

A. Elizabeth Arnold, Ph.D.

- Professor, School of Plant Sciences, Department of Ecology and Evolutionary Biology, and Graduate Interdisciplinary Program in Genetics; Honors Professor, Honors College; Member, Professional Science Masters Program, Applied Biological Sciences
- Curator, Robert L. Gilbertson Mycological Herbarium, College of Agriculture and Life Sciences
- Fellow, The Bart Cardon Academy for Teaching Excellence, College of Agriculture and Life Sciences
- 1885 Distinguished Scholar, The University of Arizona

Email: Arnold@ag.arizona.edu • Preferred phone: 520.621.2244 • Mailing address: Betsy Arnold, School of Plant Sciences, 1140 E South Campus Drive, Forbes 303, The University of Arizona, Tucson, AZ 85721 USA • Office: 822D Marley

I. Education

- | | |
|------|--|
| 2002 | Ph.D., Ecology and Evolutionary Biology, The University of Arizona
Dissertation title: Neotropical fungal endophytes: diversity and ecological roles
Dissertation advisor: Dr. Lucinda A. McDade |
| 1995 | B.S., Biology, with Honors, Duke University (<i>cum laude</i>) |

II. Employment

- | | |
|--------------|--|
| 2015-present | Professor, School of Plant Sciences, The University of Arizona; Professor, Department of Ecology & Evolutionary Biology; Professor, Graduate Interdisciplinary Program in Genetics; Curator, Robert L. Gilbertson Mycological Herbarium |
| 2010-2015 | Associate Professor, Plant Sciences and Ecology and Evolutionary Biology; Curator, as above |
| 2005-2010 | Assistant Professor, Plant Sciences and Ecology and Evolutionary Biology; Curator, as above |
| 2003-2004 | National Science Foundation Postdoctoral Fellow: Microbial Biology, Duke University |
| 1996-2002 | National Science Foundation Graduate Research Fellow; Fellow, National Science Foundation Research Training Grant in Biological Diversification; Graduate Teaching Assistant (TA), Ecology, Evolution, Conservation Biology Internship Program |

III. Honors and awards (* peer-nominated, ** student-nominated) (since faculty appointment only)

- | | |
|-----------|--|
| 2018 | Shirley O'Brien Award for Diversity and Inclusion, College of Agriculture and Life Sciences, UA** |
| 2017 | Warren Herb Wagner Lecturer in Plant Evolution, University of Michigan* |
| 2016 | William H. Weston Award for Outstanding Teaching in Mycology, awarded annually to one recipient, Mycological Society of America*,** |
| 2016 | Fellow, Bart Cardon Academy of Teaching Excellence, University of Arizona* |
| 2014 | Graduate Students' Outstanding Seminar Speaker, Rancho Santa Ana Botanic Garden** |
| 2013 | 1885 Distinguished Scholar, The University of Arizona* |
| 2013 | Staff Award for Excellence, Women in Science and Engineering, awarded annually to one outstanding contributor to women in science; The University of Arizona** |
| 2012 | Alexopoulos Prize, Outstanding Early Career Mycologist, awarded annually to one honoree by the Mycological Society of America* |
| 2011 | AH Buller Medal, Outstanding Young Mycologist in North America, inaugural recipient, International Mycological Association* |
| 2011 | David E. Cox Teaching Award, Outstanding Instructor, College of Agriculture and Life Sciences, The University of Arizona* |
| 2009 | Tsujimoto Lecturer, University of California, Berkeley*,** |
| 2006-2017 | Graduate Student Invited Speaker, University of Massachusetts, Amherst; Pennsylvania State University; University of California, Berkeley; University of Minnesota; University of Wisconsin-Madison; Northern Arizona University** |

IV. Refereed publications

‡, Graduate student author; #, undergraduate student author; °, K-12 teacher author; * substantially based on work done while Arnold was a graduate student.

113. Epps[‡], M.J. and A.E. Arnold. 2018. Interaction networks of macrofungi and mycophagous beetles reflect diurnal variation and the size and spatial arrangement of resources. *Fungal Ecology*, in revision.
112. Shaffer[‡], J.P., P.-C. Zalamea, C. Sarmiento, R.E. Gallery, J.W. Dalling, A.S. Davis, D.A. Baltrus, A.E. Arnold. 2018. Context-dependent and variable effects of endohyphal bacteria on interactions between fungi and seeds. *Fungal Ecology*, accepted pending minor revisions.
111. Huang[‡], Y.-L., N.B. Zimmeran, A.E. Arnold. 2018. Observation on the early establishment of foliar endophytic fungi in leaf discs and living leaves of a model woody angiosperm, *Populus trichocarpa* (Salicaceae). *Journal of Fungi* 4: e58 (cover).
110. Zalamea, P.-C., J.W. Dalling, C. Sarmiento, A.E. Arnold, C. Delevich[‡], M.A. Berbow, A. Ndobegang, S. Gripenberg, A.S. Davis. 2018. Dormancy-defense syndromes and trade-offs between physical and chemical defenses in seeds. *Ecology* DOI: 10.1002/ecy.2419.
109. Huang[‡], Y.-L., E.A. Bowman, N.C. Massimo, N.P. Garber, J.M. U'Ren, D.C. Sandberg, A.E. Arnold. 2018. Using collections data to infer biogeographic, environmental, and host structure in communities of endophytic fungi. *Mycologia* 110: 47-62.
108. Padumadasa, C., Y.-M. Xu, E.M. Kithsiri Wijeratne, P. Espinosa, J.M. U'Ren, A.E. Arnold, A.A.L. Gunatilaka. 2018. Cytotoxic and non-cytotoxic metabolites from *Teratosphaeria* sp. FL2137, a fungus associated with *Pinus clausa*. *Journal of Natural Products* 81: 616-624.
107. Chen[‡], K.-H., H.-L. Liao, A.E. Arnold, F. Lutzoni. 2018. RNA-based analyses reveal fungal communities structured by a senescence gradient in the moss *Dicranum scoparium* and the presence of putative multi-trophic fungi. *New Phytologist* 218: 1597-1611.
106. Bowman[‡], E.A., A.E. Arnold. 2018. Distributions of ectomycorrhizal and foliar endophytic fungal communities associated with *Pinus ponderosa* along a spatially constrained elevation gradient. *American Journal of Botany* 105: 687-699.
105. Epps[‡], M.J. and A.E. Arnold. 2018. Quantifying beetle-macrofungal associations in a temperate biodiversity hotspot. *Mycologia* 110: 269-285.
104. Sarmiento, C., P.-C. Zalamea, J.W. Dalling, A.S. Davis, S.M. Stump[‡], J.M. U'Ren, A.E. Arnold. 2017. Soilborne fungi have host affinity and host-specific effects on seed germination and survival in a lowland tropical forest. *Proceedings of the National Academy of Sciences USA* 114: 11458-11463.
103. Araldi-Brondolo[‡], S.A., J.S. Spraker, J.P. Shaffer[‡], E.H. Woytenko[‡], D.A. Baltrus, R.E. Gallery, A.E. Arnold. 2017. Bacterial endosymbionts: master modulators of fungal phenotypes. *Microbiology Spectrum* 5: e0056.
102. Gubiani, J., K. Wijeratne, T. Shi, A. Araujo, A.E. Arnold, E. Chapman, A.A.L. Gunatilaka. 2017. An epigenetic modifier induces production of (10S)-verruculide B, an inhibitor of protein tyrosine phosphatases by *Phoma* sp. nov. LG219, a fungal endophyte of *Parkinsonia microphylla*. *Bioorganic and Medicinal Chemistry* 25: 1860-1866.
101. Shaffer[‡], J.P., J.M. U'Ren, D.A. Baltrus, R.E. Gallery, A.E. Arnold. 2017. An endohyphal bacterium (*Chitinophaga*, Bacteroidetes) influences carbon source use by *Fusarium keratoplasticum* (*F. solani* species complex, Nectriaceae). *Frontiers in Microbiology* 8: e350.
100. Torres-Cruz[‡], T.J., T.L.B. Tobias, M. Almatruk, C. Hesse, C.R. Kuske, A. Desiro, G.M.N. Benucci, G. Bonito, J. Stajich, C. Dunlap, A.E. Arnold, A. Porras-Alfaro. 2017. *Bifiguratus adelaidae*, gen. nov. sp. nov., a new lineage of Mucoromycotina with endophytic and soil-dwelling strains. *Mycologia* 109: 363-378.
99. Arnold, A.E., E.M. Andersen[‡], M.J. Taylor[#], R.J. Steidl. 2017. Using cytochrome b to identify nests and museum specimens of cryptic songbirds. *Conservation Genetics Resources* 9: 451-458.
98. Luo, J.-G., Y.-M. Xu, D.C. Sandberg, A.E. Arnold, A.A.L. Gunatilaka. 2017. Montagnophilones A-G, azaphilones from Montagnulaceae sp. DM0194, a fungal endophyte of submerged roots of *Persicaria amphibia*. *Journal of Natural Products* 80: 76-81.
97. Baltrus, D.A., K. Dougherty, K.R. Arendt, M. Huntemann, A. Clum, M. Pillay, K. Palaniappan, N. Varghese, N. Mikhailova, D. Stamatis, T.B.K. Reddy, C.Y. Ngan, C. Daum, N. Shapiro, V. Markowitz, N. Ivanova, N. Kyrpides, T. Woyke, A.E. Arnold. 2017. Absence of genome reduction in diverse, facultative endohyphal bacteria. *Microbial Genomics* 3: 000101.

96. Bashyal, B.P., E.M. Kithsiri Wijeratne, J. Tillotson, A.E. Arnold, E. Chapman, A.A.L. Gunatilaka. 2017. Chlorinated dehydrocurvularins and alterperyleneoxide A from *Alternaria* sp. AST0039, a fungal endophyte of *Astragalus lentiginosus*. *Journal of Natural Products* 80: 427-433.
95. Carbone, I.C., J.B. White[‡], J. Miadlikowska, A.E. Arnold, M.A. Miller, F. Kauff, C. Schoch, J.M. U'Ren, G. May, F. Lutzoni. 2016. Enhancing fungal species discovery and description using T-BAS: Tree-Based Alignment Selector toolkit for phylogenetic-based placement, alignment downloads, and metadata visualization. *Bioinformatics* 33: 1160-1168.
94. U'Ren, J.M. and A.E. Arnold. 2016. Diversity, taxonomic composition, and functional aspects of fungal communities in living, senescent, and fallen leaves at five sites across North America. *PeerJ* 4: 2768.
93. Shaffer[‡], J.S., C. Sarmiento, P.-C. Zalamea, R.E. Gallery, A.S. Davis, D.A. Baltrus, A.E. Arnold. 2016. Diversity, specificity, and phylogenetic relationships of endohyphal bacteria in fungi that inhabit tropical seeds and leaves. *Frontiers in Ecology and Evolution* 4: 116.
92. Del Olmo-Ruiz[‡], M. and A.E. Arnold. 2016. Community structure of fern-affiliated endophytes in three neotropical forests. *Journal of Tropical Ecology* 33: 60-73.
91. Arendt[‡], K.R., K.L. Hockett, S.J. Araldi-Brondolo, D.A. Baltrus, A.E. Arnold. 2016. Isolation of endohyphal bacteria from foliar fungi and *in vitro* establishment of their symbiotic associations. *Applied and Environmental Microbiology* 82: 2943-2949.
90. U'Ren, J.M., J. Miadlikowska, N. Zimmerman, F. Lutzoni, J. Stajich, A.E. Arnold. 2016. Contributions of North American endophytes to the phylogeny, ecology, and taxonomy of the Xylariaceae. *Molecular Phylogenetics and Evolution* 98: 210-232.
89. Sousa, J., M. Aguilar-Perez, A.E. Arnold, N. Rios, P.D. Coley, T.A. Kursar, and L. Cubilla-Rios. 2016. Chemical constituents and their antibacterial activity from the tropical endophytic fungus *Diaporthe* sp. F2934. *Journal of Applied Microbiology* 120: 1501-1508.
88. Kithsiri Wijeratne, E.M., G.M.K.B. Gunaherath, V.M. Chapla, J. Tillotson, F. de la Cruz, M. Kang, J. U'Ren, A.R. Araujo, A.E. Arnold, E. Chapman, and A.A.L. Gunatilaka. 2016. Oxaspirol B with p97 inhibitory activity and other oxaspirols from *Lecythophora* sp. FL1375 and FL1031, endolichenic fungal strains inhabiting *Parmotrema tinctorum* and *Cladonia evansii*. *Journal of Natural Products* 79: 340-352.
87. Ohkura, M., J.J. Worley, J.E. Hughes-Hallett, J.S. Fisher, B.C. Love, A.E. Arnold, and M. J. Orbach. 2016. *Ophidiomyces ophiodiicola* on a captive black racer (*Coluber constrictor*) and a garter snake (*Thamnophis sirtalis*) in Pennsylvania. *Journal of Zoo and Wildlife Medicine* 47: 341-346.
86. Chagnon, P.-L., J.M. U'Ren, F. Lutzoni, J. Miadlikowska, and A.E. Arnold. 2016. Interaction type influences ecological network structure more than local abiotic conditions: evidence from fungal symbionts at a continental scale. *Oecologia* 180: 181-191.
85. Huang[‡], Y.-L., M.M.N. Devan, J.M. U'Ren, S.H. Furr, and A.E. Arnold. 2016. Pervasive effects of wildfire on foliar endophyte communities in montane forest trees. *Microbial Ecology* 71: 452-468.
84. Xu, Y., B.P. Bashyal, M.X. Liu, P. Espinosa-Artiles, J.M. U'Ren, A.E. Arnold, and A.A.L. Gunatilaka. 2015. Cytotoxic cytochalasins and other metabolites from Xylariaceae sp. FL0390, a fungal endophyte of Spanish moss. *Natural Products Communications* 10:1655-1658.
83. Xu, Y., J. Mafezoli, M.C.F. Oliveira, J.M. U'Ren, A.E. Arnold, and A.A.L. Gunatilaka. 2015. Anteaglonialides A–F, Spiroaphtho-1,8-dioxinocyclohexa-g-butyrolactones and Palmarumycins CE₁–CE₃ from *Anteaglonium* sp. FL0768, a fungal endophyte of sand spikemoss, *Selaginella arenicola*. *Journal of Natural Products* 78: 2738-2747.
82. Wei, H., Y. Xu, P., Espinosa-Artiles, M.X. Liu, J.-G. Luo, J.M. U'Ren, A.E. Arnold, and A.A.L. Gunatilaka. Sesquiterpenes and other constituents of *Xylaria* sp. NC1214, a fungal endophyte of the moss *Hypnum* sp. *Phytochemistry* 118: 102-108.
81. Wijeratne, E.M.K., Y. Xu, A.E. Arnold, A.A.L. Gunatilaka. 2015. Pulvinulin A, graminin C, and cis-gregatin B--new natural furanones from *Pulvinula* sp. 11120, a fungal endophyte of *Cupressus arizonica*. *Natural Product Communications* 10: 107-111.
80. Martinson[‡], E., J. Hackett, C. Machado, A.E. Arnold. 2015. Metatranscriptome analysis of fig flowers suggests mechanisms for mutualism stability and gall induction. *PLoS ONE* 10: e0130745.
79. Zalamea, P.C., C. Sarmiento, A.E. Arnold, A. Davis, J. Dalling. 2015. Do microbes and abrasion by soil particles influence seed persistence and loss of physical dormancy in tropical seedbanks? *Frontiers in Plant Science* 5: 799 (doi: 10.3389/fpls.2014.00799).

78. Corrales[‡], A.O., A.E. Arnold, A. Ferrer, B. Turner, J.W. Dalling. 2015. Variation in ectomycorrhizal communities associated with *Oreomunnea mexicana* (Juglandaceae) in tropical montane forests. *Mycorrhiza* 26: 1-17.
77. Massimo[#], N., M.M.N. Devan[#], K.R. Arendt[‡], M. Wilch[°], J.M. Riddle[#], S.H. Furr[°], C. Steen[#], J.M. U'Ren, D.C. Sandberg[‡], A.E. Arnold. 2015. Fungal endophytes of desert plants: infrequent in culture, but diverse and distinctive symbionts. *Microbial Ecology* DOI 10.1007/s00248-014-0563-6.
76. Chen[‡], K.H., J. Miadlikowska, K. Molnar, A.E. Arnold, J.M. U'Ren, E. Gaya, C. Gueidan, F. Lutzoni. 2015. Phylogenetic analyses of eurotiomycetous endophytes reveal their close affinities to Chaetothyriales, Eurotiales, and a new order – Phaeomoniellales. *Molecular Phylogenetics and Evolution* 85: 117-130.
75. Luo, J.O., X.B. Wang, Y.M. Zu, J.M. U'Ren, A.E. Arnold, L.Y. Kong, A.A.L. 2014. Gunatilaka. Delitschiapyrone A, a pyrone-naphthalenone adduct bearing an unprecedented pentacyclic ring system from the leaf-associated fungus *Delitschia* sp. FL1581. *Organic Letters* 16: 5944-5947.
74. U'Ren, J.M., J.M. Riddle[#], J.T. Monacell[‡], I. Carbone, J. Miadlikowska, A.E. Arnold. 2014. Tissue storage and primer selection influence pyrosequencing-based inferences of diversity and community structure of endophytic fungi. *Molecular Ecology Resources* 14:1032-1048.
73. Higginbotham, S.J., W.R. Wong, R.G. Linington, C. Spadafora, L. Iturrado, A.E. Arnold. 2014. Sloth fur as a novel source of fungi with potent anti-parasitic and anti-bacterial activity. *PLoS One* 9: e84549 (*top-viewed paper, early 2014; > 71,600 views in January; extensive popular press*).
72. Sandberg[‡], D.C., L.J. Battista[#], A.E. Arnold. 2014. Fungal endophytes of aquatic macrophytes: diverse host-generalists characterized by tissue preferences and geographic structure. *Microbial Ecology* 67: 735-747.
71. Del Olmo[‡], M. and A.E. Arnold. 2014. Interannual variation and host affiliations of endophytic fungi associated with ferns at La Selva, Costa Rica. *Mycologia* 106: 8-21.
70. Higgins[‡], K.L., A.E. Arnold, P. Coley, T. Kursar. 2014. Communities of fungal endophytes in tropical forest grasses: highly diverse host- and habitat generalists characterized by strong spatial structure. *Fungal Ecology* 8: 1-11.
69. Oono, R., F. Lutzoni, A.E. Arnold, L. Kaye[#], J.M. U'Ren, G. May, I. Carbone. 2014. Genetic variation in horizontally transmitted symbionts of pine needles reveals population structure in cryptic species. *American Journal of Botany* 101: 1362-1374.
68. Almeida, C., H. Ortega, S. Higginbotham, C. Spadafora, A.E. Arnold, P.D. Coley, T.A. Kursar, W.H. Gerwick, L. Cubilla-Rios. 2014. Chemical constituents from Microthyriaceae sp., an endophytic fungus from a tropical grass. *Letters in Applied Microbiology* 59: 58-64.
67. Miadlikowska, J.M., F. Kauff, F. Hognabba, J.C. Oliver, K. Molnar, E. Fraker, E. Gaya, J. Hafellner, V. Hofstetter, C. Gueidan, M. Kukwa, M. Lücking, C. Björk, H.J. M. Sipman, A.R. Burgaz, A. Thell, A. Passo, L. Myllys, T. Goward, S. Fernandez-Brime, G. Hestmark, J. Lendemer, H.T. Lumbsch, M. Schull, C. Schoch, E. Serusiaux, D.R. Maddison, A.E. Arnold, F. Lutzoni, S. Stenroos. 2014. Multigene phylogenetic analysis for 1307 fungi representing 1139 infrageneric taxa, 312 genera, and 66 families of the class Lecanoromycetes (Ascomycota). *Molecular Phylogenetics and Evolution* 79: 132-168 (*Editor's Choice*)
66. Nilsson, R.H., K.D. Hyde, J. Pawlowska, M. Ryberg, L. Tedersoo, A.B. Aas, S.A. Alias, A. Alves, C.L. Anderson, A. Antonelli, A.E. Arnold, B. Bahnmann, M. Bahram, J. Bengtsson-Palme, A. Berlin, S. Branco, P. Chomnunti, A. Dissanayake, R. Drenkhan, H. Friberg, T.G. Frøslev, B. Halwachs, M. Hartmann, B. Henricot, R. Jayawardena, A. Jumpponen, H. Kauserud, S. Koskela, T. Kulik, K. Liimatainen, B. Lindahl, D. Lindner, J.K. Liu, S. Maharachchikumbura, D. Manamgoda, S. Martinsson, M.A. Neves, T. Niskanen, S. Nylander, O.L. Pereira, D.B. Pinho, T.M. Porter, V. Queloz, T. Riit, M. Sanchez-García, F. de Sousa, E. Stefáczyk, M. Tadych, S. Takamatsu, Q. Tian, D. Udayanga, M. Unterseher, Z. Wang, S. Wikee, J. Yan, E. Larsson, K-H. Larsson, U. Kõljalg, K. Abarenkov. 2014. A distributed effort to improve the annotation of public ITS sequence data for plant pathogenic fungi. *Fungal Diversity* 67: 11-19.
65. Higginbotham, S.J., A.E. Arnold, A. Ibañez, C. Spadafora, P.D. Coley, T.A. Kursar. 2013. Bioactivity of fungal endophytes as a function of their taxonomy and the taxonomy and distribution of host plants. *PLoS One* 8: e73192.
64. Lau[‡], M., N.C. Johnson, A.E. Arnold. 2013. Factors influencing communities of foliar fungal endophytes in riparian woody plants. *Fungal Ecology* 6: 365-378.

