

# **NAUPAKA B. ZIMMERMAN**

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he/him/his

## *Curriculum Vitae*

October 2024

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## GENERAL BACKGROUND

Scientifically, I am fascinated by the cryptic microbial symbioses that occur in the leaves of all plants. What environmental and host factors control the composition of these communities? How do these these microbial communities modulate photosynthetic carbon assimilation and transpiration rates in living leaves? How do they modulate decomposition post senescence? I am tackling these questions using field studies, greenhouse manipulations, microscopy, environmental sequencing, and bioinformatics.

My teaching efforts focus on courses rooted in project- and inquiry-based pedagogies. These allow students to experience the thrill of scientific discovery, not only in the field or in the research lab, but also in the classroom. This opportunity to participate in active inquiry plays a key role in increasing a sense of belongingness for students traditionally excluded from STEM.

More broadly, I am an advocate for the principles of open science, including open access to code and data, computational reproducibility, pre-publication review via preprints, and open access publication.

## EDUCATION

### **2013 PhD, Biological Sciences (Ecology and Evolution)**

*Stanford University*, Stanford, CA.

Dissertation advisor: Peter Vitousek

### **2005 AB, Environmental Science & Public Policy, Cultural Anthropology, with Honors,**

*Harvard University*, Cambridge, MA.

Thesis advisor: Sheila Jasanoff

## APPOINTMENTS

**2022-present** *Associate Professor (tenured)*, Biology, University of San Francisco

**2020-2023** *Graduate Program Director*, Biology, University of San Francisco

**2017-2022** *Assistant Professor*, Biology, University of San Francisco

**2013-2016** *LSRF Postdoctoral Fellow*, Plant Sciences, U of Arizona. Mentor: AE Arnold

**2013** *Postdoctoral Teaching Fellow in Biology*, Stanford University

**2009-2012** *NSF Graduate Research Fellow*, Stanford University

**2006-2007** *Head Teacher*, IBS Academy, Seoul, South Korea

**2003-2005** *Summer Research Intern*, US Forest Service Institute of Pacific Islands Forestry

## AWARDS

**2011** Best Student Oral Presentation, Mycological Society of America

**2010** Forest Fungal Ecology Research Award, Mycological Society of America

**2001** United States Presidential Scholar, National Merit Scholar, AP Scholar

## RESEARCH

### PUBLICATIONS

20 peer-reviewed articles, 4 other articles, 2 software packages

#### PEER-REVIEWED PUBLICATIONS

20. R Oliver, M Chapman, N Emery, L Gillespie, N Gownaris, S Leiker, A Nisi, D Ayers, I Breckheimer, H Blondin, A Hoffman, C Pagniello, M Raisle, **NB Zimmerman**. Opening a conversation on responsible environmental data science in the age of generative AI. 2024. *Environmental Data Science*. 3:e14  
article DOI: 10.1017/eds.2024.12
19. JM U'Ren, S Oita, F Lutzoni, J Miadlikowska, B Ball, I Carbone, G May, **NB Zimmerman**, D Valle, V Trouet, AE Arnold. Environmental Drivers and Cryptic Biodiversity Hotspots Define Fungal Endophyte Communities of the Boreal Biome. 2024. *Current Biology*. 34(5). p. 1148 - 1156.e7  
article DOI: 10.1016/j.cub.2024.01.063  
data accessions: NCBI PRJNA514023, PRJNA647873
18. BM Connolly, N D'Souza, **NB Zimmerman**, J Zobitz. Breaking It Down: What Factors Control Microbial Decomposition Rates? 2024. *CourseSource*. 11.  
article DOI: 10.24918/cs.2024.17
17. E Gibson‡, **NB Zimmerman**. Urban biogeography of fungal endophytes across San Francisco. 2023. *PeerJ*. 11:e15454  
article DOI: 10.7717/peerj.15454  
code and data DOI: 10.5281/zenodo.8075450
16. SL Ishaq, FJ Parada Flores, PG Wolf, CY Bonilla, MA Carney, A Benezra, E Wissel, M Friedman, KM DeAngelis, JM Robinson, AK Fahimipour, MB Manus, L Grieneisen, LG Dietz, A Chauhan, A Pathak, S Kuthyar, JD Stewart, MR Dasari, E Nonnamaker, M Choudoir, PF Horve, **NB Zimmerman**, AJ Kozik, KW Darling, AL Romero-Olivares, J Hariharan, N Farmer, K Maki, JL Collier, K O'Doherty, J Letourneau, J Kline, PL Moses, N Morar. Introducing the Microbes and Social Equity Working Group: Considering the Microbial Components of Social, Environmental, and Health Justice. 2021. *mSystems*. 6(4).  
article DOI: 10.1128/mSystems.00471-21
15. JM U'Ren, F Lutzoni, J Miadlikowska, **NB Zimmerman**, I Carbone, G May, AE Arnold. Host availability drives distributions of fungal endophytes in the imperiled boreal realm. 2019. *Nature Ecology & Evolution* 3, p. 1430–1437  
article DOI: 10.1038/s41559-019-0975-2

14. JW Atkins, G Bohrer, RT Fahey, BS Hardiman, TH Morin, AEL Stovall, **NB Zimmerman**, CM Gough. Quantifying vegetation and canopy structural complexity from terrestrial LiDAR data using the *forestr* R package. 2018. *Methods in Ecology and Evolution*. 9, p. 2057–2066.  
article DOI: 10.1111/2041-210X.13061
13. YL Huang<sup>#</sup>, **NB Zimmerman**, AE Arnold. Observations on the Early Establishment of Foliar Endophytic Fungi in Leaf Discs and Living Leaves of a Model Woody Angiosperm, *Populus trichocarpa* (Salicaceae). 2018. *Journal of Fungi*, 4(58).  
article DOI: 10.3390/jof4020058
12. K Jordan, M Corvellec, ED Wickes, **NB Zimmerman**, JM Duckles, T Teal. Short-format workshops build skills and confidence for researchers to work with data. *American Society for Engineering Education Conference and Exhibition*, St. Lake City, UT, June 2018.  
article URL: [peer.asee.org/30960.pdf](https://peer.asee.org/30960.pdf)
11. E Hart, P Barmby, D LeBauer, F Michonneau, S Mount, T Poisot, KH Woo, **NB Zimmerman**, J Hollister. Ten Simple Rules for Digital Data Storage. 2016. *PLoS Computational Biology*. 12(10): e1005097.  
article DOI: 10.1371/journal.pcbi.1005097
10. J U'Ren, J Miadlikowska, **NB Zimmerman**, F Lutzoni, JE Stajich, AE Arnold. Contributions of North American endophytes to the phylogeny, ecology, and taxonomy of Xylariaceae (Sordariomycetes, Ascomycota). 2016. *Molecular Phylogenetics and Evolution* 98, p. 210–232  
article DOI: 10.1016/j.ympev.2016.02.010
9. A Wolf, **NB Zimmerman**, W Anderegg, P Busby, J Christensen. Altitudinal shifts of the native and introduced flora of California in the context of 20<sup>th</sup> century warming. 2016. *Global Ecology and Biogeography* 25(4), p. 418–429  
article DOI: 10.1111/geb.12423  
press: [theguardian.com](https://www.theguardian.com), [theatlantic.com](https://www.theatlantic.com), [phys.org](https://www.phys.org), [climatecentral.org](https://www.climatecentral.org)
8. RL White, AE Sutton, R Salguero-Gómez, T Bray, H Campbell, E Cieraad, N Geekiyanage, L Gherardi, AC Hughes, PS Jørgensen, T Poisot, L DeSoto, **NB Zimmerman**. The next generation of Action Ecology: Novel approaches towards global ecological research. 2015 *Ecosphere* 6:art134  
article DOI: 10.1890/ES14-00485.1
7. SE Hampton, S Anderson, SC Bagby, C Gries, X Han, E Hart, MB Jones, WC Lenhardt, A MacDonald, W Michener, JF Mudge, A Pourmokhtarian, M Schildhauer, KH Woo, **NB Zimmerman**. The Tao of Open Science for Ecology. 2015 *Ecosphere* 6:art120  
article DOI: 10.1890/ES14-00402.1

