



BENJAMIN ALLEN

BIOLOGIST · EDUCATOR

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<https://orcid.org/0000-0002-6325-859X>

EXPERIENCE

DOE Systems Biology Knowledgebase

Oak Ridge National Laboratory
Technical Professional - Outreach
2016 - Present

- Leads *Outreach, Communications, and User Development* team to grow scientific users
- Coordinates efforts to advance scientific output and publications
- Development of over 20K active users publishing around 150 research articles annually
- Publishes protocol papers demonstrating use of KBase for systems biology research
- Performs analysis for microbial genomics and ecology publications
- Assists development of user metrics and communications assets
- Hosts training including webinars, workshops, presentations, and conferencing activities
- Participates in design activities for KBase user interfaces and user experience
- Hires, trained, and managed junior staff working on KBase activities

Oak Ridge Associated Universities
Post-Master's Research Associate
2014 - 2016

- Created technical documentation including tutorials, guides, videos, graphics, and handouts
- Developed outreach materials including newsletters, blog posts, and social media engagement
- Supported users by triaging and resolving issues on the JIRA Helpdesk
- Analysed user feedback to inform development, documentation, and support activities

UT-ORNL Brederes Center for Interdisciplinary
Research and Graduate Education
University of Tennessee - Knoxville
Student Services Specialist
2011 - 2014

- Coordinated curriculum development for Energy Science and Engineering doctoral program
- Advised doctoral students on science and engineering course work and career development
- Recruited doctoral students from university and professional society events
- Engaged in best practices for diversity, equity, and inclusivity in STEM education
- Produced multimedia for research and education efforts at UTK and ORNL

UTK Department of Biochemistry,
Cellular, & Molecular Biology
Undergraduate Research Assistant for
Dr. Albrecht von Arnim
2010

- Assisted genomics research on translational elongation factors in *Arabidopsis thaliana*
- Applied *Agrobacterium*-based transformation methods for genomics research
- Cultivated wild-type and transgenic plants to analyse root and shoot growth patterns
- Prepared growth media and maintained laboratory supply using safe and sterile techniques

UTK Department of Biochemistry,
Cellular, and Molecular Biology
Undergraduate Research Assistant for
Dr. Darrin Hulsey
2009 - 2010

- Assisted phenotyping research on jaw and vertebrae morphology in fish of family *Cichlidae*
- Measured and modelled vertebral movements of fish with image data using MATLAB software
- Cared for laboratory specimens and maintained experimentation equipment
- Recorded, edited, and analysed video of fish from for research and education activities

EDUCATION

University of Tennessee Knoxville
M.S. - Science Education
2012-2014

- Thesis: *Ideology and Interdisciplinary Science Graduate Education Reform*
Primary studies in theory and practice of science education with additional course work in microbiology

University of Tennessee Knoxville
B.S. - Biochemistry, Cellular, & Molecular Biology
2006 - 2010

- Undergraduate studies in biochemistry, genome science, ecology and evolutionary biology with lab experience in molecular techniques, computational biology, and organic chemistry

University of Strathclyde (Glasgow, Scotland)
2007

- Study abroad experience with curriculum focus on molecular biology, immunology, and computer science



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PUBLICATIONS

Chivian D, Jungbluth SP, Dehal PS, Wood-Charlson EM, Canon RS, Allen BH, et al. Metagenome-assembled genome extraction and analysis from microbiomes using KBase. *Nature Protocols*. 2022. doi:10.1038/s41596-022-00747-x

Dow EG, Wood-Charlson EM, Biller SJ, Paustian T, Schirmer A, Sheik CS, ..., Allen BH, et al. Bioinformatic Teaching Resources – For Educators, by Educators – Using KBase, a Free, User-Friendly, Open Source Platform. *Frontiers Education*. 2021;6: 711535. doi:10.3389/educ.2021.711535

Allen BH, Gupta N, Edirisinghe JN, Faria JP, Henry CS. Application of the Metabolic Modelling Pipeline in KBase to Categorize Reactions, Predict Essential Genes, and Predict Pathways in an Isolate Genome. Navid A, editor. *Microbial Systems Biology: Methods and Protocols*. 2022; 291–320. doi:10.1007/978-1-0716-1585-0_13

