

Alabama Section of the ACS Winter 2017 Newsletter

[HTTP://ALABAMA.SITES.ACS.ORG/](http://alabama.sites.acs.org/)

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ACS honors African Americans in the Chemical Sciences



Dr. Marie Maynard Daly

ACS celebrates the achievements and contributions of African Americans who overcame great odds to pioneer some of the most important discoveries and developments in our history. Read more on page 3.

khayden@bsc.edu

Have something to say? Have an announcement? Let us know!

Contributions to the spring issue are due by 4/01.

Events calendar

Keep up with all the events going on within the ACS. Page #4



The Chemistry of Beer

It has been a busy fall term for our AACCS President, read more about the past events we have hosted on p. 5



Introducing "Bragg's and Brews"



Celebrate Earth Day with AACCS

Please join us and the Alabama Wildlife Center on 4/15 for a family friendly earth day picnic on the field near Ebenezer Swamp in Montevallo. For more information see Page 2.

Job Postings/Announcements

See page 6. Looking to fill a chemistry related position that you want to post? Submit to khayden@bsc.edu.

BSC to host Adam Kiefer for seminar and dinner

by Kate Hayden, ACS Secretary



“Monitoring Mercury Emissions in Artisanal and Small-scale Gold Mining Communities”

February 22, 2017 6:00 PM

130 Stephens Science Center
Birmingham-Southern College
901 Arkadelphia Rd, Birmingham Al. 35254

Please join us for dinner and a presentation from Dr. Adam Kiefer, Associate Professor of Chemistry from Mercer University. Over the last three summers Dr. Adam Kiefer has traveled with students to the cities of Portovelo and Zaruma in Ecuador through Mercer On Mission to carry out multiple service projects in artisanal and small-scale gold mining (ASGM) communities.

Free dinner featuring Latin cuisine.

RSVP online by 2/17 at <http://doodle.com/poll/w35s9i7wa9r88ciu>

Montevallo to host Earth Day event with AWC

by Kate Hayden, ACS Secretary

Save the date to celebrate Earth Day
with the AACS and the Alabama Wild
Life Center

April 15, 2017 12:00 PM

Ebenezer Swamp Ecological Preserve
University of Montevallo
Stage Coach Rd, Alabaster, Al. 35007

This family friendly event will feature wildlife demonstrations from the Alabama Wildlife Center, kid-friendly and informative activities, and a picnic style lunch. Hope to see you there!



ACS honors African Americans in the Chemical Sciences

Adapted from ACS.org

ACS celebrates the achievements and contributions of African Americans who overcame great odds to pioneer some of the most important discoveries and developments in our history. Learn more at ACS.org

Marie Maynard Daly

April 16, 1921 – October 28, 2003

Marie Maynard Daly is the first African American woman to receive a doctoral degree — earning it from Columbia University in 1947. Prior to that, she attended Queens College in Flushing, New York, where she graduated magna cum laude with a Bachelor of Science degree in chemistry. After receiving her Ph.D., she held an instructor position at Howard University for two years and began research on the composition and metabolism of components in the cell nucleus. Later in her career, Daly developed programs to increase the number of minorities in medical schools and graduate science programs. In 1988, she established a scholarship fund at Queens College for African Americans in commemoration of her father



Percy L. Julian

April 11, 1899 – April 19, 1975

Julian was born in Montgomery, Ala., on April 11, 1899, the son of a railway clerk and the grandson of slaves. In 1953, he established Julian Laboratories, a successful enterprise that he sold for more than \$2 million in 1961. He later formed Julian Research Institute, a nonprofit research organization. Among his many lifetime honors was election, in 1973, to the National Academy of Sciences. He was also widely recognized as a steadfast advocate for human rights. Julian continued his private research studies and served as a consultant to major pharmaceutical companies until his death on April 19, 1975.



Joseph S. Francisco

In 2009, Joseph S. Francisco became the second African American to be elected president of the American Chemical Society. Also former president of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, Francisco is the William E. Moore Distinguished Professor at Purdue University. He has published more than 400 journal articles, written nine book chapters, co-authored the textbook *Chemical Kinetics and Dynamics*, and served on numerous national science councils. Francisco's recent achievements include an appointment by President Barack Obama to the distinguished National Medal of Science Committee and an honorary doctor of science degree from Tuskegee University.



