

# BENJAMIN ALLEN

## **BIOLOGIST** · **EDUCATOR**

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## **EXPERIENCE**

DOE Systems Biology Knowledgebase (KBase)
Oak Ridge National Laboratory
Technical Professional - Outreach Coordinator
2016 - Present

Oak Ridge Associated Universities

Post-Master's Research Associate

2014 - 2016

2011 - 2014

UT-ORNL Bredesen Center for Interdisciplinary Research and Graduate Education University of Tennessee - Knoxville Student Services Specialist III

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

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

- · Lead Outreach, Communications, and User Development team to grow and develop system user base
- · Developed strategy to grow user base and scientific publications through broadcast and targeted activities
- Grew user base to more than 15,000 accounts with over 7,000 active users from 2018-2020
- · Engaged in targeted development to increase use of KBase by Dept. of Energy funded research groups
- Collaborated with KBase staff and external researchers on various systems biology publications
- · Organized regular broadcast user development activities via webinars and digital communications
- · Assisted development of user metrics database and analytics to inform strategy
- · Demonstrated KBase to scientists via webinars, workshops, presentations, and conferencing
- Collaborated with developers to design KBase User Interface and User Experience
- Hired, trained, and managed junior staff working on outreach and communications
- · Created technical documentation for KBase including tutorials, guides, videos, graphics, and handouts
- · Published protocol papers demonstrating use of KBase for systems biology research
- · Developed outreach materials including newsletters, blog posts, and social media engagement
- · Supported KBase users by triaging and resolving issues on the KBase Helpdesk
- · Analysed user feedback to inform development, documentation, user engagement, and support activities
- · 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 content to communicate research and education efforts at UTK and ORNL
- Assisted genomics research on subunit H of translational elongation factor 3 in Arabidopsis thaliana
- · Applied Agrobacterium-based transformation methods to induce mutations in Arabidopsis thaliana genome
- Cultivated wild-type and transgenic plants to measure and analyse root and shoot growth patterns
- Prepared autotrophic growth media and maintained laboratory supply using safe and sterile techniques
- · Assisted phenotyping research on jaw and vertebrae morphology in fish from taxonomic 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

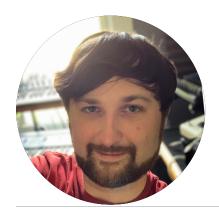
### **EDUCATION**

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

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

University of Strathclyde (Glasgow, Scotland)

- Thesis: Ideology and Interdisciplinary Science Graduate Education Reform
  Primary studies in theory and practice of science education with additional course work in microbiology
- Undergraduate studies in biochemistry, genome science, ecology and evolutionary biology with lab experience in molecular techniques, computational biology, and organic chemistry
- Study abroad experience with curriculum focus on molecular biology, immunology, and computer science



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## **PUBLICATIONS**

Allen BH, Gupta N, Edirisinghe JN, Faria JP, Cottingham RW, Henry CS. (Under contract) Application of the metabolic modeling pipeline in KBase to categorize reactions, predict essential genes, and predict pathways in an isolate genome. In A. Navid (Ed.) Microbial Systems Biology

Allen, B. H., Land, M. L., & Wood-Charlson, E. M. (2020). Make the Most Out of Genome Announcements with KBase. DOE Systems Biology Knowledgebase (KBase). DOI: 10.25982/1608940

Arkin AP, Cottingham RW, Henry CS,...,Allen B.H, et al. (2018) KBase: The United States Department of Energy Systems Biology Knowledgebase. Nature Biotechnology. DOI: 10.1038/nbt.4163

Edirisinghe J.N., Faria J.P., Harris N.L., Allen B.H., Henry C.S. (2018) Reconstruction and Analysis of Central Metabolism in Microbes. Metabolic Network Reconstruction and Modeling Methods in Molecular Biology. DOI: 10.1007/978-1-4939-7528-0 5

Allen, B., & Schmalzer, S. (2018). Science, Power, and Ideology. In A. Botelho, D. Chard, & S. Schmalzer (Eds.), Science for the People: Documents from America's Movement of Radical Scientists, 1969-1989. Amherst: University of Massachusetts Press. ISBN: 9781613765531

Allen, B., & Schmalzer, S. (2018). Energy and Environment. In A. Botelho, D. Chard, & S. Schmalzer (Eds.), Science for the People: Documents from America's Movement of Radical Scientists, 1969-1989. Amherst: University of Massachusetts Press. ISBN: 9781613765531

Allen B, Drake M, Harris N, Sullivan T. (2017) Using KBase to Assemble and Annotate Prokaryotic Genomes. Current Protocols in Microbiology. DOI: 10.1002/cpmc.37

Allen, B. (2017). Exploring the Role of Ideology in Interdisciplinary Science Education Policy, Educational Studies. DOI: 10.1080/00131946.2017.1369081

Ellison, S., & Allen, B. (2017). Disruptive innovation, labor markets, & Big Valley STEM School: Network analysis in STEM education. Cultural Studies of Science Education. DOI: 10.1007/s11422-016-9786-9

## CONFERENCING

#### Workshop

KBase Isolate Analysis Workshop

JGI Genomics of Energy and Environment Meeting (2017-2020)

#### Poster

KBase: The Systems Biology Knowledgebase for Predictive Biological and Environmental Research in an Integrated Data Platform DOE Genome Science Program Conference (2019-2020)

#### Poster

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

### Workshop

Genome-scale Metabolic Modeling of Environmental Isolates and Communities using the DOE Systems Biology Knowledgebase (KBase) - standing in for P. Dehal & P. Ranjan American Society of Microbiology (2016)

#### Poster

The DOE Systems Biology Knowledgebase (KBase): Introduction to a System for Collaborative and Reproducible Inference and Modeling of Biological Function Plant Animal Genome Conference (2016)