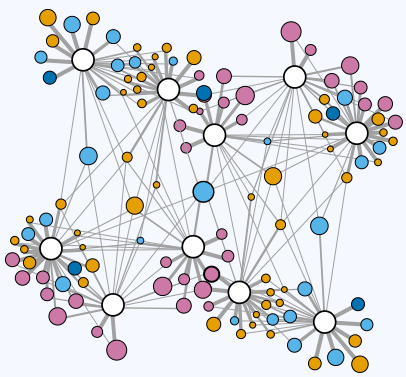
Jarrod J. Scott

I study microbial diversity. My approach is holistic, spanning marine & terrestrial systems to understand how simple organisms coalesce into complex communities & how these communities affect host biology, biogeochemical cycles, & ecosystem-level processes. I also work to make my research more accessible & exciting, transparent & reproducible. I use & teach open-source tools to create web products that communicate science more effectively.



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Web version of CV

CURRENT APPOINTMENT

2017 - **STRI/Moore Foundation Postdoctoral Fellow**
Smithsonian Tropical Research Institute — Panama

- Microbial ecology of coral reefs & mangrove ecosystems across the Isthmus of Panama. The Eastern Pacific & Western Atlantic.

EDUCATION

2011 | 2006 **PhD Microbiology**
University of Wisconsin — Madison, Wisconsin USA

2002 | 1998 **BSc Aquatic Biology, Minor in Archaeology**
University of Texas — Austin, Texas USA

PRIOR RESEARCH POSITIONS

2016 | 2012 **Postdoctoral Research Associate**
Bigelow Laboratory for Ocean Sciences — East Boothbay, Maine USA

2011 | 2010 **Graduate Fellow**
University of Wisconsin — Madison, Wisconsin USA

2010 | 2009 **Predoctoral Fellow**
Smithsonian Tropical Research Institute — Gamboa, Panama

2005 | 2002 **Research Technician**
University of Texas — Austin, Texas USA

MARINE FIELD EXPERIENCE

2020 | 2017 **Caribbean Field Work**
Smithsonian Tropical Research Institute — Bocas del Toro, Panama
Extensive field work around the Bocas del Toro archipelago.

CONTACT INFO

jarrod.jude.scott@gmail.com
github.com/jarrodscott
ORCID
web

SKILLS

Marine & terrestrial field work.

PADI Rescue Diver certification.

Bioinformatics (amplicon, genomic, & metagenomic). anvi'o, DADA2, mothur, oligotyping, MED, R, Python.

Web Products R Markdown, CSS, HTML, HUGO, blogdown, xaringan, reveal.js, pagedown.

Fire Fighter I & II certification.

Knots

2020 | 2017

Expeditions to Isla Coiba
Smithsonian Tropical Research Institute — Isla Coiba, Panama
5 expeditions over the past 3 years

2014

R/V Revelle & ROV Jason II (cruise RR1413)
Submarine Ring of Fire - Ironman Cruise — Mariana BackArc Basin
November 23 – December 21

2014

R/V Atlantic Explorer (cruise AE1410)
Chief Scientist Training Cruise — Barbados to Bermuda
May 31 – June 10

2013

R/V Thompson, ROV Jason II, & AUV Sentry (cruise TN293)
FeMo Deep Iron Eaters — Lo'ihi Seamount, Hawaii
March 4 – April 1

2012

R/V Knorr & ROV Jason II (cruise KN209-02)
Woods Hole Oceanographic Institution — Mid-Atlantic Ridge
October 16 – November 14

2001

R/V Longhorn
University of Texas — Gulf of Mexico

Use **this link** to learn more about Isla Coiba.

All research cruises from 2012 - 2014 were to study the microbial ecology of deep-sea hydrothermal systems, specifically iron-oxidizing communities.

I've also worked on a lobster boat in Maine & a seine boat in Alaska.

TERRESTRIAL FIELD EXPERIENCE

2010 | 2008

Microbial Ecology of Fungus-Growing Ants
Smithsonian Tropical Research Institute — Panama
- Four expeditions to Panama
- 15-month residency at STRI
- Field & lab experiments with fungus-growing ants

2004 | 2001

Biogeography of Fungus-Growing Ants
University of Texas — Mexico & Panama
Multiple field expeditions to understand the biogeography of fungus-growing ants & their fungal symbionts.

2001 | 2000

Molecular Ecology of Cichlids in Northern Mexico
University of Texas — Coahuila, Mexico
Molecular analysis of cichlid fish endemic to aquifer fed pools of the Cuatro Cienegas Basin.

2000

Mayan Archaeological Surveys
University of Texas — Northwestern Belize
Extensive surveys & excavations of Mayan archaeological sites in lowland tropical rain forests.

