

GABRIELA MARIE GARCIA, Ph.D.

Assistant Professor
Department of Marine and Environmental Sciences
School of Public Policy and Urban Affairs
Northeastern University
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EDUCATION

Tufts University <i>Ph.D.</i> , Biology	Medford, MA 2016 - 2022
Boston College <i>Bachelor of Arts</i> , Psychology; Minor: Philosophy Study Abroad: Universidad Alberto Hurtado, Santiago Chile. Jan. – Dec. 2013.	Chestnut Hill, MA 2010 - 2014

PROFESSIONAL APPOINTMENTS

2023-present
Assistant Professor
Department of Marine and Environmental Sciences
School of Public Policy and Urban Affairs
Northeastern University

2022-2023
Fulbright-García Robles Postdoctoral Fellow
Instituto de Investigaciones en Ecosistemas y Sustentabilidad (IIES)
Universidad Nacional Autónoma de México (UNAM)
Hosts: Patricia Balvanera and Quetzalcoatl Orozco-Ramirez

GRANTS & FELLOWSHIPS

2023

- National Science Foundation Postdoctoral Research Fellowship in Biology (\$240,000. Declined for appointment at Northeastern University.)
- American Academy for the Advancement of Science Science and Technology Policy Fellowship (AAAS STPF) Finalist (\$100,000. Declined for appointment at Northeastern University.)

2022

- Fulbright-García Robles Postdoctoral Fellowship. (\$33,000).

2019

- Tufts Graduate School of Arts and Sciences Community Fellowship. (\$8000)
 - Tufts Institute of the Environment Fellowship. (\$5,000)
 - Garden Club of America Corliss Knapp Engle Scholarship in Horticulture. (\$3,000)
 - National Science Foundation Socio-environmental Synthesis Center Graduate Student Research Fellowship (SESYNC). (\$2,000)
 - Tufts University Graduate Student Research Competition. (\$1,000)
- 2018
- National Science Foundation Graduate Research Fellowship Program (NSF GRFP). (\$114,000 for stipend and fees.)
 - Tufts University Graduate Student Research Competition. (\$1,000)
- 2016
- Tufts University Dean's Fellowship in the Sciences. (\$10,000)
 - National Science Foundation Water Diplomacy Integrative Graduate Education and Research Traineeship (IGERT). (\$30,000).
 - National Consortium for Graduate Degrees for Minorities in Engineering and Science Fellowship (GEM) Full Fellowship. (\$50,000)

AWARDS AND HONORS

- 2022
- Edmund H. Fulling Award for Best Oral Paper, Society for Economic Botany Meeting.
 - Featured Graduate Student Speaker, Tufts Graduate School of Arts and Sciences Doctoral Hooding Ceremony.
 - Student Travel Award. Society for Economic Botany Meeting. (Registration and lodging).
- 2020
- Outstanding Graduate Contribution to Diversity and Inclusion. Tufts Graduate Student Council.
 - Student Travel Award. Society for Economic Botany Meeting. (Registration and lodging).

RESEARCH INTERESTS AND EXPERIENCE

Universidad Nacional Autónoma de México (UNAM), Instituto de Investigaciones en Ecosistemas y Sustentabilidad (IIES). Oaxaca, México
Postdoctoral Scholar September 2022-current

Sponsors: Dr. Patricia Balvanera and Dr. Quetzalcoatl Orozco-Ramirez.

- Analyzing the feedbacks between crop plant traits, farmer decision-making, and agroecosystem services in Oaxaca.

Tufts University, Biology Department
Doctoral Candidate
 Research Advisor: Dr. Colin Orians

Medford, MA
 September 2016-May 2022

- Explored resource tradeoffs as a driver of coffee yield fluctuations and their implications for agro-ecological resilience in the context of landscape, management, and farmer decision-making.

NSF Socio-environmental Synthesis Center

Graduate Research Fellow

Annapolis, MD
February 2019-2022

Team leaders: Gabriela Garcia, Dan Shtob, Hannah Stokes

- Investigated the socio-environmental predictors of impact and recovery following Hurricane Maria on Puerto Rico's coffee farming system via remote-sensing and GIS.

Oak Ridge National Laboratory, BioEnergy Science Center

GEM Full Fellow Research Assistant

Oak Ridge, TN
May-August 2016

Research Advisor: Dr. James Elkins

- Conducted research for the improvement of lignocellulosic biofuel production via anaerobic respiration. Collected, analyzed, and presented data to a panel of experts.

Harvard University, Department of Organismic and Evolutionary Biology

Research Assistant

Boston, MA
January-May 2016

Research Advisor: Dr. Federico Roda

- Used fluorescent microscopy to research the existence of a mechanistic link between self- and interspecific incompatibility in flowering plants.

Universidad de Santiago de Chile, Biochemistry Department

Research Assistant

Santiago, Chile
May-October 2015

Research Advisor: Dr. Gustavo Zúñiga

- Prepared in vitro samples, performed gel electrophoresis, and measured total phenol content and antioxidant capacity of endemic Chilean plant species and Antarctic moss.

