at Blount Springs, AL. *Sarah Thomas*, Guy Madeline, and David Johnson, Samford University.
23. ***u** Investigation of Intraindividual Variation of the 5.8S rRNA Gene Sequence in the Plant Parasite *Cuscuta pentagona*. *Adam Cason* and David Johnson, Samford University.
24. ***g** Glutathione Relays a 12-Oxo-Phytodienoic Acid Signal in Coordinating Growth and Defense Responses, Optimizing Plant Fitness under Environmental Stresses. *Ashna Adhikari*, Auburn University; Sang-Wook Park, Auburn University.

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SECTION I. BIOLOGICAL SCIENCES
Paper Session II
Thursday Afternoon, 1:00 PM – 3:00 PM
Waters Hall, Room N 202
Andrew Coleman, Presiding

25. 1:00 Socioeconomic Influence of Health and Covid-19 in Black Belt Communities in Alabama. *Ram Alagan*, Seela Aladuwaka, Manoj Mishra, Alabama State University.
26. 1:15 ***u** Tracking Sources of *Escherichia coli* in Turkey Creek Nature Preserve (Pinson, Alabama). *Aubrey Cox* and R. Scot Duncan, Birmingham-Southern College.
27. 1:30 ***u** Developing a Rapid Method to Estimating Potential Fecundity in Black Crappie. *Jacqueline Hintz* and Anthony Overton, Samford University; Kaitlyn Wade, University of Maryland.
28. 1:45 ***u** An Analysis of Age and Length Relationships for Black Crappie (*Pomoxis nigromaculatus*) at Lake Purdy, Birmingham, Alabama. *Kathryn Jones*, Anthony Overton, and Kaitlynn Wade, Samford University.
29. 2:00 ***g** Long Term Evaluations of Nesting Beach Temperatures of Hawksbill Sea Turtle Rookery in the Western Caribbean. *Forrest Collins* and Thane Wibbels, University of Alabama at Birmingham; Jenny Estes Layton, Samford University; and Cynthia Lagueux and Cathi Campbell, University of Florida.
30. 2:15 ***u** Analyzing the Molecular Dynamics of TUBB2B and TUBB5 Q15K Variants. *Hannah Mueller*, Sara Cline, and Fallon Beck, Athens State University.
31. 2:30 ***g** Evaluation of Hatchling Sex Ratios in the Kemp's Ridley Sea Turtle Conservation Program: 2013-2019. *Katherine Presz*, Sarah Livett, and Elizabeth Bradley, University of Alabama at Birmingham; Donna Shaver and J. Shelby Walker, National Parks Service; and Thane Wibbels, University of Alabama at Birmingham.
32. 2:45 Investigating the Molecular Dynamics of CCR5 to Create a Workflow for Damaging Variant Identification: CODE Community Collaborative Research Between Clinical Genetics and PUIs. *Stenger Cynthia*, University of North Alabama; Sara Cline, Athens State University; and Michele Morris, HudsonAlpha Institute for Biotechnology.

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SECTION I. BIOLOGICAL SCIENCES
Poster Session II
Thursday Afternoon, 3:00 PM – 5:00 PM
Sandridge Student Center, Ballroom/Annex
Andrew Coleman, Presiding

33. ***u** An Investigation of the PSEN2 Swap Mutation T380M. *Luke Terwilliger*, University of North Alabama.
34. ***u** A Preliminary Analysis of Otolith Morphometrics to Predict Fish Age and Length. *Simi Komenda*, Anthony Overton, and Kwadwo Antwi-Fordjour, Samford University.
35. ***u** Reproductive Ecology of a Non-arribada nesting population of Olive Ridley Sea Turtles (*Lepidochelys olivacea*). *Eliza Croom* and Andrew Coleman, Talladega College; and Damaris Marin and Felipe De Jesus Crispin, Campamento Tortuguero Ayotlcalli.
36. ***u** Feeding Ecology of Female Alabama Map Turtles (*Graptemys pulchra*). *Che'Isha Johnson* and Andrew Coleman, Talladega College.
37. ***u** Prevalence of *Rickettia* sp. Virus in Ticks from Alabama and Minnesota. *Jermiya Tarrance* and Andrew Coleman, Talladega College; and Heather Patterson, University of Alabama at Birmingham.
38. ***u** Investigation of Bacteria Cultured from North Alabama Soil on Tryptic Soy and Nutrient Agar Media. *Eric Villapaz*, Jewel Courson, T. Bre Tuck, and Sara Cline, Athens State University.
39. ***u** Investigation of Bacteria Cultured from North Alabama Soil on Various Media. *Myka Magness*, N. Tyler Williams, A. J. Gordon, R. Chase Christopher, and Sara Cline, Athens State University.
40. ***g** Blinding Lights: Nighttime Light Exposure Alters Physiology and Body Condition in a Model Songbird. *Kevin Pham*, Madeline Choi, and Haruka Wada, Auburn University.
41. ***u** Using CRISPR for Genome Editing of *Arabidopsis thaliana* to Confirm The Role of a FAM210b-Like Protein (At2g27290) in Heme Transport into The Chloroplast. *Olivia Rizzo*, Emily Goodman, Jeremy Fortson, Caitlin Turner, and Sara G. Cline, Athens State University.
42. ***u** Riparian Tree Communities Along a Suburban, Channelized Stream. Anna Martin, Samford University; Betsy Dobbins, Samford University; Lawrence Davenport, Samford University.
43. ***u** Molecular Dynamic Analysis of Three CAPN3 Variants Associated with Limb-Girdle Muscular Dystrophy in Comparison to One Variant of Uncertain Significance. Camille Greer and Sara Cline, Athens State University.

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SECTION II. CHEMISTRY
Poster Session
1:00 PM – 2:30 PM
Sandridge Student Center, Ballroom/Annex
Stephen Slauson, Presiding

1. ***u** Maleimide Diels-Alder Reaction of Homoepibatidine Derivatives. *Lia Meadows*, Jhanvi Vakharia, and Stephen Slauson, Jacksonville State University.
2. ***g** The Optimization Of A Brain Metabolite Isolation Protocol and Normalization Technique For Use With Proton Nuclear Magnetic Resonance and Its Implementation in Rats With Metabolic Syndrome. Victoria McConnell, Bernhard Vogler, and Sharifa Love-Rutledge, The University of Alabama in Huntsville.
3. ***u** Improvement in Photovoltaic Performance of Dye Sensitized Solar Cells Using Co-sensitization and rGO/MWCNT Hybrid Counter Electrode. *Emily Hamm* and Md Abu Shohag, University of North Alabama; William Ghann and Jamal Uddin, Coppin State University; and Md Huayun Kabir, University of North Alabama.
4. ***u** The Toxicity of Silver Nanoparticles on Four Freshwater Species: *E. Coli*, Microalgae, Brine Shrimp Eggs, and Zebrafish. *Matthew Kutz* and Humayun Kabir, University of North Alabama.

SECTION II. BUSINESS MEETING [Elect a Vice-Chair, term ending 2023-24]

**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, 9:30 AM– 10:15 AM

Waters Hall, Room N 201

Matthew E. Edwards and Byunghoopn Lee, Presiding

1. 9:30 *g Low Lattice Thermal Conductivity Materials from Machine Learning and First-Principles Predictions. *Chia-Min Lin* and Cheng-Chien Chen, University of Alabama at Birmingham.
2. 9:50 Equitably Harmonious Labelings of Disjoint Unions of Fixed-Length Paths. *Ken Roblee* and Atif Abueida, University of Dayton; Tatum Warminsky, Troy University.
3. 10:10 *g Development of Nanocomposite Films for Biomedical Applications. *James Sampson*, Ashok Batra and Mohan Aggarwal, Alabama A&M University.