A lot of my field experience in terrestrial systems is on fungus-growing ants in the Neotropics.

RECENT TEACHING EXPERIENCE

2020

Instructor & Course Creator
Web Products & Data Curation — Panama
Online course about creating web-based reproducible workflows using open source software tools and platforms. The course website can be found here.

I teach the way I learn. My goal is to create a venue where students can be curious, get their hands dirty, make mistakes, & explore. I'm here to help students see what's possible, not tell them what to do.

2020

Course Instructor
STRI-McGill Tropical Biology Field Course — Panama

- Guide project design & implementation.
- Reproducible analytical workflows using R Markdown.
- Assist students with field work.
- Natural history of neotropical marine & terrestrial ecosystems.

Field sites incl. Barro Colorado Island, Ft Sherman Canopy Crane, Pipeline Road Forests, Agua Salud & Isla Coiba.

2019

Marine Biology Instructor
STRI-McGill Tropical Biology Field Course — Isla Coiba, Panama

- Guide project design & implementation.
- Assist students with field work.
- Snorkeling class for inexperienced students.

Click here for the course blog & **here** for the course website.

2018

Workshop Creator & Organizer
Marine Microbiome Workshop — Bocas del Tora, Panama

From model organisms to ecosystems: scaling-up our understanding of host-microbe symbiosis in the sea.

- Conceived, created & designed workshop.
- Handled workshop logistics & organization.
- Led discussions & working groups.

Click here for the workshop website & **here** for the publication written by workshop participants.

WEB PRODUCTS

2020

Hypocolypse
Reproducible bioinformatic workflows for the study *Rapid ecosystem-scale consequences of acute deoxygenation on a Caribbean reef*.
Bocas del Toro, Panama

2020

BocasBiome
Reproducible bioinformatic workflows for the study *The gut microbiome stability of a butterflyfish is disrupted on severely degraded Caribbean reef habitats.*.
Bocas del Toro, Panama

2020

Istmobiome Project
Reproducible bioinformatic workflows for the Istmobiome microbiome project. (*work in progress*)
Panama

2020

ProjectDIGEST
Reproducible bioinformatic workflows for the study *Intestinal microbes: an axis of functional diversity among large marine consumers*.
Pickles Reef, Florida USA

Reproducible Workflows

2020

Cacao Fermentation
Talk about the microbiology of cacao fermentation. — Bocas del Toro, Panama

2020

Rethinking the Diversity of Life
Talk about understanding diversity through a molecular lens.
Bocas del Toro, Panama

Public Presentations

2019 **How the Isthmus of Panama Changed the World**
Talk about how life changed on land & in the sea after the closure of the Isthmus of Panama.
Bocas del Toro, Panama

2020 **Web Products & Data Curation**
Website for course on using open-source software tools to create web-based reproducible workflows.
Panama

2020 **Web Project Guide**
Web project guide book for STRI-McGill Tropical Biology Field Course.
Panama

2018 **Workshop Guide**
Web project guide book for STRI/Moore Foundation Marine Microbiome Workshop.
Bocas del Toro,

Courses & Workshops

+ ADDITIONAL TRAINING & CERTIFICATIONS

2018 **PADI Rescue Diver Certification Course**
Panama Dive School — Bocas del Toro, Panama

2017 **PADI Advanced Open Water Diver Certification Course**
Panama Dive School — Bocas del Toro, Panama

2017 **PADI Open Water Diver Certification Course**
Panama Dive School — Bocas del Toro, Panama

2016 **PoreCamp**
University of Exeter Sequencing Center — Penryn, England
1-week hands-on training bootcamp on deploying Oxford Nanopore's portable sequencing platform, the MinION.

Click here to learn more.

2015 **Complex Systems Summer School**
Santa Fe Institute — Santa Fe, New Mexico USA
4-week intensive course on complex systems.

Click here for the 2015 CSSS proceedings.

2014 **UNOLS Chief Scientist Training Cruise**
The University-National Oceanographic Laboratory System
Barbados to Bermuda.
2-week course on how to effectively plan for, acquire, utilize, & report on time at sea for multi-disciplinary research & education.

Click here for the final report from the 2014 UNOLS training cruise.

2013 **Fire Fighter I & II. NFPA 1001-2006**
Southern Maine Community College — Portland, Maine USA
Year-long training course for Fire Fighter I & II Certification.

2007 **Microbial Diversity Course**
Marine Biological Labs — Woods Hole, Massachusetts USA
6-week intensive course. Cultivating, & isolating diverse microbes. Molecular & computational analyses.

Click here to learn more.

2001 **Marine Botany & the Biology of Fish**
University of Texas Marine Science Institute. Port Aransas, Texas USA

2000 **Archaeological Field Techniques**
The Programme for Belize Archaeological Project Orange Walk District, Belize
Intensive field course on Mayan art, architecture, & iconography.

