# Ash Zemenick, PhD

they/them/theirs | ash.zemenick@gmail.com | ashzemenick.com | projectbiodiversify.org

## CURRENT POSITIONS

2021–present **Field Station Manager, University of California, Berkeley**
Manager of Sagehen Creek Field Station, Chickering American River Reserve, and North Fork of the American River Reserve.

2019–present **Director of Project Biodiversify, Michigan State University**
Project Biodiversify: Tools for promoting diversity and inclusivity in biology classrooms.

## ACADEMIC POSITIONS

2020–present **NSF Postdoctoral Researcher, Auburn University**
Biology education research: How does diversifying and humanizing biologists impact student engagement and science identity?

2019–20 **Postdoctoral Research Fellow, UC Davis**
Plant macroevolutionary ecology: Growth–defense tradeoffs in wild grapevine

2017–19 **NSF Postdoctoral Research Fellow, Michigan State University**
NSFBIO: Broadening participation of groups underrepresented in biology

## EDUCATION

2017 **PhD in Ecology, University of California, Davis**
Area of emphasis: Agricultural ecology
Dissertation: The influence of flower visitor identity on network structure and floral microbe communities

2011 **BS in Ecology and Evolutionary Biology with High Honors, University of Michigan, Ann Arbor**
Minor: Program in the Environment
Thesis: The indirect effects of ant–hemipteran mutualisms on host plant fitness: comparing the cascading effects of two ant species on coffee production

## PUBLICATIONS

***** undergraduate collaborator

2021 **Zemenick, A.T.,** R.L. Vannette and J.A. Rosenheim. Comparing visitation and bacterial networks suggest the role of dispersal and species sorting in floral microbial communities. Oikos 130(5): 697–707.

2021 **Zemenick**, **A.T.,** S.C. Jones, M.G. Weber, A.J. Webster, E. Raymond, K. Sandelin, T. Kowalczyk, N. Hessami, C. Lund Dahlberg. Diversifying and humanizing biologist role models through constructing slide deck on researchers' research and life experiences. *Accepted* at Course Source.

2020 Wood, S., J.A. Henning, L. Chen, , M.L. Smith, M. Weber, **A. Zemenick** and Cissy J. Ballen. 2020. A scientist like me: demographic analysis of biology textbooks reveals both progress and long-term lags. Proceedings of the Royal Society B Biological Sciences 287:20200877

2019 Vandermeer, J., I. Armbrecht, A. de la Mora, K.K. Ennis, D.J. Gonthier, Z. Hajian-Forooshani, H.Y. Hsieh, A. Iverson, D. Jackson, S. Jha, E. Jiménez-Soto, G. Lopez-Bautista, A. Larsen, K. Li, H. Liere, A. MacDonald, L. Marin, K. A. Mathis, I. Monagan, J. Morris, T. Ong, G.L. Pardee, I. Saraeny Rivera, K. Williams-Guillen, S. Yitbarek, S. Uno, **A. Zemenick**, S.M. Philpott, and I.

Perfecto. The community ecology of herbivore regulation in an agroecosystem: lessons from complex systems. Bioscience 69(12): 874-996.

2018 **Zemenick, A.T.,** J.A. Rosenheim, and R.L. Vannette. Dispersal by legitimate nectar feeders and robbers differentially shapes nectar bacterial communities of Aquilegia formosa. Ecosphere 9(10):e02459.

2018 **Zemenick, A.T.,** R. Kula, L. Russo, and J. Tooker. A network approach reveals parasitoids to be generalized nectar foragers. Arthropod-Plant Interactions 13(2):239-251.

2016 Jackson, D., **A.T. Zemenick**, B. Malloure, C.A. Quandt, and T.Y. James. Fine-scale spatial genetic structure of a fungal parasite of coffee scale insects. Journal of Invertebrate Pathology 139:34-41.