SECTION III – PHYSICS AND MATHEMATICS

Poster Session

Thursday Morning 10:30 am – 12:00 Noon

Sandridge Student Center, Ballroom/Annex

Matthew E. Edwards and Byunghoopn Lee, Presiding

4. *u Degree of Hyperuniformity Correlation with Surface Roughness in Amorphous Network. *Carter Swafford*, Tuyako Kristoforova, and Durga Durga, Alabama School of Mathematics and Science.
5. *u Liquid Phase Exfoliation of Sns Nanosheets in Water by Probe Sonication & Hand Grinding Method. *Sanjana Mupparaju*, Durga Paudel and Rima Patel, Alabama School of Mathematics and Science; and Arjun Dahal, University of South Alabama.
6. *u Review of Superconductivity at Very Low Temperatures and High Temperatures. *Micah Hall*, Prakash Sharma, ; Akshaya Kumar, Tuskegee University.
7. *g X-Ray Photoelectron Spectroscopy (XPS) and Raman Spectroscopy Characterization of Dehydration of Calcium Sulfate Dihydrate and Its Hemihydrate. *Alexander Egarievwe*, Mebougna Drabo, Matthew Edwards, Aschalew Kassu, and Stephen Egarievwe, Alabama A&M University.
8. The How To of Modeling the Blastosphere Multiverse. *Paul Hall*, Tuskegee University.
9. Quantitative Analysis of Batting Friendliness of Australian Cricket Grounds. *Arjun Tan*, Alabama A&M University.
10. Causality Analysis of Australia's Cricket Supremacy. *Arjun Tan*, Alabama A&M University.
11. Mathematical Scheme for Ranking the Spin Quartet of Indian Cricket. *Arjun Tan*, Alabama A&M University.
12. Understanding the Microsat-R Breakup Puzzle with Theorem on Apsidal Line Slopes of Gabbard Diagram. *Arjun Tan*, Alabama A&M University.
13. A Creation Theory of the Blastosphere Multiverse. *Paul Hall*, Tuskegee University.

14. The Visualization of the Multiverse. *Paul Hall*, Tuskegee University.
15. The How To of Multidimensional Travel and Navigation. *Paul Hall*, Tuskegee University.

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SECTION IV. ENGINEERING AND COMPUTER SCIENCE

Paper Session

Thursday Morning, 10:00 AM – 12:00 noon

Waters Hall, Room N 205

Ravi Gollapali, Presiding

1. 10:00 *g The Role of Using Data Cleaning and IoT Technology on the Enterprise as Process. *Abdulrahman Alharthi*, Mohammad Alhefdi, Michael Lipscomb, Murat Tanik, University of Alabama at Birmingham.
2. 10:20 *g 3D Printing of Poly(ϵ -caprolactone) (PCL) Porous Scaffolds for Periodontal Tissue Engineering. *Rakesh Pemmada*, Vinoy Thomas, and Sahaj Patel, University of Alabama at Birmingham.
3. 10:40 *u Automating the Parallel Composition of Cyberattack Models – The Experiences of a University Capstone Team. *Levi Seibert*, Nischal Thapa, Katia Maxwell, Athens State University.
4. 11:00 *u Dynamic Control of Sensitivity in a Graphene-based Surface Plasmon Resonance (SPR) Based Sensor – Preliminary Experimental Data. *Reece Phillips*, Vivek Kumar, and Ravi Gollapalli, University of North Alabama.

- 11:30 BUSINESS MEETING [Elect Vice-Chair with term ending 2023-24]

SECTION IV. ENGINEERING AND COMPUTER SCIENCE

Poster Session

Thursday Afternoon, 1:00 PM – 3:00 PM

Sandridge Student Center, Ballroom/Annex

Ravi Gollapali, Presiding

5. *u Critical and Interpretive Analysis of Classical Texts Using Natural Language Processing Methods. *David Sellers*, John Jordan, and Adam Lewis, Athens State University.
6. *u Conversion of a Gas-powered ATV to a Battery-powered ATV – An Undergraduate Student Team Experience. Maciah Murphy, John Lucius, *Hillary Holcomb*, Mary Hardwick, Barkley Johnston, Jaylon Davis, Chris Winton, Jonathan Phillips, Ike Nail, Bailey Barnett, and Ravi Gollapalli, University of North Alabama.
7. *g Load Measurement at Riprap Toe of Embankment Dam. *Kofi Ntow Opore*, University of Alabama at Birmingham; Fjola Gudrun Sigtryggsdottir, Norwegian University of Science and Technology; and Rouzbeh Ross Nazari, University of Alabama at Birmingham.
8. *g Modeling and Protection of Solar Water Heater Performance by Coupling Artificial Neural Network (ANN) Optimization and Computational Fluid Dynamics (CFD). *Muslat Alanizi*, Leon Jololian, and Tanik Murat, University of Alabama at Birmingham.
9. *g Social Distancing Monitoring of Crowd using Path Prediction, behaviour Analysis and Distance Monitoring by exploiting the Least Action Principle and Advanced Deep Learning

Methods. *Muhammad Alolaiwy*, Murat Tanik, and Leon Jololian, University of Alabama at Birmingham.

10. ***u** Prototyping A Metallic Design on The Effectiveness of Non-Contacting Magnetic Driving System in Spatial Atomic Layer Deposition. *Vivek Kumar*, Puneet Paul, and Dongqing Pan, University of North Alabama.
11. ***g** Multi- Step *Flood* Forecasting Using Long Short-Term Memory (LSTM) Neural Network for Coastal Alabama. *Mujungu Lawrence Museru*, Rouzbeh Nazari, Fahad Rabani, and Maryam Karimi, University of Alabama, Birmingham.
12. ***g** Application of the WRF Model for Accurate Extreme Weather Events Forecasting in Alabama State: How to Perceive the Right Physics Parameters? *Selami Buzluk*, Rouzbeh Nazari and Maryam Karimi, University of Alabama at Birmingham.
13. ***g** Application of Model-Based Forecasting of Extreme Weather for Development of a Power Failure Risk Index in the City of Birmingham. *Selami Buzluk*, Rouzbeh Nazari, Maryam Karimi and Fahad Rabbani, University of Alabama at Birmingham.
14. Stretchable Sensor Comprising Perovskite and Mechanoluminescence Materials for Structural Health Monitoring. *Md Abu Sayeed Shohag*, University of North Alabama.

