Eric Scott

PhD Candidate

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 implement conference calls
- Coordinate in-person meetings
- Public outreach via public facing website

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

- Conducted collaborateve, interdisiplinary 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
- Identified and collected plants and carried out vegetation sampling protocols
- Described and samples soils to determine wetland hydrology
- Worked with minimal supervision

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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

2005–2015 **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

Teaching Experience

2019 **Graduate Teaching Assistant (Lecture TA for BIO 0014)**, *Tufts University*, Medford, MA.

- Set up video recording of lectures

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.

- Instructor for a guaranteed transfer credit introductory biology course
- Created curriculum including engaging lectures and in-class activities
- Taught students with a wide variety of backgrounds and life goals
- 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 coahc, and maintaining an active dialogue with supervisors
- Created and consistently revised 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 underserved groups
- Receieved a Teaching Excellence Award from the School of Integrative Biology in March 2009

Invited Guest Lectures

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 entivronment, and health**, *Medicinal Plants*, Tufts ExCollege.

Awards and Honors

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

2016–2017 Tufts Institute for the Environment Fellowship. Tufts Institure for the Environment

Mar, 2009 Teaching Excellence award. UIUC School of Integrative Biology

Mar 2008 and 2009 PEEC Research Grant. UIUC Program for Ecology, Evoloution, and Conservation Biology

March 2008 and 2009 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 **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 hostassociated differentiation in goldenrod gallmidges**, *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 'chemhelper' package**, https://github.com/Aariq/chemhelper.
- Provides wrapper functions for working with IonAnalytics deconvolution software as well as other R packages for multivariate analysis

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

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)

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 **Outreaach 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.