

Eric R Scott

PhD Candidate

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Ecometabolomics, multivariate statistics, R

Education

2014–2019 **PhD**, *Tufts University*, Medford.

2007–2010 **MS**, *University of Illinois at Urbana-Champaign*, Urbana.

2002–2006 **B.A.**, *Whitman College*, Walla Walla.

Research Experience

2017–2018 **NSF grant coordinator**, *Tufts University*, Medford, MA.

- Schedule and coordinate conference calls and meetings with collaborators
- Maintain public-facing website for grant
- Communicate research findings to general public via blog posts and social media

2014– **Graduate Researcher**, *Tufts University*, Medford, MA.

- Present
- Conducted collaborative, interdisciplinary research on the effects of climate change and insect herbivory on tea metabolite profiles
 - Designed and carried out field, greenhouse, and lab experiments at the Tea Research Institute in Hangzhou, China and at Tufts University
 - Developed and validated a novel, high-throughput method for sampling plant volatiles in the field
 - Mentored undergraduate assistants in computational, lab, and field experiments

2010 **Research Assistant**, *Colorado Natural Heritage Program*, Fort Collins, CO.

- Worked as part of a team to survey remote wetlands throughout Colorado
- Carried out soil and vegetation sampling protocols in the field
- Identified plants in the field when possible or with reference herbarium specimens when not

2007–2010 **Graduate Researcher**, *UIUC*, Urbana, IL.

- Successfully completed research projects from the planning stages, through data collection, problem solving, and presentation of results
- Collected a variety of data in the field including long-term, repeated morphological measurements of plants, soil moisture and other soil data, and observations of herbivory
- Mastered various lab techniques to collect data on plant chemical characteristics such as digestibility, nutrient content, and defense chemical content
- Analyzed data using the statistical package R
- Mentored undergraduate research assistants

- 2005 **Research Intern**, *Bucknell University*, Lewisburg, PA.
- Collaborated with post-doctoral researcher to design a pilot study investigating host-race formation in a gall midge
 - Collected galls from the field and reared larvae in the lab
 - Designed and carried out mating and host-choice experiments in the lab
 - Analyzed data and contributed to published manuscript

Teaching Experience

- 2019 **Graduate Teaching Assistant (Lecture TA for BIO 0014)**, *Tufts University*, Medford, MA.
- Captured video recordings of live lecture and uploaded to course management site
 - Created and evaluated student assessments
 - Provided students guidance and knowledge of course material during office hours
- 2019 **Undergraduate Mentor (Bio 94)**, *Tufts University*, Medford, MA.
- Mentored undergraduate through the design, implementation, and write up of an experiment
- 2016–2018 **Graduate Teaching Assistant BIO 0132 (Biostatistics)**, *Tufts University*, Medford, MA.
- Served as a teaching assistant for three semesters
 - Transitioned the course from using SPSS to R for statistical analyses
 - Created curriculum for a required recitation to teach R for biostatistics (available on [GitHub](https://github.com/Aariq/biostats-recitation))
 - Created homework assignments using R Markdown documents
 - Actively contributed to lecture course design through meetings with instructor
- 2015 **Graduate Teaching Assistant BIO 0014 (Organisms and Populations)**, *Tufts University*, Medford, MA.
- Mentored and managed undergraduate teaching assistants
 - Actively participated in course redesign
 - Guided students through designing their own experiments
 - Facilitated case-study based learning through discussion and quantitative reasoning
- 2014 **Graduate Teaching Assistant BIO 0013 (Cells and Organisms)**, *Tufts University*, Medford, MA.
- Mentored and managed undergraduate teaching assistants
 - Created weekly quizzes to assess learning and preparation for lab
- 2011–2014 **Adjunct Biology Faculty**, *Front Range Community College*, Fort Collins, CO.
- Taught students with a wide variety of backgrounds and life goals introductory biology concepts in a guaranteed transfer credit course
 - Created my own lab and lecture curriculum and engaged in revising and creating laboratory exercises used by all introductory biology sections
 - Actively participated in professional development by attending workshops, meeting individually with an instructional coach, and maintaining an active dialogue with supervisors
 - Created and consistently revised assessment materials to assess student learning fairly and accurately using item analysis and other techniques.