63. Hoffman[‡], M.T., M. Gunatilaka, E.M.K. Wijeratne, A.A.L. Gunatilaka, A.E. Arnold. 2013. Endohyphal bacterium enhances production of indole-3-acetic acid by a foliar fungal endophyte. *PLoS One* 8: e73132.
62. Tedersoo, L., A.E. Arnold, K. Hansen. 2013. Novel aspects in the life cycle and biotrophic interactions in the Pezizomycetes. *Molecular Ecology* 22: 1488-1493.
61. Martinson[‡], E.O., K.C. Jander, Y.Q. Peng, H.H. Chen, C.A. Machado, A.E. Arnold, E.A. Herre. 2013. Relative investment in egg loads and poison sacs in fig wasps: implications for physiological mechanisms underlying seed and wasp production in figs. *Acta Oecologica* 57: 58-66.
60. Ortega, H.E., P.R. Graupner, Y. Asai, K. TenDyke, D. Qui, Y.Y. Shen, N. Rios, A.E. Arnold, P.D. Coley, T.A. Kursar, W.H. Gerwick, L. Cubilla-Rios. 2013. Mycoleptodiscin A and B, cytotoxic alkaloids from the endophytic fungus *Mycoleptodiscus*. *Journal of Natural Products* 76: 741-744.
59. Wanigesekara, A., E.M. Kithsiri Wijeratne, A.E. Arnold, A.A.L. Gunatilaka. 2013. 10'-Deoxy-10' alpha-hydroxyascochlorin, a new cell migration inhibitor and other metabolites from *Acremonium*, an endophyte in *Ephedra trifurca*. *Natural Products Communications* 8: 601-604.
58. Xu, Y.M., P. Espinosa-Artiles, M.P. Liu, A.E. Arnold, A.A.L. Gunatilaka. 2013. Secoemestrin D, a cytotoxic epitetrathiodioxopiperazine, and emericellenes A-E, five sesterterpenoids from *Emericella* sp. AST0036, a fungal endophyte of *Astragalus lentiginosus*. *Journal of Natural Products* 12: 2330-2336.
57. Bascom-Slack, C., A.E. Arnold, S.A. Strobel. 2012. Student-directed discovery of the plant microbiome and its products. *Science* 338: 485-486.
56. Martinson[‡], E.O., E.A. Herre, C.A. Machado, A.E. Arnold. 2012. Culture-free survey reveals diverse fungal communities associated with figs (*Ficus*) in Panama. *Microbial Ecology* 64: 1073-1084.
55. U'Ren[‡], J., F. Lutzoni, J. Miadlikowska, A. Laetsch, A.E. Arnold. 2012. Host and geographic structure of endophytic and endolichenic fungi at a continental scale. *American Journal of Botany* 99: 898-914.
54. Gazis[‡], R., J. Miadlikowska, F. Lutzoni, A.E. Arnold, P. Chaverri. 2012. Culture-based study of endophytes associated with rubber trees in Peru reveals a new class of Pezizomycotina: Xylonomycetes. *Molecular Phylogenetics and Evolution* 65: 294-304.
53. Milani[‡], N.A., D.P. Lawrence, A.E. Arnold, H.D. vanEtten. 2012. Origin of pistatin demethylase (PDA) in the genus *Fusarium*. *Fungal Genetics and Biology* 49: 933-942.
52. Varughese, T., N. Riosa, S. Higginbotham, A.E. Arnold, P.D. Coley, T.A. Kursar, W.H. Gerwick, L. Cubilla-Rios. 2012. Antifungal depsidone metabolites from *Cordyceps dipterigena*, an endophyte antagonistic to the phytopathogen *Giberella fujikoroi*. *Tetrahedron Letters* 28: 1624-1626.
51. Molinar, E., N. Rios, C. Spadafora, A.E. Arnold, P.D. Coley, T.A. Kursar, W.H. Gerwick, L. Cubilla-Rios. 2012. Coibanoles, a new class of meroterpenoids produced by *Pycnoporus sanguineus*. *Tetrahedron Letters* 53: 919-922.
50. Martinez-Luis, S., L. Cherigo, A.E. Arnold, C. Spadafora, W.H. Gerwick, L. Cubilla-Rios. 2012. Antiparasitic and anticancer constituents of the endophytic fungus *Aspergillus* sp. Strain F1544. *Natural Products Communications* 7: 165-168.
49. Wijeratne, E.M.K., B.P. Bashyal, M.X. Liu, D.D. Rocha, G.M. Gunaherath, J.M. U'Ren[‡], M.K. Gunatilaka, A.E. Arnold, L. Whitesell, and A.A.L. Gunatilaka. 2012. Geopyxins A-E, ent-kaurane diterpenoids from endolichenic fungi, *Geopyxis* aff. *majalis* and *Geopyxis* sp. AZ-0066: structure-activity relationships of geopyxins and their analogues. *Journal of Natural Products* 75: 361-369.
48. Lawrence[‡], D.P., B.M. Pryor, S.B. Kroken, A.E. Arnold. 2011. Interkingdom horizontal gene transfer of a hybrid NRPS/PKS from bacteria to filamentous Ascomycota. *PLoS ONE* 6: e28231.
47. Dalling, J.W., A.S. Davis, B.J. Schutte[‡], A.E. Arnold. 2011. Seed survival in soil: integrating effects of predation, dormancy, and the soil microbial community. *Journal of Ecology* 99: 89-95.
46. Higgins[‡] K.L., P.D. Coley, T.A. Kursar, A.E. Arnold. 2011. Culturing and direct PCR suggest prevalent host-generalism among fungal endophytes of tropical grasses. *Mycologia* 103: 247-260.
45. Wang, X.N., B.P. Bashyal, E.M. Wijeratne, J. U'Ren[‡], M. Gunatilaka, A.E. Arnold, A.A.L. Gunatilaka. 2011. Smardaesidins A-G, new isopimarane and 20-Nor-isopimarane diterpenoids isolated from *Smardaea* sp., endophyte of *Ceratodon purpureus*. *Journal of Natural Products* 74: 2052-2061.
44. Moreno, E., T. Varughese, C. Spadafora, A.E. Arnold, P.D. Coley, T.A. Kursar, W.H. Gerwick, L. Cubilla-Rios. 2011. Chemical constituents of the new endophytic fungus *Mycosphaerella* sp. nov. and their antiparasitic activity. *Natural Products Communications* 6: 835-840.
43. Martinez-Luis, S., L. Cherigo, S. Higginbotham, A.E. Arnold, C. Spadafora, A. Ibañez, W.H. Gerwick, L. Cubilla-Rios. 2011. Screening and evaluation of antiparasitic and in vitro anticancer activities of

- Panamanian endophytic fungi. *International Microbiology* 14: 95-102.
42. Vega, F.E., A. Simpkins, M.C. Aime, F. Posada, S.W. Peterson, S.A. Rehner, F. Infante, A. Castillo, A.E. Arnold. 2010. Fungal endophyte diversity in coffee plants from Colombia, Hawai'i, Mexico, and Puerto Rico. *Fungal Ecology* 3: 122-138.
 41. U'Ren[‡], J.M., F. Lutzoni, J. Miadlikowska, A.E. Arnold. 2010. Community analysis reveals close affinities between endophytic and endolichenic fungi in mosses and lichens. *Microbial Ecology* 60: 340-353.
 40. Epps[‡], M.J. and A.E. Arnold. 2010. Diversity, abundance, and community network structure in sporocarp-associated beetle communities in the Appalachian Mountains. *Mycologia* 102: 785-802.
 39. Hoffman[‡], M.T. and A.E. Arnold. 2010. Diverse bacteria inhabit living hyphae of phylogenetically diverse foliar endophytes. *Applied and Environmental Microbiology* 76: 4063-4075.
 38. Arnold, A.E., L.J. Lamit[‡], M. Bidartondo, C. Gehring, H.S. Callahan. 2010. Interwoven branches of the plant and fungal trees of life. *New Phytologist* 185: 874-878.
 37. Peay, K., M. Bidartondo, A.E. Arnold. 2010. Not every fungus is everywhere: scaling the biogeography of fungal-plant interactions across roots, shoots, and ecosystems. *New Phytologist* 185: 878-882.
 36. Parrent[‡], J.L., K. Peay, A.E. Arnold, L.H. Comas, P. Avis, A. Tuininga. 2010. Moving from pattern to process in fungal symbioses: linking functional traits, community ecology, and phylogenetics. *New Phytologist* 185: 882-886.
 35. Arnold, A.E., J. Miadlikowska, K.L. Higgins[#], S.D. Sarvate[#], P. Gugger[#], A. Way[#], V. Hofstetter, F. Kauff, F. Lutzoni. 2009. A phylogenetic estimation of trophic transition networks for ascomycetous fungi: are lichens cradles of symbiotrophic fungal diversification? *Systematic Biology* 58: 283-297 (cover article).
 34. U'Ren[‡], J.M., J.W. Dalling, R. Gallery[‡], D.R. Maddison, E.C. Davis, C.M. Gibson[‡], A.E. Arnold. 2009. Diversity and evolutionary origins of fungi associated with seeds of a neotropical pioneer tree: a case study for analyzing fungal environmental samples. *Mycological Research* 113: 432-449.
 33. Maddison, D.R. and A.E. Arnold. 2009. A review of the *Bembidion* (*Odontium*) *aenulum* subgroup (Coleoptera: Carabidae), with description of a new species. *Zootaxa* 2214: 45-61.
 32. Rodriguez, R.J., J. White, A.E. Arnold, R. Redman. 2009. Fungal endophytes: diversity and ecological roles. *New Phytologist* 182: 314-330.
 31. Arnold, A.E. 2008. Endophytic fungi: hidden components of tropical community ecology. In: *Tropical Forest Community Ecology*. S. Schnitzer & W. Carson, eds. Blackwell Sci., pp. 254-271.
 30. Feldman[‡], T.S., H.E. O'Brien[‡], A.E. Arnold. 2008. Moths that vector a plant pathogen also transport endophytic fungi and mycoparasitic antagonists. *Microbial Ecology* 56: 742-750.
 29. Hoffman[‡], M. and A.E. Arnold. 2008. Geography and host identity interact to shape communities of endophytic fungi in cupressaceous trees. *Mycological Research* 112: 331-344.
 28. Kluger[#], C., J.W. Dalling, R.E. Gallery[‡], E. Sanchez, C. Weeks-Galindo[#], A.E. Arnold. 2008. Prevalent host-generalism among fungi associated with seeds of four neotropical pioneer species. *Journal of Tropical Ecology* 24: 351-354.
 27. Bruns, T., A.E. Arnold, K. Hughes. 2008. Fungal networks made of humans: UNITE, FESIN, and frontiers in fungal ecology. *New Phytologist* 177: 586-588.
 26. Horton, T.R., A.E. Arnold, T.D. Bruns. 2008. FESIN workshops at ESA: the mycelial network grows. *Mycorrhiza* 19: 283-285.
 25. Jiménez-Romero, C., E. Ortega-Barria, A.E. Arnold, L. Cubilla-Rios. 2008. Activity against *Plasmodium falciparum* of lactones isolated from the endophytic fungus *Xylaria* sp. *Pharmaceutical Biology* 46: 700-703.
 24. Kithsiri Wijeratne, E.M., P.A. Paranagama, M.T. Marron, M.K. Gunatilaka, A.E. Arnold, A.A.L. Gunatilaka. 2008. Sesquiterpene quinines and related metabolites from *Phyllosticta spinarum*, a fungus endophytic in *Platyclusus orientalis* in the Sonoran Desert. *Journal of Natural Products* 71: 218-222.
 23. Mejia[‡], L.C., E.I. Rojas, Z. Maynard, S. Van Bael, A.E. Arnold, P. Hebbbar, G.J. Samuels, N. Robbins, E.A. Herre. 2008. Endophytic fungi as biocontrol agents of *Theobroma cacao* pathogens. *Biological Control* 46: 4-14.
 22. Rojas E.I., E.A. Herre, L.C. Mejia[‡], A.E. Arnold, P. Chaverri, G.J. Samuels. 2008. *Endomelanconiopsis*, a new anamorph genus in the Botryosphaeriaceae. *Mycologia* 100: 760-775.
 21. Arnold, A.E. 2007. Understanding the diversity of foliar fungal endophytes: progress, challenges, and frontiers. *Fungal Biology Reviews* 21: 56-61.
 20. Arnold, A.E. and F. Lutzoni. 2007. Diversity and host range of foliar fungal endophytes: Are tropical leaves biodiversity hotspots? *Ecology* 88: 541-549.

19. Arnold, A.E., D.A. Henk[‡], R.L. Eells[#], F. Lutzoni, R. Vilgalys. 2007. Diversity and phylogenetic affinities of foliar fungal endophytes in loblolly pine inferred by culturing and environmental PCR. *Mycologia* 99: 185-206.
18. Arnold*, A.E. and B.M.J. Engelbrecht. 2007. Fungal endophytes nearly double minimum leaf conductance in seedlings of a tropical tree. *Journal of Tropical Ecology* 23: 369-372.
17. Gallery, R. [‡], J.W. Dalling, A.E. Arnold. 2007. Diversity, host affinity, and distribution of seed-infecting fungi: A case study with neotropical *Cecropia*. *Ecology* 88: 582-588.
16. Gallery, R.E. [‡], J.W. Dalling, B. Wolfe[#], A.E. Arnold. 2007. Role of seed-infecting fungi in the recruitment limitation of neotropical pioneer species. In *Seed dispersal: Theory and its application in a changing world*. A. Dennis, R. Green, E. Schupp and D. Westcott, eds. CABI Press. pp. 479-498.
15. Tsai, Y.J. [#], K. Maloney[#], A.E. Arnold. 2007. Abiotic and biotic factors influencing distribution of *Pyrgulopsis thompsoni*, the Huachuca springsnail. *Journal of Aquatic Ecology* 22: 213-218.
14. Agrawal, A.A., D.A. Ackerly, F. Adler, A.E. Arnold, C. Cáceres, D.F. Doak, E. Post, P. Hudson, J. Maron, K.A. Mooney[‡], M. Power, D. Schemske, J.J. Stachowicz, S.Y. Strauss, M.G. Turner, E. Werner. 2007. Filling key gaps in population and community ecology. *Frontiers in Ecology and the Environment* 5: 145-152.
13. Agrawal, A.A., D.A. Ackerly, F. Adler, A.E. Arnold, C. Cáceres, D.F. Doak, E. Post, P. Hudson, J. Maron, K.A. Mooney[‡], M. Power, D. Schemske, J.J. Stachowicz, S.Y. Strauss, M.G. Turner, E. Werner. 2007. In support of observational studies (reply). *Frontiers in Ecology and the Environment* 5: 294-295.
12. Higgins, K. L. [#], A.E. Arnold, J. Miadlikowska, S.D. Sarvate[#], F. Lutzoni. 2007. Phylogenetic relationships, host affinity, and geographic structure of boreal and arctic endophytes from three major plant lineages. *Molecular Phylogenetics and Evolution* 42: 543-555.
11. Paranagama, P.A., E.M. Kithsiri Wijeratne, M.K. Gunatilaka, A.E. Arnold, A.A.L. Gunatilaka. 2007. Heptaketides from *Corynespora* sp. inhabiting the cavern beard lichen, *Usnea cavernosa*: first report of metabolites of an endolichenic fungus. *Journal of Natural Products* 70: 1700-1705.
10. James, T.Y., F. Kauff, C. Schoch, P.B. Matheny, V. Hofstetter, C. Cox, G. Celio, C. Gueidan[‡], E. Fraker, J. Miadlikowska, H.T. Lumbsch, A. Rauhut, V. Reeb[‡], A.E. Arnold, A. Amtoft[‡], J.E. Stajich[‡], K. Hosaka[‡], G.-H. Sung[‡], D. Johnson, B. O'Rourke, M. Crockett, M. Binder, J.M. Curtis, J.C. Slot, Z. Wang, A.W. Wilson, A. Schüßler, J.E. Longcore, K. O'Donnell, S. Mozley-Standridge, D. Porter, P.M. Letcher, M.J. Powell, J.W. Taylor, M.M. White, G.W. Griffith, D.R. Davies, R.A. Humber, J.B. Morton, J. Sugiyama, A.Y. Rossman, J.D. Rogers, D.H. Pfister, D. Hewitt, K. Hansen, S. Hambleton, R.A. Shoemaker, J. Kohlmeyer, B. Volkman-Kohlmeyer, R.A. Spotts, M. Serdani, P.W. Crous, K.W. Hughes, K. Matsuura, E. Langer, G. Langer, W.A. Untereiner, R. Lücking, B. Bädler, D.M. Geiser, A. Aptroot, P. Diederich, I. Schmitt, M. Schultz, R. Yahr[‡], D. Hibbett, F. Lutzoni, D. McLaughlin, J. Spatafora, R. Vilgalys. 2006. Reconstructing the early evolution of the fungi using a six-gene phylogeny. *Nature* 443: 818-822.
9. Miadlikowska, J., F. Kauff, V. Hofstetter, E. Fraker, M. Grube, V. Reeb[‡], G. Hestmark, B. Hodgkinson[‡], M. Kukwa, M.G. Otalora[‡], A. Rauhut, C. Scheidegger, E. Timdal, S. Stenroos, I. Brodo, D. Ertz[‡], P. Diederich, R. Lücking, J.C. Lendemer[‡], E. Tripp[‡], R. Yahr[‡], P. May, G. Perlmutter, D.M. Hillis, W.R. Buck, C. Gueidan[‡], A.E. Arnold, C. Robertson, J. Hafellner, F. Lutzoni. 2006. New insights from nuclear ribosomal and protein coding genes into classification and evolution of the Lecanoromycetes (Pezizomycotina, Ascomycota). *Mycologia* 98: 1088-1103.
8. Spatafora, J.W., C. Schoch, D. Johnson, G.-H. Sung[‡], K. Hosaka[‡], B. O'Rourke, M. Serdani, R. Spotts, F. Lutzoni, V. Hofstetter, E. Fraker, C. Gueidan[‡], J. Miadlikowska, V. Reeb[‡], M. Saunders[#], R. Yahr[‡], A.E. Arnold, T. Lumbsch, R. Lücking. 2006. A five-gene phylogenetic analysis of the Pezizomycotina. *Mycologia* 98: 1018-1028.
7. Arnold*, A.E., L. Mejía, D. Kylo, E. Rojas, Z. Maynard, N. Robbins, E.A. Herre. 2003. Fungal endophytes limit pathogen damage in a tropical tree. *Proceedings of the National Academy of Sciences USA* 100: 15649-15654.
6. Lutzoni, F., F. Kauff, C. Cox, D. McLaughlin, G. Celio[‡], B. Dentinger[‡], M. Padamsee[‡], D. Hibbett, T.Y. James[‡], E. Baloch, M. Grube, V. Reeb[‡], V. Hofstetter, C. Schoch, A.E. Arnold, J. Miadlikowska, J. Spatafora, D. Johnson, S. Hambleton, M. Crockett, R. Shoemaker, G.-H. Sung[‡], R. Lücking, T. Lumbsch, K. O'Donnell, M. Binder, P. Diederich, D. Ertz[‡], C. Gueidan[‡], K. Hansen, K. Hosaka, Y.-W. Lim, B. Matheny[‡], H. Nishida, D. Pfister, J. Rogers, A. Rossman, I. Schmitt, H. Sipman, J. Stone, J.