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SECTION V. SOCIAL SCIENCES
Paper Session
Thursday Afternoon, 1:00 PM – 4:00 PM
Waters Hall, Room N 105
Charles Roberts, Presiding

1. 1:00 *g An Impact Analysis of the Transition Incentive Program on Beginning Farmers and Ranchers in Rural United States. *Eugene Adjei* and Valentina Hartarska, Auburn University.
2. 1:20 *g Beginning and Female Farmers' Productivity and Access to Credit from Traditional and Nontraditional Lenders. *Valentina Hartarska*, Auburn University.
3. 1:40 *u Understanding Effective Healthcare Education Media for American College Students. *Carson Caulfield*, Samford University.
4. 2:00 *g The Effect of Gender Identity Threat on Perceptions of Sexual Assault and Coercion. *Linda Pilkington* and John Shelley-Tremblay, University of South Alabama.
5. 2:20 Supply Chain Innovations that Foster Brick-and-Mortar Retailer Success: A Literature Review. *Cynthia Lovelace*, Athens State University.
6. 2:40 The Benefits of College or University Retirement Communities. *Beverly Myers*, Stillman College.
7. 3:00 *g Investigating the Three Factor Model of Avoidant/Restrictive Food Intake Disorder: A Confirmatory Factor Analysis of the Nine Item ARFID Scale. *Emily Ruff*, Hana Zickgraf, and John Shelley-Tremblay, University of South Alabama.
8. 3:20 *g Depression Linked to Inflammation Around the mtDNA. *Cindy Von Ahlefeldt*, Niyooosha Kandezi, Borian Lassiter, Jack Shelley-Tremblay, and Claire Deming, University of South Alabama.
9. 3:40 *u Health Disparities Among Immigrants in the United States: Developing an Equitable Policy Initiative. *Mikiah Dumas* and Mary Parker, Samford University.

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SECTION VI. ANTHROPOLOGY
Paper Session
Thursday Morning, 10:00 AM – 10:40 AM
Waters Hall, Room
Jason Heaton, Presiding

1. 10:00 Primates, Not Pets: A Review of Research on Imagery Negatively Influencing Wild Primate Populations. *Sherrie Alexander*, University of Alabama at Birmingham.
2. 10:20 ***u** Duration of Breastfeeding Among Alabama Mothers (2011-2018). *Reilly Vought* and Jason Heaton, Birmingham-Southern College.

SECTION VI. ANTHROPOLOGY
Poster Session
Thursday Morning, 10:40 AM – 11:00 AM
Sandridge Student Center, Ballroom/Annex
Jason Heaton, Presiding

3. ***u** Cross-Cultural Comparisons of Breastfeeding and Weaning Among Traditional Hunter-Gatherers. *Mary Katherine Stewart* and Jason Heaton, Birmingham-Southern College.

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SECTION VII. STEM EDUCATION

Paper Session

Thursday Morning, 10:00 AM – 12:00 Noon

Waters Hall, Room S 105

J. Jeffrey Morris, Presiding

1. 10:00 Engaging Students in a Genetics Course-based Undergraduate Research Experience (CURE) Exploring Disease Utilizing Bioinformatics and *C. elegans* in Hybrid Learning. *Ashley Turner* and Natalie Forte, Jacksonville State University; Anil Challa, University of Alabama at Birmingham; and Katelyn Cooper, Arizona State University.
2. 10:20 *g Takeoff Killer - As-Loaded Stall Speed. *Len Naugher* and J. Wayne McCain, Athens State University.
3. 10:40 *u Amateur Radio in STEM Education. *Roy Nagle* and J Wayne McCain, Athens State University.
4. 11:00 Your Future is Now - The New Bachelor of Aerospace Systems Management. *J. Wayne McCain* and Jim Kerner, Athens State University.
5. 11:20 STEM-SAT1 Proceeding To Launch in 2023. *J. Wayne McCain* and Michelle Rosh, Athens State University.
6. 11:40 Spaceflight Mission Control Simulations for STEM Students. *Gael Mariani*, J. Wayne McCain, and Michelle Rosh, Athens State University.

SECTION VII. STEM EDUCATION

Poster Session

Thursday Afternoon, 1:00 PM – 2:30 PM

Sandridge Student Center, Ballroom/Annex

J. Jeffrey Morris, Presiding

7. Accessing Student Perceptions of Emotional Benefits of Cadaveric Dissection in Graduate Anatomy Education. *Katelynn Corder*, Camryn Pierce, Amanda Howard, Mark Caulkins, and Katelynn Corder, Samford University .
8. Impact of Journal Clubs on Measures of Evidence-based Practice. *Kelly Atkins* and Nick Washmuth, Samford University.
9. *u Aviation in STEM Education. *Amelia McCain*, Faith Hooper, and J. Wayne McCain, Athens State University.
10. *g STEM-SAT1 - Radio Astronomy CubeSat Project. *Brandi Wheeler*, Michelle Rosh, and J. Wayne McCain, Athens State University.
11. *u Light in the Sky, *Harmonie Wildharber*, University of North Alabama.

SECTION VIII. ENVIRONMENTAL AND EARTH SCIENCE

Paper Session

Thursday Afternoon, 1:00 PM – 1:20 PM

Waters Hall, Room N 201

Jonghwa Oh & Shaoyang Liu, Presiding

1. 1:00 *g Inkjet-Printed Plasma-Functionalized Polymer Based Capacitive Sensor for Polycyclic Aromatic Hydrocarbon from Water. *Renjith Rajan Pillai*, Kiran Adhikari, Surya Sunilkumar, Shruti Sanas, Steven Gardner, Haider Mohammed, and Vinoy Thomas, University of Alabama at Birmingham.

SECTION VIII. ENVIRONMENTAL AND EARTH SCIENCE

Poster Session

Thursday Afternoon, 1:30 PM – 2:30 PM

Sandridge Student Center, Ballroom/Annex

Jonghwa Oh & Shaoyang Liu, Presiding

2. *g Air Pollution Exposure in Alabama as it Relates to Demographic Associations and Proximal Pollution Sources. *Sharee Small*, Rouzbeh Nazari, and Maryam Karimi, University of Alabama at Birmingham.
3. *u Investigation of Chemical Composition of Post-Consumer Recycled Polypropylene with Spectrometric Methods. *Amber Johanson*, Jarome Amos, Taylor Chambers, and Shaoyang Liu, Troy University.
4. *g Cooling Potential of Different Vegetation Covers in a Heat-Stressed Underserved Community, North Birmingham, AL. *Samain Sabrin*, Rouzbeh Nazari, and Maryam Karimi, University of Alabama at Birmingham.
5. *g Noise Exposure during Backpack Blower and Grass Trimming Operations: A Pilot Study. *David McMahan*, Andrew Spivey, Jonghwa Oh, Claudiu Lungu, University of Alabama at Birmingham.
6. *g Mass Recovery of Diffusively Sampled Volatile Organic Compounds via Photothermal Desorption. *Jacob Shedd*, University of Alabama at Birmingham; Evan Floyd, University of Oklahoma; and Jonghwa Oh and Claudiu Lungu, University of Alabama at Birmingham.
7. *g Hand-transmitted Vibration (HTV) Exposure from Hand-held Power Tools. *Nathan Chen*, University of Alabama at Birmingham; Charles Boyd, Lockheed Martin Missiles and Fire Control; Jonghwa Oh, University of Alabama at Birmingham.
8. *g Evaluation of a Portable Gas Chromatograph (GC) at Various Toluene Concentrations. *Seunghyeon Yang*, University of Alabama at Birmingham; Gottfried Kibelka, CMS Field Products; Edward B. Overton, Louisiana State University; Jeffrey Wickliffe, Claudiu. T. Lungu and Jonghwa Oh, University of Alabama at Birmingham.

