

# JACKIE E. SHAY

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## | EDUCATION |

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- Doctor of Philosophy Candidate** 2016–present  
Quantitative and Systems Biology  
*University of California, Merced*  
Advised by Carolin Frank & Jason Sexton  
Dissertation title: Endophytes native monkeyflowers (*Erythranthe laciniata*) Across the Species Range
- Master of Science** 2012–2016  
Ecology, Evolution, and Conservation Biology  
*San Francisco State University*  
Advised by Dennis Desjardin  
Thesis title: Biodiversity and phylogeny of *Marasmius* (Basidiomycota, Agaricales) from Madagascar
- Bachelor of Science** 2005–2009  
Biological Sciences with emphasis in Molecular and Cellular Biology  
*University of California, Merced*

## | PUBLICATIONS |

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- Grace CL, Desjardin DE, Perry BA, **Shay JE** (2019) The genus *Marasmius* (Basidiomycota, Agaricales, Marasmiaceae) from Republic of São Tomé and Príncipe, West Africa, *Phytotaxa* 414(2): 055–104. doi.org/10.11646/phytotaxa.414.2.1
- Frank AC, Saldierna Guzmán JP, **Shay JE** (2017). Transmission of Bacterial Endophytes. *Microorganisms* 5(4): 70. doi:10.3390/microorganisms5040070
- Desjardin DE, Perry BA, **Shay JE**, Newman DS, Randrianjohany E (2017) The Type species of *Tetrapyrgos* and *Campanella* (Basidiomycota, Agaricales) are redescribed and epitypified. *Mycosphere* 8(8): 977–985. doi 10.5943/mycosphere/8/8/1
- Sexton JP, Montiel J, **Shay J**, Stephens M, & Slatyer R (2017). Evolution of Ecological Niche Breadth. *Annual Review of Ecology, Evolution, and Systematics* 48(1).
- Shay JE**, Desjardin DE, Grace CL, Perry BA, Newman DS “Biodiversity and Phylogeny of *Marasmius* (Basidiomycota, Agaricales) from Madagascar.” (2017) *Phytotaxa* 292(2): 101–149. doi.org/10.11646/phytotaxa.292.2.1

## | RESEARCH & PROFESSIONAL EXPERIENCE |

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- Graduate Student Researcher, Co-Instructor, and Teaching Assistant** 2016–present  
*University of California, Merced*
- Investigating the endophytic communities of native endemic flowering plants in light of drought from climate change using molecular, bioinformatic, and field-based techniques
  - Co-creating course learning outcomes and curriculum for flipped/hybrid course environments
  - Facilitating engaging active learning strategies in microbiology and general biology classes
  - Responsible for lab safety in two labs as dual lab safety coordinator
  - Mentor to four underrepresented undergraduate student women in science

**Graduate Student Researcher, Harry D. Thiers Herbarium Assistant Curator, and Teaching Assistant** 2012–2016

*San Francisco State University*

- Studied systematics and phylogeny of wood-decomposing fungi from tropics using molecular, morphological, and field-based techniques
- Performed herbarium curating duties including accessioning, labeling, digitizing, organizing, and confirming stored specimens
- Taught botany, biology, and active learning strategies with mostly first and second year students

**Youth Development and Health Educator** 2010–2012

*Peace Corps, Morocco, Africa*

- Built peer health education program with local nurses and teacher
- Established and maintained volunteer support network
- Created and demonstrated engaging hygiene education course for local schools

**Undergraduate Teaching Assistant for Evolution and Biology Tutor** 2005–2009

*University of California, Merced*

- Facilitated small group discussions in anatomy, genetics, evolution, and biology
- Co-authored student tutor teaching manual with learning staff
- Developed course curriculum and materials with faculty advisors

**| FUNDING |**

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- 2019 Sonoma County Mycological Society Graduate Scholarship (\$1,500)
- 2019 Northern California Botanist Research Scholarship (\$1,000)
- 2019 Southern California Edison Fellowship (\$13,065)
- 2018 Sonoma County Mycological Society Graduate Scholarship (\$2,500)
- 2018 Mycological Society of America Translational Research Award (\$1,250)
- 2018 California Native Plant Society Bristlecone Chapter Mary DeDecker Grant (\$1,000)
- 2016 UC Merced Quantitative and Systems Biology Recruitment Award (\$20,106)
- 2015 Sonoma County Mycological Association Graduate Scholarship (\$2,500)
- 2015 Mushrooms of Madagascar Kickstarter Campaign (\$7,682)
- 2014 Mycological Society of San Francisco Graduate Scholarship (\$1,000)
- 2014 SFSU College of Science and Engineering Scholarship (\$2,500)
- 2013 Robert W. Maxwell Scholarship (\$4,000)