UPCOMING EVENTS:

DATE	EVENT
February 22, 2017	Seminar/Dinner – Dr. Adam Kiefer on “Monitoring Mercury Emissions in Artisanal and Small-scale Gold Mining Communities”. 6:00 PM Stephens Science Center 130, Birmingham-Southern College
April 2-6, 2017	253rd ACS National Meeting & Exposition in San Francisco, CA.
April 15, 2017	AACS and AWC Ebenezer Swamp Picnic – a family friendly event to celebrate earth day. 11-2pm. Details on page —
April 22, 2017	March for Science – Birmingham, Al.
August 20-24, 2017	254th ACS National Meeting & Exposition in Washington, DC.
Nov. 7-11, 2017	SERMACS in Charlotte, NC

Spring Seminar Series:

SAMFORD

Thursdays at 4:00pm in Christenberry Planetarium Propst Hall

2/9 – Dr. Gavin Williams from North Carolina State University

3/9 – Dr. Daniel Whitehead from Clemson University

4/13 – Dr. Suzanne Lapi from UAB

5/4 – Dr. David Schneider from UAB

BSC

Thursdays at 9:30 in Stephens Science Center 336

3/16 – Dr. Mark Suto, Vice President of Drug Discovery at Southern Research on The Business of Drug Discovery

4/6 – Dr. Philip Morris, Senior Scientist and Project Leader at Evonik on Drug Delivery using Biodegradable polymers and the GMP process

4/20 - Dr. Whitney Moro, Research and Development at Durect on Antibacterial and Microbial Drug Development

4/27 – Dr. Nathan Erdmann, MD/PhD at 1917 Clinic at UAB on Clinical Development and Research for HIV/AIDs treatment and community outreach

5/5 – Dr. Sandanandan Velu, Professor of Chemistry at UAB on Research and Development of novel Anti-cancer Drugs

UA

Tuesdays and Thursdays at 12:45pm in Shelby Hall 1093

2/16 - Prof. Song Guo from the University of Southern Mississippi “The interplay between aggregation and chemical doping of P3HT”

2/20 - Sopheavy Siek from UA “Catalytic Small Molecule Reduction Using Late Transition Metal Complexes of Carbon and Nitrogen Donor Chelates”

2/23 - Prof. Adam Kiefer from Mercer University

2/28 - Charitha J. Thambiliyagodage from UA, “Synthesis, characterization and applications of metal nanoparticles supported on porous carbon”.

3/2 – Prof Collen Scott from Mississippi State University

3/14- Prof. Till Optaz from Johannes Gutenberg University

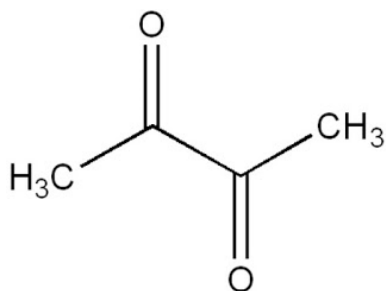
3/20 – Hanjiao Chen from UA “Electron Spin Dynamics of Trityl Molecules”

3/23 – Prof. Paul Craig from Rochester Institute of Technology. “Using protein function prediction to promote hypothesis -driven thinking in undergraduate biochemistry education.

The Chemistry of Beer - Diacetyl Basics

By Tracy Hamilton, AACCS Councilor

First things first: you may have heard the word diacetyl pronounced many different ways. A couple of them are common, and largely depend on which country you are in. The problem lies in the different ways that acetic ($\backslash\text{ə-}'\text{sē-tik-}\backslash$) acid and acetate ($\backslash'\text{a-sə-},\text{tāt}\backslash$) are usually pronounced. The common pronunciations of diacetyl are $\backslash,\text{dī-ə-}'\text{sēt-əl},\text{dī-}'\text{as-ət-əl}\backslash$, and are based in turn how the acetyl group is pronounced. I think more UK speakers pronounce with the long e, Americans with the second pronunciation. You could finesse this issue entirely by saying 2,3-butanedione, which is the systematic nomenclature for this compound.