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SECTION IX. HEALTH SCIENCES
Paper Session
Thursday Morning, 10:00 AM – 12:00 Noon
Waters Hall, Room S 104
Mark Caulkins, Presiding

1. 10:00 ***u** Factors in Rates of Early Diagnoses of Critical Congenital Heart Defects. *Luke Bice* and Courtney Haun, Samford University.
2. 10:20 A 6-CpG Validated Methylation Risk Score Model for Metabolic Syndrome: The HyperGEN and GOLDN Studies. *Bre Minniefield*, Bertha Hidalgo, Amit Patki, Rikki Tanner, Ryan Irvin, Hemant Tiwari, University of Alabama at Birmingham; and Donna Arnett, University of Kentucky.
3. 10:40 Diet, Anxiety and GI Quality of Life: Is There a Link? *Mickie Powell*, Kathleen Harris, Amandiy Liwo, Bijal Bashi, Rosianna Gray, Alan Whitehead, Christopher Grahm, James A. Bibb, Chandler M. McLeod, Stephen A. Watts, and Gregory D. Kennedy, University of Alabama at Birmingham.
4. 11:00 Surgical Implants Found in Student Cadaver Dissection. *Mark Caulkins*, Nick Washmuth, William Scogin, Brad Cantley, and Kathleen Caulkins, Samford University.
5. 11:20 Anatomic Variants in Student Cadaver Dissection. *Mark Caulkins*, Nick Washmuth, William Scogin, Brad Cantley, and Kathleen Caulkins, Samford University.
6. 11:40 Virtual Young Teen Asthma & Wellness Camp: A School-Based Expansion to Rural Underserved Counties. *LaBrenda Marshall*, Alabama State Department of Education, and Natalie Tidwell and Ellen Buckner, Samford University.
7. 12:00 ***g** Testing the Three-STEP Model of Suicide: Factor Structure and Predictors of the Painful and Provocative Events Scale. *Boriana Lassiter*, Cindy Von Ahelfeldt, Niyooasha Kandezi, Jack Shelley-Tremblay, and Phillip Smith, University of South Alabama; William Billette, University of South Alabama Health System; and Mark Gillespie, University of South Alabama.
- 12:20 BUSINESS MEETING [Elect Vice-Chair with term 2023-24]

SECTION IX. HEALTH SCIENCES
Poster Session
Thursday Afternoon, 1:00 PM – 2:30 PM
Sandridge Student Center, Ballroom/Annex
Mark Caulkins, Presiding

8. ***g** COVID-19 Vaccination Status & Hesitancy among Hospitalized patients in a Rural Community Hospital. *Lindsey Oleary*, N. Rahman, and R. Magadia, Alabama College of Osteopathic Medicine.

9. *g Does Gross and Fine Motor Skills Predict Academic Achievement. *Derek Kemp* and John Shelley-Tremblay, University of South Alabama; and Julie Cwikla and Alen Hajnal, University of Southern Mississippi.
10. *u The Effects of Intermittent Fasting on Hydration Status. *Ivy Wilson*, Samford University.
11. Surgical Implants Found in Student-Dissected Cadavers. *Mark Caulkins*, Nick Washmuth, William Scogin, Brad Cantley, Katelynn Corder, Heather Hallman, and Paul Harrelson, Samford University.
12. Anatomic Varients in Student Cadaver Dissection. *Mark Caulkins*, Nick Washmuth, William Scogin, Brad Cantley, Katelynn Corder, John Hurt, and Wes Johnson, Samford University.
13. *g Iliotibial Band Anatomical Variation: Expansive Vastus Lateralis Insertion. *Elizabeth Brogden*, Virginia Farrar, Sarah Prince, Katelyn Riant, Mark Caulkins, Will Scogin, and Nick Washmuth, Samford University.

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SECTION X. BIOETHICS AND HISTORY AND PHILOSOPHY OF SCIENCE Paper Session

No Program in 2022

ALABAMA JUNIOR ACADEMY OF SCIENCE
Mark Jones, State Director, Presiding Posters at Sci-Mix Session
Thursday Evening, 5:30 PM– 6:45 PM
Sandridge Student Center, Ballroom/Annex

Engineering/Mathematics

1. *Ahnaf, Hossain, *Deep Learning on Autonomous Vehicles*, Auburn High School, Auburn
2. *Javon Jennings, *The Use of International Writing Systems to Enhance Password Security*, Key Destiny Homeschool, Huntsville
3. Logan, Bracknell, *Simulating Mutualism Using Machine Learning*, Wetumpka High School, Wetumpka
4. Anna Bekah Cress, *Ultrasonic Sight: Mindstorms EV3 Wearable Device for Blind Navigators*, Libertas Classical Community, Decatur
5. Eliot Cornett, *A Low-Cost Approach to Reverse-Osmosis Desalination Using Solar Energy*, Alabama School of Fine Arts, Birmingham
6. Jackson Rodriguez, *Solar Powering a Raspberry Pi*, Wetumpka High School, Wetumpka
7. Ashwin Prabhakar, *Portable Spectral Imaging System*, Bob Jones High School, Madison
8. Lillian Vilardi, *Plastics on the Roads*, Wetumpka High School, Wetumpka
9. Naeim Mahjouri, *Generating Energy from Wheel Motion by Designing a Hybrid 3D-Printed Triboelectric Nanogenerator*, Auburn High School, Auburn
10. McNair Shah, *A Generative Adversarial Network for Sentimental Text Generation*, Alabama School of Fine Arts, Birmingham

Environmental

1. * Sreekiran Nataraj, *Measuring indicators of Water Pollution in Hoover High's Retention Pond with Benthic Macro-Invertebrates and Water Chemistry*, Hoover High School, Hoover
2. * Julian Vilardi, *Glowing Gumballs: Can Gumballs be Used as an Additive to Reduce Paint's Flammability?* Wetumpka High School, Wetumpka
3. Saniya Keshwani, *Pollution Affecting Elementary Schools*, Hoover High School, Hoover
4. Dakota Perry, *Stopping Pollution in our Waterways without Contributing to Global Warming*, Davidson High School, Mobile
5. Amitis Moradkhani, *Dye Removal with GO Reinforced Nanocomposite MOFs*, Indian Springs School, Pelham
6. Elizabeth Lancaster, *Finding Correlation Between Particulate Matter and Populations Across Alabama*, Alabama School of Fine Arts, Birmingham
7. Jordan Jennings, *The Effectiveness of Various Forms of Bamboo as a Bio-Insulation Replacement for Standard Fiber and Cellulose Insulation*, Key Destiny Homeschool, Huntsville
8. Abby Gobbels, *A Quantitative Report on How Local Construction is Affecting the Natural PH, Phosphate, and Nitrate levels of water in a Nature Preserve.*, Hoover High School, Hoover

Life Science

1. *Samir Abouhaidar, *To what extent do varying temperatures in Celsius affect the cellular respiration rates of reactions of Yeast (*Saccharomyces cerevisiae*) while respiring sucrose ($C_{12}H_{22}O_{11}$)?*, Hoover High School, Hoover
2. *Srijan Meesala, *A Correlation between the *SUCLG1* Gene and Diabetic Cardiomyopathy in *Mus Musculus**, Hoover High School, Hoover
3. Eva Ledvina, *Seasonal Differences in Bird Diversity in North Central Alabama*, Jefferson County International Baccalaureate High School, Irondale
4. Maya Lundy, *Analyzing Phenotypic Differences in Life Cycle Stages in *Agarophyton vermiculophyllum**, Alabama School of Fine Arts, Birmingham
5. Shrijith Balasundararajan, *Gene Regulation of *Chil1*, *Eya2*, *Atf3*, and *Ptgs2* in Heart-Tissue Associated with Diabetes and Heart Failure*, Alabama School of Fine Arts, Birmingham
6. Shivani Babu, *Attenuation of Adipocyte Hypertrophy in a Palmitic Acid-Induced 3T3 Cell Model through Lupeol Treatment*, Auburn High School, Auburn
7. Arian Phillips, *Pollution effects on Pulmonary functions*, Jemison High School, Huntsville