- Sugiyama, R. Yahr[‡], R Vilgalys. 2003. Assembling the fungal tree of life: progress, classification, and the evolution of subcellular traits. *American Journal of Botany* 91: 1446-1480.
5. Arnold*, A.E. and E.A. Herre. 2003. Canopy cover and leaf age affect colonization by tropical fungal endophytes: Ecological pattern and process in *Theobroma cacao* (Malvaceae). *Mycologia* 95: 388-398.
 4. Arnold*, A.E. and N.M. Asquith. 2002. Herbivory in a fragmented tropical forest: patterns from islands at Lago Gatún, Panamá. *Biodiversity and Conservation* 11: 1663-1680.
 3. Arnold*, A.E., Z. Maynard, G. Gilbert. 2001. Fungal endophytes in dicotyledonous neotropical trees: patterns of abundance and diversity. *Mycological Research* 105: 1502-1507.
 2. Arnold*, A.E., Z. Maynard, G. Gilbert, P.D. Coley, T.A. Kursar. 2000. Are tropical fungal endophytes hyperdiverse? *Ecology Letters* 3: 267-274.
 1. Asquith*, N.M., J. Terborgh, A.E. Arnold, M. Riveros-C. 1999. The fruits the agouti ate: *Hymenaea courbaril* seed fate when its disperser is absent: evidence from Lago Guri, Venezuela. *Journal of Tropical Ecology* 15: 229-235.

V. Manuscripts currently in review or revision

1. Baltrus, D.A. and A.E. Arnold. Unusual sulfur requirements during laboratory growth of *Luteibacter*.
2. Daru, B.H., E.A. Bowman, D. Pfister, A.E. Arnold. Capturing the diversity of endophytic symbionts from herbarium specimens.
3. Harrington[‡], A.H., M. Del Olmo-Ruiz, D.C. Sandberg, M. Hoffman, Y.-L. Huang, J.M. U'Ren, A.E. Arnold. *Coniochaeta endophytica* sp. nov., a foliar endophyte that showcases challenges in defining species boundaries, even with multiple lines of evidence.
4. Li, Y.M., J.P. Shaffer, B. Hall, H. Ko, A.E. Arnold. Soil-borne fungi influence aspects of seed fate relevant to coexistence of desert winter annual plants.
5. Lutzoni, F., M. Nowak, M. Alfaro, J. Miadlikowska, D. Swofford, A.E. Arnold, D. Hibbett, K. Hilu, T. James, D. Quandt, S. Magallón. Synchronized radiations in plants and fungi linked to symbiosis.
6. McIntosh, M.E., A.E. Boyd, A.E. Arnold, R.J. Steidl, L.A. McDade. Demography of a declining population of the endangered Nichol's Turk's head cactus, *Echinocactus horizonthalonius* var. *nicholii*.
7. Ohkura[‡], M., A.E. Arnold, M.J. Orbach. Emergence of *Chrysosporium*-like pathogens of reptiles indicates the need for revision of *Chrysosporium*.
8. Taylor[#], M.J., R.W. Mannan, J.M. U'Ren, N.P. Garber, R.E. Gallery, A.E. Arnold. Age-related variation in the oral microbiome of urban Cooper's hawks (*Accipiter cooperii*).

VI. Chapters in scholarly books

- Van Bael, S.A., Estrada C., and Arnold, A.E. 2017. Foliar endophyte communities and leaf traits in tropical trees. *The Fungal Community: its organization and role in the ecosystem* (J.F. White, Jr., J. Dighton, & P. Oudemans, eds). 4th Edition. Marcel-Dekker, pp. XX-XX.
- Arnold, A.E. and L.C. Lewis. 2005. Evolution of fungal endophytes, and their roles against insects. *Ecological and Evolutionary Advances in Insect-Fungus Associations* (F. Vega and M. Blackwell, eds.). Oxford University Press, pp. 74-96.
- Van Bael*, S.A., Z. Maynard, N. Robbins, J.F. Bischoff, A.E. Arnold, E. Rojas, L.C. Mejia[‡], D.A. Kyllo, and E.A. Herre. 2005. Emerging perspectives on the ecological roles of endophytic fungi in tropical plants. *The Fungal Community: its organization and role in the ecosystem* (J.F. White, Jr., J. Dighton, & P. Oudemans, eds). 3rd Edition. Marcel-Dekker, pp. 181-191.
- Herre*, E.A., S. A. Van Bael, Z. Maynard, N. Robbins, J. Bischoff, A.E. Arnold, E. Rojas, L. C. Mejia[‡], R. A. Cordero, C. Woodward, and D.A. Kyllo. 2005. Tropical plants as chimera: some implications of foliar endophytic fungi for the study of host plant defense, physiology, and genetics. *Biotic Interactions in the Tropics* (D.F.R.P. Burslem, M.A. Pinar, & S.E. Hartley, eds.) Cambridge University Press. pp. 226-237.

VII. Technical writing and other materials

- Bidartondo, M., and 125 others. 2008. Preserving accuracy in GenBank. *Science* 319: 1616 (published commentary/open letter from mycological community).
- Arnold, A.E. 2008. Hidden within our botanical richness, a trove of fungal endophytes. *Plant Press* 32: 13-15.
- Hoffman[‡], M., M. Gunatilaka, J. Ong[#], M. Shimabukuro, and A.E. Arnold. 2008. Molecular analysis reveals a distinctive endophyte community associated with foliage of montane oaks in southeastern Arizona. *Journal of the Arizona-Nevada Academy of Science* 40: 91-100.
- Bashyal, B.P., A.M. Burns, M.X. Liu, P.A. Paranagama, C.J. Seliga, T.J. Turbyville, E.M.K. Wijeratne, J. Zhan, M.K. Gunatilaka, A.E. Arnold, S.H. Faeth, L. Whitesell, and A.A.L. Gunatilaka. 2007. Discovery of small molecule bioactive agents from endophytic fungi of the Sonoran Desert. Proceedings of the 6th International Symposium on Fungal Endophytes of Grasses. Grassland Research and Practice Series No. 13, New Zealand Grassland Association, Christchurch.
- Arnold, A.E. 2005. Diversity and ecology of fungal endophytes in tropical forests. Current Trends in Mycological Research (S. Deshmukh, ed.). Oxford IBH Publishing, New Delhi: pp. 49-68.
- Mejía, L.C., E. Rojas, Z. Maynard, A.E. Arnold, D. Kyllö, N. Robbins, and E.A. Herre. 2003. Inoculation of beneficial endophytic fungi into *Theobroma cacao* tissues. In *Proceedings of the 14th International Cocoa Research Conference*, Accra-Ghana.
- Arnold*, A.E. 2001. Fungal endophytes in neotropical trees: Abundance, diversity, and ecological interactions. In *Tropical Ecosystems: Structure, Diversity and Human Welfare* (K.N. Ganeshiah, R. Uma Shaanker, & K. S. Bawa, eds.). Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi. pp. 739-743.
- Arnold, A. E., L. Mejía, E. Rojas, Z. Maynard, N. Robbins and E. A. Herre. 2001. Organismos endofíticos: Microorganismos en plantas. (Endophytic organisms: microorganisms in plants.) *El Uso de Micro-organismos Benéficos en la Agricultura Moderna*. Universidad E.A.R.T.H., Limón, Costa Rica.
- Arnold, A.E. 1999. Fungal endophytes of tropical trees: methods and potential for biological control of fungal pathogens of cocoa. *Proceedings of the Research Methodology of Biocontrol of Plant Diseases Workshop*, San Jose: CATIE.
- Arnold*, A.E. 1999. Sustainable cocoa: the fungal community component. *American Cocoa Research Institute Features in Integrated Pest Management for Cocoa*: Online: http://www.oardc.ohiostate.edu/cocoa/main_ftr.htm.
- Arnold, A.E. 2005-present. Web content for research and outreach websites relevant to National Science Foundation funding: see <http://www.arnoldlab.net>, <http://www.EnDoBiodiversity.org>, and <http://publish.illinois.edu/tropicalseeds>.

VIII. Grants awarded (since faculty appointment)

Percents indicate percent effort in the intellectual development, preparation, and administration of the grant and associated research. For some grants, effort is decoupled from budget allocations. Therefore, dollar amounts indicate either (1) total award amounts ("total budget"), reflecting circumstances where I, as co-PI, have played a sufficiently substantial role in garnering the funds to merit inclusion of the total amount here; or (2) the amount awarded to me, reflecting circumstances where I am sole PI or I am co-PI, but the grant proposal and associated research have distinct components based in different research labs.

1. Federal grants awarded

- 2018 National Science Foundation, Integrative Organismal Systems: Research at Undergraduate Institutions (RUI): Antifungal protection of eggs by maternal cloaca. Senior personnel. Total to PIs S. Weiss and M. Martin, University of Puget Sound: \$740,000. 2018-2021.
- 2016 National Science Foundation, Ecology: Collaborative Research: Extending leaf functional trait ecology to leaf symbionts. PI. Total, \$371,844; Arnold, \$184,872. 2016-2019.
- 2015 National Science Foundation, Genealogy of Life: GoLife: Collaborative Research: Filling the largest void in the fungal genealogy of life (the Pezizomycotina) and integrating symbiotic, environmental and physiological data layers. PI. Total, \$2,498,809; Arnold, \$734,765. 2016-2020.

- 2014 National Science Foundation, Ecology. Research Experiences for High School Students: Understanding tropical seed-associated fungi. PI. (100%). Arnold, \$9000. 2015-2016.
- 2014 National Science Foundation, Integrative Organismal Systems: Bacterial controls of endophyte phenotypes: an unexplored dimension of diverse plant-fungal symbioses. Co-PI. Total, \$653,072. 2014-2017.
- 2014 National Science Foundation, Systematics: The future of comparative biology in a phylogenetic age: enabling the power and potential of the genealogy of life. Co-principal investigator (20%) with M. Westneat (PI), and R. Knight, L. McDade, and D.R. Maddison (Co-PIs). Total, \$650,259. 2014-2017.
- 2014 National Science Foundation, Ecology. Research Experiences for Teachers: Understanding tropical seed-associated fungi. PI (100%). Arnold, \$15,322. 2014-2015.
- 2014 Department of Energy-Joint Genome Institute (JGI). Mechanisms of interaction in the foliar fungal microbiome of *Populus trichocarpa*. Co-principal investigator (20%) with P. Busby (PI) and R. Vilgalys, G. Newcombe, and N. Zimmerman (Co-PIs). Provides support for large-scale sequencing at JGI.
- 2013 National Science Foundation, Ecology. Research Experiences for Undergraduates: Understanding endohyphal bacteria in tropical seed-associated fungi. PI (100%). Arnold, \$7,762. 2013-2014.
- 2012 National Science Foundation, Ecology. Collaborative Research: Seed defense syndromes in tropical trees: emergent properties of seed dormancy, defense, and microbial interactions. PI (100%). Arnold, \$100,000. 2012-2015.
- 2012 National Science Foundation, Ecology. Research Experiences for Teachers: Seeds of Change: integrating seed defense syndromes into high school curricula at Tucson High Magnet School. PI (100%). Arnold, \$15,000. 2012-2014.
- 2012 National Science Foundation, Thematic Collections Network: Collaborative: The Macrofungi Collection Consortium: unlocking a biodiversity resource for understanding biotic interactions, nutrient cycling and human affairs. Subcontractor. Arnold, \$38,477 for Mycological Herbarium. 2013-2014.
- 2012 National Science Foundation, Dimensions of Biodiversity. Research Experiences for Undergraduates: Endohyphal bacteria in boreal fungal endophytes: an unexplored dimension of biodiversity. PI (100%). Arnold, \$17,447. 2011-2015.
- 2011 National Science Foundation, Dimensions of Biodiversity. Collaborative Research: An inter-disciplinary study of hyperdiverse endophytic fungi and their function in boreal forests. PI (100%). Arnold, \$999,011. 2011-2015.
- 2010 National Science Foundation, Dissertation research: Diversification and evolution of major trophic modes in the Xylariaceae: exploring the roles of previously unknown symbiotrophic and saprotrophic fungi. PI (100%). (DDIG, Jana U'Ren). Arnold, \$11,162. 2010-2012.
- 2009 National Science Foundation, URM: Undergraduate Research and Mentoring at a Hispanic Serving Institution: Investigating a Rare Ecosystem (ARRA/Stimulus; The University of Texas-Pan American). Collaborator; lead UA PI as of 2011. Total budget, \$171,200. 2009-2013.
- 2009 National Institutes of Health: P41. Diverse molecular libraries from unique symbiotic fungi. Co-principal investigator (50%) with AAL Guantilaka (PI). Arnold, \$91,496. 2009-2014.
- 2009 US Army. Fungal endophytes as anti-malarial drug leads. Contractor. Arnold, \$68,700. 2010-2012.
- 2009 National Institutes of Health: R01: Anticancer Agents from Plant- and Lichen-Associated Fungi of the Sonoran Desert. Co-PI (50%), Arnold, \$127,855.
- 2009 National Science Foundation, Biological Research Collections: Safe specimen storage for plant and fungal collections in peril at the University of Arizona Herbarium (ARIZ). Co-Principal investigator (40%) with M. McMahon (PI) and P. Jenkins. Co-PI. Total, \$350,197.
- 2007 National Science Foundation, Microbial Interactions and Processes: Bacterial endosymbionts of phyllosphere fungi: resolving the endophyte/saprophyte/pathogen continuum on the Navajo Nation. PI. (100%). Arnold, \$404,258.
- 2007 National Science Foundation, Systematics: Collaborative research: Hyperdiverse endolichenic and endophytic fungi: A large-scale, multi-gene phylogenetic survey and estimation of trophic transition networks. PI. (100%). Arnold, \$153,391.
- 2007 National Science Foundation, Research Coordination Networks (RCN): Fungal Environmental Sampling and Informatics Network (FESIN). Co-PI; funds administered through UC Berkeley. Total, \$335,555. 2007-2012.
- 2006 National Science Foundation, Integrative Organismal Systems: Bacterial endosymbionts of endophytic fungi: diversity, coevolution, ecological roles. NSF Starter Grant. PI. (100%). Arnold, \$29,938.

- 2006 National Science Foundation, Ecology: Research Experiences for Undergraduates: Diversity, distribution, and demographic effects of seed-associated fungi. PI. (100%). Arnold, \$6,498.
- 2006 United States Department of Agriculture: Cryptic fungal diversity of Dine Bikeyah (Navajo Nation). Co-PI (90%) with tribal college faculty; funds administered through Diné College. Total,: \$75,000.
- 2005 National Science Foundation, Ecology: Collaborative Research: Diversity, distribution, and demographic effects of seed-associated fungi in neotropical *Cecropia*. PI (100%). Arnold, \$143,165.

2. State and university grants awarded

- 2014 The University of Arizona, 1885 Distinguished Scholar Award: research funds for discretionary use. Arnold, \$10,000.
- 2012 The University of Arizona, Faculty Foreign Development Grant: Cultivating new collaborations in plant-fungal biology and chemistry with the University of Panama. Principal investigator (100%). Arnold, \$660.
- 2007 The University of Arizona, Faculty Small Grant: Bacterial endosymbionts: hidden masterminds of fungal-plant interactions. Principal investigator (100%). Arnold, \$9,046.
- 2007 College of Agriculture and Life Sciences, The University of Arizona, Pilot funding: Cellulolytic enzyme activity of fungi in the Robert L. Gilbertson Mycological Herbarium. Co-principal investigator (50%) with B Pryor. Arnold, \$4000.
- 2006 The University of Arizona, Faculty Foreign Travel Award: Support for attending the International Botanical Congress in Vienna, Austria. Principal investigator (100%). Arnold, \$700.

