Juliana C. Taube

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Education

Bowdoin College
Brunswick, ME

B.A. Mathematics major, Biology minor, GPA: 4.00/4.00 — *Anticipated May 2021*

Honors thesis: (in progress) Modeling Coupled Disease-Behavior Dynamics of SARS-CoV-2 Using Influence Networks

Course highlights: Statistics, Bayesian Statistics, ODEs, PDEs, Evolution, Ecology, Microbiology, Genetics*, Science Communication*, Data Structures, Social & Economic Networks, Contagion (*Spring 2021)

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*

- Assisted 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

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

Poster Presentations

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)

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

Teaching Experience

Dept. of Mathematics, Bowdoin College
Brunswick, ME

Teaching Assistant
Feb. 2021 - present

- 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. 2021 - present

- Contagion (DCS 3350): curate resources, assist students, and grade assignments
- 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
Aug. 2017 - present

- Dedicate ~20 hours/week to practices and games, while balancing full academic course load
- 2019-20 Community Service Representative, organized team community service activities
- 2020-21 Bowdoin Student-Athlete Advisory Committee Representative, advocate for team needs and work with administration to implement NCAA and NESCAC initiatives

Bowdoin Bridge Club
Brunswick, ME

Club leader
April 2018 - Nov. 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

Awards & Fellowships

2020 **Almon Goodwin Prize**, given to exemplary members of Phi Beta Kappa
2020 **Phi Beta Kappa**
2018-20 **Sarah and James Bowdoin Scholar & Book Award Winner** (3x), Book Award is for students with 4.0 GPA
2019-20 **James Bowdoin Cup** (2x), given to the varsity athlete(s) with the highest GPA
2020 **Bowdoin Funded Internship Grant** $5000
2019 **REU Travel Grant for Epidemics 7** $2000, from Rocky Mountain Biological Laboratory
2019 **Bowdoin College Goldwater Scholarship Nominee**
2018 **First Year Chemistry Award**, recognizes outstanding promise and achievement in chemistry
2017 **Bowdoin Faculty Scholar** $3000, recognizes students who achieved excellence in their high school coursework
2017 **Bowdoin National Merit Scholarship**