**Elizabeth McDaniel**

Microbiology Ph.D. Student

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**Education**

**University of Wisconsin – Madison** *Aug. 2016-present*

Ph.D. student in the Microbiology Doctoral Training Program

* Laboratory of Dr. Katherine McMahon, Department of Bacteriology

**University of Arkansas – Fayetteville** *Aug. 2012-May 2016*

Bachelor of Science in Biology with Statistics Minor, Cum Laude Honors

* GPA: 3.71/4.0
* Honors Thesis: Natural Variation of the Ena1p Sodium Pump in *S. cerevisiae*

**Research Experience**

**McMahon Lab – University of Wisconsin – Madison** *Jan. 2017 - present*

Graduate research assistant in the laboratory of Dr. Katherine McMahon investigating bacterial communities in freshwater ecosystems and engineered wastewater systems. I use a combination of bioinformatics approaches and enrichment culture techniques to probe the diversity and population dynamics of environmentally significant microorganisms.

**Lewis Lab – University of Arkansas – Fayetteville** *Aug. 2013-Aug. 2016*

Undergraduate research assistant in the laboratory of Dr. Jeffrey Lewis studying the natural variation of stress defense mechanisms in the budding yeast *Saccharomyces cerevisiae.*

**Broach Lab – Penn State Hershey College of Medicine** *May-Aug. 2014*

Intern in the Summer Undergraduate Research Internship Program in the laboratory of Dr. James Broach studying the interactions and movements of chromosomes during quiescence in the budding yeast *S. cerevisiae*

**Publications**

**1.** **McDaniel E.A.,** Stuecker T.N., Veluvolu M., Gasch A.P., Lewis J.A. **Independent Mechanisms for Acquired Salt Tolerance versus Growth Resumption Induced by Mild Ethanol Pretreatment in *Saccharomyces cerevisiae****.* mSphere. Nov 2018, 3 (6) e00574-18; **DOI:** 10.1128/mSphere.00574-18

**Platform Talks**

**2. McDaniel, E.A.** Stuecker, T.N., Elkon, I.M., Gasch, A.P., Lewis, J.A. Natural Variation in Yeast Uncovers Novel Regulation of the Ena1p Sodium Pump. Southeastern Regional Yeast Meeting. Tuscaloosa, AL. *March 2016.*

**1. McDaniel, E.A.** Stuecker, T.N., Elkon, I.M., Gasch, A.P., Lewis, J.A. Natural Variation in Yeast Uncovers Novel Regulation of the Ena1p Sodium Pump. Southeastern Regional Yeast Meeting. Little Rock, AR. *March 2015.*

**Poster Presentations**

**10.** McMahon Lab. Microbiomes of Freshwater Lakes and Engineered Wastewater Systems. Water@UW Syposium. Madison, WI. *Oct. 2018.* (Poster constructed and presented on behalf of McMahon Lab)

**9.** McDaniel, E.A.Peterson, B. Stevens, S.L.R., Krabbenhoft, D., McMahon, K.D. Expanded Phylogenetic and Metabolic Diversity of Microbial Mercury Methylation. Department of Bacteriology Raper Symposium. Madison, WI. *Sept. 2018.*

**8.** McDaniel, E.A.Peterson, B. Stevens, S.L.R., Krabbenhoft, D., McMahon, K.D. Comparative Genomics of Microbial Mercury Methylation. International Society of Microbial Ecology Meeting. Leipzig, Germany. *Aug. 2018.*

**7.** McDaniel, E.A.Moya, F. Camejo, P. He, S. McMahon, K.D. Long-Term Population Dynamics of ‘*Candidatus* Accumulibacter phosphatis’ in Enhanced Biological Phosphorus Removal Sequencing-Batch Reactors. Population, Evolutionary, Quantitative Genetics Conference. Madison, WI. *May 2018.*

**6.** McDaniel, E.A.Peterson, B. Stevens, S.L.R., Krabbenhoft, D., McMahon, K.D. Comparative Genomics of Microbial Methylmercury Production. Madison Microbiome Meeting. Madison, WI. *April 2018.*

**5.** McDaniel, E.A.Peterson, B. Stevens, S.L.R., Krabbenhoft, D., McMahon, K.D. Comparative Genomics of Microbial Methylmercury Production. Joint Genome Institute User Meeting: Genomics of Energy and Environment. San Francisco, CA. *Mar. 2018*

**4.** McDaniel, E.A.Stuecker, T.N., Elkon, I.M., Gasch, A.P., Lewis, J.A. Natural Variation in Yeast Uncovers Novel Regulation of the Ena1p Sodium Pump. Arkansas IDeA Network of Biomedical Research Excellence Meeting. Fayetteville, AR. *Nov. 2015*

**3.** McDaniel, E.A.Stuecker, T.N., Elkon, I.M., Gasch, A.P., Lewis, J.A. Natural Variation in Yeast Uncovers Novel Regulation of the Ena1p Sodium Pump. 27th International Conference on Yeast Genetics and Molecular Biology. Levico, Terme, Trentino, Italy. *Sept. 2015*

**2.** McDaniel, E.A**.** Stuecker, T.N., Elkon, I.M., Gasch, A.P., Lewis, J.A. Natural Variation in Yeast Uncovers Novel Regulation of the Ena1p Sodium Pump. South Central Branch of the American Society for Microbiology Joint Meeting. Fayetteville, AR. *Sept. 2014*

**1.** McDaniel, E.A. Rutledge, M.T., Broach, J.R. Chromosome Interactions in Quiescent Yeast. Penn State Hershey Summer Undergraduate Research Internship Programs Symposium. Hershey, PA. *Aug. 2014.*