2013 MacDonald, A. J., D.W. Jackson, and **K.A. Zemenick**. Indirect effects of a fungal entomopathogen, Lecanicillium lecanii, on a coffee agroecosystem ant community. Environmental Entomology 42(4):658-667.

2012 Jackson, D.W., **K.A. Zemenick**, and G. Huerta. Occurrence in the soil and dispersal of Lecanicllium lecanii, a fungal pathogen of the green coffee scale (Coccus viridis) and coffee rust (Hemileia vastatrix). Tropical and Subtropical Agroecosystems 15:389-401.

*in preparation* **Zemenick, A.T.**, S.C. Jones, A.J. Webster, S. Turney, and M.G. Weber. Six principles for embracing gender and sexual diversity in biology classrooms.

Weber, M.G., **A.T. Zemenick**, R. Longley, G. Bonito, S. Gordon, D. Hughes. Multitrophic community structure of the phyllosphere influenced by the repeated evolution of a mutualistic leaf trait.

**Zemenick, A.T.,** M. Bollinger*, P. Campos*, K. Chan*, A. Chiono*, K. Doherty*, S. Glasser*, A. Kruger*, A. Levanduski*, B. Moran*, S. O'Brien*, B. Wang*, J. Whitney* and K.A. Moore. Bottom-up effects of oak apple galls reduces fungal growth but does not extend to fungal-associated arthropod communities.

**Zemenick, A.T.** and J.A. Rosenheim. The influence of bee vs. non-bee flower visitors on network structure and potential for indirect effects between plants.

## GRANTS & FELLOWSHIPS

2020-2025 NSF Improving Undergraduate STEM Education

2017-2019 NSF Postdoctoral Research Fellowship in Biology

2016 Dissertation Year Fellowship, UC Davis

2016,15,14 Jastro Shields Research Award, UC Davis

2015 NSF Doctoral Dissertation Improvement Grant

2015 Ecology Graduate Group Fellowship, UC Davis

2014 Robert van den Bosch Scholarship in Biological Control

2014 Hardman Foundation Research Award, UC Davis

2013 Center for Population Biology Research Award, UC Davis

2011-2014 NSF Graduate Research Fellowship

2009 Undergraduate Fellowships in the Program of Biology, U. Michigan

2009 Graham Sustainability Institute Field Experience Scholarship, U. Michigan

# Ash Zemenick, PhD

## SERVICE & OUTREACH

🌈 diversity & inclusivity, *invited

### Organized Workshops and Presentations on Inclusive Teaching

**Director of Project Biodiversify**
I created an online repository of introductory biology teaching materials that features the research and life experiences of biologists that self-identify as being part of under-represented groups in STEM. www.projectbiodiversify.org

🌈 2018- **Contribute to Project Biodiversify: a repository of teaching materials to diversify and humanize biology courses**
Ecological Society of America Annual Meeting 2018
AT Zemenick, MG Weber, AJ Webster, SC Jones

🌈 2018- **Inclusive and accurate approaches for teaching sex and gender in biology**
Webster, AJ, AT Zemenick, SC Jones
- Ecological Society of America Meeting 2018 projectbiodiversify.org/workshop-slides
- Society for Freshwater Science Meeting 2018 tinyurl.com/MakingWavesEp31
- Kellogg Biological Station Workshop for K-12 Teachers 2018
- Northern Kentucky University 2019
- University of Washington Tacoma 2019
- Western Washington University 2019
- UC Davis Center for Population Biology 2020
- California Polytechnic University 2021
- Michigan Tech University 2021

### Committees and Peer Review

🌈 2018-19 **Dept. of Plant Biology Ad-hoc Diversity & Inclusion Committee member**
Assessing ways to have a more diverse community, and have a safer, more inclusive environment in the Plant Biology Dept. at Michigan State University.