**| HONORS | AWARDS |**

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- 2019 UC Merced Outstanding Graduate Student Leadership Award
- 2019 First Place in Northern California Botanist Symposium Poster Competition (\$200)
- 2016 UC Merced School of Natural Sciences Dean's Relocation Award (\$400)
- 2009 UC Merced Distinguished Leadership Award
- 2007 UC Merced Distinguished Student Volunteer Award

**| INVITED TALKS & REVIEWS |**

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- 2019 Shay, J.E. "The hidden world of endophytes" *Biology Seminar*, Invited Talk, *San Francisco State University*
- 2019 Invited as reviewer for the journal of Plant Systematics and Evolution
- 2019 Shay, J.E. "Fungus among us", Invited Talk, *Camp Trip Music Festival, Weldon, CA*

- 2019 Shay, J.E., Brooks, L., Kaze, M., Frank, C.A., Sexton, J.P., Siström, M. “Endophytes shift in response to drought in monkeyflowers (*Erythranthe laciniata*) from native soil” *Symbiosis, Yosemite National Park*
- 2017 Shay, J.E., Newman, D.S., Grace, C., Perry, B.A., Desjardins, D. “Biodiversity and Phylogeny of *Marasmius* (Basidiomycota, Agaricales) from Madagascar” *Marin County Mycological Society, CA*
- 2017 Shay, J.E., Newman, D.S., Grace, C., Perry, B.A., Desjardins, D. “Biodiversity and Phylogeny of *Marasmius* (Basidiomycota, Agaricales) from Madagascar” *Mycological Society of San Francisco, CA*
- 2015 Shay, J.E. “A Mushroom Adventure Collecting in Madagascar.” *Mycological Society of San Francisco*

**| PRESENTATIONS | POSTERS |**

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- 2019 Shay, J.E., Brooks, L., Kaze, M., Frank, C.A., Sexton, J.P., Siström, M. “Endophytes shift in response to drought in monkeyflowers (*Erythranthe laciniata*) from native soil” *Mycological Society of America, Minneapolis, MN*
- 2019 Shay, J.E., Brooks, L., Kaze, M., Frank, C.A., Sexton, J.P., Siström, M. “Endophytes shift in response to drought in monkeyflowers (*Erythranthe laciniata*) from native soil” *Northern California Botanists Symposium, Chico, CA*
- 2018 Shay, J.E., Pennington, L., Toews, D., Sexton, J.P. “Climate adaptation and fitness variation is greatest near the leading edge of a species range” *Climate Change: Ranges and Phenology, Ecological Society of America, New Orleans, LA*
- 2017 Shay, J.E., Newman, D.S., Grace, C., Perry, B.A., Desjardins, D. “Biodiversity and Phylogeny of *Marasmius* (Basidiomycota, Agaricales) from Madagascar” *Fungal Genetics, Asilomar, Pacific Grove, CA*
- 2016 Shay, J.E. “Do microbiomes influence host evolution?” Quantitative and Systems Biology Topics Final Project. *University of California Merced*
- 2016 Shay, J.E., Newman, D.S., Grace, C., Perry, B.A., Desjardins, D. “Biodiversity and Phylogeny of *Marasmius* (Basidiomycota, Agaricales) from Madagascar” M.Sc. Thesis Defense. *San Francisco State University*
- 2015 Shay, J.E., Newman, D.S., Desjardin, D. “A preliminary monograph of *Marasmius* (Basidiomycota, Agaricales) from Madagascar.” Conference Research Poster. *BOTANY 2015, Edmonton, Alberta, Canada*
- 2013 Shay, J.E. “Termitomyces and Macrotermitinae: Masters of Efficiency, an Exploration of Fungal Symbioses.” *San Francisco State University*
- 2013 Shay, J.E. “The Understory Story: Mycoheterotrophy of Ericaceae.” *San Francisco State University*

**| TECHNICAL SKILLS | WORKSHOPS |**

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- 2019 Regional Summer Institute on Scientific Teaching, UC San Diego
- 2019 Collaborative Institutional Training Initiative Social-Behavioral-Educational Course
- 2019 Illumina Metagenomic Sequencing Workshop, UC Merced
- 2018 Data Carpentry Workshop, UC Merced
- 2018 Introduction to Computation Workshop, UC Merced
- 2018 Botanical Illustration Workshop, California Native Plant Society Meeting
- 2017 NSF Interdisciplinary Computational Graduate Education Program, UC Merced
- 2017 Joint Genome Institute Summer Internship Program
- 2015 Science Education Partnership and Assessment Laboratory Summer Institute, SFSU
- 2015 Macro nature photography summer course, SFSU Sierra Nevada Field Campus
- 2014 Fungi of Sierra Nevada summer course, SFSU Sierra Nevada Field Campus

| **TEACHING EXPERIENCE** |

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**General Microbiology BIO 120** Fall 2018–Spring 2020