Any chemical structures which I post are generated by me, feel free to download to your collection under a noncommercial Creative Commons license.

https://en.wikipedia.org/wiki/Creative_Commons_license

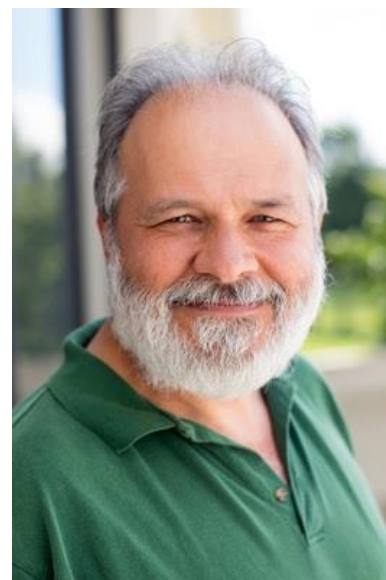
Diacetyl is a flaw in almost every style of beer if it is noticeable. There are variations in how sensitive tasters are to the flavor and aroma. At high levels the aroma is strongly artificial butter (which IS diacetyl). At lower levels, diacetyl mixes with other flavors and aromas and is perceived more as butterscotch. This level is acceptable in some beer styles, but even then moderation is desirable. Even if a taster does not perceive any of these flavors and aromas, the taste will definitely seem off to the consumer. The consumer would likely finish the beer, but not order another. Diacetyl coats the tongue, and diminishes perception of hop bittering and hop flavor compounds.

There are several sources and sinks for diacetyl. Diacetyl is produced during fermentation, then normally reduced by yeast enzymes to acetoin and 2,3-butanediol. However, things can go awry with yeast. If the fermentation is problematic, high diacetyl levels will be just part of a whole suite of symptoms, and the beer would not be released for public consumption. The consumer would be more likely to experience high diacetyl levels from bacterial contamination, either in the package or through dirty beer lines.

A future post on diacetyl will get more into the weeds of chemistry. Any beer judges want to hop in with their experience in detecting diacetyl, or its effects on the beers they judged?

Credit to <https://www.merriam-webster.com/> for the pronunciations.

Tracy Hamilton is a chemistry professor at UAB, certified BJCP beer judge, and homebrewer. His blog intends to bring together beer enthusiasts, beer judges and the chemistry community. Follow Tracy at <http://thechemistryofbeer.blogspot.com/>



Join us for “Bragg’s and Brews” every second Thursday of the month at The Beer Hog.

Join us for an informal get together every second Thursday of the month at The Beer Hog in Pelham, AL, from 5-7pm. The Beer Hog features over 65 craft beers on tap and over 300 craft beers in bottles. On Thursday evenings, the Hog features live music and food trucks. Hope to see you there! The Beer Hog is located at 112 Bowling Lane, Pelham, AL 35124



Meet your new Chair-elect - Dr. Joe March

By Kate Hayden, AACS Secretary.

Dr. March received his Ph.D. degree from the Department of Chemistry at the University of Texas at Austin, and is a recipient of a 2003 Carnegie Foundation for the Advancement of Teaching Alabama Professor of the Year Award for his commitment to undergraduate education. He successfully adapted the guided inquiry approach developed at Franklin and Marshall and College of the Holy Cross to the large university setting at the University of Wisconsin-Madison during his time there as General Chemistry Laboratory Director. He has continued to pursue cooperative learning strategies in General Chemistry courses at since his appointment to the faculty at UAB. In the general chemistry laboratories at UAB, March has received funding to integrate new technologies and guided inquiry experiments into the laboratory course. In 2005, he acted as the principal investigator on the NSF-funded POGILinPrep grant that adapted the Process-Oriented Guided Inquiry approach to the preparatory chemistry course. This grant resulted in the publication of *Introductory Chemistry: A Guided Inquiry* approach by Cengage Publishing. March has also led summer courses for pre- and in-service K-12 teachers that have involve preparing active learning exercises for the laboratory and field testing them under supervision in our summer ChemBridge Program for 9th grade students. He has served UAB as Chair of the Faculty Senate and is currently an Associate Director in the Science and Technology Honors Program.