🌈 2015-17 **Diversity Committee member, Ecology Grad Group, UC Davis**
In the Outreach Subcommittee, I helped to organize breakout sessions to discuss issues of diversity in STEM at the Ecology Research Symposium and gave a talk on the subject. In the Admissions and Awards Subcommittee I helped to organize a survey to assess the efficacy of a new graduate students admissions rubric that de-emphasizes discriminatory measures (e.g. GRE) and gives more weight to the achievements made given the applicants background and access to opportunities.

2014 - **Academic peer review**
Ecology; Methods in Ecology and Evolution; Biological Control; Agronomy for Sustainable Development

## TEACHING EXPERIENCE

🌈 diversity & inclusivity, 🎓 undergraduate research, 📊 data analysis

### COURSE ORGANIZING

🌈 2017 **ECL 290 Racial and gendered science** UC Davis
Co-organized syllabus and blog for graduate-level reading group exploring the intersections of science and social systems of oppression.

🌈 2016 **ECL 290 Gender and Sexuality in Nature** UC Davis
Made syllabus and blog for graduate seminar. gendersexandnature.wordpress.com

**ECL 290 Biological Control** UC Davis

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## TEACHING ASSISTANTSHIPS

2017 **Introduction to the programming language R** UC Davis
Provided instruction to students (including grad students, post docs, staff, and faculty) who enrolled in the four-day intensive course in R.

2016 **BUSP Biology Boot Camp** UC Davis
Guided group activities and provided thoughtful feedback for the Biology Undergraduate Scholars Program (BUSP) which supports underrepresented students at UCD, including first generation students, socioeconomically marginalized students, racial minorities, and students with disabilities.

2016 **MIC 103L General Microbiology Laboratory** UC Davis
Guided laboratory activities for two sections.

2015 **EVE 180a,b Experimental Ecology and Evolution in the Field** UC Davis
Guided students in development of a field experiment from idea generation, to implementation, statistics, and scientific writing. ecology180.wordpress.com

2014,15,17 **BIS 2b Intro. Biology: Principles of Ecology & Evolution** UC Davis
Prepared lectures, stimulated discussions, and guided laboratory activities.

2012,14 **SAS 30 Mushrooms Mold and Society** UC Davis
Mentored students on group project investigating fungal ecology.

2010 **Science Learning Center Study Group Leader** University of Michigan
Guided small groups of students in study activities for BIO 171: Introduction to Ecology and Evolutionary Biology.

## GUEST LECTURES

2017 **Biology 110: Survey of Biology** Napa Valley College
Delivered an interactive overview of the structure, function, and diversity of flowering plants (angiosperms) to a biology for non-majors class.

**Science and Society 110: Applied Evolution** UC Davis
Discussed how parent-offspring conflict explains difficulties of childbirth.

2015 **Biology 303 Survey of Ecology** American River College
Delivered an interactive overview of insect ecology focusing on beneficial insects.

2012 **SAS 30 Mushrooms Mold and Society** UC Davis
Lecture on fungus-insect Interactions

## PRESENTATIONS *invited, **awarded best talk, diversity & inclusivity, undergrad. research

* 2020 **A scientist like me: demographic analysis of biology textbooks reveals both progress and long-term lags** Society for the Advancement of Biology Education Research, Virtual Meeting
C. Ballen and A.T. Zemenick

* 2020 **Ecologists' contributions toward supporting a diverse and adaptive scientific workforce** Ecological Society of America, Virtual Meeting

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* 2018 **How do plant-arthropod interactions shape plant microbial communities?**
Department of Entomology Seminar Series, Michigan State University.

🌈 2018 **Evolution Toward Holistic Review in the Ecology Graduate Program at UC Davis I: Design and Implementation of a System to Evaluate Applicants.**
Understanding Interventions Conference, Baltimore, MD.
Lee, SP, J Ng, AT Zemenick, MM Provost, CA Ruvalcaba, DJN Young, E Laca, MJ Koontz, J Rudnick, and EJ Sturdy.