6. PS Jørgensen, F Barraquand, V Bonhomme, TJ Curran, E Cieraad, TG Ezard, LA Gheradi, RA Hayes, T Poisot, R Salguero-Gómez, L DeSoto, B Swartz, JM Talbot, B Wee, and **NB Zimmerman**. Connecting people and ideas from around the world: Global innovation platforms for next-generation ecology and beyond. 2015. *Ecosphere* 6:art68  
article DOI: 10.1890/ES14-00198.1
  
5. **NB Zimmerman**, J IZard, C Klatt, J Zhou, E Aronson. The Unseen World: Environmental microbial sequencing and identification methods for ecologists. 2014. *Frontiers in Ecology and the Environment* 12(4), p. 224–231  
article DOI: 10.1890/130055  
F1000 DOI: 10.3410/f.718384400.793495106
  
4. F Barraquand, THG Ezard, PS Jørgensen, **NB Zimmerman**, SA Chamberlain, R Salguero-Gómez, TJ Curran, T Poisot. Lack of quantitative training among early-career ecologists: a survey of the problem and potential solutions. 2014. *PeerJ* 2:e285  
article DOI: 10.7717/peerj.285  
data DOI: 10.7717/peerj.285/supp-1
  
3. P Busby<sup>§</sup>, **NB Zimmerman**<sup>§</sup>, D Weston, S Jawdy, J Houbraken, G Newcombe. Leaf endophytes and host genotype in *Populus* alter severity of damage from the necrotrophic leaf pathogen, *Drepanopeziza populi*. 2013. *Ecosphere* 4(10) art125  
article DOI: 10.1890/ES13-00127.1
  
2. **NB Zimmerman**, P Vitousek. Fungal endophyte communities reflect environmental structuring across a Hawaiian landscape. 2012. *Proceedings of the National Academy of Sciences* 109(32), p. 13022–13027  
article DOI: 10.1073/pnas.1209872109  
data accession: NCBI SRX153137
  
1. **NB Zimmerman**, RF Hughes, S Cordell, P Hart, HK Chang, D Perez, RK Like, R Ostertag. Patterns of Primary Succession of Native and Introduced Plants in Lowland Wet Forests in Eastern Hawai'i. 2008. *Biotropica* 40(3), p. 277-284  
article DOI: 10.1111/j.1744-7429.2007.00371.x  
data DOI: 10.5061/dryad.vp86v3r0

## OTHER PUBLICATIONS (NOT PEER REVIEWED)

4. JM U'Ren, **NB Zimmerman**. Oaks provide new perspective on seed microbiome assembly. 2021. *New Phytologist*, 230 p. 1293-1295 commentary  
article DOI: 10.1111/nph.17305
3. AK Shaw, DE Stanton, SR Supp, A Budden, S Eby, PL Reynolds, R Salguero-Gómez, DR Scholes, **NB Zimmerman**. Ecology postdocs in academia: primary concerns and possible solutions. 2015. *ESA Bulletin* 96, p.140–152  
article DOI: 10.1890/0012-9623-96.1.140
2. PS Jørgensen, V Bonhomme, THG Ezard, RA Hayes, T Poisot, R Salguero-Gomez, S Vizzini, **NB Zimmerman**. A global network of next generation ecologists. 2011. *INTECOL Bulletin* 5 (2) 4–6.
1. **NB Zimmerman**, R Salguero-Gomez, J Ramos. The Next Generation of Peer Reviewing. 2011. *Frontiers in Ecology and the Environment* 9(4), p. 199 guest editorial  
article DOI: 10.1890/1540-9295-9.4.199

## SOFTWARE (R PACKAGES)

2. J Atkins, G Bohrer, R Fahey, B Hardiman, C Gough, T Morin, A Stovall, **NB Zimmerman** (2020). *forestr*: Ecosystem and Canopy Structural Complexity Metrics from LiDAR. R package version 2.0.2.  
package URL: <https://CRAN.R-project.org/package=forestr>
1. S Chamberlain, KH Woo, A MacDonald, **NB Zimmerman**, G Simpson (2021). *pangae*: Client for the 'Pangaea' Database. R package version 1.1.0.  
package URL: <https://CRAN.R-project.org/package=pangae>

## GRANTS, FELLOWSHIPS, AND SCHOLARSHIPS

Total funding received from competitive grants, fellowships, scholarships: \$726,602

### CURRENT FEDERAL GRANTS

#### 2022-2024 NSF Office of Advanced Cyberinfrastructure (OAC)

Title: CyberTraining: Implementation: Medium: Collaborative Research:  
Data4Ecology.org: A Learning, Resource, and Community Platform for  
Computational and Data-Centric Ecology Courses

Personnel: Benjamin J Galluzzo (lead PI, Clarkson), Eric Simoneau (co-PI, 33Sigma  
Learning Labs), **Naupaka Zimmerman** (PI, USF)

Total Award Size: \$999,996

USF Award: \$79,512 (NSF OAC #2118305)

#### 2020-2025 NSF Division of Environmental Biology (DEB; Macrosystems Program)

Title: Collaborative Research: MSA: RUI: Development and Validation of a  
Continuous Soil Respiration Product at Core Terrestrial NEON Sites

Personnel: **Naupaka Zimmerman** (PI, USF), John Zobitz (PI, Augsburg University)

Total Award Size: \$299,535

USF Award: \$199,106 (NSF DEB #2017860)

#### 2014-2024 DOE Joint Genome Institute (JGI) Community Science Program (CSP)

Title: Mechanisms of Interaction in the Foliar Fungal Microbiome of *Populus  
trichocarpa*.

Personnel: Posy Busby (lead PI), **Naupaka Zimmerman** (co-PI),

Rytas Vilgalys (co-PI), A. Elizabeth Arnold (co-PI), George Newcombe (co-PI)

Award Size: Large-scale DNA sequencing & analysis performed by JGI (CSP #1665)

### COMPLETED FEDERAL GRANTS

#### 2016-2019 NSF Extreme Science and Engineering Discovery Environment (XSEDE)

Title: Ecology and Evolution in the Foliar Fungal Microbiome

Personnel: **Naupaka Zimmerman** (PI)

Award Size: Super-computing Access (50,000 Service Units; DEB #160006)

#### 2010-2013 NSF Division of Environmental Biology Doctoral Dissertation Improvement Grant (DEB DDIG)

Title: Dissertation Research: Fungal endophytes and forest ecosystem function

Personnel: Peter Vitousek (PI), **Naupaka Zimmerman** (co-PI)

Award Size: \$15,000 (DEB #1010504)



## OTHER GRANTS

**2017-2023** USF internal competitive funding

Personnel: **Naupaka Zimmerman** (PI)

Award Size (cumulative): \$121,484

**2018** R Consortium (A Collaborative Project of the Linux Foundation)

Title: Developing Tools and Templates for Teaching Materials

Personnel: François Michonneau (lead author), **Naupaka Zimmerman** (co-author),  
Tracy Teal (co-author)

Award Size: \$10,000

## FELLOWSHIPS

**2013-2016** Gordon & Betty Moore Postdoctoral Fellowship from the Life Sciences  
Research Foundation

Title: Understanding plant-fungal interactions in leaves: how labile are life histories?