Learn more on the **course website**.

FELLOWSHIPS

2014 | 2012 **Smithsonian Institution Genomics Postdoctoral Fellowship**
declined Panama

2011 | 2010 **Wisconsin Distinguished Graduate Fellowship**
College of Agriculture & Life Science University of Wisconsin

2010 | 2009 **Smithsonian Institution Predoctoral Fellowship**
Smithsonian Tropical Research Institute Panama

PEER REVIEWED PUBLICATIONS

2020 **Rapid ecosystem-scale consequences of acute deoxygenation on a Caribbean reef**
Under Review
Johnson MD, **Scott JJ**, Leray M, Lucey N, Lucia Rodriguez L, Wied W, Altieri AH.

Click here for the project website & reproducible workflows from this paper. Johnson, **Scott**, Leray, & Lucey contributed equally to the work.

2020 **The gut microbiome stability of a butterflyfish is disrupted on severely degraded Caribbean reef habitats.**
Submitted
Clever F, Sourisse JM, Preziosi RF, Eisen JA, Rodriguez Guerra EC, **Scott JJ**, Wilkins LGE, Altieri AH, McMillan WO, Leray M.

Click here for the project website & reproducible workflows from this paper.

2020 **Intestinal microbes: an axis of functional diversity among large marine consumers**
Proceedings of the Royal Society B: Biological Sciences 287:(20192367)
Scott JJ, Adam TC, Duran A, Burkepile DE, Rasher DB.

Click here for the project website & reproducible workflows from this paper.

2020 **A Genus definition for Bacteria and Archaea based on a standard genome relatedness index**
mBio 11(2020):e02475-19
Barco RA, Garrity GM, **Scott JJ**, Amend JP, Nealson KH, Emerson D.

Editor's Pick

2018 **Biological rejuvenation of iron oxides in bioturbated marine sediments.**
The ISME Journal. 12(2018):1389-1394.
Beam JP, **Scott JJ**, McAllister SM, Chan CS, McManus J, Meysman FJ, Emerson D.

2017 **Bringing microbial diversity into focus: high−resolution analysis of iron mats from the Lō'ihi Seamount.**
Environmental Microbiology. 19(2017):301-316.
Scott JJ, Glazer BT, Emerson D.

2017 **Physiological and ecological implications of an iron-or hydrogen-oxidizing member of the Zetaproteobacteria, *Ghiorsea bivora*, gen. nov., sp. nov.**
The ISME Journal. 11(2017):2624-2636.
Mori JF, **Scott JJ**, Hager KW, Moyer CL, Küsel K, Emerson D.

2017 **Biogeography of mutualistic fungi cultivated by leafcutter ants.**
Molecular Ecology. 26(2017):6921-6937.
Mueller UG, Ishak HD, Bruschi SM, Smith CC, Herman JJ, Solomon SE, Mikheyev AS, Rabeling C, **Scott JJ**, Cooper M, Rodrigues A.

2017 ***In situ* estimates of iron-oxidation and accretion rates for iron-oxidizing bacterial mats at Lō'ihi Seamount.**
Deep Sea Research Part I: Oceanographic Research Papers. 126(2017):31-39.
Emerson D, **Scott JJ**, Leavitt A, Fleming E, Moyer C.

2016 **Exploring the "SHARKCANO": biogeochemical observations of the Kavachi Submarine Volcano (Solomon Islands).**
Oceanography. 29(2016):160-169.
Phillips BT, Dunbabin M, Henning B, Howell C, DeCiccio A, Flinders A, Kelley KA, **Scott JJ**, Albert S, Carey S, Tsadok R.

2015 **Microbial iron mats at the Mid-Atlantic Ridge and evidence that Zetaproteobacteria may be restricted to iron-oxidizing marine systems.**
PLoS One. 10(2015):e0119284.
Scott JJ, Breier JA, Luther III GW, Emerson D.

2015 **Baleen whales host a unique gut microbiome with similarities to both carnivores and herbivores.**
Nature Communications. 6(2015):8285.
Sanders JG, Beichman AC, Roman J, **Scott JJ**, Emerson D, McCarthy JJ, Girguis PR.

2015 **Microbial iron oxidation in the arctic tundra and its implications for biogeochemical cycling.**
Applied & Environmental Microbiology. 81(2015):8066-8075.
Emerson D, **Scott JJ**, Benes J, Bowden WB.

2015 **Unique honey bee (*Apis mellifera*) hive component-based communities as detected by a hybrid of phospholipid fatty-acid and fatty-acid methyl ester analyses.**
PloS One. 10(2015):e0121697.
Grubbs KJ, **Scott JJ**, Budsberg KJ, Read H, Balser TC, Currie CR.

