

# ASHLEY WILLIAMS

[asw0049@auburn.edu](mailto:asw0049@auburn.edu)



[www.ashleyswilliams.com](http://www.ashleyswilliams.com)

**Auburn University**  
Funchess Hall  
130F  
350 S College St  
Auburn, AL 36849

---

## Education

**Ph.D.: Biological Sciences** 05/2023

Auburn University | Auburn, AL

**Dissertation:** Investigating the tradeoff between reproduction and longevity: Oxidative stress, cellular senescence, and mtDNA quality in the aging reproductive female house mouse

**Master of Science: Biological Sciences (Microbiology)** 05/2017

Alabama A & M University | Normal, AL

**Bachelor of Arts: Anthropology** 12/2013

Florida International University | Miami, FL

**Certifications:**

Certificate in Spirituality

---

## Research Experience

**Graduate Research Assistant** 08/2017 - Current

Auburn University | Auburn, AL

- Regularly work to complete Mitochondrial dissertation research as part of five-person graduate team with focus on investigating physiological trade-offs between reproduction and longevity in the House Mouse (*Mus musculus*).
- Mentored small student groups on laboratory subject matter.
- Stocked and managed inventory of laboratory supplies.
- Entered data and managed research databases.
- Prepared academic papers and abstracts.
- Managed project timelines and coordinated research tasks.
- Recorded and developed reports on data collected from studies.
- Trained undergraduate student workers on lab safety and aseptic techniques.
- Improved T-Haplotyping protocol for *Mus* colony screening for HB1 and HB2 sterility-associated genes thus increasing the success and continual reproduction of lab-maintained house mice.
- Assisted researchers with data collection, equipment management and preparation of samples.
- Collaborated with other labs by compiling and organizing data into appropriate graphics in R Studio.
- Managed undergraduate research teams of six.

**Graduate Student Researcher** 08/2015 - 05/2017

Alabama A&M University | Normal, AL

Researched the antifungal properties of essential oils and plant extracts against common fungal contaminants

- Managed an undergraduate research team of two.
  - Stocked and managed inventory of laboratory supplies.
  - Managed project timelines and coordinated research tasks.
-

<b>Research Intern</b>	<b>06/2016 - 08/2016</b>
University of California Los Angeles   Los Angeles, CA	
Conducted research in Evolutionary Medicine investigating the mutant prevention concentration of antibiotics against multi-drug resistant strains of <i>Staphylococcus epidermidis</i> .	
<ul style="list-style-type: none"> <li>▪ Practiced proper aseptic technique and disposal in a BSL-2+ wet laboratory.</li> <li>▪ Performed colony counts and calculations for colony forming units.</li> <li>▪ Prepared selective media and plated specimen on agar plates using the bead-beating method.</li> </ul>	

## Published Papers

ORCID: 0000-0002-7930-7149

Park, N.R., Taylor, H.A., Andreasen, V.A. **Williams, A.S.** Niitpõld, K. Yap., K.N. Kavazis A.N., Hood, W.R. Mitochondrial physiology varies with parity and body mass in the laboratory mouse (*Mus musculus*). *J Comp Physiol B* 190, 465–477 (2020). <https://doi.org/10.1007/s00360-020-01285-2>

Wendy R Hood, **Ashley S Williams**, Geoffrey E Hill, An Ecologist's Guide to Mitochondrial DNA Mutations and Senescence, *Integrative and Comparative Biology*, Volume 59, Issue 4, October 2019, Pages 970–982, <https://doi.org/10.1093/icb/icz097>

## Papers As Reviewer

Journal Name	Total Papers Reviewed to Date: <u>1</u>
Frontiers (1)	2022

## Grants

Diversity Program Awards	Running Total: \$1700.00
2021   Inclusive Excellence Programming Grant Auburn University Office of Inclusion and Diversity	\$1,700.00

## Teaching Experience

Graduate Teaching Assistant	08/2017 – Current
Auburn University   Auburn, AL	

### BIOL-1021-CURE Biology Lab Pilot

Course-based Undergraduate Research Experiences

- Helped design course to introduce students to basic biological concepts through active learning and research-based experimentation.
- Utilized email, phone, Zoom and in-person meetings to answer questions and mentor students.
- Helped develop rubrics for grading coursework and GTA training materials.
- Adhered to university requirements for student assignments, testing and grading of coursework.