Award Amount: \$180,000

**2009-2012** NSF Graduate Research Fellowship

Title: Endophytic fungal communities: environmental constraints and functional  
diversity

Award Amount: \$121,500

## SCHOLARSHIPS AND TRAVEL AWARDS

**2014** FESIN Travel Award, Mycological Society of America. \$900

**2012** Travel Award, New Phytologist Symposium on the Plant Microbiome, \$1,000

**2012** Travel Award, Stanford Biology Dept. \$800

**2011** Travel Award, Ecological Society of America Microbial Ecology Section. \$250

**2011** FESIN Travel Award, Mycological Society of America. \$1,000

**2010** Travel Award, Stanford Biology Dept. \$800

**2009** Graduate Student Scholarship, Big Island Federal Credit Union. \$2,500

**2004** *Ecological Informatics* Travel Award to Intl. Assn. of Veg Sci. Mtg. \$300

## PRESENTATIONS AND POSTERS

### SCIENTIFIC PRESENTATIONS AND POSTERS

- 2020 NB Zimmerman\***. Physiology, Ecology, and Evolution in the Phyllosphere. (invited seminar) Ecosystems Center, Marine Biological Laboratory. Woods Hole, MA.
- 2018 NB Zimmerman\***. Life within leaves: Hawaiian endophytic fungal diversity at the landscape scale. (invited seminar) Dept of Biology, San Francisco State University. San Francisco, CA.
- 2018 NB Zimmerman\***, AE Arnold. The effects of fungal endophyte inoculation on physiological performance in *Populus trichocarpa*. (oral presentation) ESA Annual Meeting. New Orleans, LA.
- 2018 NB Zimmerman\***, P Busby, E Barge, R Vilgalys, AE Arnold, G Newcombe. Mechanisms of Interaction in the Foliar Fungal Microbiome of *Populus trichocarpa*. (poster presentation) Department of Energy Joint Genome Institute Annual User Meeting. San Francisco, CA.
- 2017 NB Zimmerman**, J U'Ren, AE Arnold. High resolution genotyping reveals extensive diversification of trichome-associated fungi at high elevation sites in Hawai'i. (oral presentation) ESA Annual Meeting. Portland, OR.
- 2017 NB Zimmerman**, J U'Ren, AE Arnold. Endophytic communities of high elevation 'ōhi'a. (oral presentation) Hawai'i Ecosystems Meeting. Hilo, HI.
- 2016 NB Zimmerman**, JE Johnson, YL Huang, DJP Moore, AE Arnold. The effects of foliar fungal endophytes on plant physiological performance. (oral presentation) ESA Annual Meeting. Ft. Lauderdale, FL.
- 2016 NB Zimmerman**, AE Arnold, P Vitousek. A highly diverse clade of melanized fungi associated with the leaves and trichomes of the endemic tree *Metrosideros polymorpha* at high elevation sites in Hawai'i. (oral presentation) Hawai'i Ecosystems Meeting. Hilo, HI.
- 2015 NB Zimmerman**, AE Arnold, P Vitousek. A highly diverse clade of melanized fungi associated with the leaves and trichomes of the endemic tree *Metrosideros polymorpha* at high elevation sites in Hawai'i. (oral presentation) ESA Annual Meeting. Baltimore, MD. DOI: 10.6084/m9.figshare.1506841
- 2015 NB Zimmerman\***, B Frederic, PS Jørgensen, T Poisot, R Salguero-Gomez, AK Shaw, DE Stanton. Where do we go from here? Early-career perspectives on the challenges and opportunities facing Ecology in the 21st Century (oral presentation) ESA Annual Meeting. Baltimore, MD. DOI: 10.6084/m9.figshare.1509928
- 2015 NB Zimmerman\***, AE Arnold, P Vitousek. A highly diverse clade of melanized fungi associated with the leaves and trichomes of the endemic tree *Metrosideros polymorpha* at high elevation sites in Hawai'i. (poster and invited oral presentation) Fungal Genetics Conference. Asilomar, CA.
- 2014 NB Zimmerman**, P Busby. Foliar fungi in *Populus*: Community assembly and pathogen resistance. (oral presentation) ESA Annual Meeting. Sacramento, CA. DOI: 10.6084/m9.figshare.1134635

- 2013 NB Zimmerman**, P Vitousek. Environmental Factors are more effective at explaining differences in tropical fungal endophyte communities than distance. (oral presentation) ESA Annual Meeting. Minneapolis, MN.
- 2012 NB Zimmerman**, P Vitousek. Pyrosequencing of tropical fungal endophytes provides evidence for adaptation to high elevation. (oral presentation) ESA Annual Meeting. Portland, OR.
- 2012 NB Zimmerman\***, P Vitousek. There is more to 'ōhi'a than meets the eye. (oral presentation) Hawai'i Conservation Conference. Honolulu, HI.  
Recording URL: [vimeo.com/50646324](https://vimeo.com/50646324)
- 2012 NB Zimmerman**, P Busby, D Weston, G Newcombe. Interactions between Endophytes and a Pathogen in leaves of *Populus angustifolia*. (poster) New Phytologist Symposium on the Plant Microbiome. Rhodes, Greece.
- 2011 NB Zimmerman**, P Busby, D Weston, G Newcombe. Foliar Fungi in Poplar: Friends or Foes? (oral presentation) UC Santa Cruz-Stanford Species Interaction Workshop. Stanford, CA.
- 2011 NB Zimmerman**, P Vitousek. Fungals in the Jungles: Endophytic Fungal Diversity at the Landscape Scale. (poster) Metagenomics workshop at the DOE Joint Genome Institute. Walnut Creek, CA.
- 2011 NB Zimmerman**, P Vitousek. Landscape biogeography of foliar fungal endophytes in the tropics. (oral presentation) ESA Annual Meeting. Austin, TX.
- 2011 NB Zimmerman**, P Vitousek. Fungals in the Jungles: Endophytic Fungal Diversity at the Landscape Scale. (oral presentation) Mycological Society of America Meeting. Fairbanks, AK.
- 2010 NB Zimmerman**, P Vitousek. Biogeography of Tropical Fungal Endophytes (oral presentation) UCSC-Stanford Species Interaction Workshop. Santa Cruz, CA.
- 2009 NB Zimmerman**, P Vitousek. The Phascinating Phyllosphere: Linking Aboveground and Belowground Processes. (oral presentation) Hawai'i Ecosystems Meeting, Hilo, Hawai'i
- 2008 NB Zimmerman**, P Vitousek. Fungal Endophytes in 'Ōhi'a: Looking Beyond the Leaves. (oral presentation) Hawaii Ecosystems Meeting, Hilo, HI
- 2004 NB Zimmerman**, RF Hughes, S Cordell, P Hart, HK Chang, and D Perez. The state of lowland wet forests in Hawai'i: Variation in ecosystem dynamics and impacts of invasive species. (oral presentation) International Association for Vegetation Science, Kailua-Kona, HI
- 2004 NB Zimmerman**, RF Hughes, S Cordell, P Hart, HK Chang, and D Perez. The state of lowland wet forests in Hawai'i: Variation in ecosystem dynamics and impacts of invasive species. (oral presentation) Hawai'i Conservation Conference, Honolulu, HI
- 2004 NB Zimmerman**, RF Hughes, S Cordell, P Hart, HK Chang, and D Perez. The state of lowland wet forests in Hawai'i: Variation in ecosystem dynamics and impacts of invasive species. (oral presentation) Hawai'i Ecosystems Meeting, Hilo, HI

## PEDAGOGY PRESENTATIONS AND POSTERS

- 2023 NB Zimmerman**, B Galluzzo, JC Oliver, KL Prudic, E Simoneau. Data4Ecology: A Platform for Facilitating Computational and Quantitative Skills in Undergraduate Ecology Courses. Meeting of the Ecological Society of America. Portland, OR. Poster.
- 2022 NB Zimmerman**, J Zobitz. Building a cohort of PUI faculty to use NEON soil respiration data in undergraduate classes. Meeting of the Ecological Society of America. Montreal, Quebec, Canada. Poster.
- 2021 NB Zimmerman\***. Using 4DEE and project-based learning to build a microbial ecology perspective into undergraduate microbiology courses. ESA Annual Meeting. Virtual Meeting (due to COVID-19).
- 2021 NB Zimmerman\***. Using NEON data to CURE an undergraduate ecology lecture course. ESA Annual Meeting. Virtual Meeting (due to COVID-19).
- 2021 NB Zimmerman**. Using SARS-CoV-2 data from NCBI in Undergraduate Classes. ESA Annual Meeting. Virtual Meeting (due to COVID-19).
- 2020 NB Zimmerman\***. Using NEON data to CURE an undergraduate ecology lecture course. ESA Annual Meeting. Virtual Meeting (due to COVID-19).
- 2019 NB Zimmerman\***. Using NEON data to CURE an undergraduate ecology lecture course. ESA Annual Meeting. Louisville, KY.

