CARISSA DERANEK

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EDUCATION

University of California, Los Angeles — Los Angeles, CA
PhD student, Ecology and Evolutionary Biology — *Fall 2022 – ongoing*
Advisor: Dr. Elsa Ordway

Harvey Mudd College — Claremont, CA
B.S., Mathematical and Computational Biology — *2015 – 2019*
Humanities concentration in Spanish
Graduated with high distinction and departmental honors in biology (*3.77/4*)

SIT Comparative Ecology and Conservation — Quito, Ecuador
Study abroad program — *Fall 2017*

PUBLICATIONS

Freeman, Natalie M., David R. Munro, Janet Sprintall, Matthew R. Mazloff, Sarah Purkey, Isabella Rosso, **Carissa A. DeRanek**, and Colm Sweeney. "The observed seasonal cycle of macronutrients in Drake Passage: Relationship to fronts and utility as a model metric." Journal of Geophysical Research: Oceans 124, no. 7 (2019): 4763-4783.

Bush, Eliot C., Anne E. Clark, **Carissa A. DeRanek**, Alexander Eng, Juliet Forman, Kevin Heath, Alexander B. Lee et al. "xenoGI: reconstructing the history of genomic island insertions in clades of closely related bacteria." BMC bioinformatics 19, no. 1 (2018): 1-11.

AWARDS AND FUNDING

Strategic University Research Project Grant, NASA JPL — Fall 2022 –planned Spring 2025
Funding for a three-year research collaboration with scientists at NASA JPL, including three quarters of support as a graduate student researcher.

Summer Mentored Research Fellowship, UCLA — Summer 2022
Summer graduate student research support

Vavra Fellowship, UCLA — Fall 2022-Summer 2026
Six quarters of graduate student research support *"awarded annually to outstanding applicants in the area of organismal plant biology"*

Palevsky Fellowship, UCLA — Fall 2022-Summer 2023
Additional stipend *"awarded to one incoming student in recognition of an outstanding record and promise of scholarly achievement"*

President's Scholar Program, Harvey Mudd College — Fall 2015 – Spring 2019
Full-tuition 4-year scholarship

W.A. Brandenburger Biology Prize, Harvey Mudd College — 2019
"Awarded annually to a senior biology major for outstanding performance and promise in the field of biology"

Hispanic Scholarship Fund Recipient — 2016 & 2017
Scholarship awarded to selected Latinx students across the US

TEACHING EXPERIENCE

Mathematics and Computer Science Teacher, The Webb Schools Fall 2019 – Spring 2022

- Taught integrated Algebra/Geometry course using problem-based learning
- Designed and taught AP Computer Science Principles curriculum
- Academic advisor for 6-9 ninth-grade students each year
- Planned and facilitated weekend educational and recreational activities for students *(approx. 7 weekends/year)*
- Supported students during weekly dorm supervision & evening math tutoring
- Facilitated student paleontology field work under the supervision of The Alf Museum director during weekend fossil-collection trips and a two-week excursion to a Wyoming collection site

FTC Robotics Team Coach, The Webb Schools Fall 2019 – Spring 2022

- Co-coach (alongside two other teachers) for 25-35 students on the robotics team annually
- Held daily after-school practices from September-February
- Planned and hosted regional weekend robotics competitions *(4 regional events/year hosting approx. 5-15 schools)*

Math Club Advisor, The Webb Schools Fall 2019 – Spring 2022

- Facilitated math competitions, problem solving sessions, and math peer-tutoring program.

Channel Islands Unbounded Course, The Webb Schools Winter 2021

- Designed and co-taught (alongside 1 humanities department teacher) an immersive 3-day course on the history and restoration ecology of the Channel Islands
- Led 15 high-school students in outdoor education and leadership activities during a 3-day camping trip to Santa Cruz Island

Conservation Technology Unbounded Course, The Webb Schools Winter 2019

- Designed and co-taught (alongside 1 science department teacher) an immersive 3-day course on conservation technology
- Led 13 high-school students in field work at the Bernard Field Station
- Led workshop on using R to analyze data collected from field station
- Toured local labs and learned about ecology, conservation technology, and policy in our community

Computational Biology and Biostatistics Tutor, Harvey Mudd College Fall 2018 – Spring 2019

- Provide twice-weekly tutoring and exam review for students in biostatistics and introductory computational biology course
- Graded student homework for biostatistics course

RESEARCH EXPERIENCE

Harvey Mudd College Senior Clinic | *Computer Science* Fall 2018 – Spring 2019
Python, AWS

- Worked for a large technology company on a team of 5 students to create a tool for automatic tuning in Apache Cassandra
- Ran database simulations using Amazon Web Services (AWS)
- **Presentation:** Harvey Mudd's clinic conference and poster sessions

Scripps Institution of Oceanography REU | *Physical Oceanography* Summer – Fall 2018
Python, Matlab

- Analyzed biogeochemical data from GO-SHIP Southern Ocean Data
- Learned about biophysical coupling in the Southern Ocean and helped develop research questions for future work based on preliminary data analysis
- **Presentation:** UCSD summer research symposium

Reserva Intillacta, Independent Research | *Tropical Ecology & Conservation* Fall 2017
R, pitfall traps, used Spanish language skills in professional setting

- Independent research project aimed at helping Reserva Intillacta monitor impacts of land-use change
- Used Spanish proficiency in a professional setting to share data with Reserva Intillacta managers

Harvey Mudd College REU | *Computational Biology* Summer 2017
Python, R

- Aided in the creation of a software package *(xenoGI)* that finds genomic islands.
- Automated testing xenoGI's performance
- Helped develop and implement error scores to reflect the software's confidence in predicting each genomic island
- Compared xenoGI's results to information in literature
- **Presentation:** Harvey Mudd undergraduate research symposium

Harvey Mudd College REU | *Molecular Biology* Spring – Summer 2016

- Created lines of transgenic flies for use in future experimentation
- Mentored Upward Bound student during the summer
- **Presentation:** Harvey Mudd undergraduate research symposium

COMMUNITY INVOLVEMENT

Volunteer, UCLA Exploring Your Universe Fall 2022

Planned activities and volunteered at a day-long science education and outreach event on UCLA's campus.

Uncommon Good Mentor Fall 2015 – Spring 2020

Met bi-weekly with a first-generation high school student to provide guidance in school work, college applications, and general well-being.

Girl Scout Gold Award Project Fall 2012 – Spring 2015

Awards: Girl Scout Gold Award · Girl Scout "Service from the heart" Award
Created an inclusive sports program for students with disabilities. Served 10-15 students each year. Coordinated volunteers, fundraising, permits, practices, and performances at local venues.

SKILLS AND COURSEWORK

Computational: Python, R (research and coursework in these languages)
Google Earth Engine, QGIS (conducted research with these tools)
Java, C++, Matlab (completed coursework in these languages)

Language: Spanish (intermediate-advanced speaking and written, heritage speaker)

Training and workshops: 2023 EMIT Data Tutorial Series · 2023 Landscape Exchange Network for Socio-environmental Systems (LENS) Workshop · 2023 National Center for Atmospheric Research (NCAR) National Ecological Observatory Network (NEON) Workshop

Relevant Coursework: Environmental Spatial Statistics · Algorithms · Advanced Computational and Mathematical Biology · Linear Algebra and Differential Equations · Statistics · Discrete Math · Data Structures · Conservation & Sustainability