**Honors and Awards**

**Microbiology Doctoral Training Program Travel Award -** $1000 *May 2018*

**Department of Bacteriology Travel Award -** $1000 *May 2018*

**Southeastern Regional Yeast Meeting Travel Award -** $250 *Mar. 2016*

**University of Arkansas Honors College Research Grant -** $1200 *Jan. 2016*

**University of Arkansas Honors College Travel Grant -** $1200 *Aug. 2015*

**Southeastern Regional Yeast Meeting Travel Award -** $250 *Mar. 2015*

**University of Arkansas Honors College Research Grant -** $2500 *Jan. 2015*

**University of Arkansas Academic Scholarship -** $2500  *2014-2015*

**ASM South Central Branch Meeting 2nd Place Poster Award**  *Sept. 2014*

**University of Arkansas Academic Scholarship -** $1000 *2013-2014*

**University of Arkansas Symphony Orchestra Scholarship -** $1000 *2012-2016*

**University of Arkansas New Arkansan Non-Resident Tuition Award - $**39,040

**Teaching, Mentoring, and Service**

**Resolving Microbial Communities at Strain-Level Resolution Symposium**

*Teaching Assistant Aug. 28th-31st 2018*

* Assisted at a workshop on metagenomic bioinformatics tools including assembly, binning, using the Anvi’o platform, and deconvoluting strains from metagenomic datasets. Held at the University of Exeter – Penryn campus in the United Kingdom.
* Presented a talk on “Integrating Anvi’o Tools into your Workflow: Insights from a Biological Nutrient Removal (BNR) System” and led an exercise on analytical struggles/and learning goals relative to computation in biology

**Microbiology 304: Biology of Microorganisms Laboratory** *Spring 2018*

*Teaching Assistant*

* Prepared lecture materials on the background, significance, and execution of experiments twice a week
* Assisted students with experiments and provided feedback on techniques, scientific analyses, and writing

**McMahon Lab Mentoring** *2017-present*

*Graduate Student Mentor for REUs, Undergraduate Interns, and High School Students*

* *Kaela Amundson:* Characterization and Enrichment of Microorganisms Capable of External Electron Transfer. *Fall 2017-Spring 2018.* Mentored Kaela through laboratory protocols, bioinformatics pipelines, graduate school applications, and a National Science Foundation Graduate Research Fellowship Application. *Currently: Pursuing a Ph.D. in Microbiology at Colorado State University*
* *Kali Denis:*Time-Series Analysis of Under-Ice Freshwater Bacterial Communities. *Spring 2018.* Mentored Kali through laboratory protocols, design and execution of an independent project, and preparation of a UW-Madison Sophomore Research Fellowship.
* *Matthew Wolff:* Investigation of Zebra Mussel eDNA in Lake Mendota Metagenomic Time-Series. *Spring 2018-current.* Mentored Matthew through bioinformatics pipelines, high-throughput computing, and graduate school applications.
* *EBPR Reactor Team:*In the Fall of 2018, I started overseeing the maintenance and routine sampling of our long-term enhanced biological phosphorus removal (EPBR) enrichment reactors, which involves the help of several undergraduate students. As of the Fall of 2018, I have mentored and worked with **3** undergraduate students and **1** high school student while maintaining these reactors.

**Computational Biology, Ecology, and Evolution (ComBEE) Study Group**

*Co-Chair Jan. 2017-present*

ComBEE is a peer-led group for computational biology researchers on the UW-Madison campus. We hold bi-weekly R and Python study group sessions and monthly meetings on current research topics in ecology and evolution.

* Organize peer-led discussion on the R and Python languages
* Facilitate monthly meetings in which a postdoc/faculty member gives a talk on their research.

**ComBEE Git/Github Pages Workshop** *Sept. 2017*

*Workshop Leader*

* Prepared novel materials and taught version control with Git and making a personal website using Github Pages/Jekyll
* Led a walkthrough tutorial to a group of 10 scientists on making a personal website using GithubPages

**ComBEE Git/Github Pages Workshop** *May. 2017*

*Workshop Assistant*

* Assisted during a workshop on the Anvi’o metagenomics analysis and visualization software with a focus on metagenomic binning and refinement
* Led an informal presentation and discussion on the theory of metagenomic binning

**BIOL 2323: General Genetics**  *Spring 2015*

*Drill Instructor*

* Instructor and leader of biweekly review sessions for an undergraduate General Genetics course
* Prepared overview of lecture materials weekly and led exam study guide review sessions

**University of Arkansas Office of Admissions**  *Aug. 2013-Dec. 2015*

*Student Ambassador*

* Volunteered 2 hours a week guiding tours of the University of Arkansas campus and housing options to prospective students

**Professional Development**

**Microbial Genomics and Metagenomics Workshop, FISABIO** *June 2017*

**Anvi’o Workshop, University of Chicago**  *April 2017*

**Data Carpentry Workshop, University of Wisconsin-Madison**  *Jan. 2017*

**Technical and Laboratory Skills**

**Programming** Python, R/RStudio, Bash, SQL, Git/Github/GH-pages, Markdown, High Throughput Computing (HT-Condor), Reproducible Research

**Analytical** Comparative Genomics/Metagenomics, Metagenomic Analysis and Binning, Amplicon Sequencing QC and Analysis, Genome Annotation and Assembly

**Laboratory** Molecular Cloning, DNA Extraction, qPCR, Primer Design, Flow Cytometry, Wastewater Reactor (Chemostat) Maintenance and Microbial Community Enrichment