

Amy Hammett

Director of Regional and National Collaborations

With 10 years of experience in big data analytics and 17 years in STEM Education, my great passion is using compelling transdisciplinary data to build collaborations around challenges and advances in water, soil, and public health for homeland security and public good.

✉ alhammett@ua.edu

☎ (205) 614-0945

📍 Tuscaloosa, Alabama, USA

WORK EXPERIENCE

Director of Regional and National Collaborations Alabama Water Institute, University of Alabama

07/2022 - Present

Tuscaloosa, AL

Achievements/Tasks

- Lead a diverse, multi-disciplinary team in planning and implementing outreach and advocacy efforts including strategic campaigns, education efforts, and collaboration with members of regional and national agencies to meet the information needs of local, state, and federal agencies and interest groups.
- Work closely with universities, government agencies, and non-governmental organizations to develop systems to be replicated in other regional and national estuarine and riverine systems.

Contact : Mike Gremillion - msgremillion@ua.edu

STEM Program Manager State of Alabama - AL STEM Council

11/2021 - 07/2022

Northport, AL

The [Alabama STEM Council](#) was formed by Governor Kay Ivey's [Executive Order No. 72](#).

Achievements/Tasks

- Strategic planning, STEM program development, and management of new STEM initiatives for the Alabama STEM Council.
- Designed Agriculture-Hydrology initiatives for the State of Alabama focused on computer science (ML/AI) skill development using real-world projects in urban agriculture, smart forestry, aquaculture, and soil health.

Contact : Lee Meadows - lmeadows@aidt.edu

STEM Teacher and Transdisciplinary STEM Consultant Louisiana and Kansas Secondary Schools & Baker University

2006 - 2021

Maize Public Schools (2014-2021); Baker University (2018); Insight School of Kansas, K12, Inc. (2015); Wichita Public Schools (2011-2014); Haysville Public Schools (2010-2011); Iberia Parish School System (2006-2009)

Achievements/Tasks

- Conducted primary transdisciplinary research on harmful algal blooms (HABs) in Cheney Reservoir with USGS-KS hydrologists with student researcher team.
- Advised USDA-NRCS on transdisciplinary soil, water, and public health, convening collaborations and communications between USDA-NRCS, USGS-KS, the State of Kansas Water Office, Kansas Department of Health and Environment, City of Wichita water engineers, U.S. senators, State of Kansas Governor's office, and multiple science researchers by presenting big data models on water quality and quantity and soil health to stakeholders at multiple local, state, and federal conferences.
- Developed and taught teacher professional learning classes and workshops on NextGen Storylines, Project-Based, and Brain-Based learning.

Contact : Lisa French (lisa.french@ks.nacdn.net); Maize / Baker University (Chris Botts - cbotts@usd266.com or Sonya Tice stice@usd266.com); Wichita (Laura Swanson - lswanson@usd259.net); Haysville (Phil Bressler - phil_bressler@usd376.com); Iberia (Charlotte Olivier - colivier@iberiaschools.org)

SKILLS

Big Data Analyst

Machine Learning

Artificial Intelligence

Remote Sensing

Transdisciplinary Systems Thinking

Science Translation

EDUCATION

PhD: Interdisciplinary STEM (Geosciences, Biology, Machine Learning, Artificial Intelligence) University of Alabama

Tuscaloosa, AL

In Progress

- Advanced machine learning and artificial intelligence systems development.
- Developing Next Generation research and collaborations around sustainable agriculture and water to advance water, soil, and public health.

Masters Degree: Gifted Education Fort Hays State University (2019)

Hays, KS

Masters Program in Sociolinguistics; Secondary Biology Teaching Certification University of Louisiana (2005-2010)

Lafayette, LA

Courses

- Writing and editing primary science soil and hydrology research.
- Research on U.S. think tanks.
- Post-baccalaureate Biology teaching certification program (33 hours).

Bachelors: English and Biology University of Louisiana (2005)

Lafayette, LA

Courses

- Science and technical writing and editing.

WORK EXPERIENCE

Big Data Consultant

Microsoft

2020

Achievements/Tasks

- Developed big data fusion processes to cross-match and simultaneously extract relational data intelligence from multiple federal big data silos (NASA, NOAA, USDA, USGS, and EPA) to enable machine learning and artificial intelligence systems development at Microsoft.
- Developed big data theoretical framework, cross-matched disaggregated federal big data, and authored [Farmbeats for Students](#) curriculum about sensor-intelligent agriculture, Machine Learning (ML) and Artificial Intelligence (AI) for USDA, Future Farmers of America (FFA), and Center for Agriculture Science Educations (CASE).
- Proposed the addition of a spectrophotometer for Landsat 9 to USGS for the modeling of evapotranspiration and movement of water in atmospheric rivers, redundant development of big data ML/AI systems for democratic checks and balances, and Homeland Security oversight of federal open data systems and national STEM Education.
- Tech team lead for big agriculture and industry leadership and Agriculture Education leaders in Farmbeats Hackathon 2020.
- Developed framework for the Microsoft - NASA's Day of Data in collaboration with Microsoft's Hacking STEM with Excel team, International Space Station's STEM on Station team, and the myNASAData team of NASA Langley Research Center (LaRC).

