

Dr. Ketia L. Shumaker, Ph.D. – Curriculum Vitae

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EDUCATION

Ph.D.	Environmental Science	Jackson State University, Jackson, MS	2000-2004
M.S.	Biology	Alcorn State University, Lorman, MS	1998-2000
B.S.	Biology Pre-Medicine	Alcorn State University, Lorman, MS	1994-1998

Dissertation Research: “Heavy Metal Uptake, Translocation, and Bioaccumulation Studies of Three Potential Phytoaccumulators in Contaminated Dredged Material”

Thesis Research: “Cadmium and Lead Tolerance in Indian Mustard: Implication for Phytoremediation”

PROFESSIONAL EXPERIENCE

- **Assistant Professor**, The University of Alabama at Birmingham Department of Biology 2023- Present
- **Adjunct Instructor**, Samford University (SU) Department of Biological and Environmental Sciences
Homewood, AL 2021-2023
- **Online Professor**, with course management and software experience with Blackboard LMS, Canvas LMS,
Microsoft Office Suite, Zoom, Webex, and applications to enhance online learning 2010-2020
- **Full Professor**, The University of West Alabama (UWA) Department of Biological and Environmental Sciences
Livingston, AL 2004-2020
- **Faculty Advisor for Campus Ministry Lovefest 2020**, UWA 2020-2020
- **Thesis Research Chairperson**, The Effect of pH and ethylenediaminetetraacetic acid on the phytoaccumulation
of lead using Indian Mustard (*Brassica juncea*) Plants, UWA 2017-2019
- **Thesis Committee Member** for three graduate students in UWA Department of Biological and Environmental
Sciences 2016-2019
- **Co-Principal Investigator and Visiting Research Scientist**, Virginia Tech, Blacksburg, Virginia
Forest Resilience to Climate Change sponsored by United States Department of Agriculture Summers 2016-2018
- **Executive Producer** of undergraduate internship recruitment videos 2013-2014
<http://www.youtube.com/watch?v=0x0GdlKax54>
<https://www.youtube.com/watch?v=2eS8OitPCiQ&feature=youtu.be>
- **Chairperson/Committee Member**, UWA’s College of Natural Sciences & Math Undergraduate Research
Symposium Committee 2011-2018
- **Student Success Coordinator**, UWA’s College of Natural Sciences and Mathematics 2010-2016
- **Research Investigator**, “A Study To Identify Predictors of Student Success in On-Campus, Biology 101 Classes
at The University of West Alabama” 2009-2010
- **Co-Principal Investigator and Visiting Research Scientist**, Pennsylvania State University, State College,
Pennsylvania Sponsored by the National Science Foundation’s Plant Genome Research Program Supplemental
Grant Award Summers 2008-2015

Professional Experience continued

- **Consultant**, Shelton State Community College, Developing the Strategy for African American Student Retention - part of the National Science Foundation Historical Black Colleges and Universities Planning Grant 2007-2009
- **Faculty Mentor**, National Science Foundation IMPETUS-PGE Program (Increasing Momentum to Provide Empowerment to Talented Undergraduate Students to Pursue Graduate Education) 2007-2010
- **Science Instructor**, Upward Bound High Science Trio Program (and product of Upward Bound) 2005-2018
- **Chairperson, Co-chair, Committee Member and Trainer**, UWA's Elementary Science Olympiad 2004-2017
- **Research Advisor** - undergraduate research projects - areas of water quality monitoring and phytoremediation 2004-2017

AWARDS AND HONORS

- Promoted to Full Professor at The University of West Alabama (2017)
- Promoted to Associate Professor at The University of West Alabama (2010)
- National Science Foundation's Plant Genome Research Program Supplemental Grant Award of \$25,453; Visiting Research Professor at Pennsylvania State University (2008-2009)
- Tenured as Assistant Professor at The University of West Alabama (2008)
- Jackson State University 1st Place Oral Research Presenter Award (2004)
- Mississippi Academy of Science Oral Presentation Award (2002)
- Bill and Melinda Gates Millennium Full Scholarship Award (2000-2004)
- Ronald E. McNair Research Scholar (1996-2000)