3. Grants by private groups and international agencies

- 2014- Licensing agreements and service contracts with Symbiota/Indigo Agriculture, totalling ca. \$350,000 in direct costs/support for UA personnel, outreach, and microbiome discovery.
- 2013 Life Sciences Research Foundation. Understanding plant-fungal interactions in leaves: how labile are life histories? Co-principal investigator (50%) with N. Zimmerman. Total budget, \$180,000. 2013-2015.
- 2013 Huron Mountain Wildlife Foundation. Evaluating the previously unknown diversity of endophytic symbionts of boreal plants and lichens in the Huron Mountains. Principal investigator (100%). Arnold, \$4222. 2013-2014.
- 2008 SENACyT (National science foundation of Panama): Inventory and phylogenetic analysis of fungi associated with marine sponges from protected areas of the Republic of Panama. Co-principal investigator (50%); funds administered through INDICASAT-Panama. Arnold, \$17,395.
- 2008 National Geographic Society: Uncovering multiple layers of biodiversity: viruses of fungal endophytes within tropical forest trees. Co-principal investigator (40%); funds administered through Venezuelan Research Council. Total budget: \$29,893.
- 2006 Center for Tropical Forest Studies: Tropical microbial diversity at multiple scales: cryptic fungal symbionts of tropical trees. Principal investigator (100%). Arnold, \$19,540.
- 2006 Indo-US Technology Forum: Tropical microbial diversity at multiple scales: training in molecular methods at the University of Arizona. Co-principal investigator (50%); funds administered through Vivekananda College, Ramakrishna Mission, India. Total budget: \$2,741.

4. Other funding and research support from public sources

- 2017 Department of Energy-Joint Genome Institute (JGI). Comparative and population genomics of Xylariaceae: exploring the roles of endophytic fungi in lignocellulose degradation, nutrient cycling, and secondary metabolite production. Co-PI (30%) with J. U'Ren and J. Wisecaver. Covers genome sequencing for 100 + endophytic fungi plus release by JGI; no funds received directly from this competitive award. 2017-2019.
- 2013 Department of Energy-Joint Genome Institute (JGI). Convergent evolution of an endohyphal lifestyle and mutualism in phylogenetically diverse bacteria. Co-principal investigator (60%) with D. Baltrus. Covers genome sequencing for 12 endohyphal bacteria and data release by JGI; no funds received directly from this competitive award. 2013-2015.
- 2012 Department of Energy-Joint Genome Institute (JGI). 1000 Fungal Genomes Initiative.

- Collaborator with 15 others. Covers genome sequencing and data release for 20 endophytic fungi for Arnold, as well as fungal strains of interest from other groups; also provides mechanism for community nomination of strains for sequencing. No funds received directly from this competitive award. 2012-2015.
- 2005-present United States Department of Agriculture/Agricultural Experiment Station (Hatch). Molecular ecology, evolution, and systematics of cryptic plant symbionts: fungal endophytes of foliage. Principal investigator (100%). 2014-2018.
- 2005-present United States Department of Agriculture/Agricultural Experiment Station (Hatch). Robert L. Gilbertson Mycological Herbarium. Principal investigator (100%). 2005-2025.
- 2005-2009 Arizona Department of Agriculture: Research on threatened and endangered Arizona plants. Co-principal investigator (20%). Indirect costs supported infrastructure and research in the Mycological Herbarium.

IX. Invited scholarly presentations (since faculty appointment)

Presented as first author or sole author () except when indicated. Invitations that were declined are not listed.*

- 2019 Harvard University, Organismal and Evolutionary Biology (invtd seminar). A.E. Arnold. Perspectives from leaves and lichens on the scale and distribution of the global endobiome.
- 2018 University of Arizona, Soil, Water, and Environmental Sciences Colloquium (invited seminar). A.E. Arnold. Perspectives from leaves and lichens on the scale and distribution of the global endobiome.
- 2018 Gordon Research Conference, Fungal Cell and Molecular Biology (invited symposium). A.E. Arnold. Perspectives from leaves and lichens on the scale and distribution of the global endobiome.
- 2018 International Symbiosis Society Congress (plenary speaker). A.E. Arnold. Perspectives from leaves and lichens on the scale and distribution of the global endobiome.
- 2018 University of Minnesota, Plant Biology (invited seminar). A.E. Arnold. Perspectives from leaves and lichens on the scale and distribution of the global endobiome.
- 2018 University of Massachusetts, Amherst, Plant Sciences (graduate invited speaker). A.E. Arnold. Perspectives from leaves and lichens on the scale and distribution of the global endobiome.
- 2018 Coral Reef Biology Congress, Magnetic Island, Australia (invited symposium). A.E. Arnold. Perspectives from leaves and lichens on the scale and distribution of the global endobiome.
- 2017 Botanical Society of America (invited symposium). A.E. Arnold. Interactions across boundaries promote symbiotic modulation of plant phenotypes.
- 2017 University of Michigan, Warren Wagner Lecture, Ecology and Evolutionary Biology (invited seminar). A.E. Arnold. Perspectives from leaves and lichens on the scale and distribution of the global endobiome.
- 2017 Future Arctic: Global Initiative on bryophyte and lichen Arctic research from species to ecosystems, Symposium, Québec, Canada (invited symposium). U'Ren, J.M., F. Lutzoni, J. Miadlikowska, A. Leo#, G. May, I. Carbone, A.E. Arnold. Environmental drivers and spatial structuring of boreal endolichenic fungi and local, regional, and global scales.
- 2016 University of Arizona, Department of Ecology and Evolutionary Biology (invited seminar). A.E. Arnold. Perspectives from leaves and lichens on the scale and distribution of the global endobiome.
- 2016 Yosemite Symbiosis Workshop (keynote). A.E. Arnold. Perspectives from leaves and lichens on the scale and distribution of the global endobiome.
- 2016 Mycological Society of America (invited symposium). Arnold, A.E., J.M. U'Ren, J. Miadlikowska, I. Carbone, Y.-L. Huang, E.A. Bowman, G. May, F. Lutzoni. Perspectives from leaves and lichens on the scale and distribution of the global endobiome.
- 2016 Botanical Society of America (invited symposium). Chen‡, K.-H., H.-L. Liao, A.E. Arnold, F. Lutzoni. Metatranscriptomic analysis of the moss *Dicranum scoparium* reveals active fungal communities and functionalities across a senescence gradient.
- 2016 International Association of Lichenologists International Symposium, Helsinki, Finland (invited symposium). U'Ren, J.M., F. Lutzoni, J. Miadlikowska, A. Leo#, G. May, I. Carbone, A.E. Arnold. Environmental drivers and spatial structuring of boreal endolichenic fungi and local, regional, and global scales.

- 2016 National Science Foundation (invited poster). U'Ren, J.M., J. Miadlikowska, F. Lutzoni, A. Leo, S. Oita, G. May, I. Carbone, A.E. Arnold. Geographic and temporal structure of endophytic and endolichenic fungal communities of the boreal biome.
- 2016 National Science Foundation (invited poster). Carbone, I., J.B. White, J. Miadlikowska, A.E. Arnold, M.A. Miller, F. Kauff, C. Schoch, J.M. U'Ren, G. May, F. Lutzoni. Enhancing fungal species discovery and description using T-BAS: Tree-based alignment selector toolkit.
- 2016 Stanford University, Department of Biology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of fungal symbioses.
- 2015 Swedish University of Agricultural Sciences, Uppsala, Sweden (invited seminar). A.E. Arnold: Symbiosis, fungal endophytes, and biodiversity.
- 2015 Swedish University of Agricultural Sciences, Uppsala, Sweden. (invited seminar) A.E. Arnold: fungal endophytes from the tropics to the tundra.
- 2015 Association for Tropical Biology and Conservation, Hawai'i (invited presentation). Sarmiento, C., P-C. Zalamea, J.W. Dalling, A.S. Davis, A.E. Arnold. Seed-associated fungi: effects on seed survival and germination of tropical pioneer species.
- 2015 International Workshop on Ascomycete Systematics, Amsterdam, The Netherlands (invited presentation). Lutzoni, F., J. Miadlikowska, J.M. U'Ren, I. Carbone, A.E. Arnold: Filling in the gaps on the fungal tree of life through endophyte discovery.
- 2015 International Workshop on Ascomycete Systematics, Amsterdam, The Netherlands (invited presentation). Arnold, A.E., J.M. U'Ren, J. Miadlikowska, I. Carbone, F. Lutzoni: Progress toward capturing the biodiversity of fungal endophytes.
- 2015 International Workshop on Ascomycete Systematics, Amsterdam, The Netherlands (invited presentation). Lutzoni, F., I. Carbone, J.B. White, J. Miadlikowska, J.M. U'Ren, A.E. Arnold: Challenges to speeding up the name of new fungal species.
- 2015 International Workshop on Ascomycete Systematics, Amsterdam, The Netherlands (invited presentation). Carbone, I., J.B. White, J. Miadlikowska, J.M. U'Ren, A.E. Arnold, F. Lutzoni: New online tools for species delimitation and classification of unknown fungal endophytes.
- 2015 Fungal Genetics Conference, Asilomar, CA (invited presentation). Zimmerman, N.B., A.E. Arnold, P. Vitousek. A highly diverse clade of melanized fungi associated with leaves and trichomes of the endemic tree *Metrosideros polymorpha* at high elevation sites in Hawai'i.
- 2015 Fungal Genetics Conference, Asilomar, CA (invited presentation). U'Ren, J.M., F. Lutzoni, J. Miadlikowska, T. Gleason, A. Leo, T. Monacell, K.-H. Chen, G. May, I. Carbone, A.E. Arnold. Geographic and temporal structure of endophytic and endolichenic fungal communities of the boreal biome.
- 2015 University of Pittsburgh, Department of Biology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of fungal symbioses.
- 2015 University of Oregon, Institute of Ecology and Evolution (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of fungal symbioses.
- 2015 University of Arizona, School of Natural Resources and the Environment (invited seminar). Arnold, A.E. Discovering new resources among the fungi that live within healthy plants.
- 2014 International Mycological Congress, Bangkok, Thailand (invited symposium). Arnold, A.E., J. U'Ren, V.L. Wong, K.R. Arendt*, K-H. Chen*, R. Oono, J. Miadlikowska, I. Carbone, D. Baltrus, G. May, F. Lutzoni. What can >50,000 cultures tell us about the ecological specificity of endophytes and related fungi?
- 2014 University of Arizona, School of Plant Sciences (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal symbioses.
- 2014 International Mycological Congress, Bangkok, Thailand (invited symposium); University of Arizona, School of Plant Sciences (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal symbioses.
- 2014 NIH International Cooperative Biodiversity Group (invited presentation). Arnold, A.E. Using epigenetic modifiers and new substrates to enhance the pace and impact of ecologically-guided discovery of bioactive metabolites from tropical fungi.
- 2014 University of Virginia, Department of Biology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2014 Tulane University, Evolution and Ecology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

- 2013 Cornell University, Department of Plant Pathology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2013 Michigan State University, Department of Plant Sciences (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2013 Northern Arizona University, Department of Forestry (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2013 University of Georgia, Plant Sciences Annual Research Retreat (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2013 Association for Tropical Biology and Conservation (invited symposium). Del Olmo[‡], M. and Arnold, A.E. Diversity, distributions, and host affiliations of endophytes associated with tropical ferns.
- 2013 Association for Tropical Biology and Conservation (invited symposium). Corrales[‡], A.O., J.W. Dalling, A.E. Arnold, K. McGuire. Variation in ectomycorrhizal community composition along a soil nutrient gradient in a montane forest in western Panama.
- 2013 British Mycological Society (invited symposium). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2012 Yale University, Department of Ecology and Evolutionary Biology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2012 Pennsylvania State University, Department of Plant Pathology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2012 Oregon State University, Department of Botany and Plant Pathology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2012 University of Nebraska Biotechnology Center (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2012 International Symbiosis Society Congress, Krakow, Poland (invited symposium). Lutzoni, F., M. Nowak, M. Alfaro, J.M. U'Ren, A.E. Arnold, J. Miadlikowska, S. Magallon. A multidimensional exploration of plant-fungal symbioses and their associated shifts in diversification rate.
- 2012 University of Illinois/Illinois Natural History Survey (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2012 International Symbiosis Society Congress, Krakow, Poland (invited symposium). Arnold, A.E., J.M. U'Ren, K. Arendt[‡], J. Miadlikowska, B. Ball, E. Lefevre, I. Carbone, G. May, F. Lutzoni. Emerging perspectives on endophytic and endolichenic symbioses.
- 2012 International Lichenology Symposium, Bangkok, Thailand (invited symposium). U'Ren, J.M., F. Lutzoni, J. Miadlikowska, A.E. Arnold. Diversity and biogeography of endophytic and endolichenic fungi.
- 2012 American Chemical Society, Southeastern Region, Raleigh, NC (invited symposium). Arnold, A.E. New perspectives on the diversity, distributions, and applications of endophytic fungi.
- 2011 26th Fungal Genetics Conference (plenary presentation). Arnold, A.E. Evolutionary origins of endophytic fungi.
- 2011 American Society for Microbiology (plenary presentation). Arnold, A.E. Distributions of hyperdiverse fungal endophytes: from leaves to landscapes.
- 2011 Latin American Congress of Mycology, San Jose, Costa Rica (invited symposium). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2011 Mycological Society of America (invited symposium). Lutzoni, F., J. Miadlikowska, V. Reeb, M. Nowak, K. Molar, J.M. U'Ren, F. Kauff, E. Gaya, M. Alfaro, S. Magallon, A.E. Arnold. A comprehensive phylogenetic overview of spatial and host distribution of endolichenic and endophytic fungi based on 15,000 tissue samples.
- 2011 National Science Foundation Research Coordination Network, Fungal environmental sampling and informatics network (invited presentation). Furr, S. and A.E. Arnold. One-day 'science camp' on fungal diversity for middle-school students – experiences, suggestions.
- 2011 National Science Foundation Research Coordination Network, Fungal environmental sampling and informatics network (invited presentation). Arnold, A.E. Understanding broader impacts in grant-writing for fungal ecology.
- 2010 International Mycological Congress, Edinburgh, Scotland, UK (invited symposium). Arnold, A.E., J.M. U'Ren[‡], F. Kauff, J. Miadlikowska, K. Molnar, F. Lutzoni. Origins and co-evolution of endolichenic and endophytic fungi.

- 2010 International Mycological Congress, Edinburgh, Scotland, UK (invited symposium). Hoffman[‡], M.T. and A.E. Arnold. Endohyphal bacteria of foliar endophytes: secret drivers of plant-endophyte interactions?
- 2010 Gordon Research Conference, Fungal cellular and molecular biology (invited speaker). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2010 University of Texas, Austin, Department of Integrative Biology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.
- 2010 University of California, Riverside, Department of Plant Pathology and Microbiology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra.
- 2009 Yale University, Department of Molecular Biophysics and Biochemistry (invited presentation). Arnold, A.E. Fungal endophytes: biodiversity and pharmaceutical potential.
- 2009 Yale University, Department of Molecular Biophysics and Biochemistry (invited presentation). Arnold, A.E. Fungal endophytes: tools for outreach to under-represented students in the sciences.
- 2009 NIH International Cooperative Biodiversity Group – Panama, annual meeting (invited presentation). Arnold, A.E. Perspectives on the diversity and pharmaceutical potential of tropical endophytic fungi.
- 2009 University of California, Berkeley, Tsujimoto Lecturer, Department of Plant and Microbial Biology (invited seminar). Arnold, A.E. Fungal endophytes and the evolution of fungal symbioses.
- 2009 Indiana University, Department of Biology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of fungal symbioses.
- 2009 Arizona State University, School of Life Sciences (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of fungal symbioses.
- 2009 International Symbiosis Society, 6th International Congress (invited symposium). Arnold, A.E. Evolutionary origins of endophyte symbioses: implications for host defense.
- 2009 Botanical Society of America (invited symposium). Arnold, A.E. Evolutionary origins of endophyte symbioses.
- 2009 Mycological Society of America (invited symposium). Lutzoni, F., J. Miadlikowska, J. U'Ren[‡], K. Molnar, E. Gaya, A.E. Arnold. The lichen microbiome and the evolution of fungi.
- 2008 Louisiana State University, Department of Biological Sciences (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: cryptic mutualism, hidden diversity, and clues to the evolution of plant-fungal symbioses.
- 2008 Rancho Santa Ana Botanical Garden, Claremont Graduate University (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: cryptic mutualism, hidden diversity, and clues to the evolution of plant-fungal symbioses.
- 2008 University of Arizona, Department of Plant Sciences (invited seminar). Arnold, A.E. The Robert L. Gilbertson Mycological Herbarium: Old dead fungi in boxes... and so much more.
- 2008 Diné College, Navajo Nation (invited seminar). Arnold, A.E. Fungal endophytes and endolichenics on the Navajo Nation.
- 2008 International Lichenology Congress (invited symposium). Arnold, A.E., J. U'Ren[‡], J. Miadlikowska, F. Lutzoni. Endolichenic fungi: diversity, distributions, and evolutionary origins.
- 2008 NSF Research Coordination Network 'FESIN', Workshop/meeting, Ecological Society of America (invited symposium). Arnold, A.E. Metadata needed for environmental sequences.
- 2008 Ecological Society of America (invited symposium). Arnold, A.E., B. Klein, M. Shimabukuro. Fungal endophytes from leaves to landscapes: alpha, beta, and gamma diversity of foliar symbionts of plants.
- 2008 5th Annual Arizona Botanists' Meeting (invited symposium). Arnold, A.E. Symbiotic fungi within the plants of Arizona: a new perspective on our 'botanical' richness.
- 2007 University of Wisconsin, Madison, Department of Plant Pathology (Women in Evolution seminar series; invited seminar). Arnold, A.E. Fungal endophytes and the evolution of fungal symbioses.
- 2007 Harvard University, Department of Organismic and Evolutionary Biology (Microbial Science Initiative series, invited seminar). Arnold, A.E. Understanding the evolution of fungal symbioses: clues from hyperdiverse fungal endophytes.
- 2007 University of Minnesota, Department of Plant Pathology (Graduate student invited speaker). Arnold, A.E. Endophyte diversity and ecology: what can we learn in terms of fungal evolution?
- 2007 Botanical Society of America (invited symposium). Arnold, A.E. Cryptic fungal endophytes elucidate the evolution of fungal symbioses with plants.