## STUDENT RESEARCH PRODUCTS

### STUDENT PRESENTATIONS AND POSTERS AT NATIONAL AND INTERNATIONAL CONFERENCES

- 2022 S Gao<sup>#</sup>, NB Zimmerman**. Microbes Out of Water: Drying-Rewetting Stress on Organic Farm Soil. Ecological Society of America Annual Meeting. Montreal, Quebec, Canada. Poster.
- 2021 A Sango<sup>#</sup>, NB Zimmerman**. Using PurpleAir Data to Study the Relationship between Urban Air Quality and Aerial Fungal Microbiomes. Ecological Society of America Annual Meeting. Virtual conference (due to COVID-19). Oral Presentation.
- 2020 A Sango<sup>#</sup>, NB Zimmerman**. In the Air We Breathe: Effects of Air Quality on Outdoor Aerial Microbial Diversity in Urban Ecosystems. International Society of Microbial Ecology Unity in Diversity. Virtual conference (due to COVID-19). Poster.
- 2020 D Newberger<sup>#</sup>, NB Zimmerman**. The contribution of foliar fungi to agricultural soil microbiomes in an organic cropping system. Ecological Society of America Annual Meeting. Virtual conference (due to COVID-19). Poster.
- 2019 E Gibson<sup>‡</sup>, NB Zimmerman**. Urban Biogeography of Foliar Fungal Endophytes in *Metrosideros excelsa* Planted throughout San Francisco. American Society for Microbiology Annual Meeting. San Francisco, CA. Poster and invited talk.

## STUDENT PRESENTATIONS AND POSTERS AT LOCAL CONFERENCES

- 2022 S Gao<sup>#</sup>. Microbes Out of Water: Drying-Rewetting Stress on Organic Farm Soil. USF Creative Activity and Research Day. Poster.  
\* Winner: Best Graduate Student Poster Award
- 2022 N Ashburner-Wright<sup>‡</sup>. Observing the presence of fungal endophytes in experimentally-inoculated *Populus trichocarpa* leaves. USF Creative Activity and Research Day. Poster.
- 2022 C Tran<sup>‡</sup>, N Ashburner-Wright<sup>‡</sup>, D Newberger<sup>#</sup>. Assessing Pathogenicity of *Alternaria* Fungi Associated with Leaves of Cover Crops in an Organic Cropping System. USF Creative Activity and Research Day. Poster.
- 2021 S Gao<sup>#</sup>. Microbes Out of Water: Drying-Rewetting Stress on Organic Farm Soil. USF Creative Activity and Research Day. Oral Presentation.
- 2021 A Sango<sup>#</sup>. A Systematic Review of the Application of Remote Sensing Techniques for Imaging Land Use Variation in Urban Environments. USF Creative Activity and Research Day. Poster.
- 2021 M Kuan<sup>‡</sup>, C Tran<sup>‡</sup>, D Newberger<sup>#</sup>. Hidden Consequences: The Effects of Daikon Radish on the Microbial Communities of Purple Vetch in Cover Crop Mixtures. USF Creative Activity and Research Day. Poster.
- 2020 J Krastins<sup>#</sup>. Systemic Primer Bias in Studying Soil Fungi in an Artificial Rainforest. USF Creative Activity and Research Day. Poster.
- 2020 A Sango<sup>#</sup>. Effects of Air Quality on Outdoor Aerial Microbial Diversity in Urban Ecosystems. USF Creative Activity and Research Day. Poster.
- 2020 D Newberger<sup>#</sup>, S Gao<sup>#</sup>, A Maria<sup>+</sup>. The contribution of foliar fungi to agricultural soil microbiomes in an organic cropping system. USF Creative Activity and Research Day. Poster.
- 2020 E Ovet<sup>‡</sup>. Symbiosis Between *Arabidopsis thaliana* and *Colletotrichum tofieldiae* for Enhanced Phytoremediation of Indoor Volatile Organic Compounds. USF Creative Activity and Research Day. Poster.
- 2020 MB Kuan<sup>‡</sup>, C Tran<sup>‡</sup>, D Newberger<sup>#</sup>. Phylogenetic Relationships of Foliar Bacteria Within Cover Crops in an Organic Cropping System. USF Creative Activity and Research Day. Poster.  
\* Winner: Best Undergraduate Abstract Award
- 2019 D Newberger<sup>#</sup>. The contribution of foliar fungi to agricultural soil microbiomes in an organic cropping system. USF Creative Activity and Research Day. Poster.
- 2019 J Krastins<sup>#</sup>. Effects of Endophytes on Drought Resistance of *Populus trichocarpa*. USF Creative Activity and Research Day. Poster.
- 2018 J Copeland<sup>#</sup>. Preliminary Analysis of Fungal Endophyte Communities Within *Populus* spp. Reveals Predominance of Three Distinct Taxa. USF Creative Activity and Research Day. Oral Presentation.
- 2018 E Gibson<sup>‡</sup>. Urban biogeography of fungal endophytes across San Francisco. USF Creative Activity and Research Day. Poster.

## HIGH SCHOOL SCIENCE FAIR PROJECTS

- 2020 A Maria<sup>+</sup>. The Effect of Cover Crop Species on Phyllosphere Bacteria Communities. Synopsys Science Fair. San Jose, CA.
- 2019 A Maria<sup>+</sup>. Does Dissolved Nitrogen Predict Chlorophyll Concentration Among Different Types of Aquatic Algal Communities? Synopsys Science Fair. San Jose, CA.

## SUPPLEMENTARY TRAINING AND SKILLS DEVELOPMENT

### SUPPLEMENTARY SCIENTIFIC TRAINING, SHORT COURSES, WORKSHOPS

- 2022 LEEF Advanced Photosynthesis Training Course. LI-COR. Lincoln, NE
- 2015 Building Global Ecological Understanding. University of Delaware, Newark, DE. [Website](#).
- 2013 Frontiers and Techniques in Plant Science. Cold Spring Harbor, NY
- 2013 Next-Generation Sequencing & Population Genomics. Hopkins Marine Station. Monterey, CA
- 2011 Metagenomics training workshop. DOE Joint Genome Institute. Walnut Creek, CA.