PROFESSIONAL ORGANIZATION MEMBERSHIPS/LEADERSHIP

- State of Alabama Academy of Science (President, 2017-2018; Executive Board Member 2014-2018)
- Delta Kappa Gamma International Society for Women Educators (Chapter President, 2012-2016)
- America Society of Plant Biology (2011-present)
- National Council for Undergraduate Research (2011-2013)
- The Higher Education Partnership (2004-present)
- Tri Beta Biological Honor Society (2004-present)

COURSES TAUGHT

Teaching experience at The University of Alabama at Birmingham:

Undergraduate:

BIOL 110 Biology's Guide to Surviving Stress
BIOL 123 & 124 – Introductory Biology I & II for biology majors

Teaching experience at Samford University:

Undergraduate:

BIOL 105 & 106 – Principals of Biology I & II for non-majors with lab
BIOL 203 & 204 – Foundations in Biology I & II for biology majors with lab
BIOL 225 – Microbiology labs

Teaching experience at The University of West Alabama (UWA):

Undergraduate:

UWA 101 - Freshmen Seminar for Science, Technology, Engineering, & Math Majors
UWA 102 - Career Exploration for Science, Technology, Engineering, & Math Majors
BY 101 - Introduction to Biology I and Labs (taught labs from 2004-2009)
BY 102 - Introduction to Biology II and Labs

Courses Taught continued

Undergraduate (UWA):

EN 100 - Introduction to Environmental Sciences and Labs
BY 307 - Directed Studies in Water Quality & Phytoremediation
BY 308/EN 308 - Seminar in Biology/Environmental Sciences
BY 309 – Biological Science Internship
BY 389 - Advanced Lab Practicum
BY 400 - Senior Seminar
EN/BY 441 - Environmental Health & Toxicology and Lab
BY 495 - Research in Biology

Graduate (UWA):

EN/BY 541 - Environmental Health & Toxicology and Lab
BY 587 - Selected Topics in Phytoremediation
ED 597 - Independent Study in Educational Assessment
BY 599 – Thesis in Biological Sciences

Online Undergraduate & Graduate (UWA):

EN 100 Online - Introduction to Environmental Sciences with Lab
ED 385 Online - Methods of Teaching Science
BY 502 Online - Biological Sciences for Elementary Teachers
ED 585 Online - Methods of Teaching Science
EN/BY 441/541 Hybrid Format - Environmental Health & Toxicology and Lab

PEER-REVIEWED PUBLICATIONS

Copenheaver, C.A. and **Shumaker, K.L.** 2022. Mentoring summer undergraduate researchers: The faculty members' experience. *Mentoring & Tutoring: Partnership in Learning* 30:202-215.

Copenheaver, C., **Shumaker, K.**, Butcher, B., Hahn, G., Perkins, L. J., Dukes, C. J., Thompson, E. G., Pisaric, M.F.J. 2020. Dendroclimatology of sugar maple (*Acer saccharum*): Climate-growth response in a late successional species. *Dendrochronologia* 63:125747.

Shikano, I., **Shumaker, K.**, Peiffer, M., Felton, G.W. and Hoover, K. 2017. Plant-mediated effects on an insect-pathogen interaction vary with intraspecific genetic variation in plant defenses. *Oecologia* 183:1121-1134.

Carroll, R.A., Jones, C., Best, T., **Shumaker, K.**, Carlson, J. 2016. Gene expression in hardwood trees species exposed to ozone. *Journal of Undergraduate Research and Scholarly Excellence*, Volume VII: 32-35.

Odom, T., Williams, K.N., Best, T., Zembower, N., **Shumaker, K.**, Carlson, J. 2016. An analysis of gene expression induced by elevated atmospheric ozone in hardwood trees native to Eastern North America. *Journal of Undergraduate Research and Scholarly Excellence*, Volume VII: 36-40.

Shumaker, K., Ghosh, S., Zaman, M.S. 2011. Phytoextraction of cadmium and responses of Indian mustard plants to cadmium contaminated soil. *Adv. Sci. Tech.* 5: 1:70-75.