Allen BH, Land ML, Wood-Charlson EM. Make the Most Out of Genome Announcements with KBase. Oak Ridge National Laboratory (ORNL), Oak Ridge, TN (United States); DOE Systems Biology Knowledgebase (KBase); 2020 Apr. doi:10.25982/1608940

Arkin AP, Cottingham RW, Henry CS, Harris NL, Stevens RL, Maslov S, ..., Allen BH, et al. KBase: The United States Department of Energy Systems Biology Knowledgebase. *Nature Biotechnology*. 2018;36: 566–569. doi:10.1038/nbt.4163

Edirisinghe JN, Faria JP, Harris NL, Allen BH, Henry CS. Reconstruction and Analysis of Central Metabolism in Microbes. In: Fondi M, editor. *Metabolic Network Reconstruction and Modelling: Methods and Protocols*. New York, NY: Springer; 2018. pp. 111–129. doi:10.1007/978-1-4939-7528-0_5

Allen B, Schmalzer S. Energy and Environment. In: Botelho A, Chard D, Schmalzer S, editors. *Science for the People: Documents from America's Movement of Radical Scientists, 1969-1989*. Amherst: University of Massachusetts Press; ISBN 978-1-62534-318-5

Allen B, Schmalzer S. Science, Power, and Ideology. In: Botelho A, Chard D, Schmalzer S, editors. *Science for the People: Documents from America's Movement of Radical Scientists, 1969-1989*. Amherst: University of Massachusetts Press; ISBN 978-1-62534-318-5

Allen B, Drake M, Harris N, Sullivan T. Using KBase to Assemble and Annotate Prokaryotic Genomes. *Current Protocols in Microbiology*. 2017;46: 1E.13.1-1E.13.18. doi:10.1002/cpmc.37

Allen B. Exploring the Role of Ideology in Interdisciplinary Science Education Policy. *Educational Studies*. 2017;53: 642–653. doi:10.1080/00131946.2017.1369081

Ellison S, Allen B. Disruptive innovation, labor markets, and Big Valley STEM School: network analysis in STEM education. *Cultural Studies of Science Education*. 2018;13: 267–298. doi:10.1007/s11422-016-9786-9

PROFESSIONAL AFFILIATIONS

American Society for Microbiology (2022-2024)

International Society for Microbial Ecology (2024)



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CONFERENCING

POSTERS

Accelerating Production of Finished Isolate Genomes with Long-Reads Isolate Sequencing and Assembly (LISA) Tools
American Society of Microbiology (2024)

Outreach and User Development for the KBase Science Community
DOE Genome Science Program PI Meeting (2024, 2023)

KBase: The Systems Biology Knowledgebase for Predictive Biological and Environmental Research in an Integrated Data Platform
DOE Genome Science Program PI Meeting (2020, 2019)
Plant Animal Genome Conference (2016)

The DOE Systems Biology Knowledgebase (KBase): Progress Toward a System for Collaborative and Reproducible Inference and Modelling of Biological Function
ORISE Summer Graduate, Post Graduate, Employee Participant, and Faculty Poster Session (2016)

WORKSHOPS

Long-Reads Isolate Sequencing and Assembly Workshop
Lawrence Berkeley National Laboratory (2024)

Analysing Microbial Genomes and Community Metagenomes with KBase
University of Wisconsin, Madison (2023)
University of Massachusetts, Amherst (2023)
North Carolina State University (2023)

KBase Genomics and Communities Analysis Workshop
JGI Genomics of Energy and Environment Meeting (2023, 2022, 2020)

Genome-scale Metabolic Modelling of Environmental Isolates and Communities using the DOE Systems Biology Knowledgebase (KBase)
American Society of Microbiology (2016)

MENTORSHIP

Sora Imai - Next Generation STEM Internship Program (2024)
Student - Farragut High School

Zach Crockett - Oak Ridge Associated Universities (2019)
KBase User Support - Oak Ridge National Laboratory

Mikayla Clark - Oak Ridge Associated Universities (2018)
Postgraduate Research Associate - University of Tennessee, Knoxville

Christian Mack - Oak Ridge Institute for Science Education (2018)
Manufacturing Development Engineer Manufacturing Development Engineer FAMCO