### BIOL-1021-Principles in Biology Lab

Freshman-Sophomore Introduction to Biology Lab Course

- Taught classes of 35-40 students in Principles of Biology, a course designed to introduce students' basic biological concepts through lecture and experimentation.
- Utilized email, phone and in-person meetings to answer questions and mentor students.
- Adhered to university requirements for student assignments, testing and grading of coursework.

## Student Feedback 2017- 2020 for BIOL-1021-Principles of Biology Lab

University Questions	Course: BIOL1021 001 - Principles of Biology Laboratory		Ashley Williams										
	Responsible Faculty: Scott Bowling; Ashley Williams		Responses					Individual					
	Faculty: Ashley Williams		SA	A	SA	SD	D	SD	N	Mean	Med.	Mode	Std Dev
Q1 I was encouraged to interact with the instructor regarding course content (electronically, during office hours, in class, etc.).			6	5	1	0	1	0	13	5.2	5	6	1.10
Q2 I was provided opportunities to cooperate with other classmates about course material (electronically, inside or outside of class, etc.)			8	4	0	0	0	1	13	5.3	6	6	1.32
Q3 I was informed of the instructor's high expectations for my work in this course.			6	2	2	2	0	0	12	5.0	5.5	6	1.15
Q4 I was provided with an evaluation of my academic progress at regular intervals during the semester.			5	6	1	1	0	0	13	5.2	5	5	.86
Q5 I was provided with ample opportunities to apply my learning in this course.			7	4	1	1	0	0	13	5.2	6	6	1.12
Q6 I was prompted to think critically about the course material.			7	5	0	1	0	0	13	5.4	6	6	.84
Q7 I was provided an environment that supported my learning.			6	4	2	1	0	0	13	5.2	5	6	.95

Responses: [SA] Strongly Agree=6 [A] Agree=5 [SA] Slightly Agree=4 [SD] Slightly Disagree=3 [D] Disagree=2 [SD] Strongly Disagree=1

COSAM	Responses		Ashley Williams										
	Individual		E	VG	G	F	P	VP	N	Mean	Med.	Mode	Std Dev
Q9 The instructor's overall performance was ...			7	3	2	0	1	0	13	5.2	6	6	1.17
Q10 My overall learning in the class was ...			7	3	2	0	1	0	13	5.2	6	6	1.17

Responses: [E] Excellent=6 [VG] Very Good=5 [G] Good=4 [F] Fair=3 [P] Poor=2 [VP] Very Poor=1

COSM Lab questions	Responses		Ashley Williams										
	Individual		SA	A	SA	SD	D	SD	N	Mean	Med.	Mode	Std Dev
Q12 The lab instructor enforces safety rules and good laboratory practices.			9	3	0	0	0	0	12	5.8	6	6	.43
Q13 The lab instructor speaks clearly enough so that I have no trouble understanding.			9	2	0	0	1	0	12	5.5	6	6	1.12
Q14 The lab instructor writes clearly on the board and on papers.			9	2	1	0	0	0	12	5.7	6	6	.62
Q15 The lab instructor overall communicates acceptably.			6	5	0	0	1	0	12	5.3	5.5	6	1.09
Q16 The lab instructor is prepared to answer questions about each experiment.			8	2	0	2	0	0	12	5.3	6	6	1.11
Q17 The lab instructor was knowledgeable about lab materials and techniques.			9	3	0	0	0	0	12	5.8	6	6	.43
Q18 The lab instructor listens and answers student questions with a positive attitude.			5	4	1	1	1	0	12	4.9	5	6	1.26
Q19 The lab instructor grades fairly and consistently.			7	2	2	0	1	0	12	5.2	6	6	1.21
Q20 The lab instructor was effective in teaching the subject matter.			8	2	1	1	0	0	12	5.4	6	6	.95
Q21 The expectations of the course were adequately explained to me.			6	3	1	1	1	0	12	5.0	5.5	6	1.29

Responses: [SA] Strongly Agree=6 [A] Agree=5 [SA] Slightly Agree=4 [SD] Slightly Disagree=3 [D] Disagree=2 [SD] Strongly Disagree=1

## Graduate Teaching Assistant

08/2015 - 05/2017

Alabama A&amp;M University | Normal, AL

## BIO-100-Introduction to Biology Lab

Freshman-Sophomore Introduction to Biology Lab Course

- Taught classes of 15-30 students in Principles of Biology, a course designed to introduce students to basic biological concepts through lecture and experimentation.
- Designed lab course curriculum, midterm, and finals materials.

