Juliana C. Taube

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Education

Bowdoin College   *Brunswick, ME*

A.B. *summa cum laude* WITH HONORS IN MATHEMATICS, MINOR IN BIOLOGY   *2017 - 2021*

Honors thesis: Modeling coupled disease-behavior dynamics of SARS-CoV-2 using influence networks

Notable awards: Phi Beta Kappa, Almon Goodwin Prize, Bowdoin Goldwater Scholarship Nominee

Summer Institute in Biostatistics   *Minneapolis, MN*

UNIVERSITY OF MINNESOTA   *June - July 2018*

Coursework: 6 weeks of classes in biostatistics, epidemiology, and statistical computing using R and SAS

Final project: Outlined clinical trial protocol of canakinumab in HIV+ patients

Research Experience

Division of Global Migration & Quarantine, CDC   *Remote*

INTERN, ADVISORS: ARDATH GRILLS, PHD; SARAH BOWDEN, PHD; MICHAEL JOHANSSON, PHD   *May - Aug. 2020*

- Funded by Bowdoin Internship Grant ($5000) to assist with three different projects on the spread of COVID-19
- Gathered, cleaned, and wrangled census and meat-packing location data for COVID-19 hotspot model
- Used boosted regression tree machine learning model to predict and characterize COVID-19 county hotspots
- Collected data (attendance, venue size, event duration) for large gatherings considered COVID-19 superspreader events
- Looked for correlations between event aspects and disease transmission, in effort to estimate dispersion parameter
- Contributed to model implementation and assessment of interventions to mitigate COVID-19 spread on cruise ships

Odum School of Ecology, University of Georgia   *Athens, GA*

STUDENT RESEARCHER (REU), ADVISOR: JOHN M. DRAKE, PHD   *May - July 2019*

- Compiled and standardized infectious disease transmission trees from the literature into an R database
- Analyzed predictors of outbreak size & quantified the contribution of superspreading to onward transmission
- Tested theory relating frequency of superspreading events and the dispersion parameter
- Obtained REU Travel Grant ($2000) from Rocky Mountain Biological Laboratory to present work at Epidemics 7

STUDENT RESEARCHER (REMOTE), ADVISOR: JOHN M. DRAKE, PHD   *June - Dec. 2020*

- Expanded database to include COVID-19 transmission trees and released data online at outbreaktrees.ecology.uga.edu 🔗
- Further explored frequency, timing, and generation of superspreaders for COVID-19 relative to other diseases using database
- Findings and results were submitted for publication in PLoS Biology

Dartmouth Hitchcock Medical Center   *Lebanon, NH*

INTERN, ADVISOR: PETER F. WRIGHT, MD   *June - Aug. 2017*

- Assisted with development of Gates Foundation funding proposal: Applying the Lessons Learned from Polio Eradication
- Compiled and summarized literature on smallpox and polio eradication efforts, highlighting similarities and differences
- Organized data on bronchiolitis and RSV hospitalizations in New England

Publications

An open-access database of infectious disease transmission trees to explore superspreader epidemiology

TAUBE JC, MILLER PB, DRAKE JM.   *In Review at PLoS Biology*

https://www.medrxiv.org/content/10.1101/2021.01.11.21249622v1 🔗

Presentations

MIDAS Meeting 2021   *Online*

AN OPEN-ACCESS DATABASE OF INFECTIOUS DISEASE TRANSMISSION TREES TO EXPLORE SUPERSPREADER EPIDEMIOLOGY   *May 2021*

Epidemics 7 *Charleston, SC*

WHO INFECTED WHOM? CREATING A DATABASE OF TRANSMISSION TREES FOR COMPARATIVE OUTBREAK ANALYSIS *Dec. 2019*

- Poster additionally presented at University of Georgia's Final Summer REU Poster Session (July 2019) and Bowdoin College's President's Summer Research Symposium (October 2019)

Teaching Experience

Dept. of Mathematics, Bowdoin College *Brunswick, ME*

TEACHING ASSISTANT *Feb. - May 2021*

- Partial Differential Equations (MATH 3209): create videos to explain homework solutions or review confusing concepts

Dept. of Digital and Computational Studies, Bowdoin College *Brunswick, ME*

TEACHING ASSISTANT *Jan. - May 2021*

- Contagion (DCS 3350): curate resources and assist students
- Find and summarize data sources for student disease modeling project, including flight, mobility, population, and contact tracing data
- Collect and organize news articles on other aspects of the COVID-19 pandemic, including racism, economic impacts, and misinformation
- Lead weekly study group to help students with their coursework using networkx

Dept. of Computer Science, Bowdoin College *Brunswick, ME*

TEACHING ASSISTANT *Jan. 2019 - Dec. 2020*

- Lead weekly two-hour study groups to assist students with their assignments, including asking probing questions, finding the bugs in their code, and explaining concepts from class
  - Introduction to Computer Science (CSCI 1101): Jan. 2019 – Dec. 2020
  - Social and Economic Networks (CSCI/DCS 2350): Sept. – Dec. 2020

Leadership & Co-curriculars

Women's Varsity Ice Hockey *Brunswick, ME*

PLAYER *2017 - 2021*

- Dedicate ~20 hours/week to practices and games, while balancing full academic course load
- *Awards:* Most Improved Player (2018-19), James Bowdoin Cup (2019, 2020)
- 2019-20 Community Service Representative, 2020-21 Bowdoin Student-Athlete Advisory Committee Representative

Bowdoin Bridge Club *Brunswick, ME*

CLUB LEADER *2018 - 2019*

- Founded and chartered club, attended club leader trainings, advocated for club funding
- Recruited community members to coach and students to play on a weekly basis
- Prepared card hands and bidding schemes for student development

Skills

Programming	R, Python, Java, Mathematica
Software	LaTeX, Git, MacOS, Microsoft Office

References

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