Contact : Ankur Anand - ananand@microsoft.com

Graduate Research Associate

Fort Hays State University

2018 - 2019

Science Math Education Institute (SMEI)

Achievements/Tasks

- Began "Big Data in K16 Initiative" and "Equity in Rural Education Initiative" with NSTA director of Pre-Service Teacher Education and [SMEI](#) Director.

Contact : Paul Adams / Earl Legleiter - (785) 628-4561

Data Analyst

HCA & American College of Surgeons (ACS) - Wesley Medical Center

2016

Achievements/Tasks

- Summer employment analyzing American College of Surgeons (ACS) national trauma databank ICD-10 coding, in-hospital diagnostics, and physician narrative for actionable intelligence on sepsis in Level 1 trauma facility.

Contact : Mike Valdez - (316) 962-2468

iAE & pAE Data Systems Programmer

F.A. Richard & Associates / York Services

2005 - 2006

Achievements/Tasks

- Developing data architecture, data mining, and data analytics in risk control division, serving corporate healthcare and other major commercial lines.
- Technical, science, and medical writing of user documentation. Online professional learning course development in Mindflash.

Contact : Jamie Debaillon / David Sturgis - (985) 674-4520

PROFESSIONAL CONTRIBUTIONS

USDA- NIFA (2023)

- Federal Grant Peer Review Panelist – Food, Agricultural, Natural Resources, and Human Sciences Grant Programs

Soil Health Education (2018 - Present)

- Convening collaborations and communications among all stakeholders at every level and in every sector to stimulate advances in soil, water, and public health.
- Contributing soil and water intelligence to USDA-NRCS, Kansas Department of Health and Environment, Kansas Water Office, Kansas Corn, and USGS-KS.

Ogallala Aquifer Summit (2020 - 2021)

- [Presenter on NextGen Data Science Education to the Ogallala Water Coordinated Agriculture Project \(CAP\)](#), a USDA-NIFA funded research and outreach project focused on bringing stakeholders together to address issues related to ground and surface water declines (water quantity & water quality).

Predictive Modeling for Proactive Water Treatment - City of Wichita, KS (2018-2021)

- Developed data model for the City of Wichita to predict HABS in Cheney Reservoir, the primary drinking water supply for Wichita, after conducting primary data collections with United States Geological Survey (USGS) hydrologists. Developed NGSS curriculum around harmful algal blooms to develop data science skills and OneHealth systems-thinking. Presented at KS Governor's Water Conferences and state-level policy and water engineering meetings by request of KS Governor and Kansas Water Office.

Secondary Science Lead for KS Department of Education STEM Teachers in Missouri, Iowa, Nebraska, Kansas, South Dakota, and Colorado (MINKS & Co.) Interstate Collaboration (2018 - 2021)

- Piloted and workshopped storyline teaching: "Why Don't Antibiotics Work Like They Used To?" for Northwestern University NGSX InquiryHub team.
- Conducted teacher professional learning webinars with 6 states' NextGen Science Education leaders.

National Science Teaching Association The Science Teacher Article (2020) [↗](#)

- ["Messy Data, Real Science: Exploring harmful algal blooms with real-world data"](#)

Midwest Teacher Captain, Regeneron International Science & Engineering Fair (2018 - 2020)

- Research Teacher Captain; presenting "Big Data Analytics", "Authentic Student-Led Science Research" and "Equity in STEM" to +200 U.S.-based STEM Educators.

NASA Data Reviewer (2019)

- Data review of [myNASAData Earth-Space Science phenomena modules](#).

WORK EXPERIENCE

Graduate Assistant

University of Louisiana at Lafayette

2005

Achievements/Tasks

- Generating scientific data models and writing / editing scientific reports and journal publications in a university Soil Science & Water Quality Lab for State of Louisiana Department of Environmental Quality (LDEQ) for submission to U.S. Environmental Protection Agency.
- Managing and maintaining a university Technology Lab.