Medicine Health and Behavioral Science

1. *Shayaan Essani, *Exploring physiological and psychological changes as a result of the CORNA virus pandemic*. Hoover High School, Hoover
2. *Adrianna Orsi, *Don't Ovary Act*, Wetumpka High School, Wetumpka
3. *Henna Parekh, *Bioinformatics Study of the TET2-ASXL1 Microenvironment*, Alabama School of Fine Arts, Birmingham
4. Nathan Lee and Sophia Guo, *Effectiveness of Hand Sanitizer by Price*, Northridge Middle School, Tuscaloosa
5. Jackson Darby, *Can Artificial Intelligence via Convolutional Neural Network (CNN) Detect Skin Cancer?*, Providence Classical School, Huntsville
6. Rhyana Mahatsente, *How Does Video Gaming Affect Reaction Time in Adolescents?*, Tuscaloosa Magnet Middle School, Tuscaloosa
7. James Shi, *Determining the Best Site for ATRX mRNA Breakdown*, Alabama School of Fine Arts, Birmingham
8. Trisha Bheemanathini, *Local and Global Factors of the Generalized Poggendorff Illusions*, Alabama School of Fine Arts, Birmingham

Physical Science; Earth and Space Science

1. James Dean, *Drag Queens*, Wetumpka High School, Wetumpka
2. James LaPorte, *Theoretical Graphene Production*, Wetumpka High School, Wetumpka
3. Makaila Jennings, *How Distance Affects the Double Dip Transit Photometry Method's Ability to Detect Exoplanets*, Key Destiny Homeschool, Huntsville
4. Serena Ward, *High and Low Frequency*, Wetumpka High School, Wetumpka

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

GORGAS SCHOLARSHIP COMPETITION
Sci-Mix Session
Sandridge Student Center, Ballroom/Annex
Thursday Evening,
5:30 PM– 6:45 PM
Ellen Buckner, Presiding

1. *Samir Abouhaidar*, To What Extent Do Varying Temperatures (in Celsius) Affect the Cellular Respiration Rates of Reactions of Carbon Dioxide of Yeast (*Saccharomyces cerevisiae*) While Respiring Sucrose ($C_{12}H_{22}O_{11}$)? Hoover High School, [Teacher-Sponsor: Janet Ort].
2. *Shayaan Essani*, Exploring Physiological and Psychological Changes As a Result of the Coronavirus Pandemic. Hoover High School. [Teacher-Sponsor: Janet Ort]
3. *Ahnaf Hossain*, Adsorptive Removal of Lead from Aqueous Solution Using Biochar. Auburn High School. [Teacher-Sponsor: Shamim Begum].
4. *Javon Jennings*, The Use of International Writing Systems to Enhance Password Security. Homeschool, [Teacher-Sponsor: Keelan Jennings].
5. *Catherine Kung*, Development of Bio-Inspired Flexible Artificial Skin and Sensory Information Processing Using a Kohonen Artificial Neural Network. Indian Springs School, [Teacher-Sponsor: Hazal Mohammed].
6. *Maanasi Limaye*, T-Cell Clonality in Pregnant Patients with Multiple Sclerosis. Bob Jones High School, [Teacher-Sponsor: Kimberly Cox].
7. *Srijan Meesala*, Genomics: A Correlation Between the *SUCLG1* Gene and Diabetic Cardiomyopathy in *Mus Musculus*. Hoover High School, [Teacher-Sponsor: Janet Ort].
8. *Sreekiran Nataraj*, Measuring Water Pollution in Hoover High's Retention Pond with Benthic Macroinvertebrates and Water Chemistry. Hoover High School, [Teacher-Sponsor: Janet Ort].
9. *Adrianna Orsi*, Don't Ovary-Act. Wetumpka High School, [Teacher-Sponsor: Virginia Vilardi].
10. *Henna Parekh*, Bioinformatics Study of the Tet2-Asx11 Microenvironment. Alabama School of Fine Arts, [Teacher-Sponsor: Rebecca Thrash].
11. *Shemai'ya Peak*, Algal Applications to the Aerobic Bioremediation of Wastewater and the Promotion of Plant Growth. Stanhope Elmore High School, [Teacher-Sponsor: Jennifer Daniels].
12. *Julian Vilardi*, Using Kudzu (*Pueraria lobata*) as an Alternative Fuel Source. Wetumpka High School, [Teacher-Sponsor: Virginia Vilardi].

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.

2022 REGIONAL SCIENCE FAIRS

1. **Central Alabama Regional Science & Engineering Fair**, [web](#), March 5, 2022
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**, No Fair in 2022
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 1-2, 2022
Virtual
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 3, 2022
Janie Marino
GEARSEF Fair Coordinator
jgm0010@auburn.edu
5. **Mobile Regional Science and Engineering Fair**, [web](#), March 11, 2022
Engineering@southalabama.edu
David T. Allison, Ph.D.
dallison@southalabama.edu
Department of Earth Sciences
136 LSCB, 307 N. University Blvd.
University of South Alabama
Mobile, AL 36688
6. **Alabama Science & Engineering Fair**, [web](#), April 4-8, 2022 Virtual
Mary Lou Ewald Director, STEM Outreach Center |SCORE| AU-SIM |COSAM |131
SCC Bldg Auburn, AL 36849 Office: (334) 844-5745 | Cell: (334) 444-
1513|ewaldml@auburn.edu
Janie Gotthelf Marino
Assistant Program Director
College of Sciences & Mathematics
Auburn University, AL 36849

Office: (334) 844-5745
Email: jgm0010@auburn.edu

2022 INTERNATIONAL SCIENCE AND ENGINEERING FAIR

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

The Regeneron 2022 ISEF will be held May 8-13, 2022 in Atlanta, GA

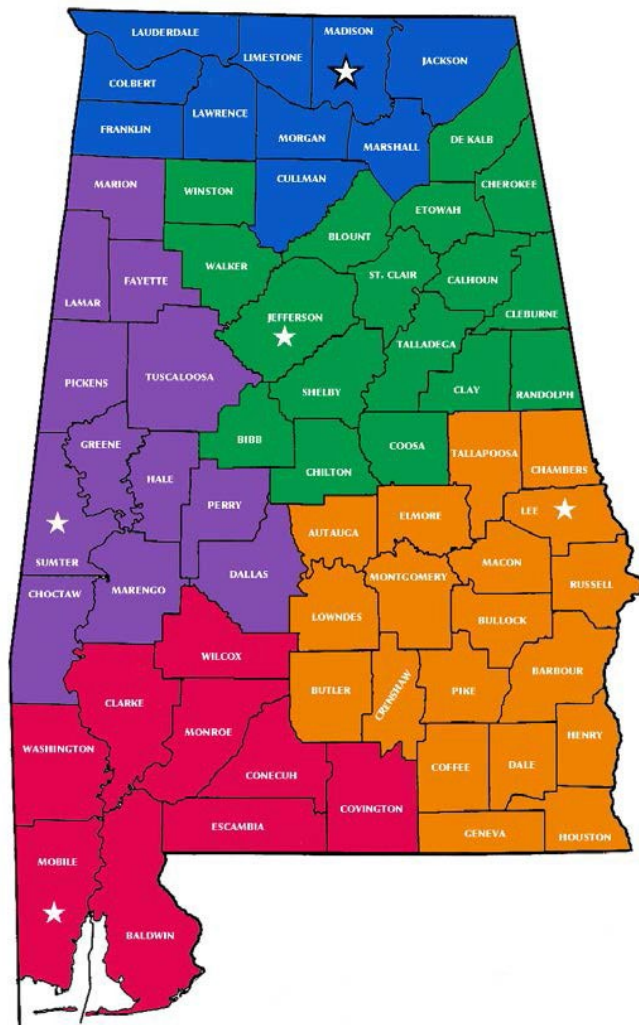
Virginia Vilaridi, Regeneron/ISEF and State Coordinator, 1251 Coosa River Parkway,
Wetumpka H.S., 36092, (334) 799 0104,
virginia.vilaridi@elmoreco.com; vavilaridi@gmail.com

