

CV

ALLISON HORST

Assistant Teaching Professor

Bren School of Environmental Science and Management, UC Santa Barbara

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Overview

I am an Assistant Teaching Professor in the Master of Environmental Data Science program at UC Santa Barbara. I have 10+ years creating and leading data science, statistics, math, and science communication courses and workshops; I am a leader in building communities of practice to support diverse data science learners and teachers including as co-founder of the Santa Barbara Chapter of R-Ladies; I contribute to open source education resources through open educational resources (e.g. tutorials, open course and workshop materials, software) and original artwork for data science and statistics instruction.

Education

Ph.D., Environmental Science and Management (2012)

Emphasis: Environmental nanotoxicology

Bren School of Environmental Science & Management

University of California Center for Environmental Implications of Nanotechnology

University of California at Santa Barbara, Santa Barbara, CA 93106-5131

M.S., Mechanical Engineering (Emphasis in Environmental and Ocean Engineering) (2007)

Department of Mechanical Engineering

University of California at Santa Barbara, Santa Barbara, CA 93106-5070

B.S., Chemical Engineering (Emphasis in Environment, Risk and Management) (2005)

Department of Chemical Engineering

University of California at Santa Barbara, Santa Barbara, CA 93106-5080

Distinctions

UC Santa Barbara Distinguished Teaching Award (2019)

Awarded the 2019 campus-wide Distinguished Teaching Award at UC Santa Barbara for “excellence in teaching and inspiring innovation in teaching.”

Bren School of Environmental Science & Management Distinguished Teaching Award (2018)

Awarded the 2018 Distinguished Teaching Award by Bren School graduate students.

Teaching

Assistant Teaching Professor (July 2020 - Present)

Bren School of Environmental Science and Management, UC Santa Barbara

Lecturer (2013 - 2020)

Bren School of Environmental Science and Management, UC Santa Barbara

Instructor - Intensive Calculus Courses (2010 - 2013)

Bren School of Environmental Science and Management, UC Santa Barbara

Instructor of Record, ES 25 - Quantitative Thinking in Environmental Science (2010)

Department of Environmental Studies, UC Santa Barbara

Catalog courses developed and led:

- **EDS 411A: Master of Environmental Data Science Capstone Course (2022)**
A required course that facilitates student progress on their required 6-months Capstone Project, a degree requirement for the Master of Environmental Data Science Degree. Course sessions include directed project work, facilitated peer-review, professional development activities (e.g. project management, running meetings, communicating with clients, and practice presentations).
- **EDS 212: Essential Math in Environmental Data Science (2021)**
A required course essential math skills and concepts for Environmental Data Science in the Master of Environmental Data Science program at UC Santa Barbara. Topics range from very basic algebra through introductory linear algebra and multivariate calculus.
- **EDS 221: Scientific Programming Essentials (2021)**
Developed and led this introductory programming course in the Master of Environmental Data Science Program at UC Santa Barbara.
- **ESM 206: Intro to Statistics and Data Analysis in Environmental Science (2013 - 2021)**
A required 1st quarter course for all incoming Master's of Environmental Science and Management students (~85 / year) at the Bren School that introduces programming skills and best practices, data science project management, statistical methods, and communicating through data visualizations and written reports.
- **ESM 244: Advanced Data Analysis (2014 - 2021)**
A survey course with weekly labs on advanced topics in environmental data science, including: logistic regression, spatial data visualization and analysis, principal component analysis, basics of partition-based and hierarchical clustering, exploring time series data, introduction to text mining and analysis, and creating web applications with Shiny in R. Transferable skills for data science collaboration, reproducibility, and communication are reinforced throughout.
- **ESM 438: Presentation Skills for Environmental Professionals (2015 - 2021)**
Communication is a critical, but often overlooked, skill for data scientists. ESM 438 teaches general skills for science communication (public speaking, interviewing, slide design) and skills specific for data scientists (e.g. data visualization, effectively communicating complex data analyses and methods, and presenting model results).