*University of California, Merced*

- Co-instructor with resident faculty
- Developing flipped classroom curriculum and recording lecture content
- Engaging students with active learning teaching strategies both online and in-class
- Trained on Learning Glass™ technology
- Trained on Camtasia lecture video creation and editing
- Created higher order learning outcomes in line with course goals

**CBEST Summer Bridge Program for Elementary School** Summer 2019

*University of California, Merced*

- Developed an interactive class discussing plant biology for 3<sup>rd</sup> and 4<sup>th</sup> grade students
- Worked closely with undergraduate interns to facilitate this summer class
- Shared materials for future class activities

**Contemporary Biology BIO 001** Fall 2016, 2017

*University of California, Merced*

- Guest lectured for fungal and plant sections of the course
- Facilitated weekly discussion with original activities, learning outcomes, and reviews
- Submitted dozens of activities, assessments, and review sessions for future course use

**Flora of California BIO/ESS 133** Spring 2017

*University of California, Merced*

- Guided students through plant identification, anatomy, and field trip excursions
- Demonstrated correct use of the Jepson Guide to California Flora
- Collected plant material for identification based on plant family
- Guest lectured for soil ecology and symbiosis lectures

**General Botany BIO 220** Fall 2015

*College of San Mateo*

- Co-instructed students with resident faculty
- Developed assessment based approach to active learning
- Collected and presented data from course to SEPAL Summer Institute

**Introduction to Biology II (Discussion & Supplemental) BIO 240** Spring 2014–Spring 2016

*San Francisco State University*

- Assisted students in lab and discussion sections component of class
- Facilitated mini-lectures, lab activities, and discussions for deeper engagement
- Supplemented learning for a portion of students by working strictly on active learning strategies, growth mindset, and high order learning

**World of Plants BIO 150** Fall 2012–Fall 2013

*San Francisco State University*

- Guided students through lab experiments and field trips
- Created mini-lectures to pair with lab activities
- Shared materials with future teaching assistants for this course

| **SERVICE | SYNERGISTIC EXPERIENCES** |

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**Session Chair for Northern California Botanist Symposium 2020 Meeting** 2020

*California State University, Chico*

- Invited by board members to chair session

- Coordinated speakers for the *Plant-Biotic Interactions* Session
- Established a growing interest in microbe associate plant interactions

**RadioBio Podcast** 2017–present

*University of California, Merced*

- Pioneered RadioBio, a graduate student-led biology-themed podcast that discusses biology from molecules to ecosystems
- Develop and execute all major events associated with the RadioBio podcast including community outreach events, science showcases, and art exhibitions
- Facilitate interviews, editing, and production podcasts every two weeks

**Teaching Intern, Center for Engaged Teaching and Learning** 2017–2018

*University of California, Merced*

- Encouraged the university community to adopt active teaching strategies
- Participated in teacher training workshops to enhance my practice
- Lectured to peers on teaching strategies for large classrooms

**University Committees and Other Services**

- Executive Committee of the Quantitative Systems Biology Group 2017–present
  - Research Week Planning Committee 2017–present
  - Search Committee for the Executive Vice Chancellor and Provost 2018
  - Vice President and Board Member UC Merced Alumni Association 2012–2018
  - Search Committee for Dean of School of Natural Sciences 2017
  - Review Board for the Office of the Vice Chancellor of Student Services 2017
  - UC Merced W-STEM Member and Mentorship Program Participant 2016–2017
  - Vice President and Chair of Annual Fungus Fair 2014–2017
- Mycological Society of San Francisco, San Francisco*

**Acting and Stage Presence**

- Performed, created, or directed over a dozen plays and musicals 1999–2016
  - Induction to the International Thespian Society 2004
  - Meisner Technique Acting Classes 2002–2003
- The Ruskin School of Acting, Santa Monica, California*

**| CURRENT PROFESSIONAL MEMBERSHIPS |**

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2018 Ecological Society of America  
2018 Society for the Study of Evolution  
2017 Botanical Society of America  
2015 Mycological Society of America  
2013 California Native Plant Society  
2013 American Association for the Advancement of Science

**| RESEARCH INTERESTS |**

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Biodiversity | Phylogenetics | Fungi | Microbiome | Ecology | Evolution | Taxonomy | Systematics  
Bioinformatics | Plant-Microbe Interactions | Endophytes | Climate Change | Herbaria | Symbiosis