### ANALYTICAL EXPERIENCE AND COMPUTATIONAL SKILLS

**Computational languages and frameworks:** R, perl/bioperl, python, MATLAB, HTML, CSS, bash/zsh, SQL (SQLite, PostgreSQL, MySQL/MariaDB), LaTeX, markdown, Linux/Unix, git, vim, emacs, make, grep/sed/awk, Docker, Vagrant, Continuous Integration (GitHub Actions/Travis CI), ArcGIS, Drupal, MediaWiki, WordPress

**Molecular techniques:** Plant gene expression analysis using RNA-Seq and qPCR, high throughput DNA extraction and PCR from environmental samples, Illumina/454/Sanger sequencing and library prep, DGGE, T-RFLP

**Elemental analysis:** Pyrolysis Gas Chromatography/Mass Spectrometry (Py/GC/MS), Gas Chromatography/Mass Spectrometry (GC/MS) for measurement of Volatile Organic Compounds (VOCs)

# TEACHING AND MENTORING

## TEACHING

### NEW COURSES DESIGNED AND TAUGHT

Bioinformatics Undergraduate upper division lab course (14 students)

**2022 Fall** BIOL 422/423. USF

**2021 Fall** BIOL 422/423. USF

**2021 Spring** BIOL 422/423. USF

**2019 Fall** BIOL 422/423. USF

**2018 Fall** BIOL 422/423. USF

**2017 Fall** BIOL 395/396. USF

Bioinformatics Graduate-level lecture course (25-35 students)

**2022 Fall** BTEC 640. USF

**2021 Fall** BTEC 640. USF

**2020 Fall** BTEC 640. USF

**2019 Fall** BTEC 640. USF

**2018 Fall** CS 640. USF

**2017 Fall** CS 640. USF

Biology of COVID-19 Undergraduate honors college seminar (12 students)

**2021 Spring** HONC 390. USF

Biology of COVID-19 Pre-frosh seminar (12 students)

**2020 Fall** BIOL 190. USF

California Ecology Undergraduate core field class for non-majors (12 students)

**2021 Summer** BIOL 102/L. USF

**2020 Summer** BIOL 102/L. USF

**2019 Summer** BIOL 102/L. USF

**2018 Summer** BIOL 102/L. USF

**2017 Summer** BIOL 102/L. USF

Core Lab in Ecology Undergraduate lab/field course (~100 students total, 15/section)

**2013 Spring** *Lead Instructor* BIO 44Y. Stanford

Ecology Undergraduate upper division lecture course (20 students)

**2022 Spring** BIOL 319. USF

**2020 Spring** BIOL 319. USF

**2018 Spring** BIOL 319. USF

§ equal contributions, \* invited, + mentored HS student

‡ mentored UG student, # mentored grad student

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General Microbiology Undergraduate upper division lab course (14 students)

**2019 Spring** BIOL 356/357. USF

**2017 Spring** BIOL 356/357. USF

Graduate Research and Writing Methods Graduate seminar course (10 students)

**2021 Spring** BIOL 697. USF

**2020 Spring** BIOL 697. USF

**2019 Spring** BIOL 697. USF

**2018 Spring** BIOL 697. USF

Urban Ecology Undergraduate upper division field course (14 students)

**2022 Spring** BIOL 424/425. USF

**2020 Spring** BIOL 395/396. USF

**2006-2007** Many subjects. IBS Academy. Seoul, Korea. (6-20 students/class)

## **OTHER COURSES TAUGHT**

Genetics Lab Lab course for Biology majors (~100 students total, 16/section)

**2018 Spring** BIOL 311. USF

Microbiology Lab Lab course for Nursing majors (~100 students total, 16/section)

**2023 Spring** BIOL 135. USF

## **COMPUTATIONAL TRAINING DELIVERED**

Instructor for nearly 50 workshops and seminars around the world over the past 10 years.

### Workshops and Seminars

**2024 NB Zimmerman**, B. Galluzzo, E Simoneau, J Oliver, K Prudic. Data4Ecology.org — A Free Learning Platform for Facilitating Computational and Quantitative Skills in Undergraduate Ecology Courses. Workshop. ESA Annual Meeting. Long Beach, CA.

**2021** SR Supp, AJ Kerkhoff, ME Aiello-Lammens, **NB Zimmerman**. Bringing Computational Data Sciences to Your Undergraduate Ecology Classroom. Workshop. ESA Annual Meeting. (Virtual due to COVID).

**2019 NB Zimmerman**. Docker for Teaching. Carpentries Online Skill Seminar. presentation DOI: 10.6084/m9.figshare.8132849.v2

**2019** SR Supp, AJ Kerkhoff, ME Aiello-Lammens, **NB Zimmerman**. Bringing Computational Data Sciences to Your Undergraduate Ecology Classroom. Workshop. ESA Annual Meeting. Louisville, KY.

**2019 NB Zimmerman**, A Tredennick. Data Visualization Using R and ggplot. Workshop. ESA Annual Meeting. Louisville, KY. GitHub: [naupaka/esa\\_ggplot2\\_2019](https://github.com/naupaka/esa_ggplot2_2019)

**2018 NB Zimmerman**, A Tredennick. Data Visualization Using R and ggplot. Workshop. ESA Annual Meeting. New Orleans, LA. GitHub: [naupaka/esa\\_ggplot2\\_2018](https://github.com/naupaka/esa_ggplot2_2018)

§ equal contributions, \* invited, + mentored HS student

‡ mentored UG student, # mentored grad student

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- 2018 NB Zimmerman**, G Simpson. Introduction to community data analysis using the vegan package in R. Workshop. ESA Annual Meeting. New Orleans, LA.  
GitHub: [naupaka/esa\\_intro\\_vegan\\_2018](#)
- 2017 NB Zimmerman**. Using Git and GitHub for Open Science. Presentation. University of California San Francisco. San Francisco, CA
- 2017 A Tredennick, NB Zimmerman**. Data Visualization Using R and ggplot. Workshop. ESA Annual Meeting. Portland, OR. GitHub: [atredennick/esa\\_ggplot2\\_2017](#)
- 2017 NB Zimmerman**, G Simpson. Introduction to community data analysis using the vegan package in R. Workshop. ESA Annual Meeting. Portland, OR.  
GitHub: [naupaka/esa\\_intro\\_vegan\\_2017](#)
- 2016 A MacDonald, NB Zimmerman**, Andrew Tredennick. Workshop. An Introduction to R for Ecologists. ESA Annual Meeting. Ft. Lauderdale, FL.  
GitHub: [aammd/Intro\\_R\\_ESA\\_2016](#)
- 2016 A Tredennick, NB Zimmerman**. Data Visualization Using R and ggplot. Workshop. ESA Annual Meeting. Lauderdale, FL. GitHub: [atredennick/esa\\_data\\_viz\\_2016](#)
- 2016 NB Zimmerman**, G Simpson. Introduction to community data analysis using the vegan package in R. Workshop. ESA Annual Meeting. Lauderdale, FL.  
GitHub: [naupaka/esa\\_intro\\_vegan\\_2016](#)
- 2016 G Simpson, NB Zimmerman**. Workshop. Advanced community data analysis using the vegan package in R. ESA Annual Meeting. Lauderdale, FL.  
GitHub: [gavinsimpson/esa-advanced-vegan-2016](#)
- 2016 NB Zimmerman**. Open-source Hardware for Ecologists: Using the Arduino and Raspberry Pi platforms for logging ecological data. Presentation. ESA Annual Meeting. Ft. Lauderdale, FL. presentation DOI: [10.6084/m9.figshare.3580713.v2](#)
- 2015 NB Zimmerman**, A MacDonald, G Simpson, N Ross. Workshop. An Introduction to R for Ecologists. ESA Annual Meeting. Baltimore, MD.  
GitHub: [naupaka/Intro\\_R\\_ESA\\_2015](#)
- 2015 NB Zimmerman**, A Tredennick. Workshop. Data Visualization Using R and ggplot. ESA Annual Meeting. Baltimore, MD. GitHub: [atredennick/esa\\_data\\_viz\\_2015](#)
- 2015 NB Zimmerman**, G Simpson. Workshop. Introduction to community data analysis using the vegan package in R. ESA Annual Meeting. Baltimore, MD.  
GitHub: [naupaka/esa\\_intro\\_vegan\\_2015](#)
- 2015 G Simpson, NB Zimmerman**. Workshop. Advanced community data analysis using the vegan package in R. ESA Annual Meeting. Baltimore, MD.  
GitHub: [gavinsimpson/esa-advanced-vegan-2015](#)
- 2015 NB Zimmerman**. Version Control with Git. Seminar. U of Arizona Department of Mathematics. Tucson, AZ.
- 2014** Organizing Committee member. National Center for Ecological Analysis and Synthesis (NCEAS) Open Science Codefest. [nceas.github.io/open-science-codefest/](#) Santa Barbara, CA.
- 2014 NB Zimmerman**, A Tredennick. Workshop. Data Visualization Using R and ggplot. ESA Annual Meeting. Sacramento, CA. GitHub: [naupaka/esa\\_data\\_viz\\_2014](#)
- 2014 NB Zimmerman**, G Simpson. Workshop. Community Data Analysis Using the Vegan Package in R. ESA Annual Meeting. Sacramento, CA. GitHub: [naupaka/esa\\_vegan](#)

- 2013 NB Zimmerman.** Git for Scientists. Presentation. International Association for Ecology Congress. London, England. GitHub: [naupaka/git\\_intro](https://github.com/naupaka/git_intro)
- 2013 J Talbot, NB Zimmerman.** Presentation. Approaches to Data Visualization. International Association for Ecology (INTECOL) Congress. London, England.
- 2013 NB Zimmerman, K Ram, A Tredennick.** Workshop. Data Visualization Using R. ESA Annual Meeting. Minneapolis, MN.

