

# 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*

## Oral Presentations

**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

**8.** McDaniel, E.A. Peterson, B. Stevens, S.L.R., Krabbenhoft, D., McMahon, K.D. Expanded Phylogenetic and Metabolic Diversity 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. 27<sup>th</sup> 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**  
**Department of Bacteriology Travel Award - \$1000**

*May 2018*  
*May 2018*

<b>Southeastern Regional Yeast Meeting Travel Award - \$250</b>	<i>Mar. 2016</i>
<b>University of Arkansas Honors College Research Grant - \$1200</b>	<i>Jan. 2016</i>
<b>University of Arkansas Honors College Travel Grant - \$1200</b>	<i>Aug. 2015</i>
<b>Southeastern Regional Yeast Meeting Travel Award - \$250</b>	<i>Mar. 2015</i>
<b>University of Arkansas Honors College Research Grant - \$2500</b>	<i>Jan. 2015</i>
<b>University of Arkansas Academic Scholarship - \$2500</b>	<i>2014-2015</i>
<b>ASM South Central Branch Meeting 2<sup>nd</sup> Place Poster Award</b>	<i>Sept. 2014</i>
<b>University of Arkansas Academic Scholarship - \$1000</b>	<i>2013-2014</i>
<b>University of Arkansas Symphony Orchestra Scholarship - \$1000</b>	<i>2012-2016</i>
<b>University of Arkansas New Arkansan Non-Resident Tuition Award - \$39,040</b>	

## Teaching, Mentoring, and Service

### **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 and Undergraduate Interns*

- *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*
- *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.
- *Kali Denis*: Time-Series Analysis of Under-Ice Freshwater Bacterial Communities. *Spring 2018-current*. Mentored Kali through laboratory protocols, design and execution of an independent project, and preparation of a UW-Madison Sophomore Research Fellowship.

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

*Jan. 2017-present*

#### *Co-Chair*

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, RT-qPCR, Primer Design, Flow Cytometry, Wastewater Reactor (Chemostat) Maintenance and Microbial Community Enrichment