- **Quantitative Skills and R/RStudio Workshop for Incoming PhD Students (2017 - 2020)**
A 2-week intensive workshop to get incoming PhD students up-and-running with refreshed quantitative skills (algebra, linear algebra, probability and statistics) and programming basics using R with RStudio.
- **Intensive Calculus Workshop for Incoming Master's Students (2010 - 2020)**
A 2-week intensive calculus workshop covering general quantitative thinking skills, algebra, functions, integral calculus and derivatives.
- **ES 25: Quantitative Thinking in Environmental Science (2010)**
Undergraduate course introducing fundamentals of quantitative thinking in environmental science, e.g. coordinate systems, visualizing data, interpreting graphs, basic calculations and summary statistics, etc.

Selected Recent Talks, Workshops & Data Science Education Contributions

National Center for Ecological Synthesis and Analysis Roundtable Session (February 2022)

Invited talk: *Making monsters: Where they came from, what they've taught me, and how you can make them, too.* [Slides](#).

Urban Drainage Modeling Conference (January 2022)

Invited workshop: *R Markdown for fun, functional and reproducible reporting.* [Materials](#).

Urban Drainage Modeling Conference (January 2022)

Plenary talk: *Missing the point - missing values, misinterpretations, and missed opportunities in environmental data science.* [Slides](#).

UCSB Data Science Summit (December 2021)

Invited talk: *Introducing UCSB's new Master of Environmental Data Science Program.* Co-presented with Jamie Montgomery. [Slides](#).

Quantitative Methods in Social Sciences Seminar Series (November 2021)

Invited talk: *Tips and tools for gentle R introductions.* [Materials](#).

AM Horst, AP Hill, KB Gorman. Penguins data in the *palmerpenguins* R package: an alternative to Anderson's *Irises*. (accepted with minor revisions to The R Journal).

Joint Statistical Meeting of the American Statistical Association (August 2021)

Invited talk: *Creative contributions and activities for student engagement and learning in data science.* [Slides](#).

Ecological Society of America Annual Conference (August 2021)

Presented with Dr. Julien Brun at the 2021 Annual ESA Meeting on *Leveraging the data richness of the Long Term Ecological Research Network (LTER) to teach environmental data science*. [Slides](#).

useR! Conference 2021 - Regular Talk (July 2021)

Presented at the 2021 useR! Conference with Dr. Julien Brun on *Developing a datasets-based R Package to teach environmental data science*. [Slides](#).

Workshop Leader: Tips and tricks (for fun and functionality) in R Markdown (March 2021)

<https://allisonhorst.github.io/rladies-bangalore-rmarkdown/>

Invited workshop introducing useful tools & features in R Markdown for R-Ladies Bangalore.

Invited Workshop Leader: A quick flight to the edge of the tidyverse (February 2021)

<https://allisonhorst.shinyapps.io/edge-of-the-tidyverse/>

Led a workshop introducing some key packages and functions in the tidyverse for R-Ladies Tunis & R-Ladies Dammam

AM Horst, AP Hill, KB Gorman (2020). palmerpenguins: Palmer Archipelago (Antarctica) penguin data. R package version 0.1.0. <https://allisonhorst.github.io/palmerpenguins/>

Workshop: Level Up in R Markdown (February 2021)

<https://allisonhorst.github.io/ucsb-qmss-rmarkdown/>

Invited workshop leader for the Quantitative Methods in Social Sciences program at UC Santa Barbara. Created and led workshop on tools & features of R Markdown for reproducible science and publishing.

Workshop: Rice University Visual Communication Symposium (January 2021)

<https://allisonhorst.github.io/rice-data-viz/>

Invited workshop leader for the Rice University Visual Communication Symposium. Created and led a 4-hour workshop on tools for customizing ggplot creations.

Instructor, “R for Excel Users” Workshop at RStudio Conference (January 2020)

Developed and co-taught the [“R for Excel Users” workshop](#) with Dr. Julia Lowndes at the 2020 RStudio Conference. Topics included an introduction to R, RStudio, R Markdown, reproducible workflows, GitHub, collaboration, data wrangling and exploration, and making graphs with ggplot2.

