

## 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 of engineered wastewater systems. I use a combination of bioinformatics approaches and enrichment culture techniques to probe the diversity, functional activity and population dynamics of environmentally significant microorganisms and interrogate microbial interactions.

#### **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

### **Oral Presentations**

**3. McDaniel, E.A.,** Moya, F., Camejo, P., He, S., McMahon, K.D. Integrating Anvi'o Tools into your Workflow: Insights from a Biological Nutrient Removal (BNR) System. Resolving Microbial Communities at Strain-Level Symposium. Penryn, UK. *August 2018.*

**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 Symposium. 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. 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**

<b>Department of Bacteriology Betley-Allen Fellowship Award</b>	<i>May 2019</i>
<b>University of Wisconsin-Madison Student Travel Grant - \$600</b>	<i>April 2019</i>
<b>Microbiology Doctoral Training Program Travel Award - \$1000</b>	<i>May 2018</i>
<b>Department of Bacteriology Travel Award - \$1000</b>	<i>May 2018</i>
<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**

### **Bioinformatics Workshops (Teaching Assistant/Created Materials)**

Microbiome & Data Science Hubs Git/Github Pages Workshop	<i>March 2019</i>
Resolving Microbial Communities at Strain-Level Resolution Symposium	<i>Aug. 2018</i>
ComBEE Git/Github Pages Workshop	<i>Sept. 2017</i>
ComBEE Anvi'o Workshop	<i>May 2017</i>
ComBEE Git Workshop	<i>March 2017</i>

### **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.

### **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. Currently pursuing a Ph.D. in Microbiology at Colorado State University*
- *Kali Denis: Time-Series Analysis of Under-Ice Freshwater Bacterial Communities. Spring 2018.*
- *EBPR Reactor Maintenance Team: Oversaw 6 undergraduate students for maintenance of wastewater reactors. Fall 2018-current.*

### **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**

**Carpentries Instructor Training**

*April 2019*

**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, 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