2022 INTERNATIONAL SCIENCE AND ENGINEERING FAIR

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

The Regeneron 2020 ISEF will be held May 10-15, 2020 in Anaheim, CA at the Anaheim Convention Center. For details visit <https://www.societyforscience.org/isef/2020-2/>

Virginia Vilardi, Regeneron/ISEF and State Coordinator, 1251 Coosa River Parkway, Wetumpka H.S., 36092, (334) 799-0104, virginia.vilardi@elmoreco.com; vavilardi@gmail.com



ALABAMA SCIENCE OLYMPIAD 2022

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 AA -- Elementary Science Olympiad at

Jacksonville High School

Saturday, February 19th

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

Maximum of one team per school.

Wiregrass Elementary School

Saturday, February 16th

Carver High School

Auburn University

Saturday, April 30th

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, March 5th (virtual format)

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

AMSTI-North Alabama Regional

Saturday, February 12th (virtual format)

Athens State University

University of Alabama at Birmingham

Saturday, February 26th (virtual format)

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

Maximum of one team per school (per division).

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

University of Alabama, Tuscaloosa

Saturday, March 5th (virtual format)

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

AMSTI-North Alabama Regional

Saturday, February 12th (virtual format)

Athens State University

University of Alabama at Birmingham

Saturday, February 26th (virtual format)

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

Maximum of one team per school (per division).

Invitational Tournament

Jefferson County Invitational

Open only to Jefferson County Schools

Saturday, January 29th (B & C Divisions)

Saturday, March 5th (AA Division)

State Tournaments

Auburn University

Division B and C State Olympiads

Saturday, March 26th

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 13-14, 2022, by CalTech in a virtual format.

State Director: Mary Lou Ewald, Director of Science and Math Outreach, 131 SCC Building, Auburn University, Auburn, AL 36849 (334) 844-5745, ewaldml@auburn.edu.

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. Mickie Powell serves as Chair of the Mason Science Teacher Fellowship Committee, mpowell@uab.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
2018 - 2019	Jacob Helf, Auburn
2019 - 2020	Joshua Evans, University of Montevallo

WRIGHT A. GARDNER AWARDEES

Recipients are selected for their Outstanding Contributions to Science

- 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 COD, 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.
- 2018 No Award
- 2019 David J. Wineland, Nobel Laureate in Physics, University of Oregon.
- 2020 Jodi Singer, Director, NASA Marshall Space Center, Huntsville; Richard Myers, Director and President, HudsonAlpha Institute for Biotechnology, Huntsville.
- 2021 Errol Derwin Crook, Professor and Chair, Abraham Mitchell Endowed Chair, Department of Internal Medicine, University of South Alabama
- 2022 Michael Saag, Professor & Associate Dean for Global Health, University of Alabama at Birmingham.

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 Vilardi (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
- 2018 Mark Jones (J. F. Drake Middle School) and Akshaya Kumar (Tuskegee University)
- 2019 Lawrence J. Davenport (Samford University) and Puneet Srivastava (Auburn University)
- 2020 Mel Blake (University of North Alabama) and Arjun Tan (Alabama A&M University)
- 2021 No award
- 2022 Matthew Edwards (Alabama A&M University) and Courtney N. Haun (Samford University)

SECTION OFFICERS, 2021-2022

Section I: Biological Sciences:

- Chair: (2023) Andrew Coleman, 512 Scenic Circle, Trussville, AL 35173, acoleman@talladega.edu.
- Vice Chair: (2023) Grover Brown, Dept. of Biology, Jacksonville State University, Jacksonville, AL 36265, gjbrown@jsu.edu.

Section II: Chemistry:

- Chair: (2022) Donna Perygin, Dept. of Chemistry and Geosciences, Jacksonville State Univ., Jacksonville, AL 36265, dperygina@jsu.edu
- Vice Chair: (2022) Stephen Slauson, Dept. of Chemistry and Geosciences, Jacksonville State Univ., Jacksonville, AL 36265, sslauson@jsu.edu.

Section III: Physics and Mathematics:

- Chair: (2023) Matthew Edwards, Dept. of Physics, Alabama A&M University, Normal, AL 35762, matthew.edwards@aamu.edu.
- Vice Chair: (2023) Byunghoon Lee, Dept. of Mathematics, Tuskegee University, Tuskegee, AL blee@tuskegee.edu.

Section IV: Engineering and Computer Science:

- Chair: (2022), Ravi Gollapalli, Dept. of Engineering Technology, Univ. of North Alabama, Florence, AL 35632 (256)-765-4857, rgollapalli@una.edu.
- Vice Chair: (2022) Ruigang Wang, Dept. of Metallurgical & Materials Engineering, The University of Alabama, Tuscaloosa, AL 35487, rwang@eng.ua.edu.

Section V: Social Sciences:

- Chair: (2023) Charles (Rick) Roberts, Acquisitions & Contract Management, Athens State Univ., Athens, AL 35611, Charles.roberts@athens.edu.
- Vice Chair: (2023) Mohit Anand, Division of Business and Accounting, Miles College, Fairfield, AL 35064, manand@miles.edu.

Section VI: Anthropology:

- Chair: (2023) Jason Heaton, Department of Biology, Birmingham Southern College, Birmingham, AL 35254, (205) 226-7816, jheaton@bsc.edu
- Vice Chair: (2023) Sherrie Alexander, Dept. of Anthropology, University of Alabama at Birmingham, Birmingham, AL 35294, sdalex@uab.edu

Section VII: STEM Education:

- Chair: (2022) J. Jeffrey Morris, Dept. of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, evolve@uab.edu.
- Vice Chair: (2022) Sami Raut, Dept. of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, sraut@uab.edu.

Section VIII: Environmental and Earth Science:

- Chair: (2023) Jonghwa Oh, Environmental Health Science, UAB, School of Public Health, Birmingham, AL 35294, jonghwa@uab.edu
- Vice Chair: (2023) Shaoyang Liu, Dept. of Chemistry, Troy University, Troy, AL 36082, lius@troy.edu.

Section IX: Health Sciences:

- Chair: (2022) Audrey Vasauskas, Dept. of Anatomical Sciences and Molecular Medicine, Alabama College of Osteopathic Medicine, 445 Health Sciences Blvd., Dothan AL 36303, avasauskas@acom.edu.
- Vice Chair: (2022) Donna Coopeland, University of South Alabama, College of Nursing, Mobile, AL 36688, dcopeland@southalabama.edu.

Section X: Bioethics and History and Philosophy of Science:

- Chair: (2022) Clark Lundell, Dept. of Industrial & Graphic Design, Auburn University, Auburn, AL 36849, lundece@auburn.edu.
- Vice Chair: (2022). VACANT

ELECTED OFFICERS, 2019-2020

President: John Shelley-Tremblay, Department of Psychology, University of South Alabama, UCOM 1123, Mobile, AL 36688 (251) 460-6883, jstremblay@southalabama.edu

President-Elect: J. Jeffrey Morris, Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, (205) 934-9498, evolve@uab.edu.