Job Opportunities:

Analytical Chemists: Avanti Polar Lipids, Inc. in Alabaster, Alabama is seeking Analytical Chemists for its Quality Control Department. Candidates must have a minimum of a BS degree in Chemistry. Experience with HPLC/GC is a plus. Regular duties will include sample preparation, analysis, timely and accurate reporting of results, routine daily and weekly maintenance of the instruments used, following Avanti's safety procedures, and general lab cleaning. Interested individuals should send their CV to jobs@avantilipids.com.

Formulations Project Manager: Avanti Polar Lipids, Inc. in Alabaster, Alabama is recruiting a Formulations Project Manager for its Formulations Division. This position will be responsible for overseeing and assisting in executing the successful completion of large, high-value, inter-departmental manufacturing projects, under the guidance of the Director of Formulations. Candidate must have a Master's Degree in Chemistry, Ph.D. preferred, with demonstrated ability to independently design and execute experiments. Experience in liposomes or lipid biophysics is highly preferred along with general knowledge of drug product formulation and knowledge of lipid nanoparticle technology. Experience in cGMP manufacturing a plus. Interested individuals should send their CV to jobs@avantilipids.com.

Pre-Pack Technicians: Avanti Polar Lipids, Inc. in Alabaster, Alabama is hiring Pre-Pack Technicians for its pharmaceutical manufacturing operations. The primary duties of this position is the packaging of research products for domestic and international customers including accurately weighing and measuring scientific reagents, handling of both powder materials and chemical solutions; procedures/techniques associated with preparing research products to their final physical states such as solubilizing and diluting solutions, filtering/drying acetone precipitated powders, lyophilizing neat oils and block freezing cyclohexane solutions and drying to powers; and formulation of research mixtures with associated techniques/equipment. Candidates should have good knowledge of chemistry and math; college degree preferred. Send resume to jobs@avantilipids.com.

Research Chemist: Avanti Polar Lipids, Inc. in Alabaster, Alabama is seeking a Research Chemist for its Research Chemistry Group. Responsibilities for this position will include conducting chemical syntheses and purification of lipids or lipid-like organic molecules. These compounds will include products listed in the Company's catalog as well as new compounds developed for the catalog and custom syntheses for Avanti customers. The qualified candidate should have BS degree in chemistry with three plus years work experience in organic synthesis, or a MS, or PhD degree in chemistry with research experience in organic synthesis. Interested candidates should send a resume to jobs@avantilipids.com.

Have a chemistry related position to fill, send your ad to khayden@bsc.edu

Alabama Scientific Advisory Group: Building Bridges between Scientists and Legislators

By Melanie Styers, Associate Professor of Biology at Birmingham-Southern College



We're all familiar with the stereotype of the scientist who never leaves the lab. Numerous reports have noted that scientists have historically done a poor job of communicating with the public. This lack of communication has led to proliferation of misinformation about important issues, such as vaccination and climate change. To compound this problem, lobbyists often present legislators with biased viewpoints of scientific topics to influence policy in the favor of corporate interests. Unfortunately, due to scientists' single-

minded focus on our work, legislators often aren't aware of the scientific expertise available in their own districts.

A group of concerned scientists in Alabama want to remedy this problem and connect with our elected officials. We're working on building a database of Alabama scientists willing to serve as subject-matter experts for our state and local legislators. We hope to establish relationships with these officials and their staffs, and perhaps even form local advisory boards. In this way, local experts can serve as a qualified source of information or vetting for new legislation. Instead of having to rely primarily on lobbyists and overworked staffers for scientific information, our representatives will have access to scientific experts in their own backyards. If you would be willing to serve in this capacity, please consider signing up and listing your expertise in our Google Doc:



[Sign up here](#)



March-for-Science, Birmingham, Al.

By Executive Committee of the March-For-Science, Birmingham, Al.