- 2007 Mycological Society of America (invited symposium). Arnold, A.E. FESIN: A new research coordination network in fungal ecology.
- 2007 Mycological Society of America (invited symposium). Arnold, A.E. Barcoding endophytes: lessons, limitations, and linkages with multilocus datasets.
- 2007 Mexican Botanical Congress, Zacatecas, Mexico (invited symposium). Arnold, A.E. Endophytic fungi: diversity, ecology, and importance in the evolution of plants.
- 2007 National Science Foundation, RCN Awardees Meeting, Washington, DC (invited presenter). Arnold, A.E., T. Bruns, K. Hughes. FESIN: Fungal environmental sampling and informatics network.
- 2007 Diné College, Navajo Nation (invited seminar). Arnold, A.E. The ecology and diversity of fungal endophytes in Diné Bikéyah.
- 2006 University of California, Davis, Department of Plant Pathology (invited seminar). Arnold, A.E. Cryptic diversity, hidden mutualism: fungal endophytes from the tropics to the tundra.
- 2006 Northern Arizona University, Department of Biology, Flagstaff, AZ (invited seminar). Arnold, A.E. From the tropics to the tundra, endophytes inform our understanding of fungal symbioses.
- 2006 University of Nevada at Las Vegas, Department of Biology, Las Vegas, NV (invited seminar). Arnold, A.E. Fungal endophytes provide cryptic clues to the evolution of fungal symbioses.
- 2006 Diné College, Navajo Nation, Tsaile, AZ (invited seminar). Arnold, A.E. The ecology and diversity of fungal endophytes.
- 2006 Diné College, Navajo Nation, Tsaile, AZ (invited seminar). Arnold, A.E. Effects of biotic and abiotic factors on endophyte diversity in the Chuska Mountains.
- 2006 Mycological Society of America, Annual meeting, Québec, Canada (invited symposium). Arnold, A.E. From leaves to landscapes: endophyte diversity at small and large spatial scales.
- 2006 International Mycological Congress, Cairns, Australia (invited symposium). Miadlikowska, J., A.E. Arnold, F. Lutzoni. Leaves and lichens are cradles of fungal diversification.
- 2005 University of Michigan, Department of Ecology and Evolutionary Biology, Ann Arbor, MI (invited seminar). Arnold, A.E. Fungal endophytes: clues to the evolution of plant-fungus symbioses.
- 2005 University of Illinois, Department of Plant Biology, Urbana, IL (invited seminar). Arnold, A.E. Cryptic diversity, hidden mutualism: fungal endophytes from the tropics to the tundra.
- 2005 University of Minnesota, Department of Ecology and Evolutionary Biology, St. Paul, MN (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra – and the evolution of fungal symbioses.
- 2005 Harvard University, Department of Organismic and Evolutionary Biology, Cambridge, MA (invited seminar). Arnold, A.E. Fungal endophytes: clues to the evolution of plant-fungus symbioses.
- 2005 International Botanical Congress, Vienna, Austria (invited symposium). Arnold, A.E., J. Miadlikowska, K.L. Higgins[#], S.D. Sarvate[#], E.C. Davis[‡], F. Lutzoni. Inferring symbiont evolution across land plants: Endophytic fungi from the tropics to the tundra.
- 2005 International Botanical Congress, Vienna, Austria (invited symposium). Lutzoni, F., A.E. Arnold, J. Miadlikowska. Are fungi living in lichens and plants the missing link to our understanding of fungal and plant evolution?
- 2005 International Botanical Congress, Vienna, Austria (invited symposium). Miadlikowska, J., A.E. Arnold, K.L. Higgins[#], S.D. Sarvate[#], P. Gugger[#], V. Hofstetter, and F. Lutzoni. Endolichenic fungi: random inhabitants or symbiotic partners?
- 2005 International Botanical Congress, Vienna, Austria (invited symposium). Davis[‡], E.C., J. Rogers, J. Miadlikowska, F. Lutzoni, A.E. Arnold: Phylogeny of Xylariaceae endophytes
- 2005 Mycological Society of America, Annual meeting, Hilo, Hawaii (invited symposium). Arnold, A.E., K.L. Higgins[#], F. Lutzoni. Environmental sampling reveals a high diversity of endophytic fungi from living leaves.
- 2005 Deep Hypha Research Coordination Network, Tucson, AZ (invited symposium). Hofstetter, V., J. Miadlikowska, A.E. Arnold, F. Lutzoni. Update on the non-lichenized Ascomycota.
- 2005 Frugivory and Seed Dispersal: Theory and Applications, Brisbane, Australia (invited symposium). Gallery[‡], R.E., J.W. Dalling, K.L. Higgins[#], A.E. Arnold: Role of seed-infecting fungi in recruitment limitation of neotropical pioneer species.

- 2005 Diversitas, An International Programme of Biodiversity Science, Oaxaca, Mexico (invited symposium). Lutzoni, F., A.E. Arnold, J. Miadlikowska. Are fungi living in lichens and plants the missing link to our understanding of fungal and plant evolution?

X. Contributed scholarly presentations (since faculty appointment)

- 2018 International Symbiosis Society Congress, Corvallis, OR. Oita[‡], S., J.M. U'Ren, F. Lutzoni, J. Miadlikowska, V. Trouet, A.E. Arnold. Relationships of foliar endophyte communities in *Picea mariana* to tree age, biomass, and latitudinal factors (winner, New Phytologist Prize for best poster).
- 2018 International Symbiosis Society Congress, Corvallis, OR. Bowman[‡], E.A. and A.E. Arnold. Ectomycorrhizal and foliar endophytic fungal communities of *Pinus ponderosa* in an anciently fragmented forest (poster).
- 2018 International Mycological Congress, San Juan, Puerto Rico. Spraker, J.E., J.P. Shaffer[‡], R.E. Gallery, D.A. Baltrus, M. Traxler, A.E. Arnold. Endohyphal bacteria modulate transcriptional and metabolic phenotypes of fungi. (Oral presentation)
- 2018 American Indian Science and Engineering Society, Oklahoma City, OK. Kissell[‡], D., A.B. Leo[‡], A.E. Arnold. Recruitment of microbes to seeds of ethnobotanical plants of southern Arizona tribal nations. (Oral presentation)
- 2017 Ecological Society of America, Portland, OR. Tellez[‡], P., A.E. Arnold, S. Van Bael. Tropical plants and fungal symbionts: leaf functional traits as drivers of plant-fungal endophyte interactions. (Oral presentation)
- 2017 Ecological Society of America, Portland, OR. Zimmerman, N.B., J.M. U'Ren, and A.E. Arnold. High resolution genotyping reveals extensive diversification of trichome-associated fungi at high elevation sites in Hawai'i. (Oral presentation)
- 2017 Association for Tropical Biology and Conservation, Merida, Mexico. Tellez[‡], P., A.E. Arnold, S. Van Bael. Tropical plants and fungal symbionts: leaf functional traits as drivers of plant-fungal endophyte interactions. (Oral presentation)
- 2017 Association for Tropical Biology and Conservation, Merida, Mexico. Sarmiento, C., P.-C. Zalamea, V. Kuo, C. Delevich, A.S. Davis, T.A. Brown, A.E. Arnold, and J.W. Dalling. Impact of decadal persistence of tropical pioneer seeds on seed-associated fungal communities. (Poster presentation)
- 2017 Association for Tropical Biology and Conservation, Merida, Mexico. P.-C. Zalamea, C. Sarmiento, A.S. Davis, A.E. Arnold, and J.W. Dalling. Seed-associated fungi in neotropical pioneers influence seed persistence, germination, and survival. (Oral presentation)
- 2017 Yosemite Symbiosis Meeting, Wawona, CA. Bowman[‡], E.A. and A.E. Arnold. Ectomycorrhizal and foliar endophytic fungal communities differ in sensitivity to climate-related factors along a spatially constrained elevation gradient. (Oral presentation)
- 2016 Mycological Society of America, Berkeley, CA. Shaffer[‡], J.P. and A.E. Arnold. Endohyphal bacterium (*Chitinophaga* sp.) influences broad-spectrum substrate use by its host fungus (*Fusarium keratoplasticum*). (Oral presentation)
- 2016 Mycological Society of America, Berkeley, CA. Bowman[‡], E.A. and A.E. Arnold. Fungal symbionts of ponderosa pine across a spatially constrained elevation gradient. (Poster presentation)
- 2016 Mycological Society of America, Berkeley, CA. Chen[‡], K.-H., H.-L. Liao, A.E. Arnold, F. Lutzoni. Metatranscriptomic analysis of the moss *Dicranum scoparium* reveals active fungal communities and functionalities across a senescence gradient. (Oral presentation)
- 2016 Ecological Society of America, Berkeley, CA. Zimmerman, N.B., J. E. Johnson, Y.-L. Huang[‡], D.J.P. Moore, A.E. Arnold. The effects of foliar fungal endophytes on plant physiological performance. (Oral presentation)
- 2015 Mycological Society of America, Edmonton, Alta. Chen[‡], K.-H., H.-L. Liao, A.E. Arnold, F. Lutzoni. Using metatranscriptomics to characterize functional shifts in endophytic fungi at plant senescence: Are endophytic fungi latent saprotrophs? (Poster presentation)
- 2015 Mycological Society of America, Edmonton, Alta. Huang, Y.-L., M.M.N. Devan, J.M. U'Ren, S.H. Furr, A.E. Arnold. Pervasive effects of wildfire on foliar endophytes in montane forest trees. (Poster presentation)
- 2015 Mycological Society of America, Edmonton, Alta. Shaffer J.P.[‡], R.E. Gallery, D.A. Baltrus, A.E. Arnold. Endohyphal bacteria of tropical Sordariomycetes: community structure and relationships with other functional groups of bacteria in a lowland tropical rainforest. (Oral presentation)

- 2015 Ecological Society of America, Sacramento, CA. Zimmerman, N.B., A.E. Arnold, P. Vitousek. A highly diverse clade of melanized fungi associated with leaves and trichomes of the endemic tree *Metrosideros polymorpha* at high elevation sites in Hawai'i. (Oral presentation)
- 2015 Fungal Genetics Conference, Asilomar, CA. Shaffer J.P.[‡], R.E. Gallery, D.A. Baltrus, A.E. Arnold. Endohyphal bacteria of tropical Sordariomycetes: community structure and relationships with other functional groups of bacteria in a lowland tropical rainforest. (Poster presentation)
- 2015 Fungal Genetics Conference, Asilomar, CA. Zimmerman, N.B., A.E. Arnold, P. Vitousek. A highly diverse clade of melanized fungi associated with leaves and trichomes of the endemic tree *Metrosideros polymorpha* at high elevation sites in Hawai'i. (Poster presentation)
- 2015 Fungal Genetics Conference, Asilomar, CA. Chen[‡], K.-H., H.-L. Liao, A.E. Arnold, F. Lutzoni. Using metatranscriptomics to characterize functional shifts in endophytic fungi at plant senescence: Are endophytic fungi latent saprotrophs? (Poster presentation)
- 2014 Ecological Society of America, Sacramento, CA. Arendt[‡], K., D. Baltrus, A.E. Arnold. Bacterial symbionts of endophytic fungi mediate functional shifts in plant-fungal interactions. (Poster presentation)
- 2014 Society for the Study of Evolution, Raleigh, NC. Baltrus, D., K. Arendt[‡], A.E. Arnold. Facultative endohyphal bacterial symbionts alter phenotypes of fungal endophyte hosts. (Oral presentation)
- 2014 International Mycological Congress, Bangkok, Thailand. Chen[‡], K., J. Miadlikowska, K. Molnar, A.E. Arnold, J. U'Ren, E. Gaya, F. Lutzoni. Phylogenetic relationships of endophytic and endolichenic fungi reveal a new order within the class Eurotiomycetes. (*Award, best student poster in systematics*)
- 2014 International Mycological Congress, Bangkok, Thailand. Nilsson, R.H., K.D. Hyde, J. Pawlowska, M. Ryberg, L. Tedersoo, A.B. Aas, S.A. Alias, A. Alves, C.L. Anderson, A. Antonelli, A.E. Arnold, B. Bahnmann, M. Bahram, J. Bengtsson-Palme, A. Berlin, S. Branco, P. Chomnunti, A. Dissanayake, R. Drenkhan, H. Friberg, T.G. Frøslev, B. Halwachs, M. Hartmann, B. Henricot, R. Jayawardena, A. Jumpponen, H. Kausserud, S. Koskela, T. Kulik, K. Liimatainen, B. Lindahl, D. Lindner, J.K. Liu, S. Maharachchikumbura, D. Manamgoda, S. Martinsson, M.A. Neves, T. Niskanen, S. Nylander, O.L. Pereira, D.B. Pinho, T.M. Porter, V. Queloz, T. Riit, M. Sanchez-García, F. de Sousa, E. Stefacyk, M. Tadych, S. Takamatsu, Q. Tian, D. Udayanga, M. Unterseher, Z. Wang, S. Wikee, J. Yan, E. Larsson, K.-H. Larsson, U. Kõljalg, K. Abarenkov. Improving ITS sequence data for identification of plant-pathogenic fungi. (Poster presentation)
- 2014 Latin American Congress of Mycology, Medellin, Colombia. Corrales[‡], A.O., A.E. Arnold, A. Ferrer, J. Dalling. Variation in ectomycorrhizal communities associated with stands of *Oreomunnea mexicana* (Juglandaceae) in montane tropical forests of western Panama. (Oral presentation)
- 2013 American Society for Microbiology, Denver, CO. Shaffer[‡], J., R. Gallery, D. Baltrus, A.E. Arnold. Phylogenetic relationships and diversity of endohyphal bacteria of plant-associated Pezizomycotina. (Poster presentation)
- 2013 Association for Tropical Biology and Conservation, San Jose, Costa Rica. Sarmiento, C., D. Roche[#], P. Zalamea, A.E. Arnold, A. Davis, J. Dalling, Physical defenses, persistence in the soil, and fungal associations of tropical pioneer tree seeds. (Oral presentation)
- 2013 Association for Tropical Biology and Conservation, San Jose, Costa Rica. Zalamea, P., C. Sarmiento, J. Dalling, J., A. Davis, A.E. Arnold. Seed - fungal interactions in tropical trees: Exploring fungal diversity in pioneer seeds. (Oral presentation)
- 2013 Mycological Society of America, Austin, TX. Corrales[‡] A.O., J. Dalling, A.E. Arnold, K. McGuire. Variation in ectomycorrhizal community composition along a soil nutrient gradient in montane forest in western Panama. (Oral presentation)
- 2013 Mycological Society of America, Austin, TX. Chen[‡], K., J. Miadlikowska, K. Molnar, A.E. Arnold, J. U'Ren, E. Gaya, F. Lutzoni. Phylogenetic relationships of endophytic and endolichenic fungi reveal a new order within the class Eurotiomycetes. (Oral presentation)
- 2013 Mycological Society of America, Austin, TX. Wong, V., J. U'Ren, J. Miadlikowska, J. Monacell[‡], K. Arendt[‡], J. Shaffer[‡], A.E. Arnold, I. Carbone, G. May. Genomic comparison of closely related boreal endophytes. (Oral presentation)
- 2013 Mycological Society of America, Austin, TX. U'Ren, J., N. Massimo[#], J. Riddle[#], C. Steen[#], K. Arendt[‡], Y.-L. Huang[‡], J. Miadlikowska, E. LeFevre, B. Ball, V. Wong, J. Monacell[‡], I. Carbone, F. Lutzoni, G. May, A.E. Arnold. A culture-based and culture-free assessment of geographic and temporal variation of boreal endophytic and endolichenic fungal communities. (Oral presentation)

- 2013 Mycological Society of America, Austin, TX. Garcia[#], K., J. Shaffer[‡], C. Sarmiento, P. Zalamea, J. Dalling, A. Davis, D. Baltrus, R. Gallery, A.E. Arnold. Diversity and evolutionary relationships of bacteria affiliated with tropical seeds and seed-associated fungi. (Poster presentation)
- 2013 Mycological Society of America, Austin, TX. Arendt[‡], K., D. Baltrus, A.E. Arnold. Diversity and specificity of phenotypic effects of endohyphal bacteria on foliar fungal endophytes. (Poster presentation) (*Award*, best poster)
- 2013 Mycological Society of America, Austin, TX. Sandberg[‡], D., L. Battista[#], A.E. Arnold. Host affiliations and geographic distributions of fungal symbionts of aquatic plants. (Poster presentation)
- 2013 Mycological Society of America, Austin, TX. Huang[‡], Y., M.M.N. Devan[#], S. Furr, A.E. Arnold. Persistent effects of wildfire on foliar endophytes of *Quercus hypoleucoides* and *Juniperus deppeana* in southeastern Arizona. (Poster presentation)
- 2013 Mycological Society of America, Austin, TX. Shaffer[‡], J., R. Gallery, D. Baltrus, A.E. Arnold. Phylogenetic relationships and diversity of endohyphal bacteria of plant-associated Pezizomycotina. (Poster presentation)
- 2013 Mycological Society of America, Austin, TX. LeFevre, E., K. Arendt[‡], B. Ball, J. Miadlikowska, K. Picard[‡], J.M. U'Ren, A.E. Arnold, F. Lutzoni, Understanding the spatial scaling of boreal endophytic fungal communities using environmental cloning and ion semiconductor amplicon sequencing. (Poster)
- 2013 Fungal Genetics Conference, Asilomar, CA. Oono, R. L. Kaye[#], A.E. Arnold, G. May, F. Lutzoni, I. Carbone. Population structures of horizontally-transmitted fungal endophytes associated with southeastern US pine hosts. (Poster presentation)
- 2013 Society for the Study of Evolution Society for the Study of Evolution, Snowbird, UT. Chen[‡], K., J. Miadlikowska, K. Molnar, A.E. Arnold, E. Gaya, F. Lutzoni. Phylogenetic relationships of endophytic and endolichenic fungi reveal a new order in Eurotiomycetes. (Poster presentation)
- 2013 Society for the Study of Evolution, Snowbird, UT. Oono, R. L. Kaye[#], A.E. Arnold, G. May, F. Lutzoni, I. Carbone, I. Population structures of horizontally-transmitted fungal endophytes associated with southeastern US pine hosts. (Poster presentation)
- 2013 Dimensions of Biodiversity Annual Meeting, Tucson, AZ. Arendt[‡], K., D. Baltrus, A.E. Arnold. Diversity and specificity of phenotypic effects of endohyphal bacteria on foliar fungal endophytes. (Oral)
- 2013 Dimensions of Biodiversity Annual Meeting, Tucson, AZ. Shaffer[‡], J., D. Baltrus, A.E. Arnold. Phylogenetic relationships and diversity of endohyphal bacteria of plant-associated Pezizomycotina. (Oral)
- 2013 Dimensions of Biodiversity Annual Meeting, Tucson, AZ. U'Ren, J. and A.E. Arnold. A culture-based and culture-free assessment of the geographic and temporal variation of boreal endophytic and endolichenic fungal communities. (Oral presentation).
- 2012 International Symbiosis Society Congress, Krakow, Poland. Oono, R. L. Kaye[#], A.E. Arnold, G. May, F. Lutzoni, I. Carbone, I. Population structures of horizontally-transmitted fungal endophytes associated with southeastern US pine hosts. (Poster presentation)
- 2012 Mycological Society of America, New Haven. U'Ren[‡], J.M. and A.E. Arnold. Multilocus phylogenetic analysis of the Xylariaceae: what are the roles of previously unknown endophytic and endolichenic fungi? (Poster presentation)
- 2012 Mycological Society of America, New Haven. U'Ren[‡], J.M. and A.E. Arnold. Surveys at five sites across North America reveal taxonomic and functional differences among fungi from living, senescent, and fallen leaves. (Oral presentation)
- 2011 Ecological Society of America, Pittsburgh, PA. Epps[‡], M.J. A.E. Arnold. Specialization, general-ization, and community structure in Appalachian beetle-fungus associations. (Oral presentation)
- 2011 Ecological Society of America, Pittsburgh, PA. Wong, V., C. Schwebach[#], A.E. Arnold, J.M. U'Ren, R. Montgomery, P. Reich, S. Hobbie, A. Stefanski, R. Rich, G. May. Effects of climate warming on the occurrence of endophytic fungi in boreal *Picea* and *Populus*. (Poster presentation)
- 2011 Society for the Advancement of Chicanos and Native Americans in Science (SACNAS). Bazan[#], E. and A.E. Arnold. Microbial diversity affiliated with fruits of saguaro (*Carnegiea gigantea*), the iconic Sonoran Desert cactus. (Poster presentation)
- 2011 Society for the Advancement of Chicanos and Native Americans in Science (SACNAS). Peña[#], B. and A.E. Arnold. Arsenic-tolerant fungi improve the growth of corn (*Zea mays*) in soils impacted by arsenate. (*Best poster award*)
- 2011 Mycological Society of America, Fairbanks, AK. Riddle[#], J. and A.E. Arnold. Diversity and phylogenetic