## BIO-513-Research Ethics

Graduate Research Ethics Course

- Taught classes of 9-12 graduate students in Research Ethics, a course designed to introduce graduate students to ethical concepts in research and the history of ethics through traditional lecture.
- Updated Research Ethics required text.

## BIO-595-Introductory Mycology

Graduate Introduction to Mycology Course

- Taught classes of 9-12 students in Mycology, a course designed to introduce graduate students to mycology through traditional lecture.
- Updated Mycology required text.

## Relevant Employment

## Writing Consultant

08/2021 - 12/2021

Auburn University Miller Writing Center | Auburn, AL

- Provided consultation on any form of written materials to university students, faculty, and staff.
- Reviewed client work for clarity, conciseness, organization, proper formatting, and good grammar while maintaining the client's original voice.
- Aided clients in the development of written works.
- Assisted clients in the development and maintenance of their portfolios and the online marketing of their skillsets.

---

## Diversity, Equity & Inclusion Efforts

### AU OurSTEMstory Founder and Committee Chair

6/2020-Current

Auburn University | Auburn, AL

A biannual seminar series designed to educate the public and members of the Science, Technology, Engineering and Mathematics (STEM) community of the unethical history of STEM and subsequent improvements while highlighting events impacting minorities and underrepresented groups.

#### Speaker Invitations

Dr. Janina Jeff, Geneticist and Senior Scientist at Illumina November 11<sup>th</sup>, 2021

Discussed the history of African-American/Black trauma and unethical medical practices to help the greater scientific community and public understand the hesitation African-Americans displayed towards the COVID-19 Vaccine, while presenting solutions to help rebuild trust with medical and research communities.

Mr. Endre "Andy" Sarkany, Holocaust Survivor

April 8<sup>th</sup>, 2021

Discussed the events of Human experimentation during the Holocaust and the development of Human Subjects and Human Rights under the Nuremberg Code and Belmont Report.

Dr. Ram Seshadri, University of California Santa Barbara

November 30<sup>th</sup>, 2020

Discussed Intellectual Property Theft while analyzing the contributions of Dr. Rosalind Franklin, Dr. James Watson, and Dr. Francis Crick to our understanding of the structure of DNA.

#### Committee Funds Use

**Donated** to Holocaust and Human Rights Education Center (\$400)

Pettijohn Endowed Scholarship Fund, a fund providing scholarships to minority students majoring in STEM at Auburn University (\$400)

---

## Outreach

### Greater Alabama Black Belt Region Summer Academy Instructor

06/2021-07/2021

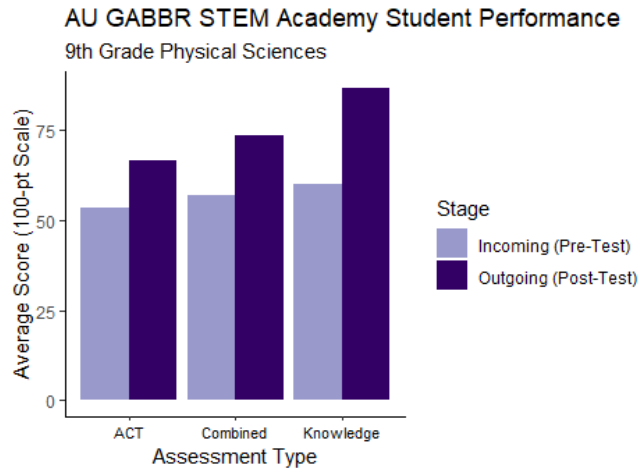
Auburn University | Auburn, AL

NSF-funded Program designed to combat socioeconomic disparities in education with aims to improve academic performance of K-12 students based on statewide standards in the Greater Alabama Black Belt Region.