- 2010 **Graduate Teaching Assistant IB 105 (Environmental Biology)**, UIUC, Urbana, IL.
- Exposed students from a wide range of backgrounds to important environmental issues
 - Encourages students to speak their minds in discussion and through active learning
 - Challenged students to think critically about evaluating scientific arguments
- 2007–2009 **Graduate Teaching Assistant (Organismal and Evolutionary Bio)**, UIUC, Urbana, IL.
- Communicated introductory level biology concepts to students through active learning
 - Worked with diverse populations as part of the Merit program for high achieving students from under-served groups
 - Received a Teaching Excellence Award from the School of Integrative Biology in March 2009
- [Invited Guest Lectures](#)
- 2019-02-19 **Lessons from fieldwork experiences**, *Intro to environmental fieldwork (ENV120)*, Tufts University.
- 2018-12-04 **Lessons from fieldwork experiences**, *Intro to environmental fieldwork (ENV120)*, Tufts University.
- 2018-10-10 **Tea sustainability in a changing climate**, *Sustainability in Action*, Tufts University.
- 2018-04-05 **Tea chemistry, the environment, and health**, *Medicinal Plants*, Tufts ExCollege.

Awards and Honors

- Mar 2019 Finalist for Outstanding Contributions to Undergraduate Education Award. Graduate School of Arts and Sciences
- Mar 2019 First place in Tufts Graduate Research Symposium 15 minute talk category. Graduate School of Arts and Sciences
- Nov 2018 First place in section for student talks. Entomological Society of America
- Feb 2017 First place in Tufts Graduate Research Symposium 5 minute talk category. Graduate School of Arts and Sciences
- Feb 2016 Second place in Tufts Graduate Research Symposium 15 minute talk category. Graduate School of Arts and Sciences
- Jan 2016 Tufts Institute for the Environment Fellowship. Tufts Institute for the Environment
- Mar 2009 Teaching Excellence award. UIUC School of Integrative Biology
- Mar 2009 PEEC Research Grant. UIUC Program for Ecology, Evolution, and Conservation Biology

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- Mar 2009 Francis M. and Harlie M. Clark Research Support Grant. UIUC
- Mar 2008 Francis M. and Harlie M. Clark Research Support Grant. UIUC
- May 2006 Cynthia Lechner Biology Award. Whitman College
- Mar 2006 First place in M.S. graduate student poster competition. Entomological Society of America, Pacific Branch
- Nov 2005 Superior Poster Presenter. Sigma Xi

Publications

- 2019 **Combined impacts of prolonged drought and warming on plant size and foliar chemistry**, *CM Orians, R Schweiger, JS Dukes, ER Scott, C Müller*, *Annals of Botany*.
- 2019 **Interactive effects of drought severity and simulated herbivory on tea (*Camellia sinensis*) volatile and non-volatile metabolites**, *ER Scott, X Li, N Kfoury, J Morimoto, WY Han, S Ahmed, SB Cash, ...*, *Environmental and Experimental Botany*.
- 2018 **Exogenous Melatonin Alleviates Cold Stress by Promoting Antioxidant Defense and Redox Homeostasis in *Camellia sinensis* L.**, *X Li, JP Wei, ER Scott, JW Liu, S Guo, Y Li, L Zhang, WY Han*, *Molecules*.
- 2018 **Striking changes in tea metabolites due to elevational effects**, *N Kfoury, J Morimoto, A Kern, ER Scott, CM Orians, S Ahmed, T Griffin, ...*, *Food chemistry*.
- 2018 **Differential Changes in Tea Quality as Influenced by Insect Herbivory**, *ER Scott, CM Orians*, *Stress Physiology of Tea in the Face of Climate Change*.
- 2017 **Direct Contact Sorptive Extraction: A Robust Method for Sampling Plant Volatiles in the Field**, *N Kfoury, E Scott, C Orians, A Robbat Jr*, *Journal of Agricultural and Food Chemistry*.
- 2009 **Behavioural, ecological and genetic evidence confirm the occurrence of host-associated differentiation in goldenrod gall-midges**, *N Dorchin, ER Scott, CE Clarkin, MP Luongo, S Jordan, WG Abrahamson*, *Journal of evolutionary biology*.

- 2007 **Taxonomy, life history, and population sex ratios of North American Dasineura (Diptera: Cecidomyiidae) on goldenrods (Asteraceae)**, *N Dorchin, CE Clarkin, ER Scott, MP Luongo, WG Abrahamson*, Annals of the Entomological Society of America.
- 2006 **First Record of Macrolabis (Diptera: Cecidomyiidae) in America: A New Inquiline Species from Dasineura folliculi Galls on Goldenrods**, *N Dorchin, ER Scott, WG Abrahamson*, Annals of the Entomological Society of America.
- 2006 **Behavioral Evidence for Host-race Formation in the Gall-midge Dasineura Folliculi (felt)**, *ER Scott*, Whitman College.