- affinities of endohyphal bacteria associated with foliar fungal endophytes of the Sonoran Desert. (*Best poster award*)
- 2011 Mycological Society of America, Fairbanks, AK. Oono, R., A.E. Arnold, G. May, F. Lutzoni, I. Carbone. Population structure of *Lophodermium* spp., a dominant endophyte in loblolly pine. (Poster presentation)
- 2011 Mycological Society of America, Fairbanks, AK. U'Ren[‡], J.M., F. Lutzoni, J. Miadlikowska, A.E. Arnold. Diversity and biogeography of endophytic and endolichenic fungi. (Oral presentation)
- 2011 Congress of European Mycologists, Thessalonki, Greece. Suurmeyer[‡], E., E.A. Herre, C. Machado, A.E. Arnold. Fungal communities in flowers of *Ficus* in Panama. (Oral presentation)
- 2011 Congress of European Mycologists, Thessalonki, Greece. Epps[‡], M.J. and A.E. Arnold. Diversity, abundance, and nestedness in mushroom-associated beetle communities. (Oral presentation)
- 2011 Research in Semi-arid Ecosystems Symposium, Tucson, AZ. Moy[#], J.K., A.E. Arnold, K. Predick, E.M. Levi, S.R. Archer. Effects of microbial communities on *in vitro* and *in situ* degradation of plant material in an arid ecosystem. (Poster presentation)
- 2010 University of Arizona 'Micro-Lunch' Microbiology Seminar. Arnold, A.E. Fungal symbionts of plants.
- 2009 Mycological Society of America, Snowbird, UT. U'Ren[‡], J.M., F. Lutzoni, J. Miadlikowska, A.E. Arnold. Community analysis of symbiotrophic and saprotrophic Ascomycota from multiple biogeographic provinces reveals the ecological novelty of the endolichenic symbiosis. (Oral presentation)
- 2009 Mycological Society of America, Snowbird, UT. Epps[‡], M.J. and A.E. Arnold. Diversity, abundance, and nestedness in mushroom-associated beetle communities. (Oral presentation)
- 2009 Mycological Society of America, Snowbird, UT. Hoffman[‡], M. and A.E. Arnold. Fungal endophytes harbor diverse, horizontally transmitted bacterial endosymbionts that can alter the fungal phenotype *in vitro*. (Oral presentation)
- 2009 Mycological Society of America, Snowbird, UT. Kandalepas[‡], D., A.E. Arnold, G. Shaffer, W. Platt. Mycophylla communities are influenced by the interaction between plant host and environmental conditions. (Oral presentation)
- 2009 Mycological Society of America, Snowbird, UT. Del Olmo-Ruiz[‡], M., J. Santos-Rodriguez, A.E. Arnold. Surveys of endophytic fungi in lowland tropical ferns reveal diverse communities of relatively recently derived fungal groups. (Oral presentation)
- 2009 International Symbiosis Society, International Congress, Madison, WI. Hoffman[‡], M. and A.E. Arnold. Fungal endophytes harbor diverse, horizontally transmitted bacterial endosymbionts that can alter the fungal phenotype *in vitro*. (Poster presentation)
- 2009 25th Fungal Genetics Conference, Asilomar, CA. Worley[#], J., A.E. Arnold, J. Hughes-Haller, C. Kodhira, S. Rounsley, M.J. Orbach. Analysis of a fungal pathogen of snakes reveals a potentially novel genus in the Onygenales. (Poster presentation)
- 2008 Ecological Society of America, Milwaukee, WI. U'Ren[‡], J.M., J. Miadlikowska, F. Lutzoni, A.E. Arnold. Diversity, host specificity, and evolution of trophic modes among endophytic, endolichenic, and saprotrophic fungi. (Oral presentation)
- 2008 Ecological Society of America, Milwaukee, WI. Hoffman[‡], M. and A.E. Arnold. Geographic locality and host identity shape fungal endophyte communities in cupressaceous trees. (Oral presentation)
- 2008 Ecological Society of America, Milwaukee, WI. Kandalepas[‡], D., A.E. Arnold, W. Platt. Coastal processes may affect endophytic fungal diversity within coastal wetland plants. (Poster presentation)
- 2008 Mycological Society of America, State College, PA. U'Ren[‡], J.M., J. Miadlikowska, F. Lutzoni, A.E. Arnold. Evolutionary relationships of endophytic, endolichenic, and saprotrophic fungi in the Chiricahua Mountains. (Oral presentation)
- 2008 Mycological Society of America, State College, PA. Epps[‡], M.J. and A.E. Arnold. Patterns of community structure and host visitation in mushroom-associated beetles and other insects. (Poster presentation)
- 2008 Association for Tropical Biology and Conservation, Paramaribo, Suriname. Gallery[‡], R.E., A.E. Arnold, J.W. Dalling. Diversity and heterogeneity of fungal communities: implications for seedling emergence from tropical forest seed banks. (Oral presentation)
- 2007 Mycological Society of America, Baton Rouge, LA. U'Ren[‡], J., R. Gallery[‡], J.W. Dalling, D.R. Maddison, A.E. Arnold. Diversity and origins of seed-associated fungi in tropical forests. (Poster presentation)
- 2007 Mycological Society of America, Baton Rouge, LA. Higgins[‡], K.H., A.E. Arnold, T.A. Kursar, P.D. Coley. Diversity and abundance of fungal endophytes in tropical grasses. (Poster presentation)

- 2006 Ecological Society of America, Memphis, TN. Feldman[‡], T.S., H. O'Brien[‡], A.E. Arnold. Moth dispersal of mycoparasites and endophytes associated with *Claviceps paspali* and the grass *Paspalum* (Poaceae). (Oral presentation)
- 2006 Ecological Society of America, Memphis, TN. Gallery[‡], R.E., J.W. Dalling, A.E. Arnold. Fungi in the seed bank: Distinguishing between seed and seedling pathogens. (Oral presentation)
- 2006 Mycological Society of America, Québec, Canada. Hoffman[‡], M. and A.E. Arnold. Fungal endophytes in native vs. non-native Cupressaceae: community structure in xeric and mesic sites. (Poster presentation)
- 2006 Mycological Society of America, Québec, Canada. Lee[‡] M.-M., M. Shimabukuro, M. Hoffman[‡], F. Lutzoni, A.E. Arnold. High diversity of endophytic fungi associated with *Pinus* spp. (Poster presentation)
- 2005 Society for the Study of Evolution, Anchorage, AK. Miadlikowska, J., A.E. Arnold, K.L. Higgins[#], S.D. Sarvate[#], P. Gugger[#], A. Way[#], V. Hofstetter, F. Lutzoni. Endolichenicolous fungi: random inhabitants or symbiotic partners? (Oral presentation)
- 2005 Mycological Society of America, Hilo, HI. Gallery, R.E.[‡], J.W. Dalling, K.L. Higgins[#], A.E. Arnold. Diversity and demographic impacts of seed-infecting fungi: A case study with neotropical *Cecropia* spp. (Poster presentation)
- 2005 Mycological Society of America, Hilo, HI. Higgins[#], K.H., A.E. Arnold, J.M. Miadlikowska, F. Lutzoni. Diversity, species composition, and evolution of fungal endophytes across three major plant lineages: cultured and unculturable species. (Poster presentation)
- 2005 Mycological Society of America, Hilo, HI. Miadlikowska, J., A.E. Arnold, K.L. Higgins[#], S.D. Sarvate[#], P. Gugger[#], A. Way[#], V. Hofstetter, F. Lutzoni. Endolichenicolous fungi: random inhabitants or symbiotic partners? (Oral presentation)
- 2005 Mycological Society of America, Hilo, HI. Ryall[‡], K.R., E.C. Davis[‡], A.E. Arnold, A. Shaw. Fungal endophytes of mosses. (Poster presentation)
- 2005 Botanical Society of America, Austin, TX. Ryall[‡], K.R., E.C. Davis[‡], A.E. Arnold, A. Shaw. Fungal endophytes of mosses. (Poster presentation)

X. Other/intramural presentations (since faculty appointment)

Does not include outreach/service presentations or science projects by high school researchers (4-10/year).

- 2018 Nine presentations by undergraduate and graduate students: Summer Research Institute/Native American program (6), School of Plant Sciences departmental seminar series (3).
- 2017 Eight presentations by undergraduate and graduate students and postdoc: First Year Honors Expo (1), CALS Poster Symposium (1), ABBS Recruitment Poster Session (1), UA GradSlam (1), School of Plant Sciences departmental seminar series (4, including defenses).
- 2016 Six presentations by undergraduate and graduate students: Summer Research Institute/Native American program (2), Native American Cancer Research Program (2), School of Plant Sciences departmental seminar series (2)
- 2014 Eight presentations by undergraduate and graduate students and K-12 educators: Summer Research Institute (2); Microbiology Undergraduate Poster session (1); Ecology & Evolutionary Biology poster session (1); IGERT symposium (1); Partners in Science (1); Latin American Research Program (2)
- 2013 Twelve presentations by undergraduate and graduate students: Summer Research Institute (8); School of Plant Sciences Research Retreat (3); EEB Undergraduate Student Poster Session (1); Smithsonian Tropical Research Institute evening seminar series (1).
- 2012 Five presentations by undergraduates: Summer Research Institute (4); EEB poster session (1).
- 2011 Four presentations by undergraduates: Summer Research Institute (2); EEB poster session (2).
- 2010 Four presentations by undergraduates and K-12 teachers: AZ START symposium (2); Ecology and Evolutionary Biology poster session (1); IGERT symposium (1).
- 2009 Five presentations by undergraduates, graduate students, and K-12 teachers: AZ START symposium (2); EEB poster session (1); IGERT symposium (1); Arizona Biology Network symposium (1).
- 2006 Three presentations by undergraduates and graduate students: Arizona Biology Network symposium (1), 50th Anniversary of the Arizona-Nevada Academy of Sciences poster session (2).
- 2005 One presentation by undergraduate: Arizona Biology Network symposium.

XI. Service

A. INTRAMURAL SERVICE

1. Departmental committees and commitments, School of Plant Sciences

2018	Chair, P&T Committee, School of Plant Sciences
2018	Member, Search committee, HR representative, School of Plant Sciences
2017	Member, Search committee, Professor of Practice, Biotechnology, School of Plant Sciences
2017-2018	Member, P&T Committee, School of Plant Sciences
2016-	Member, Peer review committee, School of Plant Sciences
2015-2016	Member, Search committee, SPLS faculty position in Extension Plant Pathology,
2012-2016	Director of Graduate Studies, Plant Sciences and Plant Pathology graduate majors
2012-2016	Chair, Graduate Program Committee, School of Plant Sciences
2011-2016	Chair, Plant Pathology faculty group, School of Plant Sciences (elected position; informal)
2006-2016	Chair, Gilbertson Endowment Committee, School of Plant Sciences
2005-2016	Member, Plant Pathology Endowment Committee, School of Plant Sciences
2006-2012	Member, Graduate Program Committee, School of Plant Sciences
2007-2008	Chair, Graduate Student Recruitment Committee, School of Plant Sciences (two majors)
2012-2013	Member, Academic Program Review Committee, School of Plant Sciences
2010-2012	Member, Curriculum Committee, School of Plant Sciences
2011-2012	Member, Director's Advisory Committee, School of Plant Sciences
2011-2012	Member, Outreach and Recruitment Committee, School of Plant Sciences
2011-2012	Member, Curriculum Committee, Sustainable Plant Systems (Plant Sciences/SWES)
2010-2011	Member, Awards Committee, School of Plant Sciences
2010	Member, Search committee for Director, School of Plant Sciences
2010	Member, Search committee, PLS faculty position in plant-microbe interactions
2007-2008	Member, Seminar Committee, School of Plant Sciences
2005-2007	Member, Curriculum Committee, School of Plant Sciences

2. College committees and commitments, College of Agriculture and Life Sciences

2017-	Member, Bart Cardon Academy for Teaching Excellence
2017	Member, Awards committee, CALS Staff Team Award
2017	Member, Awards committee, CALS Classified Staff Award
2016-2017	Member, Review Committee, five-year review, Dr. Gary Thompson, Head, AREC
2016-2017	Chair, Search Committee, Director, Boyce Thompson Arboretum and State Park
2016-2017	Member, Search Committee, faculty position, Sch. Animal & Comparative Biomedical Sciences, UA
2016-	Chair, Steering Committee, inter-departmental leadership of Microbiology major
2016	Member, Academic Program Review Committee, UA Dept. of Soil, Water, Environmental Sciences
2015-2017	Co-chair, Dean's Research Advisory Committee (DRAC)
2015-2016	Vice-chair, Steering Committee, inter-departmental leadership of Microbiology major
2015-	Member, CALS Promotion and Tenure Committee (P&T)
2014-2015	Member, Search Committee, faculty position, Sch. of Natural Resources and the Environment
2012- 2015	Member, Dean's Research Advisory Committee (DRAC)
2010-2016	Member, Steering Committee, inter-departmental leadership of Microbiology major
2014-2015	Member, Academic Program Review Committee, Entomology/Insect Science GIDP

3. University committees and commitments

2018	Member, Review Committee, Koffler Awards
2017-2018	Co-Chair, Search Committee, Ecosystem Genomics (2 positions)
2016-2017	Member, Committee for Five-year Review of Dean Shane Burgess, UA
2016-2017	Member, Search Committee, Dean of the Honors College, UA
2016-	Member, Review Committee, McGinnies Scholarship in Arid Lands Studies
2016-2017	Chair, Search Committee, Plant Ecological/Evolutionary Genomics (Ecosystem Genomics)

2015-2016 Member, Search Committee, Ecosystem Genomics (five positions)
 2014 Member, Search Committee, Department Head, Ecology and Evolutionary Biology, UA
 2012-2016 Member, Executive committee, AZ Biomedical/Biological Sciences Graduate Program
 2009-2015 Member, Steering committee, NSF-IGERT Program in Genomics
 2005 Panelist, Arizona Science Center, for planning science outreach through Bio5

4. Other campus- and local service

2018 Invited panelist, UA CALS Research: perspective on NSF funding and grant proposals
 2017 Invited panelist, UA UROC Graduate School Symposium
 2017-2016 New faculty mentor, UA School of Plant Sciences (four junior faculty)
 2016 Invited speaker, Arizona Mushroom Society
 2016 Invited speaker, UA Honors College SMART talks
 2014 Invited speaker, UA Science Café, Tumamoc Hill
 2014 Invited speaker, PEO, Philanthropic & Educational Organization for women, Prescott, AZ
 2014, 2006 Invited speaker, Arizona Native Plant Society, Tucson chapter
 2014 Presenter on behalf of Plant Sciences/Herbarium, Arizona Science City/Festival of Books
 2014 Supported group involvement, Plant Sciences Family Fun Night
 2013 Invited speaker, Tucson Rotary Club, Saguaro chapter
 2013 Invited speaker, 1885 Society, University of Arizona
 2013 Invited panelist, UA Summer Research Institute panel on graduate school
 2013 Supported group involvement, Plant Sciences Family Fun Night
 2012 Speaker, Arizona Biological and Biomedical Sciences (ABBS) Graduate Program
 2012 Presenter and student coordinator, representing Plant Sciences: FunFest outreach
 2012-2016 Coordinator, ABBS graduate rotation talks (one session, 5-10 speakers/year)
 2011-2015 New faculty mentor, UA School of Plant Sciences (three junior faculty)
 2010-2014 Mentor, Arizona Assurance Program, for incoming freshmen (three students)
 2009 Invited speaker, College of Agriculture and Life Sciences Faculty-Staff Luncheon
 2007, 2009 Invited speaker, NSF-ADVANCE Data-Blitz series in Genomics (2007) and Ethics (2009)
 2005-2008 Poster presenter, BIO5 Life Sciences Graduate Recruitment Weekend
 2005-2008 Volunteer, three undergraduate “Meet Your Major Day” events for Plant Sciences

5. Service as Curator, Robert L. Gilbertson Mycological Herbarium

I am charged with maintaining and expanding the University of Arizona Mycological Herbarium, which comprises >40,000 specimens of fungi and fungus-like organisms. The Herbarium serves UA students, the public, agency staff, and researchers at local, state, national, and international levels. Significant activities include garnering extramural support (see Grants); developing a new specimen database, now with >34,000 records; developing a new photographic database, now with >1200 images of fungi for teaching and research; developing a new teaching collection (418 specimens, now available to UA faculty); archiving >5000 new specimens since 2005; leading >300 public tours and >100 class tours for > 1000 visitors; preparing >1200 specimen loans; repatriating hundreds of specimens that were loaned out by previous curators; coordinating >\$2000 in charitable donations; collaborating with visiting researchers, student users, and student employees (>280 user-days per year); identifying ca. >50 specimens/year for stakeholders; transferring specimen records to national digitization/databasing efforts (see Grants); coordinating infrastructure improvements and specimen maintenance activities; and serving as the on-call mycologist for Arizona Poison Control.

B. EXTRAMURAL SERVICE

1. Grant and policy review as panelist (invited)

2017 National Science Foundation, panelist, Postdoctoral Fellowships using Biological Collections
 2016 National Science Foundation, panelist, Symbiotic Systems/integrative organismal systems
 2016 National Science Foundation, panelist, Graduate Research Fellowship Program

2015 National Science Foundation, panelist, Graduate Research Fellowship Program
 2014 National Science Foundation, grant review panelist: population/community ecology
 2013 National Science Foundation, grant review panelist: population/community ecology
 2012 National Science Foundation, grant review panelist: population/community ecology
 2007 National Science Foundation, grant review panelist: phylogenetic biogeography
 2006 National Science Foundation, panelist: Frontiers in Ecology Workshop
 2005 National Science Foundation, grant review panelist: population/community ecology

2. Grant and policy review, ad hoc (invited)

2005-present National Science Foundation: Ecology, Environmental Genomics, Evolution, Molecular/Cellular Biology, Antarctic Biology and Medicine, Dimensions of Biodiversity, International Research Fellowship Program: 1-7 proposals annually, in addition to panel service; total reviewed, >40).
 2008-2014 National Science Foundation: Research Coordination Network, Fungal Environmental Sampling and Informatics Network, student outreach and travel grants: 25-40 annually; total reviewed, 184.
 2005-present *Ad hoc* review for diverse national and international agencies: National Geographic Society, Graduate Women in Science, National Institutes of Health IDeA Network for Biomedical Research Excellence-Nebraska, Natural Sciences and Engineering Research Council of Canada, Austrian Science Fund, United States Department of Agriculture–Hatch; 2-10 annually; total reviewed, >25.