#### Software Carpentry and Data Carpentry Instructor and Trainer

*The Carpentries (<https://carpentries.org>) is a global non-profit organization that aims to teach scientists foundational computer skills, including inter alia scripting in python or R, version control with git, the command line, structured data (e.g. SQL), and reproducible research. For each of the below locations, I was an instructor at a two-day intensive workshop.*

- 2019** UC San Francisco
- 2018** Online Training of New Instructors
- 2017** UC San Francisco (x2), Stanford, Online Training of New Instructors
- 2016** U of Wisconsin – Madison, U of Arizona (x2)
- 2015** St. Joseph's Hospital (Phoenix, AZ), Tulane University, U of Arizona (x2), U of Texas–Arlington, Statistical and Applied Mathematical Sciences Institute, Washington State University
- 2014** UC Davis, Stanford, Arizona State University

#### Invited Workshop Instructor

- 2018** “Reproducible Research” NEON Data Skills Institute. National Ecological Observatory Network. Boulder, CO.
- 2017** “Reproducible Research” NEON Data Skills Institute. National Ecological Observatory Network. Boulder, CO.
- 2016** “Reproducible Research” NEON Work with Data Institute. National Ecological Observatory Network. Boulder, CO. [Website](#) and [GitHub repository](#)
- 2016** “Using R to Analyze Microbiome Data” Metagenomics: High Throughput Analysis of Microbiomes. Instituto de Investigaciones Científicas (INDICASAT). Panama City, Panama. [GitHub repository](#)
- 2015** "Developing, Maintaining, and Employing Large Computational Frameworks for the Ecological Sciences" Statistical and Applied Mathematical Sciences Institute, North Carolina. [Website](#) and [GitHub organization](#).

#### GUEST LECTURES

- 2020** “Cheese Microbiomes” CHEM 310 [Kitchen Science](#) USF
- 2018** “Linear Regression” MATH 102 [Biostatistics](#) USF
- 2016** “Endophytes” PLP 550 [Principles of Plant Microbiology](#) UA
- 2015** “Fungal Endophytes” PLP 329A [Microbial Diversity](#) UA
- 2015** “Bioinformatics for fungal community ecology” PLP 575 [Advanced Mycology](#) UA
- 2014** “Endophyte-Pathogen Continuum” PLP 550 [Principles of Plant Microbiology](#) UA

2014 “Fungi & the Carbon Cycle” EEB 527 Micro Biogeochemistry & Global Change UA  
2013 “Modeling Succession” BIO 101 Ecology Stanford  
2012 “Modeling Succession” BIO 101 Ecology Stanford  
2011 “Endophyte Biogeography” BIO 321 Ecological Genetics Stanford  
2011 “Modeling Succession” BIO 101 Ecology Stanford  
2008 “Korean Academies” EDUC 170 Schooling and Asian Cultures UC Santa Cruz

## TEACHING ASSISTANTSHIPS

2010 BIO 117 Ecology of the Hawaiian Islands Stanford  
2009 BIO 101 Ecology Stanford  
2009 BIO 216 Terrestrial Biogeochemistry Stanford  
2008 BIO 16N Island Ecology Stanford  
2008 BIO 44Y Biology Core Lab in Ecology Stanford  
2007 BIO 101 Ecology Stanford

## MENTORING

### STUDENT MENTORING

Primary Advisor, Graduate (MS)

2020-2022 Sarah Gao (Biology)  
2019-2022 Ashley Sango (Biology)  
2018-2021 Jason Krastins (Biology)  
2018-2021 Derek Newberger (Biology)  
2017-2020 Joshua Copeland (Biology)

Committee Member, Graduate (MS)

2024-present Rebecca Dubin (Biology, PI: Sevan Suni)  
2021-present Erin Hall (Biology, PI: Sevan Suni)  
2021-present Lana Rasoul (Biology, PI: Christina Tzagarakis-Foster)  
2021-2024 Yukiye Koide (Biology, PI: Sangman Kim)  
2021-2023 William Ryan (Biology, PI: Scott Nunes)  
2021-2022 Jackson Valler (Biology, PI: Jen Dever)  
2019-2023 Hannah Hayes (Biology, PI: Sevan Suni)  
2019-2023 Melissa Hernandez (Biology, PI: Sevan Suni)  
2019-2021 Sophia Lyons (Biology, PI: Nicole Thometz)  
2019-2021 Alec Chiono (Biology, PI: John Paul)  
2018-2019 Allison Bogisich (Biology, PI: Jen Dever)  
2017-2021 Tiffany Kho (Biology, PI: John Paul)  
2017-2019 Nila Le (Biology, PI: John Paul)  
2017-2018 Alexandra Gonzalez (Biology, PI: Jen Dever)  
2017-2018 Genevieve Chiong (Biology, PI: James Sikes)

Primary Advisor, Undergraduate Honors Thesis

2017-2018 Emma Gibson (Biology)

Committee Member, Undergraduate Honors Thesis

2021-2022 Kayleigh Little (Biology)

2021-2022 Ally Kuwana (Biology)

2020-2021 Cate Gwinn (Biology)

2020-2021 Alex Palaicios (Biology)

2019-2020 Ralphyn Pallikunnath (Biology)

2017-2018 Theresa Keith (Biology)

2017-2018 James Hurst-Hopf (Biology)

Undergraduate Researchers (non-thesis)

2023 Ava Albert (Biology)

2021 Chloe Jones-Livingstone (Environmental Science)

2021-2022 Nivedita Ghosh (Biology)

2020-2022 Christina Tran (Biology)

2020-2021 Marcello Kuan (Biology)

2019-2022 Natalie Ashburner-Wright (Environmental Science)

2019-2020 Sayeh Jafari (Biology)

2019-2020 Reina Rios (Biology)

2019-2020 Victoria Lamar (Business)

2018-2020 Emre Ovet (Biology)

2017 Julian Murdzek (Environmental Science)

Visiting Research Interns

2019-2020 Sarah Gao

High School Researchers

2018-2020 Amirtha Maria (Presentation High School, San Jose, CA)

**FACULTY MENTORING**

2023 NEON Soil Flux Faculty Mentoring Network. Co-organized with John Zobitz (Augsburg University), run via QUBES (Quantitative Undergraduate Biology Education and Synthesis) for 6 faculty across the US. Semester-long training on the use of gas exchange instrumentation, R programming, and culturally responsive teaching and research methods. Funded via a grant from NSF. [Website](#).