PEER-REVIEWED PUBLICATIONS

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- **Garcia, G. M.**, & Orians, C. M. (2022). Reproductive tradeoffs in a perennial crop: Exploring the mechanisms of coffee alternate bearing in relation to farm management. *Agriculture, Ecosystems & Environment*, 340, 108151. <https://doi.org/10.1016/j.agee.2022.108151>
 - **Garcia, G. M.**, Re, B., Orians, C., & Crone, E. (2021). By wind or wing: pollination syndromes and alternate bearing in horticultural systems. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 376(1839), 20200371. <https://doi.org/10.1098/rstb.2020.0371>
 - Van Rees, C., Cañizares, J., **Garcia, G.** and Reed, J. M. (2019). Ecological Stakeholder Analogs as intermediaries between freshwater biodiversity conservation and sustainable water management. *Environmental Policy and Governance*. <https://doi.org/10.1002/eet.1856>
 - Verbeke, T. J., **Garcia, G. M.**, & Elkins, J. G. (2017). The effect of switchgrass loadings on feedstock solubilization and biofuel production by *Clostridium thermocellum*. *Biotechnology for biofuels*, 10(1), 233.

- **Garcia**, G.M., Orians C.M., and Kuhl, L. (*In review at PLOS ONE*). Coping with crop variability: Assessing smallholder capacity to manage alternate bearing in a perennial crop.
- **Garcia**, G.M., Crone E., Kuhl, L., Orians C.M. (*In prep.*) Harnessing the resource budget model to integrate alternate bearing and agroecosystem resilience.

PUBLISHED BOOK CHAPTERS

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- **Garcia** and Orians (2020). Explorando la Variabilidad en el Agroecosistema de Café Utilizando el Modelo Presupuestario de Recursos. *Agrárias: Pesquisa e Inovação nas Ciências que Alimentam o Mundo III*. Editora Artemis.
 - Van Rees, **Garcia**, and Rozek. (2019) Confronting the Natural Domain: The Role of Ecosystems and Biodiversity in Complex Water Management Challenges. In Islam & Smith. *Interdisciplinary Collaboration for Water Diplomacy: A Principled and Pragmatic Approach*. Routledge.

CONTRIBUTED PRESENTATIONS AND POSTERS*

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- Garcia G., Orians, C.M., Kuhl, L. "An integrated understanding of coffee alternate bearing and feedbacks with farmer decision-making across scales." *Society for Economic Botany Annual Meeting, 2022*.
 - Garcia, G., Crone, E., Orians, C. The allocation in our caffeination: Resource tradeoffs in *Coffea arabica* interact with farm altitude and shade tree cover. *Ecological Society of America Annual Meeting 2020*.
 - Garcia, G. The Allocation in our Caffeination: Resource Tradeoffs in *Coffea arabica*. *Tufts Department of Biology Fall Seminar Series*, November 2019. Medford, MA.
 - *Garcia, G., Crone, E., Orians, C. Explorando la variabilidad en el agroecosistema de café utilizando el modelo presupuestario de recursos. *El Congreso Latino Americano de Agroecología*, August 2018. Guayaquil, Ecuador.
 - Garcia, G., Vega, A., Crone, E., Orians, C. Exploring tradeoffs in coffee agroecosystems. *Ecological Society of America Annual Meeting*, August 2018. New Orleans, LA.
 - *Garcia, G. Bean Maps: Spatial Analysis of Potential Coffee Yields in Santa Maria, Costa Rica. *Tufts GIS Poster Expo*, April 2018. Medford, MA.
 - Garcia, G. Exploring tradeoffs in coffee through the resource budget model framework. *Tufts Department of Biology Fall Seminar Series*, March 2018. Medford, MA.
 - Garcia, G. Coping with Variability in Smallholder Coffee Agroecosystems. *Tufts Department of Biology Fall Seminar Series*, October 2017. Medford, MA.
 - Garcia, G. Development and Manipulation of Synthetic Microbial Communities. *Tufts Department of Biology Spring Seminar Series*, January 2017. Medford, MA.
 - Garcia, G. Exploring electron loss in *Clostridium thermocellum* to maximize biofuel production. *Oak Ridge National Laboratory Summer Research Competition*, August 2016. Oak Ridge, TN.

INVITED TALKS AND PANELS

2022

- **Universidad Tecnica de los Valles Centrales de Oaxaca**. "Huerta Revuelta (*Syntropic farming experiment*). " November 2022.

2020

- **Providence College Biology Seminar Series.** “Coping with Change: Coffee, climate and community.” November 2020.
- **Brooklyn College-CUNY.** Guest Lecture to Dr. Shtob’s *Urban Sustainability* course. “Coping with Change: Coffee, climate and community.” November, 2020.
- **NSF Socio-environmental Synthesis Center.** Panel on “Diversity and Inclusion in Socio-Environmental Synthesis”. *Panelist.* Annapolis, MD. September, 2020.
- **Tufts’ Summer Scholars.** “Applying to Graduate School” Panel. July 2020. Medford, MA.
- **Tufts Hoch Cunningham Environmental Lecture Series.** [A socio-ecological approach to sustainable coffee yields and farmer livelihoods.](#) April 2020. Medford, MA.
- **Climate CREW (Communities Responding to Extreme Weather) Boston.** “Climate change, food security, and emergency preparedness” panelist. March 2020. Boston, Ma.
- **Tufts’ “Introduction to Environmental Fieldwork” Course.** Coffee, Climate and Community. Guest Lecturer. March 2020. Medford, MA.