- Instructed K-12 students for two 75-minute class periods each day virtually.
- Developed lessons, activities, and assessments in Physical Sciences based upon guidance of the Alabama State Curriculum Guides.
- Reinforced concepts of biology and physics through grade-appropriate experimentation in collaboration with Alabama Science in Motion.
- Attended and participate in student enrichment activities.
- Monitored and track progress of students though traditional graded coursework.

#### Significant Outcome

- On average, all students under my instruction improved 29-51% in general knowledge and in standardized test preparedness despite having reduced internet quality, access to fewer resources, lack of home support, and working to improve their mathematics skills.
-



**Bullock County Summer Academy Instructor** **05/2018 – 06/2018**

Auburn University | Auburn, AL

- Instructed 9th Grade Physical Sciences and 10th Grade Biological Science for two 75-minute class periods each day.
- Developed lessons, activities, and assessments.
- Reinforced concepts of biology and physics through grade-appropriate experimentation in collaboration with Alabama Science in Motion.
- Attended and participated in student enrichment activities.
- Monitored and tracked progress of students through traditional graded coursework.

**ALSAMP Program Assistant** **05/2017 - 07/2017**

Alabama A & M University | Normal, AL

*Alabama Louis Stokes Alliance for Minority Participation (LSAMP) Program NSF-Funded Minority Program*

- Designed and instructed program to introduce incoming minority students to STEM and university experience during Summer

**Tech Trek S.T.E.M. Camp Counselor** **06/2016**

University of Alabama in Huntsville | Huntsville, AL

*Collaboration between American Association of University Women and University of Alabama in Huntsville to introduce young girls to Science, Technology, Engineering, and Mathematics (STEM) with the aim of increasing female interest and representation in STEM.*

- Participated in all female S.T.E.M. camp-centered activities, application design, robotics, and field trips to the Huntsville, AL Space and Rocket Center while monitoring 4 campers ages 10-12.

**Community Service**

**Elections Poll Volunteer** **11/03/2020**

Frank Brown Recreation Center, 235 Opelika Rd | Auburn, AL

- Set up Voting Stations.
- Sanitized voting stations regularly.
- Ensured COVID-19 Safety Protocols followed.
- Verified voter identification.

- Ensured election ballots were properly filled and successfully submitted by voters.

---

<b>Standard Deluxe Boogie Volunteer</b>	<b>08/2018 - 08/2019</b>
---	--------------------------

1015 Mayberry Ave | Waverly, AL

*Biannual community event showcasing local talent and food vendors.*

- Set up ticket stations and decoration for event.
- Assisted event manager with Vendor and Entertainment placement on event grounds.
- Collected and sold tickets to customers at event site.

<b>Habitat for Humanity Volunteer Builder</b>	<b>01/2018 - Current</b>
---	--------------------------

Auburn Opelika Habitat for Humanity | Opelika, AL

*Non-Profit designed to provide low-income families affordable housing through financial education and community building.*

- Helped contribute to the physical building of a house for a first-time homeowner and their family while acquiring skills in carpentry, cabinet installation, painting, and wood priming.

---

## Conferences

Society for Integrative and Comparative Biology	2019
---	------

---

## Memberships

American Aging Association  
 Gamma Beta Phi National Honors and Service Society  
 Society for Integrative and Comparative Biology  
 Genetics Society of America

---

## Awards and Recognitions

<b>Sturm Memorial Fellowship</b>	<b>March 2022</b>
Auburn University Graduate School   Auburn, AL	

<b>American Aging Association Early Career Scholar Virtual Travel Award</b>	<b>March 2022- 2024</b>
---	-------------------------

<b>Auburn University Miller Writing Center Safe Environment Award</b>	<b>2021</b>
Auburn University   Auburn, AL	

<b>Department of Biological Sciences Graduate Student Service Award</b>	<b>2021</b>
Auburn University   Auburn, AL	

<b>Gamma Beta Phi National Honor and Service Society</b>	<b>2019</b>
Auburn University   Auburn, AL	

<b>Citation of Commendation</b>	<b>2017</b>
Alabama A & M University   Normal, AL	