## OTHER MENTORING (PRIOR TO USF)

- 2014 Molecular and Cellular Biology Undergraduate Honors Mentor. MCBH181.  
Topic: *The Plant Microbiome* (University of Arizona)
- 2013-2014 High School research mentor (U of Arizona School of Plant Sciences):  
Cassidy Vernon, Rowen Stokes – root endophytes in buffelgrass (*Cenchrus ciliaris*)  
3rd place in Plant Sciences at the Southern AZ Science and Engineering Fair
- 2010-2021 Conference mentor in ESA's Strategies for Ecology, Education, Diversity and Sustainability (SEEDS) undergraduate mentorship program
- 2009-2013 Undergrad honors research mentor (Stanford Biology Dept):  
Eric Slessarev – nutrient cycling and mycorrhizal symbiosis in nutrient poor soils  
Safiyyah Abdul-Khabir – microclimate effects on foliar fungal endophytic communities  
Chris Chu – nutrient effects on phyllosphere fungal communities and herbivory
- 2008, 2009 *Instructor*. Explorations Short Course – Phyte Club: Endophytic Fungi Stanford
- 2009 Teaching Assistant mentor. Biology 101 Ecology Stanford University
- 2008-2012 'Big Sibs' mentoring program for new Stanford graduate students in Biology
- 2007-2012 BioBridge mentoring program for Stanford undergraduates

## SUPPLEMENTARY TRAINING IN PEDAGOGY

### SUPPLEMENTARY TRAINING RECEIVED IN GENERAL PEDAGOGY

- 2023 Promoting Inclusivity, Engagement, and Learning in the Laboratory (USF)
- 2018-2019 Cultural Awareness, Competence, and Humility (USF)
- 2018 National Ecological Observatory Network (NEON) + Quantitative Undergraduate Biology Education and Synthesis (QUBES) Faculty Mentoring Network Participant  
press: NEON blog
- 2017 Quantitative Undergraduate Biology Education and Synthesis project (QUBES) Dig Into Data Faculty Mentoring Network Participant
- 2014 STCH 595: Colloquium in Science Teaching and Learning, U of Arizona
- 2012-2013 Mentor in Teaching (MinT) Fellow, Stanford University
- 2012 CTL 312: Sci & Engin. Course Design, Stanford Center for Teaching & Learning
- 2011 Using Fungi in Educational Contexts (Mycological Soc. of America)
- 2011 EDUC 332x: Environmental Education, Stanford Graduate School of Education
- 2008 CTL 231: Future Faculty Seminar, Stanford Center for Teaching & Learning

### SUPPLEMENTARY TRAINING RECEIVED IN USE AND TEACHING OF COMPUTATIONAL SKILLS

- 2023 Bioinformatics and Computational Biology in the Liberal Arts. Reed College.  
Portland, OR. [Website](#).
- 2023 ESIIL Innovation Summit. Environmental Data Science Innovation & Inclusion Lab (ESIIL). Boulder, CO. [Website](#).

- 2023 Environmental Data Science Summit. National Center for Ecological Analysis and Synthesis. Santa Barbara, CA. Website.
- 2018 Jupyter Reproducible Science Hackathon: Curriculum & Workflow Development  
GitHub repo: [Reproducible-Science-Curriculum/RR-Jupyter-hackathon-Jan-2018](https://github.com/Reproducible-Science-Curriculum/RR-Jupyter-hackathon-Jan-2018)
- 2017 Software and Data Carpentry ([carpentries.org/trainers](http://carpentries.org/trainers)) Trainer Pedagogy Course
- 2017 Jupyter Reproducible Science Hackathon: Curriculum & Workflow Development  
GitHub repo: [Reproducible-Science-Curriculum/RR-Jupyter-Hackathon-Jan-2017](https://github.com/Reproducible-Science-Curriculum/RR-Jupyter-Hackathon-Jan-2017)
- 2014 NESCent Reproducible Science Hackathon: Curriculum & Workflow Development  
GitHub repo: <https://github.com/Reproducible-Science-Curriculum/>
- 2013 Software Carpentry ([carpentries.org/instructors/](http://carpentries.org/instructors/)) Instructor Training Course

## SERVICE

### SERVICE TO PROFESSIONAL SOCIETIES AND ORGANIZATIONS

#### ECOLOGICAL SOCIETY OF AMERICA (ESA)

##### Elected Leadership Roles

- 2021-2022 Microbial Ecology Section Chair  
 2020-2021 Microbial Ecology Section Vice Chair  
 2019-2020 Microbial Ecology Section Secretary  
 2010-2011 Student Section Chair; ESA Council member (*ex officio*)  
 2009-2010 Student Section Vice Chair  
 2008-2009 Student Section Treasurer

##### Appointed or Invited Positions and Committee Memberships

- 2023-2026 Program Co-Chair, 2025 Annual Meeting  
 2023 Award Renaming Committee  
 2022 Governing Board Nominations Committee  
 2020-2022 Awards Nominations Subcommittee  
 2019 Ad Hoc Committee on Gender Harassment  
 2012-present Professional Ethics and Appeals Committee  
 2011-2012 Ecology for a New Generation Committee  
 2009-2011 Meetings Committee  
 2009-2012 Eugene P. Odum Education Award Committee

##### Other Service

- 2014 Founding member, Open Science Section

##### Organized Scientific Sessions

- 2024 B Sorouri, M Muscarella, L Khadempour, **NB Zimmerman**. The Leading Edge of Microbial Ecology: Perspectives From Students and Postdocs. Special Session, ESA Annual Meeting. Long Beach, CA.
- 2023 A Romero-Olivares, M Muscarella, **NB Zimmerman**. Microbes as tools to solve ecological problems for all. Inspire Session, ESA Annual Meeting. Portland, OR.

§ equal contributions, \* invited, + mentored HS student  
 ‡ mentored UG student, # mentored grad student

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- 2022 MJ Choudeir, **NB Zimmerman**, S Ishaq, J Hariharan, S Jech. Adding social contexts to environmental microbiomes. Special Session, ESA Annual Meeting. Montreal, Quebec, Canada.
- 2021 M Friedman, **NB Zimmerman**, M Trujillo, S Jech, S Ishaq, J Stewart, J Bhatnagar, A Kozik. Microbiomes and Social Equity. Special Session, ESA Annual Meeting. (Virtual due to COVID).
- 2021 C Glaspie, **NB Zimmerman**. Open Data Resources During a Global Pandemic Organized session, ESA Annual Meeting. (Virtual due to COVID).
- 2011 E Aronson, **NB Zimmerman**. Microbial Ecology using Metagenomics. Organized Oral Session, ESA Annual Meeting. Austin, TX.
- 2010 **NB Zimmerman**, K Epps. Scaling genes to ecosystems: Building the bridge between microbial ecology and global processes. Organized Oral Session, ESA Annual Meeting. Pittsburgh, PA.

#### Organized Workshops (Professional Development)

- 2015 AE Sutton, **NB Zimmerman**. Building a Broader Community in Ecology and the Related Sciences. ESA Annual Meeting. Baltimore, MD.
- 2014 S Silver, **NB Zimmerman**. What Editors Want: An Author's Guide to Scientific Publishing. ESA Annual Meeting. Sacramento, CA.
- 2013 S Silver, J Bernhardt, **NB Zimmerman**. What Editors Want: An Author's Guide to Scientific Publishing. ESA Annual Meeting. Minneapolis, MN.
- 2013 **NB Zimmerman**. Student Orientation. ESA Annual Meeting. Minneapolis, MN.
- 2012 **NB Zimmerman**. Student Orientation. ESA Annual Meeting. Portland, OR.
- 2011 J Talbot, **NB Zimmerman**, AL Kuchy, J Ramos. Shaping the Future: How students can set a precedent for planetary stewardship. ESA Annual Meeting. Austin, TX.
- 2011 R Salguero-Gomez, **N Zimmerman**, J Ramos, S Silver. Things they don't typically teach you in grad school: peer-review inside out. ESA Annual Meeting. Austin, TX.
- 2010 J Talbot, MD Whiteside, R Salguero-Gomez, **NB Zimmerman**, AL Kuchy. Fight for what's right: become a student leader in planetary stewardship. ESA Annual Meeting. Pittsburgh, PA.