Software

- 2018 **Author of ‘holodeck’ package**, <https://github.com/Aariq/holodeck>.
 ○ A Tidy Interface for Simulating Multivariate Data
- 2017 **Contributor to the ‘webchem’ package by Eduard Szöcs et al.**, <https://cran.r-project.org/web/packages/webchem/>.
 ○ Contributed functions to scrape flavor percept data from flavor.net and to scrape retention indices from NIST given chemical identifier numbers

Presentations

Talks

- Mar 2019 **Multivariate Statistics for Ecology and Baked Goods**, *Tufts Graduate Student Symposium*, Tufts University.
 ○ First place in 15 min talk category
- Nov 2018 **The importance of insect herbivore density to induced metabolite blends in tea plants (Camellia sinensis) and implications for tea quality**, *Entomological Society of America Joint Meeting*, Vancouver, BC.
 ○ First place in section (P-IE turf and horticulture)
- Jul 2018 **Can pests rescue tea quality from climate change?**, *Chinese Academy of Agricultural Science Tea Research Institute (TRI CAAS) Seminar Series*, Hangzhou, China.
- Mar 2018 **Combined effects of drought and herbivory on tea metabolites**, *Biology Department Seminar*, Tufts University.
- Mar 2017 **A novel, high-throughput method for sampling volatiles in the field.**, *Entomological Society of America Eastern Branch Meeting*, Newport, RI.
- Feb 2017 **Can insect damage improve tea quality in a changing climate?**, *Tufts Graduate Student Symposium*, Tufts University.
 ○ First place in 5 minute talk category

- Feb 2016 **A New Method For Sampling Plant Volatiles in the Field**, *Tufts Graduate Student Symposium*, Tufts University.
 ○ Second place in 15 min category
- Jan 2016 **Sampling Plant Volatiles in the Field: An Alternative to Dynamic Headspace Sampling**, *Gordon Research Seminar: Plant Volatiles*, Ventura, CA.
- Nov 2015 **An Alternative Method for Sampling Plant Volatiles.**, *Biology Department Seminar*, Tufts University.
- Apr 2006 **How gall makers enslave plants to build homes.**, *Whitman College Undergraduate Conference*, Walla Walla, WA.

Posters

- 2018-11-11 **Interactive effects of drought and herbivory on tea (*Camellia sinensis*) volatile and non-volatile metabolites**, *Entomological Society of America Joint Meeting*, Vancouver, BC.
- 2017-08-08 **Generating and analyzing metabolomic data from tea plant volatiles.**, *Data Intensive Studies Center (DISC) Symposium*, Tufts University.
- 2016-02-01 **Sampling Plant Volatiles in the Field: An Alternative to Dynamic Headspace Sampling**, *Gordon Research Conference: Plant Volatiles*, Ventura, CA.
- 2006-03-06 **Behavioral evidence for host race formation in a gall midge**, *Entomological Society of America Pacific Branch Annual Meeting*, Kehei, HI.
 ○ First place in M.S. graduate student poster competition
- 2005-11-03 **Behavioral evidence for host race formation in a gall midge**, *Sigma Xi Annual Meeting and Student Research Conference*, Seattle, WA.
 ○ Superior Poster Presenter award

Other

- 2018-01-16 **R Notebooks: Richly annotate your statistical analyses and produce dynamic reports**, *Workshop*, Tufts University.
- 2009-01-11 **Using RSS feeds to stay up-to-date in ecology/Using Papers to organize your literature.**, *GEEB Workshop*, UIUC.

Service

Manuscript Reviews

- Journal of Chemical Ecology (1)
- Ecological Entomology (1)

- 2015–2016 **President**, *Tufts BUGS (Biology Union of Graduate Students)*, Medford, MA.
- Provided active leadership at meetings.
 - Encouraged continued interaction between members between meetings
 - Prepared a budget and submitted funding requests
- 2009–2010 **Outreach and policy committee**, *UIUC Graduate Students in Ecology and Evolutionary Biology (GEEB)*, Champaign, IL.
- Act as liaison to other ecology and conservation related clubs on campus.
 - Keep club members informed of ecology related events on campus.
 - Solicit advice to other ecology related clubs.
- 2008–2009 **Graduate student symposium food committee chair**, *UIUC Graduate Students in Ecology and Evolutionary Biology (GEEB)*, Champaign, IL.
- Assist in organizing the PEEC symposium.
 - Plan and provide breakfast and mid-morning snack for attendees of the symposium
 - Communicate with PEEC treasurer on matters of budget.

Professional Development

- 2019-03-05 Optimizing Your Mentoring Relationship. Tufts University
- 2018-01-05 Best practices for productive writing. Tufts University
- 2015-09-20 Grant Writing: Finding Funding. Tufts University
- 2013-09-10 Working with Student-Veterans: Strategies and Guidance for Creating Veteran-Supportive Classrooms. Front Range Community College
- 2012-09-01 How to get students to “eat the textbook”. Front Range Community College
- 2008-10-05 Taking Charge: Strategies for Success in Graduate School. University of Illinois at Urbana-Champaign