3. Editorial positions

2017- Speciality Chief Editor, *Frontiers in Ecology and Evolution: Coevolution*
 2017- Associate Editor, *Plant and Fungal Systematics*
 2016- Executive Editor, *Mycologia*
 2015-2018 Associate Editor, *American Journal of Botany*
 2014-2016 Subject Editor, *Microbial Ecology*
 2010- Subject Editor, *Biotropica*
 2015 Guest Editor, *American Journal of Botany*
 2007-2009 Associate Editor, *Journal of Plant Pathology*

4. Manuscript review

2005- Manuscript referee, >250 manuscripts for >70 journals including *American Journal of Botany*; *The American Naturalist*; *Biological Control*; *Biotropica*; *Ecology*; *Evolution*; *Functional Ecology*; *Fungal Ecology*; *Journal of Tropical Ecology*; *Microbial Ecology*; *Molecular Ecology*; *Molecular Phylogenetics and Evolution*; *Mycologia*; *Mycological Progress*; *Nature Reviews Genetics*; *New Phytologist*; *Oikos*; *Phytopathology*; *Planta*; *Plant Physiology*; *PLOS One*; *Proceedings of the National Academy of Sciences*; *Proceedings of the Royal Society B*; *Science*; *Symbiosis*; etc.

5. External review of dissertations

2005- External reviewer, PhD dissertations, University of New South Wales, Australia (1); Swedish Agricultural University, Sweden (2)

6. Symposia and workshops organized at national and international meetings/institutions

2005- Symposium co-organizer:
 Mycological Society of America, Berkeley, CA, 2016
 26th Fungal Genetics Conference, Asilomar, CA, 2013
 International Symbiosis Society conference, Krakow, Poland, 2012

- Mycological Society of America, Fairbanks, AK, 2011
 Ecological Society of America, Milwaukee, WI, 2010
 International Mycological Congress, Cairns, Australia, 2010
 International Botanical Congress, Vienna, Austria, 2005
- 2011- Coordinator, NSF Dimensions of Endophyte Biodiversity annual meetings (12-19 participants):
 Mycological Society of America meetings (Austin, TX; one day), 2013
 Mycological Society of America (Fairbanks, AK; one day), 2011
 University of Arizona (four days), 2011
- 2011 Workshop leader and co-coordinator, NSF Research Coordination Network: Fungal
 Molecular Ecology, Madison, WI; two-day workshop, 98 participants
- 2009 Workshop leader and coordinator, The Institute for Scientific Research and Technology
 Services (INDICASAT), National Scientific Research Institute of Panama, Fungal Molecular
 Systematics and Phylogenetics; five-day bilingual workshop, 21 participants.
- 2008 Workshop leader and co-coordinator, NSF Research Coordination Network: Metamycology
 (teaching and outreach at the interface of ecology and mycology), Fairbanks, AK; two-day
 workshop, 72 participants
- 2005 Meeting co-host, National Science Foundation Research Coordination Network, Deep Hypha;
 three-day conference on fungal systematics, 78 participants.

7. Research consultancies and steering committees

- 2015- Expert witness, biotechnology patent disputes, State of Victoria, Australia
- 2015- Member, Scientific Advisory Board, Symbiota (now Indigo Agriculture)
- 2014- Member, Steering Committee, National Science Foundation FuturePhy
- 2012-2015 Member, Steering Committee, DIVERSITAS, an international program of biodiversity
 science: <http://www.diversitas-international.org/activities/research/biogenesis>
- 2006-2015 Member, Steering Committee, National Science Foundation Research Coordination Network:
 Fungal Environmental Sampling and Informatics Network: community effort to improve
 insights from environmental sampling in fungal biodiversity
- 2006-2014 Consultant, NIH International Cooperative Biodiversity Group (ICBG), Panama: Smithsonian
 Tropical Research Institute, UC San Diego, and the National Institutes of Health:
<http://linington.chemistry.ucsc.edu/ICBG/research.html>
- 2007 Invited delegate, European Mycological Collaboration (UNITE), Denmark

8. Elected and appointed positions, professional societies

- 2017- Chair, Karling Annual Lecture Committee, Mycological Society of America
- 2017- Member, Distinctions Committee, Mycological Society of America
- 2015- Member, Biodiversity Committee, Mycological Society of America
- 2015-2016 Member, Karling Annual Lecture Committee, Mycological Society of America
- 2010-2011 Member, Program Committee, Mycological Society of America
- 2006-2010 Chair, Endowment Committee, Mycological Society of America (raised >\$8,000/yr)
- 2007-2009 Councilor (elected), fungal ecology, Mycological Society of America

9. Professional society memberships (current)

Botanical Society of America, Ecological Society of America, Mycological Society of America

10. Other service

- 2017-2018 Member, search committee, Microbial Ecology scientist, Smithsonian Tropical Research Institute
- 2005- On-call mycologist, AZ Poison Control; emergency identification of fungi
- 2005- Ad hoc identification of fungi for public, government, agencies, and students (20-25 fungal
 specimens per year, for a total of >120 hours of service annually)

XII. Teaching

A. UNDERGRADUATE TEACHING

Lecture-based courses (* = sections offered online)

Semester	Course	% Effort	Credits	Enrollment
Fall 2018	PLP 329A • Microbial Diversity*	100	3	72
Summer 2018	PLP 329A • Microbial Diversity*	100	3	31
Spring 2018	HNRS195 • Freshman Colloquium	100	1	18
Fall 2017	PLP 329A • Microbial Diversity*	100	3	54
Summer 2017	PLP 329A • Microbial Diversity*	100	3	25
Fall 2016	PLP 329A • Microbial Diversity*	100	3	90
Fall 2016	HNRS 195I • Freshman Colloquium	100	1	19
Fall 2015	PLP 329A • Microbial Diversity*	100	3	80
Fall 2015	HNRS 195I • Freshman Colloquium	100	1	18
Fall 2014	PLP 329A • Microbial Diversity	100	3	80
Fall 2014	HNRS 195I • Freshman Colloquium	100	1	18
Fall 2012	PLP 329A • Microbial Diversity	100	3	105
Spring 2011	PLP 329A • Microbial Diversity	100	3	65
Fall 2011	PLP 329A • Microbial Diversity	100	3	60
Spring 2010	PLP 329A • Microbial Diversity	100	3	58
Spring 2009	PLP 329A • Microbial Diversity	100	3	50
Spring 2008	PLP 329A • Microbial Diversity	100	3	49
Spring 2007	PLP 329A • Microbial Diversity	100	3	41
Spring 2006	PLP 329A • Microbial Diversity	100	3	19

B. GRADUATE TEACHING

Lecture-based courses (* = sections offered online)

Semester	Course	% Effort	Credits	Enrollment
Spring 2018	PLP 550 • Prin. Plant Microbiology	100	4	14
Spring 2018	PLP 575 • Advanced Mycology	50	3	8
Spring 2016	PLP 550 • Prin. Plant Microbiology	100	4	9
Spring 2015	PLP 575 • Advanced Mycology	50	3	10
Spring 2014	PLP 550 • Prin. Plant Microbiology	100	4	16
Spring 2009	PLP 475/575 • Advanced Mycology	33	3	5
Spring 2007	PLP 575 • Advanced Mycology	25	3	12
Fall 2006	PLS 560 • Topics in Plant Science	15	4	3

Discussion-based courses

Semester	Course	% Effort	Credits	Enrollment
Fall 2018	PLP 596b • Research Discussions	100	1	5
Spring 2018	PLP 596b • Research Discussions	100	1	7
Fall 2017	PLP 596b • Research Discussions	100	1	5
Spring 2017	PLP 596b • Research Discussions	100	1	5
Fall 2016	PLP 596b • Research Discussions	100	1	5
Spring 2016	PLP 596b • Research Discussions	100	1	5
Spring 2015	PLP 596b • Research Discussions	100	1	4
Spring 2015	PLP 695A • SPLS Journal Club	50	1	16
Fall 2014	PLP 596b • Research Discussions	100	1	5
Spring 2014	PLP 596b • Research Discussions	100	1	5
Spring 2014	PLP 695A • SPLS Journal Club	50	1	14
Fall 2012	PLP 596b • Research Discussions	100	1	5
Spring 2011	PLP 596b • Research Discussions	100	1	7
Fall 2010	PLP 596b • Research Discussions	100	1	5
Spring 2010	PLP 596b • Research Discussions	100	1	8

Spring 2008	PLP 596b • Research Discussions	100	1	5
Fall 2009	PLP 596b • Research Discussions	100	1	6
Spring 2009	PLP 596b • Research Discussions	100	1	9
Fall 2008	PLP 596b • Research Discussions	100	1	7

C. TEACHING WORKSHOPS PRESENTED

- 2018 Contributed to development and co-led teaching workshop for graduate teaching assistants in CALS, UA.
2018 Co-led workshop on promotion for career-track faculty, CALS.
2018 Co-led workshop regarding development of teaching portfolios for faculty in CALS.
2017 Contributed to development and co-led teaching workshop for graduate teaching assistants in CALS, UA.
2016 Contributed to development and co-led teaching workshop for graduate teaching assistants in CALS, UA.
2011 Developed and led two-day workshop through the NSF Research Coordination Network in fungal ecology.
2012 Developed and led semester-long, informal course for graduate students and postdocs (Teaching in Plant Pathology and Microbiology): met 2-4 hours/week to discuss best practices in inquiry-based learning, new perspectives in pedagogy, syllabus design, development of teaching statements for employment applications, and mentored/peer-evaluated teaching experience in laboratory- and lecture-based courses.

D. TEACHING WORKSHOPS ATTENDED

Year	Activity	Sponsor or other relevant information
2017	Colloquium: Peer evaluation of teaching	College of Agriculture and Life Sciences, UA
2017	Colloquium: Peer review of teaching	College of Agriculture and Life Sciences, UA
2017	Colloquium: Teaching students to think	College of Agriculture and Life Sciences, UA
2006	Workshop: Academic integrity	College of Agriculture and Life Sciences, UA
2005	Workshop: General teaching strategies	College of Agriculture and Life Sciences, UA

XIII. Mentoring

A. UNDERGRADUATE MENTORING

1. Honors theses and capstones

(* = authorship on completed or forthcoming publication; ‡ = under-represented group)

Year	Name	Major	Honors thesis topic
2018-	Erin McCabe	Biology (UA)	Fungal biodiversity
2018-	Kendra Thomas	Microbiology (UA)	Fungal biodiversity
2018-	Ryan Valdez‡	Sustainable Plant Systems/Ed. (UA)	Fungal biodiversity
2017-2018	Nathaniel Yang*	MCB (UA)	Fungal biodiversity
2017-2018	Ellen Pat*	MCB (UA)	Fungal biodiversity
2017-2018	Sequoia Fischer	Microbiology (UA)	Fungal biodiversity
2017	Brenna Hall*	EEB (UA)	Fungal biodiversity
2016	Ashton Leo*	Plant Sciences (UA)	Fungal biodiversity
2014-2015	Felix Kraisitudomsook	Biology, Whitman College	Fungal biodiversity
2014-2016	Jose Bermudez‡*	Microbiology (UA)	Fungal biodiversity
2013-2014	Kayla Garcia‡*	Microbiology (UA)	Tropical seed-associated fungi
2011-2013	Lorna Battista*	EEB (UA)	Endophytes of aquatic plants
2005-2006	Yi-Jun Jean Tsai*	EEB (UA)	Huachuca Springsnail ecology
2005-2006	Ben Wilder*	EEB (UA)	Flora of Isla Tiburón, Sea of Cortez
2005-2006	Lindsay Higgins*	Biology (Duke Univ.)	Endophyte diversity

2. First-year Honors projects

(* = authorship on completed or forthcoming publication; ‡ = award in university colloquium)

Year	Name	Major	Honors project topic
2017	Haley Williams*‡	Ongoing	Fungal secondary metabolites
2016	Larson Matzdorff	Ongoing	Cactus disease in urban settings

3. Independent studies and summer internships

(* = authorship on completed or forthcoming publication; ‡ = award in university colloquium)

Year	Name	Status after completion	Independent study topic
2018-	Divine Kickingbird‡	Ongoing	Fungal biodiversity
2018-	Ana Peñuñuri	Ongoing	Fungal biodiversity
2018-	Dylann Cordova	Ongoing	Fungal biodiversity
2018-	Erin McCabe	Ongoing	Fungal biodiversity
2018-	Alicia Scull	Ongoing	Fungal biodiversity
2018	Lucas Mulcahy	Ongoing	Animal microbiomes
2018	Ian Kline	Ongoing	Fungal biodiversity
2018	Mohammed Alhaddad	Ongoing	Fungal biodiversity
2017-	Kiana Clarke	Ongoing	Fungal biodiversity
2017	Zachary Hawkins	Ongoing	Fungal biodiversity
2017-	Rayah Mdanat	Ongoing	Fungal biodiversity
2017-	Tyler Pesqueira	Ongoing	Fungal biodiversity
2017-	Kendra Thomas	Ongoing	Fungal biodiversity
2017	Leon Toledo‡	Ongoing	Fungal biodiversity
2017	Warren Mountain‡	Ongoing	Fungal biodiversity
2017	Adam Fernandez‡	Ongoing	Fungal biodiversity
2017	Jenhiva Salazar‡	Ongoing	Fungal biodiversity
2017-	Jamie Carey	Ongoing	Fungal biodiversity
2017-	Christina Brown	Ongoing	Fungal biodiversity
2017-	Larson Matzdorff	Ongoing	Fungal biodiversity
2017-	Yuwei Ding	Ongoing	Fungal biodiversity
2016-2017	Halina Siewiora	Ongoing	Fungal biodiversity
2016-2018	Jose Orozco‡	Ongoing	Fungal biodiversity
2016-2018	Sequoia Fischer	Ongoing	Fungal biodiversity
2016-2018	Nathaniel Yang	Ongoing	Fungal biodiversity
2016-2017	Maithili Kandekhar	Undergraduate student	Fungal biodiversity
2016-2017	Emma Louise Jong	Post-baccalaureate tech, STEM	Fungal biodiversity
2016	Melissa Morris‡	Undergraduate student	Fungal-bacterial interactions
2016	Daniel Hayden‡	Undergraduate student	Fungal-plant interactions
2013-2016	Ashton Leo*	Enrolling in MS, STEM	Endophytes of wild crop plants
2014-2017	Ellen Pat	Honors thesis in this lab	Endophytes of crop plants
2015-2016	Michael Taylor*	Enrolled in MS, STEM	Bird microbiomes
2015	James Cunningham	Unknown	Tree ring analysis
2014-2015	Sean Quigley*	Deceased	Boreal endophyte diversity
2014-2015	Jorge Ramos‡	In industry/STEM	Tropical fungal biodiversity
2014-2015	Thin Tran	Applying for graduate school	Tropical fungal biodiversity
2014	Brigid Heffernan	Applying for positions	Grassland fungi
2014	Paulina Ramos‡	Applying for positions	Temperate seed-associated fungi
2014	Gonzalo Lopez‡	Applying for positions	Tropical endophyte diversity
2014	Joao Paulo Toledo‡	Undergraduate	Effects of fire on endophytes
2013-2014	Kayla Garcia‡*	Applying for positions	Tropical seed-associated fungi
2013-2015	Thomas Gleason	Applying for positions	Boreal endophyte diversity
2013-2014	Celine Bui	UA undergraduate	Fungal ecology
2013-2014	Wes MacDonald	UA undergraduate	Fungal genomics
2013-2014	Julian Gonzales III‡	Government employee	Boreal endophyte diversity

2013-2014	Ramiro Garza‡	Applying for positions	Effects of endohyphal bacteria
2013-2014	Sarah Griffin	Applying for positions	Boreal endophyte diversity
2013-2014	Taylor Abbey	Applying for positions	Boreal endophyte diversity
2012-2014	James DeVore	Research assistant, Panama	Seed-associated fungi
2012-2013	Anyang Ndobegang‡*	Technician, Arnold lab	Functional trait analysis of fungi
2012-2013	Alex Badilla‡	UA undergraduate	Fungal diversity
2012-2013	Peter Cerda‡	MS program, Michigan	Heavy metals in lichens
2012-2013	Ed Bazan‡	MS program, Missouri	Microbiome of saguaro fruits
2011-2013	Lorna Battista*	Applying for positions	Endophytes of aquatic plants
2011-2013	Brittany Peña‡	Applying to graduate school	Effects of fungi on metal tolerance
2011-2013	Christie Moss	Medical school	Fungal genomics
2011-2013	Thao Truong	Pharmacy school	Phylogeny of Xylariaceae
2011-2012	Brett Baxter	Employed in private industry	Sonoran Desert endophytes
2011-2012	Lauren Dominick	Employed in private industry	Endophyte diversity
2011-2012	Adrian Ramirez‡	Employed in private industry	Endophyte diversity
2011-2012	Chan Jung	Medical school	Effects of endohyphal bacteria
2011-2012	Nick Massimo	Ph.D. program, ASU	Sonoran Desert endophytes
2011-2012	Thaddeus Metz	Applying for positions	Endophytes of aquatic plants
2011-2012	Ethan Posey	UA undergraduate	Fungal biodiversity
2010-2012	MM Nandi Devan*	Science teacher	Responses of endophytes to fire
2010-2012	Jamie Moy*	Ph.D. program, pharmacy	Microbial degradation of plants
2010-2012	Jakob Riddle*	Ph.D. program, U Minn	Endohyphal bacteria
2010-2012	Ali Raza	Medical school	Fungal biodiversity
2010-2012	Janka Vanova	Employed in private industry	Endophytes of <i>Ephedra</i>
2010-2012	Susan Furr	Science teacher	Endophytes of <i>Ephedra</i>
2009-2011	Dustin Sandberg	MS program, UA	Antimicrobial effects of endophytes
2009-2010	Darren Stenrud	Employed in private industry	Antimicrobial effects of endophytes
2009-2010	Andrea Woodard	Employed in private industry	Antimicrobial effects of endophytes
2009-2010	Patricia Espiritu‡	Graduate school	Fungal biodiversity
2009-2010	Patrick Campbell	Graduate school	Chemical ecology
2009-2010	Barney Gilley	Applying to medical school	Chemical ecology of endophytes
2009-2010	Barbara Beauchamp	Science teacher	Chemical ecology of endophytes
2009-2010	Phornp. Imtaramkarang	Science teacher	Chemical ecology of endophytes
2008-2009	Jamal Alafifi	Applying to graduate school	Phylogenetic relationships of fungi
2008-2009	Alex Lovinger	Senior at UA	Sporocarp-associated insects
2008-2009	Duan Copeland	Applying to programs	Sporocarp-associated insects
2008-2009	Doug Mahana	Ph.D. program, NYU	Tropical forest endophytes
2007-2008	Alex (JJ) Delgado‡	Unknown	Tropical endophytes
2007-2008	Chan Maketon	MS program, Washington	Phylogenetic relationships of fungi
2007	Dylan Grippi	Ph.D. program, Emory	Fungi associated with protists
2007	Youchin Huh	Pharmacy school	Fungal diversity
2007	Judy Kwan	Applying to graduate school	Fungal endophytes
2006-2008	Courtney Kluger	Medical practice	Tropical seed-associated fungi
2006-2008	Cheyenne Weeks-Galindo‡	MS program, George Mason	Tropical seed-associated fungi
2006-2007	Jason Ong	Applying to graduate school	Fungal endophytes of oaks
2006	Anita Bhakta	Employed	Diversity of twig endophytes
2006	Lindsay Cook	Employed in pharmacy	Antimicrobial activity of fungi
2006	Linh Huynh	Pharmacy school	Fungal diversity within AZ lichens
2006	Felicia Quintana‡	Applying to graduate school	Endolichenic fungi

4. Additional mentoring of undergraduates and junior curators

Term	Name	Institution	Mentored activities with student
2017-	Christina Brown	UA	Curatorial training, Mycological Herbarium
2017-	José Orozco‡	UA	Curatorial training, Mycological Herbarium
2016-2017	Brianna Talbot	UA	Curatorial training, Mycological Herbarium

2015-2016	Chetan Bafna	UA	Curatorial training, Mycological Herbarium
2013-2016	Carl Patterson-Markowitz	UA	Curatorial training, Mycological Herbarium
2012-	Joe Myers	UA	Curatorial training, Mycological Herbarium
2012-2014	Trevor Mock	UA	Curatorial training, Mycological Herbarium
2011-2012	Phornpoj Imtaramkarang	UA	Curatorial training, Mycological Herbarium
2011-2012	Emily Hendershot	UA	Curatorial training, Mycological Herbarium
2011-2012	Courtney Klopper	UA	Curatorial training, Mycological Herbarium
2011-2012	Nandi Devan	UA	Curatorial training, Mycological Herbarium
2011-2012	Erika Untch	UA	Curatorial training, Mycological Herbarium
2009-	Sheri Steidl	Yavapai College	Curatorial training, Mycological Herbarium
2009-2010	Max Xiong	U Chicago	Curatorial training, Mycological Herbarium
2009-2012	Brittany Wohl	UA	Curatorial training, Mycological Herbarium
2005-2006	Hilary Brown	UA	Curatorial training, Mycological Herbarium
2005-2007	Vanessa Chicharello‡	UA	Curatorial training, Mycological Herbarium
2005-2009	Melissa Kohmetscher	UA	Curatorial training, Mycological Herbarium

5. Other undergraduate mentorship. I mentored an additional 17 Native American undergraduates at Diné College for 10-week internships in field ecology, microbiology, and molecular biology, and 10 peer mentors from off-reservation universities (graduate and undergraduate students) (2006-2008).