2014 **Convergent bacterial microbiotas in the fungal agricultural systems of insects.**
mBio. 5(2014):e02077-14.
Aylward FO, Suen G, Biedermann PH, Adams AS, **Scott JJ**, Malfatti SA, del Rio TG, Tringe SG, Poulsen M, Raffa KF, Klepzig KD.

2014 **Using *in situ* voltammetry as a tool to identify and characterize habitats of iron-oxidizing bacteria: from fresh water wetlands to hydrothermal vent sites.**
Environmental Science: Processes & Impacts 16(2014):2117-2126.
MacDonald DJ, Findlay AJ, McAllister S, Barnett JM, Hredzak-Showalter P, Krepski ST, Cone SG, **Scott JJ**, Bennett SK, Chan CS, Emerson D, GW Luther III.

2013 ***Leucoagaricus gongylophorus* produces diverse enzymes for the degradation of recalcitrant plant polymers in leaf-cutter ant fungus gardens.**
Applied & Environmental Microbiology 79(2013):3770-3778.
Aylward FO, Burnum-Johnson KE, Tringe SG, Teiling C, Tremmel DM, Moeller JA, **Scott JJ**, Barry KW, Piehowski PD, Nicora CD, Malfatti SA.

2013 **A phylogenetic analysis of the phylum Fibrobacteres.**
Systematic & Applied Microbiology. 36(2013):376-382.
Jewell KA, **Scott JJ**, Adams SM, Suen G.

2012 **Metagenomic and metaproteomic insights into bacterial communities in leaf-cutter ant fungus gardens.**
The ISME Journal. 6(2012):1688-701.
Aylward FO, Burnum KE, **Scott JJ**, Suen G, Tringe SG, Adams SM, Barry KW, Nicora CD, Piehowski PD, Purvine SO, Starrett GJ.

2011 **The genome sequence of the leaf-cutter ant *Atta cephalotes* reveals insights into its obligate symbiotic lifestyle.**
PLoS Genetics. 7(2011):e1002007.
Suen G, Teiling C, Li L, Holt C, Abouheif E, Bornberg-Bauer E, Bouard P, Caldera EJ, Cash E, Cavanaugh A, Denas O, Elhaik E, Fav MJ, Gadau J, Gibson JD, Graur D, Grubbs KJ, Hagen DE, Harkins TT, Helmkampf M, Hu H, Johnson BR, Kim J, Marsh SE, Moeller JA, Muoz-Torres MC, Murphy MC, Naughton MC, Nigam S, Overson R, Rajakumar R, Reese JT, **Scott JJ** Smith CR, Tao S, Tsutsui ND, Viljakainen L, Wissler L, Yandell MD, Zimmer F, Taylor J, Slater SC, Clifton SW, Warren WC, Elsik CG, Smith CD, Weinstock GM, Gerardo NM, Currie CR.

2010 **Microbial community structure of leaf-cutter ant fungus gardens and refuse dumps.**
PloS One 5(2010):e9922.
Scott JJ, Budsberg KJ, Suen G, Wixon DL, Balser TC, Currie CR.

2010 **An insect herbivore microbiome with high plant biomass-degrading capacity.**
PLoS Genetics. 6(2010): e1001129.
Suen G, **Scott JJ**, Aylward FO, Adams SM, Tringe SG, Pinto-Tomás AA, Foster CE, Pauly M, Weimer PJ, Barry KW, Goodwin LA.

2010 **Monoculture of leafcutter ant gardens.**
PLoS One. 5(2010):e12668.
Mueller UG, **Scott JJ**, Ishak HD, Cooper M, Rodrigues A.

2009 **Polymorphic microsatellite markers for the symbiotic fungi cultivated by leaf cutter ants (Attini, Formicidae).**
Molecular Ecology Resources. 9(2009):1391-1394.
Scott JJ, Kweskin MK, Cooper M, Mueller UG.

2009 **Mycangimycin, a polyene peroxide from a mutualist *Streptomyces*.**
Organic Letters. 11(2009):633-636.
Oh DC, **Scott JJ**, Currie CR, Clardy J.

2009 **Bionectriol A, a polyketide glycoside from the fungus Bionectria sp. associated with the fungus-growing ant, Apterostigma dentigerum.**
Tetrahedron Letters. 50(2009):6834-6837.
Freinkman E, Oh DC, **Scott JJ**, Currie CR, Clardy J.

2008 **Bacterial protection of beetle-fungus mutualism**
Scott JJ, Oh DC, Yuceer MC, Klepzig KD, Clardy J, Currie CR.
Science. 2008 322(5898):63.

See accompanying Perspective: Bugs Bugs. Berenbaum MR, Eisner T. 2008. Science. 322:52-53.