Shortly after taking office in January, the Trump Administration ordered a communication blackout at the EPA and various other federal scientific research entities. Doug Erickson, the communications director for the administration's transition team in the EPA, explained "We're just trying to get a handle on everything and make sure what goes out reflects the priorities of the new administration." It is understandable for a new administration to restrain communications for a time in order to ensure a smoother transition. However, in addition to the gag order, the Trump Administration also froze hiring and halted payments on EPA contracts and grants, leaving multitudes of researchers and graduate students in financial limbo. Shortly after this media blackout and expense freeze occurred, climate change data was suddenly removed from the EPA website.



Erickson claimed that they were trying to "get a handle" and "make sure what goes out reflects the priorities of the new administration." Instead, the gag order and expense freeze effectively silenced all federal level scientific discussion on climate change and environmental research. Simultaneously, it demonstrated to all the scientists and students involved that they had best conform to the political expectations of the government or their jobs, security, and research could easily be ripped away from them. Additionally, the orders exhibit the administration's willingness to silence scientific research that it does not agree with. The entire situation sets a dangerous precedent. The EPA was specifically targeted, as Erickson explains, to make sure that the message coming out of the EPA was what the administration wants it to be. As a result, the administration has effectively declared that all scientific research from the federal level must support its positions or risk being silenced or dismissed.

The administration's actions demonstrate a common misconception in our society: that scientific research is political. It is not. The conservative movement has been quick to paint all scientific research as liberal, some going so far as to declare certain research topics as a "conspiracy". The liberal movement has been quick to declare themselves the only authorities qualified to speak on scientific research, to the point of branding conservatives as scientifically illiterate. These assumptions are categorically false. Scientific research is apolitical.



Photo credit: TYT Nation/YouTube screenshot.

We as scientists are partly to blame for this misconception. We have remained on the sidelines of political action. We have allowed politicians with little to no understanding of the nature of our research to grossly misrepresent it to further their political agendas. We have locked ourselves away in our labs and universities, and hidden our work behind walls of multisyllabic jargon and high-cost research journals. Science is not exclusive to scientists. Every member of society, regardless of social standing, is dependent on the continuation of scientific research. Likewise, scientific research depends on community support.

Almost immediately after the news broke of the assault on the EPA, scientists and science enthusiasts across the country and around the globe began to organize protests designed to call attention to the malfeasance actions taken by the administration towards the free, unbiased, open communication of science to the public. We here at the March for Science – Birmingham, Al are inspired by this community-based declaration of support for scientific research, as it demonstrates

what we hold to be self-evident: scientific research relies on the support of the community as much as the community relies on the results of scientific research.

It is our belief that:

- Science is a human-derived and driven process whereby we, as curious explorers, discover the nature and functions of the world around us.
- Scientific research serves the common good and contributes to the advancement of humanity.
- Science is by its very nature inclusive and wide reaching. Science is not conducted by one demographic. Science is not the exclusive right of one social class. Science is conducted by and affects all people. Likewise, the scientific community must be inclusive and accepting. Research is and should be open to and conducted by anyone, regardless of background.
- Cutting-edge scientific education is essential for the advancement even the *survival* of our nation.
- Policies designed to govern our nation must be based on unbiased, scientific research, amenable to changes based on new research, and designed to protect the public's interest.
- Scientists have the right, and must be allowed, to freely and openly communicate their research results to the public, without fear of being reprimanded or silenced by political organizations.
- Scientists are obliged to reach out to their communities to discuss their research and to determine how best they can help further the development of their communities with their research.
- The community has the right to know how scientific research is conducted, what the research results indicate, and how it may affect them as a whole. The community is obliged to support unbiased scientific research, regardless of political climates. Funding and support for research should be as apolitical as science itself.

While still in its infancy, our organization has definitive goals for both the march itself and long-term targets. These include:

1. The humanization of science and sciences: science and scientists must be demystified so that our communities can recognize that scientists are just like them.
2. The advancement and advocacy of scientific research and research-backed policies.
3. The advocacy of open, inclusive, accessible scientific discussion and research.
4. The affirmation of science as a democratic principle essential to the function and survival of a democratic society.

Currently, we are actively seeking volunteers to help with the march and protests. Anyone interested in working with us, or in contacting us in general, are more than welcome to visit our Facebook page at <https://www.facebook.com/MarchForScienceBham/>, follow us on Twitter @SciMarchBHM, or email us at bhammarch4science@gmail.com.