2019

- **Tufts’ “Tropical Ecology and Conservation” Course.** Coffee, Climate and Community: A holistic approach to resilience. Guest Lecturer. November 2019. Medford, MA.
- **Tufts’ “Introduction to Environmental Fieldwork” Course.** Coffee, Climate and Community. Guest Lecturer. October 2019. Medford, MA.
- **2019 Tufts Food Systems Symposium.** Food Tech and Food Justice: Can we Talk? Research representative. October 2019. Medford, MA.
- **Somerville High School Science Department.** Adventures in Socio-ecological Fieldwork. May 2019. Guest speaker. Somerville, MA.
- **Tufts University Biology Club.** Adventures in Socio-ecological Fieldwork. Guest Speaker. February 2019. Medford, MA.

2018

- **Tufts’ “Introduction to Environmental Fieldwork” Course.** Panelist. 2018. Medford, MA.
- **Out in Science, Technology, Engineering, and Mathematics.** “LGBT+ Graduate Students” panelist. 2018. Medford, MA.

2017

- **Tufts University Africana Center, Latino Center, LGBT Center, Center for STEM Diversity, Dean of Undergraduate Education, and Career Centers, 2017.** “Graduate Application Process as a Person of Color” panelist. Medford, MA.

TEACHING

Lead Instructor & Program Director

Course: Tufts Climate Resilience Institute.

July 2021 – August 2022

- Developed a two-week cross-disciplinary course for 45 international high school students with modules on climate justice, agricultural resilience, climate policy and negotiations, rising sea levels, and climate refugees. Culminated in small-group capstone projects spotlighting climate resilience topics.
- Coordinated the activities of 4 undergraduate teaching assistants.

Teaching Assistant: Tufts University Biology Department.

Course: Environmental Biology

January-May 2021

- Coordinated the StoryMap research project for 78 students in the course Environmental Biology. Graded assignments, developed test questions, and held office hours to address student questions.

Course: Cells and Organisms

September-December 2016

- Taught laboratory section for Cell Biology course in the biology department. Solely responsible for lab instruction of 26 undergraduate students including leading discussions, designing quizzes, grading assignments, and guiding students through experiments.

Substitute Lecturer and Grader: Tufts University Biology Department.

Course: Food for All: Ecology, Biotechnology and Sustainability.

January-April 2019

- Graded weekly reflections on the readings submitted by undergraduate and graduate students.

MENTORING

2021

- Bridget Re (Masters student mentee).

2020

- Ryan Hernandez (Tufts Global Research Assistant Program), Brenna Trollinger (Tufts Global Research Assistant Program), Madeline Bondy (Honors Thesis, Tufts Summer Scholar, Independent Research Project), Awele Nina Chukwura (Lab assistant).

2019

- Leslie Spencer (Tufts Independent Research Project); Jay Fonticella (Tufts Independent Research Project); Ida Weiss (Tufts Global Research Assistant program); Grace van Deelen (Tufts Independent Research Project; International research assistant); Marilene Rivas-Chavez (International research assistant); Serena Laing (International research assistant)

2018

- Annika Greenfield (Spanish Minor Capstone); Vitoria Fonseca (Tufts Global Research Assistant Program)

2017

- Maxfield Kelsey (International research assistant).

LEADERSHIP & OUTREACH

- Coopedota Coffee Cooperative. Farmer workshop on “*Variabilidad en los Cafetales de Santa María de Dota (Variability on coffee farms Santa María de Dota,*” 2022. *Lead.*
- Tufts Graduate School of Arts and Sciences. Panel on “Making the Most of your Mentoring Relationships,” 2020. *Lead.*
- Tufts Academic Resource Center, 2019-2021. *Graduate Writing Consultant.*
- Tufts Academic Resource Center Weekly ESL Fluency Workshop for International Graduate Students, Fall 2018 and Spring 2019. *Discussion facilitator.*
- Tufts Graduate Student Research Competition (GSRC), 2018. *Review committee.*
- Tufts Environmental Studies Photo Contest, 2017 and 2018. *Judge.*
- North Grafton Elementary School Annual Enrichment Day, 2017. *Volunteer.*
- Tufts’ Graduate Matriculation Day, 2017. *Volunteer.*
- Tufts Graduate School of Arts and Sciences, 2017. *Mentor to International Students.*

- Tufts Biology Department, 2017. *Teaching Fellow Mentor*.
- Somerville High School Science Fair, 2017. *Judge*.

RESEARCH SKILLS

- Multivariate statistical techniques (generalized additive models; phylogenetically corrected models; structural equation models).
- Qualitative and quantitative interview analysis.
- Geographic information systems.
- Fuzzy cognitive mapping.
- Spanish fluency.
- Skilled in R Studio, ArcGIS, NVivo, GitHub.