#### **INTERNATIONAL ASSOCIATION FOR ECOLOGY (INTECOL)**

##### Elected Leadership Roles

2013-2017 Governing Board member

#### **INTERNATIONAL NETWORK OF NEXT-GENERATION ECOLOGISTS (INNGE)**

##### Elected Leadership Roles

2014-2020 Governing Board member

2014-2016 Secretary

2010-2020 Co-founder, working group organizer

## **NATIONAL ECOLOGICAL OBSERVATORY NETWORK (NEON)**

2018-present Data Standards Technical Working Group

2017-present Microbial Technical Working Group (chair, 2019-2021)

## **MYCOLOGICAL SOCIETY OF AMERICA (MSA)**

2012 Founding member, Student Section

## **HAWAII CONSERVATION ALLIANCE (HCA)**

2009-2013 Abstract and Program Committee

2009-2011 Emerging Professionals Committee

## **CARPENTRIES**

*Software and Data Carpentry; see [carpentries.org/maintainers](https://carpentries.org/maintainers) for details*

2017-present Genomics curriculum steering committee (chair, 2023-present)

2016-present *Intro to R and RStudio for Genomics* Lesson Maintainer (GitHub repo)

2015-present *R for Reproducible Scientific Analysis* Lesson Maintainer (GitHub repo)

2017-2020 Lesson Infrastructure subcommittee

## **SERVICE TO THE BROADER PROFESSION**

### **PEER REVIEWING: JOURNAL ARTICLES, SOFTWARE, AND GRANT PROPOSALS**

2018-2024 Invited grant panelist, National Science Foundation (1-3 panels/yr)

2019-2022 Steering Committee, EcoEvoRxiv Preprint Server (<https://ecoevorxiv.org/>)

2010-2013 Associate Editor: Stanford Journal of Law, Science, and Policy

Ad-hoc reviewer

Journals (n = 95 reviews; certified record available via Web of Science):

*American Journal of Botany, Annals of Microbiology, Applied and Environmental Microbiology, BioScience, Biotropica, CourseSource, Diversity and Distributions, Ecological Research, Ecology, Ecology and Evolution, Ecosphere, Ecosystems, Environmental Microbiology, Environmental Microbiology Reports, F1000Research, FEMS Microbiology Ecology, Fungal Diversity, Fungal Ecology, HardwareX, ISME J, Journal of Applied Ecology, Journal of Biogeography, Journal of Chemical Ecology, Journal of Ecology, Journal of Open Research Software, Journal of Science Communication, Microbial Ecology, Molecular Ecology, Mycologia, Mycological Progress, New Phytologist, Nucleic Acids Research – Genomics and Bioinformatics, Oecologia, Pacific Science, PeerJ, Phytobiomes, Plant and Soil, Plant Ecology, Plant Species Biology, PLoS Computational Biology, PLoS ONE, PLoS Pathogens, Proc Royal Soc B, Scientia Agricola, Scientific Reports, Symbiosis*

§ equal contributions, \* invited, + mentored HS student

‡ mentored UG student, # mentored grad student

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R packages (formal software review process via ROpenSci): *restez*, *phylota*

Granting agencies: US National Science Foundation (NSF; n = 8), UK Natural Environment Research Council (NERC; n = 1), Swiss National Science Foundation (SNSF; n = 1)

Promotion and Tenure: Boise State University, Middlebury College, University of Arizona

### **INVITED PANELIST (PROFESSIONAL DEVELOPMENT)**

- 2023 NB Zimmerman.** Navigating the Tenure Track. Panelist, ESA Annual Meeting. Portland, OR.
- 2023 NB Zimmerman.** Macrosystems Ecology for All (NSF RCN) Kickoff Event. Zoom.
- 2022 NB Zimmerman.** Reimagining Grading. University of San Francisco Center for Teaching Excellence. San Francisco, CA.
- 2019 NB Zimmerman.** NSF BIO Directorate Advisory Council. Washington, D.C.
- 2019 NB Zimmerman.** Professional development presentation to Biology Club. City College of San Francisco. San Francisco, CA.
- 2017 NB Zimmerman.** Open Access Publishing. Gleeson Library, University of San Francisco. San Francisco, CA
- 2017 NB Zimmerman.** Jumpstart Your Academic Job Search Panel. Stanford University. Stanford, CA
- 2014 NB Zimmerman.** Graduate school in Ecology. U of Arizona Dept. of Ecology and Evolutionary Biology. Tucson, AZ.
- 2009 NB Zimmerman.** Grad school in the sciences. UH Hawaiian Internship Program. Hilo, HI.

### **WEBSITE ADMINISTRATOR AND OPEN SOURCE SOFTWARE MAINTAINER**

- 2022-present** *ecoevo.social* Mastodon server administrator and moderator
- 2021-present** ROpenSci pangear package maintainer (interface to PANGAEA database)
- 2017-2021** ESA Early Career Ecologist Section website maintainer
- 2017-2020** International Association for Ecology (INTECOL) website maintainer
- 2010-2020** International Network of Next-Generation Ecologists (INNGE) Webmaster

### **SERVICE TO THE UNIVERSITY OF SAN FRANCISCO (BY LEVEL)**

#### **SERVICE TO THE UNIVERSITY OF SAN FRANCISCO**

\* USFFA = USF Faculty Association (*union leadership similar to a faculty senate*)

- 2022** USFFA rep, Turning the Tables: Participation & Power in Negotiations, UC Berkeley
- 2021-2022** USFFA Committee on Committees
- 2020-present** Faculty Advisor, Hui O Hawai'i Student Organization
- 2020-2021** USFFA Finance Committee, Sabbatical Merit Award Committee

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‡ mentored UG student, # mentored grad student

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2020-2021 Provost Search Committee, Provost Search Advisory Committee  
2020 Summer, 2021 Spring USFFA COVID collective bargaining negotiating team  
2019-2022 USFFA Policy Board Representative (elected)  
2019-2022 College Council (*ex officio*)  
2019-2022 College of Sciences Executive Council (COSEC) (*ex officio*)

#### **SERVICE TO THE USF COLLEGE OF ARTS AND SCIENCES**

2021 MS in Data Science Faculty Search Committee external member  
2020 Strategic Academic Planning Task Force (STRAPT) member  
2020 MS in Data Science Faculty Search Committee external member  
2019-2022 Diversity in STEM Committee  
2018-2020 College of Arts and Sciences Dean's Medal Committee  
2018-2019 Harney Science Center Space Committee

#### **SERVICE TO THE USF BIOLOGY DEPARTMENT**

2020-2023, 2024-present Director, Biology MS Graduate Program  
2021 Biology Dept. Chair, Gerardo Marin Postdoctoral Fellowship Committee  
2018-2020 Assistant Director, Biology MS Graduate Program  
2019 Biology Dept. Faculty Search Committee  
2017-present Biology Graduate Studies Committee

#### **SERVICE TO THE PUBLIC**

2016 Taught class on *Using R for Data Analysis* and *Introductory Statistics* to students from Tucson High School during the BLAST (Biotechnology Lab for Arizona Students and Teachers) summer program  
2015 Taught classes on *DNA Sequence Editing* and *How to Give a Scientific Presentation* to students from Tucson High School during the BLAST (Biotechnology Lab for Arizona Students and Teachers) summer program  
2014 Taught ~70 students from Tucson High School how to quantify biological diversity over the course of a two-day workshop at the University of Arizona  
2014 Judge, Tucson High School Science Fair, Southern Arizona Regional Science and Engineering Fair  
2009-2010 Co-organizer, East Palo Alto Academy Internship in Biogeochemistry  
2008-2009 Boys & Girls Club SAT tutor for high school students in East Palo Alto.  
2008 Judge, Terman Middle School Science Fair, Mountain View, CA