Contact : Durga Poudel (ddpoudel@louisiana.edu) - David Lynch (dlynch@louisiana.edu)

Lafayette, LA

PROFESSIONAL CONTRIBUTIONS

Achieve's Task Annotation Project in Science (TAPS) (2018)

- Developed NGSS secondary science performance exemplars and performance task template for new task development for Achieve and National Science Education Leadership Association (NSELA). Trained by Achieve's Associate Director in EQuIP rubric assessment.

Big Data in K16 Workshop (2018)

- Organized professional development workshop on big data analytics with NSTA Division Director of Teacher Education.

AWARDS / OTHER ACCOMPLISHMENTS

Be the Vision Award - Kansas Governor's Water Conference (2020)

State of Kansas Governor

- Awarded "Be the Vision" award by the State of Kansas Governor for developing Next Generation predictive hydrotechnology and youth leadership.

Teacher of the Year (2020)

Maize Public Schools

PreK-16 Excellence in Education Award (2020)

Kansas Association for Conservation and Environmental Education (KACEE)

- Awarded by water and agriculture leaders for having over five years' involvement in the fields and for having made significant contributions.

Robert F. Tinker Fellow (2019)

The Concord Consortium

- Designed and launched Data Science Education (DSE) initiatives nationwide.

Master Science Teacher Designation (2018)

Kansas Department of Education

- Designated as Kansas' Secondary Science Lead of STEM teachers in Missouri, Iowa, Nebraska, Kansas, South Dakota, and Colorado (MINKS & Co.) interstate collaboration.

Mohling Award (2018)

Wendell Mohling Foundation

- Awarded to one Midwestern STEM teacher annually in honor of former NSTA director, Wendell Mohling.

State of Kansas Governor's Induced Seismicity Taskforce (2017)

University of Kansas

- Developed big data models on seismicity using United States Geological Survey (USGS) and IRIS datasets. Advised Kansas Geological Survey and Kansas Sierra Club for the work of the State of Kansas Governor's Induced Seismicity Task Force. State policy instituted to reduce rate of wastewater injection to lower magnitude of induced seismic activity.

Center for the Advancement of Science in Space (CASIS) Award (2017)

American Seed Trade Association

- Awarded by NASA / CASIS for International Space Station plant physiology project on the effects of hypogravity on the genetic switches controlling lignin production.

Technology Master Teacher (TMT) Award & Designation (2013)

USD 259 - Wichita Public Schools

Modeling Instruction, Project-Based Learning (PBL), and Math-Science Partnership Professional Development Workshops (2011-2021)

USD 259 - Wichita Public Schools; USD 266 - Maize Public Schools

- Facilitated several Physical Science, Biology, Chemistry, and Physics First / Computational Modeling Instruction workshops and Project-Based Learning workshops for Midwestern STEM teachers.
- Led Project-Based Learning workshops in Atomic, Molecular and Optical Physics (AMO Physics) and in Microbiome Across Prairies and Soils (MAPS) for STEM teachers under two consecutive NSF Kansas EPSCoR programs.
- Led Math-Science Partnership teacher workshops in the Midwest.

SELECTED CONFERENCES

International Conference on Machine Learning (2022)

International Conference on Machine Learning

- The International Conference on Machine Learning (ICML) is the gathering of professionals dedicated to the advancement of machine learning. ICML is globally renowned for presenting and publishing cutting-edge research on all aspects of machine learning used in closely related areas like artificial intelligence, statistics and data science, as well as important application areas such as machine vision, computational biology, speech recognition, and robotics.

NASEM: Exploring a Dynamic Soil Information System Workshop (2021)

National Academies of Sciences, Engineering, and Medicine

- This workshop was organized to envision a Dynamic Soil Information System to overlay important chemical, physical, and biological information about soil samples taken across a wide range of geographies with information on influences on soils, such as land use and land management, soil moisture, weather, and other variables and examined the level of detail needed by potential users of this combined information and envisioned how data on soils and other parameters can be most effectively collected, combined, and curated over time.

Ogallala Aquifer Summit (2021)

Ogallala Summit (USDA-NIFA)

- Summit Goals were to increase networking & collaboration among the region's water-focused community members, to encourage momentum of activities related to advancing ag water management and sustaining the vitality of High Plains communities, to identify common vision, practices, and opportunities applicable across state lines that have the potential to benefit the aquifer region over the short- and long-term.

Unlocking the Agricultural Data Revolution (2020)

Foundation for Food and Agricultural Research (FFAR)

- FFAR and partners hosted a virtual event to discuss data ownership and data privacy. The two-day session included panels, networking, and a student competition, as well as a call to action. This event was open to the many people who work in agriculture and food, and those interested in data and innovative research across disciplines.