Brantley, S., Bruns, M.A., **Shumaker, K.** et.al. (2011) Thirteen hypotheses to test how biology, weathering and erosion interact within the critical zone. *Geobiology*. DOI: 10.1111/j.1472-4669.2010.00264x.

Shumaker, K. and Begonia, G. 2005. Heavy metal uptake, translocation, and bioaccumulation studies of *Triticum aestivum* cultivated in contaminated dredged materials. *International Journal of Environmental Research and Public Health*. 2:1-2.

Publications continued

Zaman, M.S., Jennings, C.P., **Shumaker, K.** 2003. Chelator Induced Phytoaccumulation of Cadmium in *Brassica juncea* grown in cadmium contaminated soil. *Journal of Mississippi Academy of Science*. 48:1:13.

Shumaker, K., Hamadain, E. I., Rhyne, C. 2002. Challenging three potential phytoaccumulators for lead in contaminated dredged material. *Journal of Mississippi Academy of Science*. 47:1:16.

FUNDED GRANTS

- 2017-2019 National Science Foundation - UWA Louis Stokes Alliance for Minority Participation (LSAMP) Sub-award Grant, improving retention among undergraduate participants majoring in S.T.E.M. recruiting and enriching high school students success in S.T.E.M. courses, Program Coordinator, \$150,000
- 2016-2018 United States Department of Agriculture-Agriculture and Food Research Initiative (AFRI) Grant on Forest Resilience to Climate Change, conducting research and serving two to three UWA undergraduates in research each summer, Co-Principal Investigator, \$350,000
- 2016-2018 United States Department of Education under the Minority Science and Engineering Improvement Program, supervising 60 freshmen program students, 12 mentors, and two graduate students each semester, Co-Principal Investigator, \$235,543
- 2011-2015 National Science Foundation Comparative Genomics of Environmental Stress Responses in North American Hardwoods Grant, conducting research and serving two to four UWA undergraduates in research each summer, Co-Principal Investigator, \$3,691,273
- 2012-2015 United States Department of Education under the Minority Science and Engineering Improvement Program, supervising 60 freshmen program students, 12 mentors, and two graduate students each semester, Co-Principal Investigator, \$235,543
- 2008 National Science Foundation's Plant Genome Research Program Supplemental Grant Award Pennsylvania State University, Visiting Research Professor, \$25,453

SELECTED INSTITUTIONAL AND COMMUNITY SERVICES

- UWA Tenure and Promotion Committees – departmental, college, and university levels (2015-present)
- Served 34 students and parents in an American College Test (A.C.T.) Science Boot Camp Workshop in hometown of Ackerman, Mississippi (2017)
- UWA Steelcase Faculty Fellow with classes in the Active Learning Center serving approximately 15 students per semester (Fall 2015-2018)
- UWA Biology Department's Environmental Science Online Advisory Committee (2015-present)
- Member and Instructional Professor to over 400 Biology 101 students for UWA's iCommunicate Quality Enhancement Program (2014-present)
- Executive Board Member of the Bootstrap Scholarship Foundation (2014 to present)
- UWA's Fulbright Scholar Planning Committee Member to two international guests (2010)
- Faculty mentor to over 20 students for the program entitled, "Women in Sciences Empowering Girls Engaged in Mathematics and Sciences" (W.I.S.E. G.E.M.S.) (2010)
- UWA Wesley Campus Ministries Board of Trustees Member (2010-2014)
- Faculty Marshal for UWA's Commencement Exercises (Spring 2008-present)
- Biblical Educator for Cornerstone Church's Childhood Development Program (2008-2017)

Funded Grants continued

- Upward Bound High School Workshop Sessions serving at least 50 students per session on the following topics (2007-2010 & 2017):
 - “American College Test (A.C.T.) Science Boot Camp
 - “A.C.T. Science Reasoning”
 - “Understanding How High School Biology Differs from College Biology”
 - “Water Quality Monitoring”
- Project WET Stakeholder and Educator to approximately 35 people within the Sumter County Alabama Community (2007-2010)
- UWA’s Environmental Science Advisory Board Member (2006-present)
- Science Fair Judge to the local community and the region (2004-present)

Hobbies

- Horse-back riding
- Roller skating
- Traveling
- Shopping