Second Vice-President: Vinoy Thomas, Department of Materials Science and Engineering, University of Alabama at Birmingham, (205) 975-4098, vthomas@uab.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, Auburn, AL jonesmt@troup.org;
jonesm_s@knology.net

Associate Counselor to the Junior Academy: Ronald (Mel) Blake, Dept. of Physical and Earth Science, University of North Alabama, Florence AL 35632 (256) 765-4284 rdblake@una.edu.

Associate Counselor to the Junior Academy: VACANT.

Coordinator of State Science Fairs: Virginia Vilardi, 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: Mary Lou Ewald, Director of Science and Math Outreach, 131 SCC Building, Auburn University, Auburn, AL 36849 (334) 844-5745,
ewaldml@auburn.edu.

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) 936-0823, krannich@uab.edu.

At Large Officers: (Vacant)

Graduate Student At Large Officers:

- Daniel Lerew, Materials Processing and Applications Development, 501 12th Street South, University of Alabama at Birmingham, Birmingham, AL 35294 (205) 996-7391, delerew@uab.edu
- (Vacant)
- (Vacant)

TRUSTEES:

- Brian Burnes, (2022) Livingston, AL 35470 (205) 652-3442, bburnes01@gmail.com.
- Richard Hudiburg, (2022) Department of Psychology, University of North Alabama Box 5187, Florence, AL 35632 (256) 383-0443, rahudiburg@una.edu.
- Ron Hunsinger, (2022) Professor Emeritus, Samford University, Birmingham, AL 35229, (205) 540-6732 rhunsin@samford.edu.
- Adriane Ludwick, (2022) Department of Chemistry, Tuskegee University, Tuskegee, AL 36088, aludwick@tuskegee.edu.
- Matthew Edwards, (2023) Dept. of Physics, Chemistry, & Math, Alabama A&M University, Normal, AL 35762 (256) 372-8119, Matthew.edwards@aamu.edu.
- Ken Marion, (2023) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294–1170, kmarion@uab.edu.
- David Nelson, (2023) Department of Biology, University of South Alabama, Mobile, AL 36688 (252) 460-6331, dnelson@usouthal.edu.
- Prakash Sharma, (2023) Department of Physics, Tuskegee University, Tuskegee, AL 36088 (334) 727-8998, psharma@tuskegee.edu.
- Ellen B. Buckner, (2024) Moffett & Sanders School of Nursing, Samford University, (205) 726-2092 ellen.buckner@samford.edu
- Brian Toone, (2024) Department of Computer Sci., Samford University, Birmingham,AL 35229 (205) 726-2960, brtoone@samford.edu.
- Stephen Watts, (2024) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294–1170 (205) 934–2045, sawatts@uab.edu.
- Virginia Vilardi, (2024) Wetumpka High School, 1251 CoosaRiver Parkway, Wetumpka, AL 36092 (334) 799-0104, (334) 514-1770 virginia.vilardi@elmore.k12.al.us.

APPOINTED COMMITTEES 2019-20

Archives

- VACANT

Auditing Senior Academy

- Budget and Finance Committee

Auditing Junior Academy

- Budget and Finance Committee
- Mark Jones, 655 Spencer Ave., Auburn, AL 36832, (334) 444-3099, jonesmt@troup.org.

Budget and Finance

- Trustee, Ken Marion, (Chair) 2023, Dept. of Biology, Univ. of Alabama at Birmingham, Birmingham, AL, 35294-1170, , kmarion@uab.edu
- Trustee, Ellen Buckner, (2024) College of Health Sciences, School of Nursing, Samford University, Birmingham, AL, 35229, (205)726-2092(w); (205) 810-9877(c), ebuckne2@samford.edu; ebbuckner@gmail.com
- First Vice-President, J. Jeffrey Morris, Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, (205) 934-9498, evolve@uab.edu.
- Counselor to the Junior Academy, Mark Jones, (2024) 1233 Sanders St., Auburn. AL 36870, jonesmt@troup.org.
- President, John Shelley-Tremblay, Department of Psychology, University of South Alabama, UCOM 1123, Mobile, AL 36688 (251) 460-6883, jstremblay@southalabama.edu
- Treasurer, Bettina Riley, (2024) USA College of Nursing, 161 N. Section Street, Suite C, Fairhope, AL, 36532, (251) 517-5363, briley@southalabama.edu
- Secretary, Melia Fincher, (2024) Department of Biology, Samford University, Birmingham, AL, 35229, (205) 726-2928, rmfinche@samford.edu
- Executive Director, Larry Krannich, Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, krannich@uab.edu

Editorial Board and Associate Journal Editors: (staggered 3-yr terms)

- John Shelley-Tremblay, (Acting Chair) (2022), Department of Psychology, University of South Alabama, UCOM 1123, (251) 460-6883 Mobile, AL 36688, jstremblay@southalabama.edu
- Jim Bradley, (2022) Department of Biology, Auburn University, Auburn, AL 36849, bradljt@auburn.edu
- Prakash Sharma, (2024) Department of Physics, Tuskegee University, Tuskegee, AL 36088, psharma@tuskegee.edu
- Vacant

Electronic Media: (3-yr terms)

- Diann Jordan, (2022) 915 South Jackson Street, Montgomery, AL 36101, djordan@alasu.edu
- Richard Hudiburg, Associate Editor, (2022) Department of Psychology, University of North Alabama, Box 5187, Florence, AL 35632, rahudiburg@una.edu
- Brian Toone, (2022) Dept. of Computer Science, Samford Univ., Birmingham, AL, 35229, (205) 726-2960, brtoone@samford.edu
- Jason L. Heaton, (2024) Dept of Biology, Birmingham Southern College, Birmingham, AL, jheaton@bsc.edu

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

- Richard Hudiburg, Chair, (2023) Department of Psychology, University of North Alabama, Box 5187, Florence, AL 35632, rahudiburg@una.edu

- David Nelson, (2022) 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, (2023) 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 Health Sciences, School of Nursing, Samford University, Birmingham, AL 35229 (205) 910-9877 ebbuckner@gmail.com & ellen.buckner@samford.edu
- Larry Krannich, Co-chair, Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, krannich@uab.edu
- Elizabeth Dobbins, (2023) Department of Biology, Samford University, Birmingham, AL 35229, egdobbin@samford.edu
- David H. Nelson, (2023) Department of Biology, University of South Alabama, Mobile, AL 36688, dnelson@southalabama.edu
- Prakash Sharma, (2022) Department of Physics, Tuskegee University, Tuskegee, AL 36088, psharma@tuskegee.edu.
- Andy Coleman, (2022) 512 Scenic Circle, Trussville, AL, 35173, acoleman@talladega.edu; atcoleman80@gmail.com.
- VACANT
- Mitzi Adams (2022) 320 Sparkman Drive, Huntsville, AL, 35805, mitzi.adams@nasa.gov

Junior Academy:

- Mark Jones, 1233 Sanders St., Auburn, AL 36870, jonesmt@troup.org.

Junior Academy Regional Counselors:

- Virginia Vilardi, Wetumpka High School, 1251 Coosa River Parkway, Wetumpka, AL 36092 (334) 799-0104, (334) 514-1770 virginia.vilardi@elmore.k12.al.us.