B. GRADUATE MENTORING

1. Doctoral students (major advisor)

(* = NSF Graduate Research Fellow) (‡ = under-represented group) (** = International or other fellow)

Completion	Name	UA Program	Dissertation topic	Current position
2021 (est)	Nicole Colon-Carrion*‡	Plant Path.	Fungal ecology	In progress
2020 (est)	Alison Harrington*	EEB	Evolutionary genomics	In progress
2020 (est)	Shuzo Oita**	Plant Path.	Fungal ecology	In progress
2020 (est)	Aasiya Hamzazai**	Plant Sci.	Fungal ecology	In progress
2019 (est)	Liz Bowman**	Plant Path.	Fungal ecology	In progress
2017	Justin Shaffer	Plant Path.	Endohyphal bacteria	Postdoc, UC San Diego
2017	Yu-Ling Huang**	Plant Sci.	Endophyte diversity	Fungi curator, Nat. Mus. Taiwan
2012	Mary Jane Epps	EEB	Fungus-insect interactions	Faculty, Mary Baldwin Univ.
2012	Mariana del Olmo R.**	Plant Path.	Tropical endophytes	Postdoc, UNAM - Mexico
2012	Ellen Martinson*	EEB	Fig-fig wasp mutualism	Postdoc, University of Georgia
2011	Jana U'Ren	Plant Path.	Endophyte diversity	Faculty, University of Arizona
2010	Michele Hoffman	Plant Path.	Endohyphal bacteria	US Government, permanent

2. MS students (major advisor)

(* = NSF Graduate Research Fellow) (‡ = under-represented group) (** = International or other fellow)

Completion	Name	UA Program	Thesis topic	Current position
2019 (est)	Desirae Kissell**	Plant Pathology	Seed microbiomes	In progress
2019 (est)	Ashton Leo**	Plant Pathology	Seed microbiomes	In progress
2018	Emma Woytenko	Genetics GIDP	Fungal ecology	Industry
2018	Gavin Lehr	General Biology	Endophyte ecology	In progress/High school teacher
2016	Sarah Araldi-Brondolo	Plant Pathology	Endohyphal bacteria	Scientist, Indigo Agriculture
2016	Liz Bowman*	Plant Pathology	Endophyte ecology	PhD student, UA
2015	Kayla Arendt	Plant Pathology	Endohyphal bacteria	Environmental consulting
2015	Chantelle Khambholja**	Plant Pathology	Non-thesis MS	Veterinary school
2013	Dustin Sandberg**	Plant Pathology	Aquatic endophytes	USDA Plant Pathologist

3. Service on doctoral dissertation committees other than as advisor

(‡ = under-represented group)

Completion	Name	Program	Dissertation topic
In progress	Lourena Arone	Plant Pathology, UA	<i>Aspergillus</i> and aflatoxins in crops
In progress	Julia Hull	Bio., Northern AZ Univ.	Plant-herbivore-endophyte interactions
In progress	Peter Tellez‡	Ecol/Evol Biology, Tulane	Plant-endophyte interactions
2017	Ko-Hsuan Chen	Biology, Duke Univ.	Fungal endophyte biology; Eurotiomycetes
2017	Josh Harrison	Ecol. / Evol. Bio., UN - Reno	Plant-herbivore-endophyte interactions
2016	Tim O'Connor	Ecol. and Evol. Bio., UA	Insect-plant-fungal genomics
2016	Tim Vandervoet	GIDP Insect Science, UA	Cotton-insect-fungus interactions
2016	Eric Griffin	Biology, Univ. Pittsburgh	Tropical leaf-associated bacteria
2015	Simon Stump	Ecol. and Evol. Bio., UA	Theoretical ecology
2012	Jen Hughes	Ecol. and Evol. Bio., UA	Plastid evolution in dinoflagellates
2012	Daniel Lawrence	Plant Pathology, UA	Evolution of PKS and NRPS in fungi
2012	Julia Nielson	Soil, Water, Environ. Sci, UA	Extremophile microbes
2012	M. Joe Vaughan	Plant Pathology, UA	Fungal diversity and function in caves
2011	Demetra Kandalepas	Bio., Louisiana State Univ.	Coastal wetland dynamics and endophytes
2011	Claudia Probst	Plant Pathology, UA	<i>Aspergillus</i> and aflatoxin contamination
2011	Kali Lader	Plant Bio., UC Berkeley	Endophytic fungi of redwoods
2011	L. Jamie Lamit	Bio., Northern AZ Univ.	Fungal-plant symbioses
2010	Brendan Hodkinson	Bio., Duke Univ.	Microbial communities in lichens
2010	Eric Janson	Bio., Vanderbilt Univ.	Adaptive radiations in plants/insects/fungi
2009	Bridget Barker	Genetics, UA	<i>Coccidioides</i> sp.
2009	Anne Estes	Ecol. and Evol. Bio., UA	Endosymbionts of olive flies
2009	Fushi Wen	Plant Pathology, UA	Root border cells and extracellular DNA
2008	Cara Gibson	Entomology, UA	Fungal endosymbionts of parasitoid wasps
2007	Rachel Gallery	Plant Bio., Univ. Illinois	Tropical seed-associated fungi

4. Service on MS thesis committees other than as advisor

(‡ = under-represented group)

Completion	Name	Program	Thesis topic
2017	Jimmy Conway	Insect Science, UA	Beetle systematics
2016	Angela Hoover	Insect Science, UA	Beetle systematics
2011	Latifa Jackson‡	Ecol. and Evol. Bio., UA	Disease ecology/human genomics
2010	Fabiola Santos	Plant Pathology, UA	Fungal ecology in agriculture
2010	Nick Milani	Plant Pathology, UA	Horizontal gene transfer in <i>Fusarium</i>
2010	Libby Landeen	Ecol. and Evol. Bio., UA	Ecology and evolution of finches
2009	Carol Rowand	Plant Pathology, UA	Rhizosphere communities
2008	Lindsay Higgins	Biology, Univ. Utah	Tropical grass endophytes
2007	Joanna Gress	Plant Sciences, UA	Nematode/citrus interactions
2005	Kim Ryall	Biology, Duke University	Fungal endophytes of mosses

5. Supervision of first-year graduate-rotation projects

(* = authorship on completed/forthcoming publication; ‡ = under-represented group)

Completion	Name	Program	Rotation topic
2018	Desirae Kissell‡	ABBS, UA	Fungal taxonomy/systematics
2017	Nicole Colon-Carrion‡	ABBS, UA	Fungal taxonomy/systematics
2017	Ashton Leo*	Plant Pathology, UA	Fungal taxonomy/systematics
2017	Alison Harrington*	Ecol. and Evol. Bio., UA	Fungal taxonomy/systematics
2016	Hongseok Ko	Ecol. and Evol. Bio., UA	Seed-associated fungi
2016	Emma Holland	Genetics, UA	Endohyphal bacteria
2015	Neill Prohaska	Ecol. and Evol. Bio., UA	NGS methods
2015	Ryan Wallace	ABBS, UA	Endohyphal bacteria

2014*	Breonna Smith‡	ABBS, UA	NGS methods
2013*	Yu-Ling Huang	Plant Sciences, UA	Fungal endophytes after wildfire
2011	Simon Stump	Ecol. and Evol. Bio., UA	Fungal endophytes of invasive plants
2008	Steve Uyeda	Plant Pathology, UA	Fungal endophytes of chiles
2007	Amritha Wickramage	Plant Pathology, UA	Endophytes from the Navajo Nation
2006	Mariana del Olmo R.	Plant Pathology, UA	Endophytic fungi of tropical trees
2006	Mary Jane Epps	Ecol. and Evol. Bio., UA	Nectar-inhabiting microbes
2006	David Jarvis	Plant Sciences, UA	Phylogenetic inference
2006	Libby Landeen	Ecol. and Evol. Bio., UA	Endolichenic fungal diversity
2006*	Jana U'Ren	Plant Pathology, UA	Evolutionary origins of seed fungi
2005*	Michele Hoffman	Plant Pathology, UA	Fungal endophytes of non-native plants

6. Other graduate student supervision

Since 2005 I have mentored 1-4 visiting graduate students per year who joined my lab for 1-12 weeks to gain experience in fungal molecular biology.

C. POSTDOCTORAL MENTORING

(* = NSF Postdoctoral Fellow) (** = International or other fellow)

Term	Name	Institution	Research topic
2017-	Camilo Zalamea**	Smithsonian Tropical Research Institute	Plant-microbial ecology
2016-	Joseph Spraker*	University of Arizona	Endohyphal bacteria
2015-2016	Nicholas Garber	University of Arizona	Endophyte-plant interactions
2013-2016	Naupaka Zimmerman**	University of Arizona	Endophyte-plant interactions
2012-2016	Camilo Zalamea**	University of Illinois/STRI	Seed-associated fungi
2011-2015	Jana U'Ren	University of Arizona	Endophyte diversity
2009-2013	Sarah Higginbotham	Smithsonian Tropical Research Institute	Forest microbiology
2006	Cara Gibson	University of Arizona	Endophyte diversity
2005-2006	Christine Davis	Duke University	Seed-associated fungi

D. MENTORSHIP OF HIGH SCHOOL STUDENTS IN RESEARCH (* = award, ‡ = under-represented group)

Year	Name	School	Research topic
2018-	Eddie Holm	City High School	Plant microbiomes
2017-2018	Owyn Stokes	Vail High School	Plant microbiomes
2017-	Julia Kassa	Sonoran Science Academy	Plant microbiomes
2017-	Kyle Kline	Paradise Valley High School	Plant microbiomes
2016-2017	Guillermo Martinez‡	Tucson High Magnet School	Endophyte functional traits
2016-2017	Emily Burke*	Vail High School	Mycorrhizal fungi
2014-2016	Tahlia Segura‡	Tucson High Magnet School	Seed-associated fungi
2016-2018	Joseph Galasso‡*	Home School	Styrofoam-degrading bacteria
2015	Leah Simpson	Academy of Tucson High School	Endophyte biodiversity
2015-2016	Adalee Martinez‡	Tucson High Magnet School	Seed-associated fungi
2014-2015	Leila Murrieta‡	Tucson High Magnet School	Seed-associated fungi
2014	Cassidy Vernon*	Tucson High Magnet School	Fungal diversity
2014	Ariella Peskin-Owens*	Tucson High Magnet School	Fungal diversity
2014	Rowen Stokes*	Tucson High Magnet School	Fungal diversity
2014	Lily Ptacek*	Tucson High Magnet School	Fungal diversity
2014	Wyatt Mendez‡	Tucson High Magnet School	Fungal diversity
2012-2013	Alexia Avey*	Home School	Fungi associated with cacti
2011-2013	Wes MacDonald*	Home School	Fungi associated with cacti
2013	Eli Rosenblum*	Tucson High Magnet School	Bacterial symbionts of fungi
2013	Amelia Talkington*	Renaissance Academy	Soybean microbes
2010-2012	Ochana Otto*‡	Tucson High Magnet School	Bacterial symbionts of fungi

2010-2012	Amber Ross*‡	Tucson High Magnet School	Enzymatic diversity of fungi
2009	Abby Cochrane	Catalina Foothills Magnet School	Thermotolerance of fungi
2008-2010	Frankie Orozco*‡	Tucson High Magnet School	Enzymatic diversity of fungi
2008	Maxwell Xiong	University High School	Forest mycology
2007	Elan Snitkin*	Tucson High Magnet School	Endophyte diversity
2007	Rebecca Porter	St. Gregory High School	Endophyte diversity
2006	Kiona Brown*‡	Tucson High Magnet School	Endolichenic fungi

E. MENTORSHIP OF K-12 AND COMMUNITY COLLEGE FACULTY

(‡ = under-represented group; ** = minority-serving institution)

Year	Name	School	Research topic
2017-	Michelle Tozer	Vail High School	Insect/plant/fungi interactions
2013-2017	Gavin Lehr	Sahuarita High School**	Endophyte diversity
2012-2015	Margaret Wilch	Tucson High Magnet School**	Endophyte diversity
2009-2011	Susan Furr	Flowing Wells/Amphi MS**	Fungal biodiversity
2010	Jim Uomoto	Pueblo High School**	Endophyte ecology
2006-2009	Barbara Klein	Diné College (Navajo Nation)**	Endophyte ecology
2008-2009	Rowena Dolino‡	Tseehootsooi MS (Navajo Nation)**	Thermotolerance of fungi
2008	Steve Uyeda	Sunnyside High School**	Endophyte ecology
2005-2007	Mary Shimabukuro	Diné College (Navajo Nation)**	Endophyte ecology

F. SABBATICAL VISITORS HOSTED

Year	Name	Institution	Research topic
2017-2018	Stacey Weiss	University of Puget Sound	Animal microbiomes

XIV. Outreach

1. High school workshops in microbiology/fungal ecology/biodiversity (developed and led by Arnold)

- 2018 Mycorrhizal Discovery, 2-day field workshop on fungal symbioses, 12 students from Tucson High
- 2017 Mycorrhizal Discovery, 2-day field workshop on fungal symbioses, 17 students from Tucson High
- 2017 Endophyte Discovery semester-long workshop for 168 students at Tucson High Magnet School
- 2017 Seed-fungal interactions, 3-day field/lab workshop on fungal symbioses, 12 students from Sahuarita HS
- 2016 Endophyte Discovery semester-long workshop for 105 students at Tucson High Magnet School
- 2015 Mycorrhizal Discovery, 2-day field workshop on fungal symbioses, 15 students from THMS
- 2015 Fungal Discovery semester-long workshop, 70 students at SHS
- 2014 Fungal Discovery semester-long workshop, 70 students at SHS
- 2014 Mycorrhizal Discovery, 2-day field workshop on fungal symbioses, 15 students from THMS
- 2014 Endophyte Discovery semester-long workshop for 70 students at THMS
- 2013 Fungal Discovery semester-long workshop, 70 students at SHS
- 2013 Endophyte Discovery semester-long workshop for 70 students at THMS
- 2012 Endophyte Discovery semester-long workshop for 70 students at THMS
- 2011 Endophyte Discovery program at the National Geographic Bioblitz in Saguaro National Park; > 400 citizen-scientists involved in all aspects of endophyte biology.

2. High school summer research experience (developed and led by Arnold)

- 2017 BLAST summer research experience for high school students and teachers, 3-week laboratory and field experience in microbial and molecular ecology for 16 participants from area high schools
- 2016 BLAST summer research experience for high school students and teachers, 3-week laboratory and field experience in microbial and molecular ecology for 16 participants from area high schools

2015 BLAST summer research experience for high school students, 2-week laboratory and field experience in microbial and molecular ecology for 9 students from area high schools

3. Tribal College outreach (developed and led by Arnold)

2006-2009: Research mentor and summer research coordinator, Navajo Nation: I developed and led an award-winning, 10-week/summer, on-reservation, mentored research experience in endo-phyte biodiversity for Diné (Navajo) undergraduates based at Diné College, the tribal college of the Navajo Nation. Seventeen Diné undergraduates and 10 undergraduate and graduate peer mentors from off-reservation universities participated over the course of the program.

4. Other outreach/service

2018 USDA AgDiscovery: hosted 15 visiting high school- and middle students in lab
2018 Mycotalk: invited presentation to undergraduates at UA; 35 students
2017 USDA AgDiscovery: hosted 15 visiting high school- and middle students in lab
2017 Tucson Festival of Books, City of Knowledge: open house, Mycological Herbarium
2016 USDA AgDiscovery: hosted 15 visiting high school- and middle students in lab tours
2016 Tucson Festival of Books, City of Knowledge: open house, Mycological Herbarium
2015 USDA AgDiscovery: hosted 15 visiting high school- and middle students in lab tours
2015 Tucson Festival of Books, City of Knowledge: two-day open house, Mycological Herbarium
2014 USDA AgDiscovery: hosted 15 visiting high school- and middle students in lab tours
2014 Tucson Festival of Books, City of Knowledge: two-day open house, Mycological Herbarium
2013 Tucson Festival of Books, City of Knowledge: two-day open house, Mycological Herbarium
2006-2008 Member, Board of Directors, Arizona Biology Network
2006, 2013 Judge, Intel International Science and Engineering Fair, Botany and Plant Sciences
2005-present Tours, Gilbertson Mycological Herbarium
2005 North Carolina State University “Science House” workshop, coordinator; one-day research training, 17 high school teachers.

XV. Online communication

Arnold lab website	www.arnoldlab.net
NSF GoLife project	http://www.mycophygoLife.org
NSF Dimensions of Biodiversity project	www.endobiodiversity.org
NSF Endohyphal Bacteria project	www.endohyphalBacteria.com
NSF Seed-associated Fungi project	https://publish.illinois.edu/tropicalseeds/
NSF FuturePhy project	https://futurephy.org/
Twitter	@betsyarizona