JJS Lowndes, HE Froehlich, **A Horst**, N Jayasundara, ML Pinsky, AC Stier, NO Therkildsen, CL Wood. [Supercharge your research: a 10-week plan for open data science](#). Nature Career Column, 31 Oct 2019. doi: 10.1038/d41586-019-03335-4

R for Excel Users by JSS Lowndes and AM Horst (eBook) (February 2020)

<https://rstudio-conf-2020.github.io/r-for-excel/>

Electronic book (open source), co-authored with Dr. Julia Lowndes, created to accompany our RStudio Conference “R for Excel Users” Workshop. Made available for other teachers and users wanting to share or gain basic skills in reproducible workflows, collaboration, data wrangling and visualization for modern R users.

Statistics and R artwork for learners and teachers (November 2018 - present)

Create free Creative Commons illustrations for R and statistics users, teachers and community members. They have been used in courses, workshops, and presentations worldwide to help lower learning barriers, increase engagement and help retention of statistics and coding materials. The always-growing collection can be found here: <https://github.com/allisonhorst/stats-illustrations>

Professional Activities

Editorial Board - Journal of Open Source Education (August 2021 - present)

Member, editorial board - responsible for finding and communicating with reviewers, and facilitating and moderating discussions between authors and reviewers.

UCSB RISE (Reimagining Instruction for the Student Experience) Institute (Summer 2020)

Participated in the 5-week RISE Institute to build skills for remote teaching, innovative teaching technologies, and inclusive classrooms

Openscapes Mentorship Program (December 2018 – June 2019)

Under mentor Dr. Julia Lowndes (Mozilla Open Science Fellow, NCEAS), was one of 7 selected researchers and teachers to participate in the inaugural year of the [Openscapes program](#) – a 10-week program to empower teams of environmental scientists with tools and community needed to build, use and share data science skills.

RStudio Artist-in-Residence (October 2019 – October 2020)

As the first RStudio Artist-in-Residence, I am creating illustrations to make learning R, and code more broadly, more accessible and welcoming to beginning useRs. The images are used around the world in courses and presentations as friendly visual aids to help lower R learning barriers.

Recent Service and Community Contributions

UCSB Data Science Summit - Co-PI and Organizing Committee Member (2021)

Co-PI and Organizing Committee member for the inaugural UCSB Data Science Summit (scheduled for 2021-12-03), funded by the Academic Data Science Alliance.

Environmental Data Science Summit - Organizing Committee Member (2021)

Organizing Committee member for the upcoming Environmental Data Science Summit (February 2022).

Master of Environmental Data Science Curriculum Cohesion Committee (2020 - present)

I am the Chair of the Master of Environmental Data Science Curriculum Cohesion Committee, which is responsible for the successful implementation of the new Master of Environmental Data Science program,

and works to build cohesion across courses and capstone projects (program started August 2021 at the Bren School)

Bren School Masters Curriculum Committee (2020 - present)

Member of the Bren School Curriculum Committee, discussing needs and changes for the two MS programs at the Bren School (UC Santa Barbara).

R-Ladies Santa Barbara – Co-founder, organizer, instructor & active member (2018 - present)

[R-Ladies](#) is a global organization striving to increase diversity (and diversity more broadly) in the R-user community. Our [Santa Barbara R-Ladies](#) chapter hosts 5 – 6 events per year, including sessions aimed at: training technical skills, flash talks from R-Ladies, networking meetups, invited guest speakers, and more.

UCSB TidyTuesday Coding Club – Founder, organizer, & participant (2019 - 2021)

[Tidy Tuesday](#) is a “weekly social data project in R” started by the online R for Data Science community that encourages participants to practice wrangling, visualizing, and sharing analyses using a semi-tidy dataset each week. At the UCSB Tidy Tuesday Coding Club, people can work together on Tidy Tuesdays or other R-related projects in-person, meet other R-users across campus, and build a more cohesive R community at UCSB in a no-stress social setting. Attendance is usually ~ 12 - 20 people from multiple departments across campus.

Eco-Data-Science Volunteer Instructor (2018 - 2019)

Eco-Data-Science is a volunteer-led learning group at UCSB that offers monthly workshops to share relevant data science skills for people working with environmental data. I have led sessions on

Professional Organizations

Academic Data Science Alliance

American Statistical Association

R-Ladies Global