Local Arrangements at University of South Alabama

- Charles (Rick) Roberts, Acquisitions & Contract Management, Athens State University, Athens, AL 35611, charles.roberts@athens.edu.
- Nisheeth (Rick) Agrawal, Computer Science, Athens State University, Athens, AL 35611, Nisheeth.Agrawal@athens.edu.

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

- Akshaya Kumar (2025) Department of Physics, Tuskegee University, Tuskegee, AL 36088, (334) 727-8968, akumar@tuskegee.edu.
- Puneet Srivastava (2023) 200 Corley Building, Biosystems Engineering, Auburn AL 36849, srivapu@auburn.edu.
- Brian Toone, (ex officio) (2024) Department of Computer Sci., Samford University, Birmingham, AL 35229 (205) 726-2960, brtoone@samford.edu.
- John Shelley-Tremblay, (2022), Department of Psychology, University of South Alabama, UCOM 1123, (251) 460-6883 Mobile, AL 36688, jstremblay@southalabama.edu

Mason Scholarship: (staggered 3-yr terms)

- Mickie Powell (Chair) (2024) Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294 mpowell@uab.edu
- Ronald Hunsinger (2023) 1070 Crest Rd., Leads, AL rhunsin@samford.edu
- Amanda Coffman, (2021) Department of Chemistry and Industrial Hygiene, University of North Alabama, School Florence, AL 35632, alhofacker@una.edu

- R. Melvin Blake, (2023) Department of Physical and Earth Science, University of North Alabama, Florence, AL 35632, rmlake@una.edu

Membership and Development:

- Cameron Gren, (2022) Dept. of Chemistry and Industrial Hygiene, University of North Alabama, UNA Box 5049, University of North Alabama, Florence, AL 35632, cgren@una.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
Ketia Shumaker	2017-18
Drew Hataway	2018-2020
Cameron Gren.....	2020-21

Nominating:

- Vinoy Thomas, Department of Materials Science and Engineering, University of Alabama at Birmingham, (205) 975-4098, vthomas@uab.edu, and all Section Chairs

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

- Rekha Lall (Chair) (2022) Auburn Primary Care, East Alabama Medical Center, 1719 Catherine Ct, Auburn, AL 36830, 334-826-7220, rlall@eamc.org
- Donna Perygin (2026) Department of Chemistry and Geosciences, Jacksonville State University, Jacksonville, AL 36265, dperygina@jsu.edu.
- Larry Krannich, (2025) Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, (205) 936-0823, krannich@uab.edu
- George Cline, (2022) Department of Biology, Jacksonville State University, Jacksonville, AL 36265, gcline@jsu.edu
- Itza Soloman (2024), University of Mobile, 5735 College Parkway, Mobile, AL 36613, sitza@umobile.edu.

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

- Brian Burnes, Chair (2021) bburnes01@gmail.com
- Stephen Watts, (2022) 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
- Berneece Herbert, (2023) Department of Community and Regional Planning, Alabama A&M University, Normal, AL 35762 (256) 372-4988, berneece.herbert@ammu.edu
- Vacant (2024)

Resolutions:

- Brian Burnes, Chair (2022) bburnes01@gmail.com

Science, Public Policy, and Public Relations: (staggered 4-yr terms)

- Scott Brande, co-Chair, (2025) Department of Geology, University of Alabama at Birmingham, Birmingham, AL 35294, sbrande@uab.edu
- Brian Burnes, co-Chair (2022) bburnes01@gmail.com
- Ellen Buckner, (2022), College of Health Sciences, School of Nursing, Samford University, Birmingham, AL 35229 (205) 726-2092(w); (205) 810-9877(c), ebuckne2@samford.edu; ebbuckner@gmail.com.
- Gregory Buckley (2023) Dept. of Physical and Earth Science, University of North Alabama, Florence, AL 25632, gbuckley@una.edu.
- James Bradley, (2024) Department of Biological Sciences, Auburn University, Auburn, AL 36849, bradjt@auburn.edu
- Vacant (2023)

Steering:

- Immediate Past President, Cameron Gren, Dept. of Chemistry and Industrial Hygiene, University of North Alabama, UNA Box 5049, Florence, AL cgren@una.edu.
- President, John Shelley-Tremblay, (2022), Department of Psychology, University of South Alabama, UCOM 1123, (251) 460-6883 Mobile, AL 36688, jstremblay@southalabama.edu
- Vice President, J. Jeffrey Morris, (2022), Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35294, (205) 934-9498, evolve@uab.edu.
- Second Vice President, Vinoy Thomas, (2022) Department of Materials Science and Engineering, University of Alabama at Birmingham, (205) 975-4098, vthomas@uab.edu
- Secretary, Bettina Riley, (2024) USA College of Nursing, 161 N. Section Street, Suite C, Fairhope, AL 36532, briley@southalabama.edu.
- Treasurer, Melia Fincher, (2024) 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, (2022) Department of Physics, Tuskegee University, Tuskegee, AL 36088, psharma@tuskegee.edu
- Matthew Edwards, (2023) Dept. of Physics, Alabama A&M Univ., Normal, AL, 35762, (256) 372-8119 or (256) 372-8104, matthew.edwards@aamu.edu
- Akshaya Kumar, (2023) Dept. of Physics, Tuskegee University, Tuskegee, AL 36088, akumar@tuskegee.edu.
- Vacant (2020)

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
G.O. Spencer.....	1971-72
Joseph C. Thomas.....	1972-73
Robert T. Gudauskas.....	1973-74
Reuben B. Boozer.....	1974-75
Thomas E. Denton.....	1975-76
Urban L. Diener.....	1976-77
James C. Wilkes.....	1977-78
William F. Arendale.....	1978-79
Jack H. Moore.....	1979-80
Geraldine M. Emerson.....	1980-81
Kenneth Ottis.....	1981-82
Charles M. Baugh.....	1982-83
Raymond E. Isbell.....	1983-84
John F. Pritchett.....	1984-85
Stanley T. Jones.....	1985-86
Philip G. Beasley.....	1986-87
H. Dean Moberly.....	1987-88
Richard L. Shoemaker.....	1988-89
Adriane G. Ludwick.....	1989-90
Michael E. Lisano.....	1990-91
Ken R. Marion.....	1991-92
Michael B. Moeller.....	1992-93
Prakash Sharma.....	1993-94
Eugene Omasta.....	1994-95
Dan C. Holliman.....	1995-96
Thomas S. Jandebour.....	1996-97
Ellen B. Buckner.....	1997-98
Moore Asouzu.....	1998-99
Larry R. Boots.....	1999-00
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
Nixon Mwebi.....	2018

Drew Hataway.....	2018-20
Cameron Gren.....	2020-21
John Shelley-Tremblay	2021-22

HOSTS FOR FUTURE ALABAMA ACADEMY OF SCIENCE MEETINGS

2023 – College of Health Sciences, Samford University
2024 – Open

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

ONE-HUNDREDTH ANNUAL MEETING
of the
ALABAMA ACADEMY OF SCIENCE, INC.



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

March 8-10, 2023
Samford University
Birmingham, AL 35229

- 1. Founders Hall
- 2. Brown Hall
- 3. McCandless Hall
- 4. Sandridge Student Center
- 5. Sanders Hall
- 6. Kares Library
- 7. Classroom Building
- 8. Waters Hall
- 9. Carter Physical Education Bldg
- 10. McCain Hall

- 11. Security Office
- 12. President's Home - The Bullington House
- 13. Grey House
- 14. Chasteen Hall
- 15. Maintenance Building
- 16. Smith House
- 17. Patton House
- 18. Freehauf House
- 19. Print Shop