---

## Websites, Portfolios, Profiles

### Personal Website Links

<https://www.linkedin.com/pub/ashley-williams/40/78a/a36>

<https://twitter.com/toriegypt>

<https://www.ashleyswilliams.com/>

### OurSTEMstory

<http://ourstemstoryau.com/>

<https://www.youtube.com/channel/UCDUCtNsXPhabda9afaXiQmg>

---

Skills	<ul style="list-style-type: none"> <li>▪ Linear regression and mixed effects modelling</li> <li>▪ and R Studio</li> <li>▪ Polymerase Chain Reactions (PCR)</li> <li>▪ Primer Design</li> <li>▪ Titration</li> <li>▪ Western Blot</li> <li>▪ Mitochondrial Isolation from Liver, Brain, and Skeletal Muscle Tissue</li> <li>▪ DNA Extraction</li> <li>▪ mtDNA Extraction and Enrichment</li> <li>▪ Microbial and Mammalian Cell Culture</li> <li>▪ Centrifugation</li> <li>▪ Research protocol development</li> <li>▪ Training</li> <li>▪ Technical Writing</li> <li>▪ Conflict Resolution</li> <li>▪ CNS Analysis</li> <li>▪ Aseptic Technique</li> <li>▪ Spectrophotometry</li> <li>▪ Bradford Protein Assay</li> <li>▪ Bioinformatics BASH</li> </ul>
Training	<p><b>Trained in Auburn University Safe Zone for LGBTQ+ Inclusion</b> 03/2020-Present</p> <ul style="list-style-type: none"> <li>▪ Educates faculty, staff, and students about sexual orientation and gender identity to create a safe space for LGBTQ+ students</li> </ul>
Leadership	<p><b>Auburn University</b></p> <p><a href="#">Auburn University   Auburn, AL</a></p> <p>Graduate Studies Student Representative-Biological Sciences 2020-2022</p> <p>Diversity, Equity, and Inclusion Committee Member-Biological Sciences 2020-Current</p> <p><b>OurSTEMstory Committee Chair and Founder</b> 2020-Current</p> <p>Graduate Student Council Senator-Biological Sciences 2019-2020</p> <p><b>American Association of University Women</b></p> <p><a href="#">Huntsville Branch   Huntsville, AL</a></p> <p>Vice President of Membership 2016-2017</p>
Undergraduate Student Mentees	<p><b>Auburn University</b></p> <p><a href="#">Auburn University   Auburn, AL</a></p> <p>Brooke Bengert Jan 2022- Current</p> <ul style="list-style-type: none"> <li>• T-Haplotype Genotyping Project for <i>Mus musculus</i></li> <li>• Characterizing ROS-mediated mutations in mtDNA COX1, Control Regions, and Cyt-B</li> </ul> <p>LouAnn Crosby 2018-2020</p> <ul style="list-style-type: none"> <li>▪ Mouse House Husbandry</li> <li>▪ T-Haplotype Genotyping Project for <i>Mus musculus</i></li> </ul> <p>James Pittman 2019-2020</p> <ul style="list-style-type: none"> <li>▪ Mouse House Husbandry</li> <li>▪ T-Haplotype Genotyping Project for <i>Mus musculus</i></li> </ul> <p>Thomas Creech 2019-2020</p> <ul style="list-style-type: none"> <li>▪ Mouse House Husbandry</li> <li>▪ T-Haplotype Genotyping Project for <i>Mus musculus</i></li> </ul> <p>Jack Fain 2019-2020</p> <ul style="list-style-type: none"> <li>▪ Mouse House Husbandry</li> <li>▪ T-Haplotype Genotyping Project for <i>Mus musculus</i></li> </ul> <p>Deel Amrit 2019-2020</p> <ul style="list-style-type: none"> <li>▪ Mouse House Husbandry</li> <li>▪ T-Haplotype Genotyping Project for <i>Mus musculus</i></li> </ul> <p>Erin Lagrone 2019-2020</p> <ul style="list-style-type: none"> <li>▪ T-Haplotype Genotyping Project for <i>Mus musculus</i></li> </ul> <p>Caitlin McIlwain Summer 2020</p> <ul style="list-style-type: none"> <li>▪ Mouse House Husbandry</li> <li>▪ T-Haplotype Genotyping Project for <i>Mus musculus</i></li> </ul> <p>Matthew Holley 2019-2020</p> <ul style="list-style-type: none"> <li>▪ Mouse House Husbandry</li> </ul>

---

Brittany Gamble	2018-2019
Breanna Caldwell	2018-2019

---