🌈 2018 **Evolution Toward Holistic Review in the Ecology Graduate Program at UC Davis II: Methods for Evaluating Progress.**
Understanding Interventions Conference, Baltimore, MD.
Ng, J, MJ Koontz, J Rudnick, EJ Sturdy, AT Zemenick, SP Lee, MM Provost, CA Ruvalcaba, DJN Young, and E Laca.

* 2017 **Do flower visitors network with floral microbes?**
Department of Entomology Seminar Series, UC Davis.

2017 **Do flower visitors network with floral microbes? A Sierra Nevada study**
Ecological Society of America, Portland, OR.
Zemenick, AT, RL Vannette and JA Rosenheim

**🌈 2017 **Ecological diversity: alpha, beta... human?**
Graduate Student Symposium in Ecology, UC Davis.

2016 **A picture of nectar: do pollinators and nectar robbers vector unique microbe communities to columbine (*Aquilegia formosa*) nectar?**
Ecological Society of America, Fort Lauderdale, FL.
Zemenick, AT, RL Vannette and JA Rosenheim

🎓 2016 **Experimental ecology and evolution in the field: a unique course for upper-level undergraduates and instructors.** See poster: ashzemenick.com/eve180
Poster. Ecological Society of America, Fort Lauderdale, FL.
Zemenick, AT and KA Moore.

** 2016 **How do flower visitors shape floral microbe communities?**
Graduate Student Symposium in Ecology, UC Davis.

2015 **Do visitors introduce unique nectar microbial communities to strawberries?**
Ecological Society of America, Baltimore, MD.
Zemenick, KA, JA Rosenheim, RL Vannette, and T Fukami

2015 **The effects of opportunistic visitors on flower visitor network structure: implications for floral microbes.**
Poster. Bee Health Symposium, Davis, CA.
Zemenick, KA and JA Rosenheim

2014 **Promiscuous flowers attract high numbers of bees and even higher numbers of non-bee flower visitors**
Entomological Society of America, Portland, OR.
Zemenick, KA and JA Rosenheim

* 2014 **Super-generalist flowers attract high numbers of bees and even higher numbers of non-bee flower visitors**
Organized Oral Session: Probing the Microbial World of Flowers: Impacts on Plants and Animals. Ecological Society of America, Sacramento, CA.
Zemenick, KA and JA Rosenheim

2013 **The sweet tooth of parasitoids: a meta-analysis exploring the floral resources of hymenopteran parasitoids**
Ecological Society of America, Minneapolis, MN.
Zemenick, KA and JA Rosenheim

2012 **The indirect effects of ant-hemipteran mutualism on host plant fitness: comparing the cascading effects of two ant species on coffee production**
Entomological Society of America, Reno, NV.
Zemenick, KA and J Vandermeer

## PROFESSIONAL WORKSHOPS & COURSES TAKEN DEI data analysis

2018 **Understanding Implicit Bias Certificate Program** Michigan State University
A 3-session course on understanding and intervening situations with implicit bias.

2016 **Advanced Community Data Analysis Using the vegan Package in R** ESA
Organized by G.L. Simpson and N. Zimmerman, Ecological Society of America Meeting, Ft. Lauderdale, FL

2016 **The Bee Course** American Museum of Natural History
A 2-week intensive course on bee identification, ecology, and natural history.

2014 **The HYM Course** Smithsonian Institution and US Dept. of Agriculture
An intensive 1-week course on parasitoid, wasp, and sawfly identification, ecology, and natural history.

## RESEARCH POSITIONS

2012 **Associate in Research, Duke University**
Advisor: Dr. Tom Mitchell Olds, Department of Biology
Performed detailed censuses of *Boechera* spp. populations in the northern Rocky Mountains.

2010-2011 **Laboratory Assistant, University of Michigan**
Advisor: Dr. Tim James, Dept. of Ecology and Evolutionary Biology
Autoclave, media preparation, spore prints, spore isolation, DNA isolation using DNA mini-preps and other protocols, gel electrophoresis, PCR, RAPD PCR, light and fluorescence microscopy, nuclear dyes, microscope image capture.