Emmi Mueller

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Department of Biology, Indiana University

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Education

Indiana University Bloomington, IN
Department of Biology August 2017 - Present
Ph.D. – Evolution, Ecology, and Behavior
Focus in Ecology, Minor in Genetics
Advisor: Jay T. Lennon

University of Michigan Ann Arbor, MI
B.S. in Microbiology 2017

Research Experience

PhD Student
Indiana University Bloomington, IN
Lennon Lab Fall 2017-Present

Undergraduate Researcher
University of Michigan Ann Arbor, MI
James Lab Fall 2013- Summer 2017

Research Experience for Undergraduate (REU) Student
Kansas State University Manhattan, KS
Zeglin Lab Summer 2016

Undergraduate Researcher
University of Michigan Ann Arbor, MI
Watson Lab Fall 2015

Virology Group Intern
J. Craig Venter Institute Rockville, MD
Virology Group Summer 2015

Electronic Imaging Tech
University of Michigan Herbarium Ann Arbor, MI
Lichen and Bryophyte Collection Summer 2014

Fellowships and Awards

ESA Microbial Ecology Section Travel Award
$500 Summer 2019

National Science Foundation Graduate Research Fellowship
Honorable Mention Spring 2019

Graduate Women in STEM (GWiSTEM) Teaching Fellow
$200 GWiSTEM, Fall 2018-Spring 2019

Publications

Mueller EA, Wisnoski NI, Peralta AL, Lennon JT (Accepted) *Microbial rescue effects: how microbiomes can save hosts from extinction.* Functional Ecology, https://doi.org/10.1111/1365-2435.13493.

Bialosuknia SM, Tan Y, Zink SD, Koetzner CA, Maffei JG, Halpin RA, **Mueller EA,** Novotny M, Shilts M, Fedorova NB, Amedeo P, Das SR, Pickett B, Kramer LD, Ciota AT (2019) *Evolutionary Dynamics and Molecular Epidemiology of West Nile Virus in New York State: 1999-2015.* Virus Evolution, Volume 5, Issue 2, July 2019, vez020, https://doi.org/10.1093/ve/vez020.

Phadke SS, Maclean CJ, Zhao SY, **Mueller EA**, Michelotti LA, Norman KL, Kumar A, James TY (2018) *Genome-Wide Screen for Saccharomyces cerevisiae Genes Contributing to Opportunistic Pathogenicity in an Invertebrate Model Host.* G3: GENES, GENOMES, GENETICS January 1, 2018 vol. 8 no. 1 63-78; https://doi.org/10.1534/g3.117.300245.

Contributed Presentations

Mueller EA, Lennon JT. 2019. Poster: *Physical complexity as a control on the diversity and function of gut microbiomes.* Ecological Society of America. Louisville, KY.

Mueller EA, Lennon JT. 2019. Poster: *Physical complexity as a control on the abundance and metabolic activity of gut microbiomes.* Purdue Microbiome Symposium. West Lafayette, IN.

Mueller EA, Locey KJ, Lennon JT. 2018. Poster: *Complexity of the gut microbiome: an experimental approach.* Midwest Ecology and Evolution Conference. Hickory Corners, MI.

Mueller EA, Floyd V, Zeglin LH. 2017. Poster: *Ecological responses of prairie soil microbial communities to increased nitrogen.* Argonne Soil Metagenomics Conference. Lemont, IL.

Mueller EA, Zeglin LH. 2017. *Soil microbial diversity and ecology in response to nitrogen additions.* National Conference for Undergraduate Research. Memphis, TN.

Mueller EA, Zeglin LH. 2016. *Effects of nitrogen addition on below ground microbial diversity and ecology.* Kansas State University REU Symposium. Manhattan, KS.

Mueller EA, Phadke SS, James TY. 2015. *Genetic diversity at two nuclear and one mitochondrial locus in ciliates of the genus Tetrahymena.* National Conference for Undergraduate Research. Spokane, WA.

Mueller EA, Phadke SS, James TY. 2015. *Identifying molecular basis of fungal virulence using experimental evolution.* National Conference for Undergraduate Research. Spokane, WA.

Mueller EA, Phadke SS, James TY. 2015. Poster: *Identifying molecular basis of fungal virulence using experimental evolution.* University of Michigan Undergraduate Research Opportunities Program Symposium. Ann Arbor, MI.

Mueller EA, Phadke SS, James TY. 2014. Poster: *Genetics diversity at two nuclear and one mitochondrial locus in ciliates of the genus Tetrahymena.* University of Michigan Undergraduate Research Opportunities Program Symposium. Ann Arbor, MI.

Teaching	**Associate Instructor**	Spring 2018, Spring 2019, Fall 2019
	BIOL-L113 Introductory Biology Laboratory	Indiana University

Mentorship & Outreach	**EcoLunch Chair**	July 2019-Present
	Led committee for ecology focused seminar series	Indiana University
	Jim Holland SSRP Riverwatch Volunteer	July 2019
	Guide students through river chemistry assays	Indiana University RTP
	Undergraduate STEM Mentor	
	Groups Scholar STEM Initiative Mentor	Fall 2018-Spring 2019
	Undergraduate Mentee: Karen Torres	Indiana University
	High School STEM Mentor	
	Jim Holland Summer Research Program	Summer 2018
	High School Mentee: Ian Schowe	
	EcoLunch Committee Member	August 2017-May 2019
	Organized ecology focused seminar series	Indiana University
	Conversations in Science at IU Blog	Spring 2018-Present
	Guest writer	Indiana University

Technical Skills

Molecular Biology
- DNA extraction from bacteria, fungi, and ciliates, RNA extraction from bacteria, PCR, cloning, gel electrophoresis, nucleic acid quantification, qPCR, RT PCR, qRTPCR

Bioinformatics and biostatistics
- Sequence analysis using Sequencher, CLC Workbench, statistical analysis using programming in R

Microbiology
- Culturing, handling and storage for bacteria, fungi, and ciliates, handling and injections of invertebrate virulence model waxmoth larvae (*Galleria melonella*), transformations of *Saccharomyces cerevisiae,* single spore isolation of *Schizophyllum*

Evolutionary biology
- Experimental and molecular evolution, population genetics modeling

Field Work
- Sieving soil for sampling, small mammal trapping with Sherman traps

Microbial Ecology

- Measurement of CO_2 Flux, Measurement of bacterial biomass production

Next Generation Sequencing

- Library preparation for Ion Torrent PGM, Library preparation for whole genome sequencing and amplicon-based sequencing with Illumina HiSeq

Flow Cytometry

- Sample preparation for NovoCyte and MACSQuant Analyzer 10 Instruments, Staining for live/dead and respiration levels of bacterial populations, FCS file analysis in R

Programming

- Basic programming in R, Java, Python, UNIX, Perl and Visual Basic, Microsoft Office skills including Excel, Word and Powerpoint
- Computer-aided Design (CAD) – Autodesk Inventor
- PreForm – FormLabs Print Preparation Software

Society Membership   **Ecological Society of America**