Mallory Harris, PhD

Department of Biology and Institute for Health Computing, University of Maryland
mharr15@umd.edu ● https://mjharris95.github.io/

EDUCATION AND TRAINING

University of Maryland (College Park, MD) 2024 Aug – current
Postdoctoral associate, Department of Biology and Institute for Health Computing
(PI: Joshua Weitz)

Stanford University (Palo Alto, CA) 2019 Sep – 2024 Jul
PhD in Biology (Ecology and Evolution)
Dissertation: Human activity shapes infectious diseases dynamics: Social division, misinformation, and climate change (PI: Erin Mordecai)

The University of Washington (Seattle, WA) 2023 Jan – 2023 Mar
Invited guest researcher, Center for an Informed Public
(PI: Jevin West)

University of Georgia (Athens, GA) 2014 Aug - 2018 May
B.S. Mathematics, B.S. Computational Biology
GPA: 3.93, summa cum laude with Highest Honors
Honors thesis: Early warning signals of malaria elimination in Haiti (PI: John Drake)

PUBLICATIONS

1. **Harris MJ**, Trok JT, Martel KS, Borbor Cordova MJ, Diffenbaugh NS, Munayco CV, Lescano AG, Mordecai EA. Extreme precipitation, exacerbated by anthropogenic climate change, drove Peru's record-breaking 2023 dengue outbreak. *One Earth*. In press.
2. Childs ML*, Lyberger KP*, **Harris MJ**, Burke M, Mordecai EA. Climate warming is expanding dengue burden in the Americas and Asia. *PNAS*. 2025 Sep.
3. Jalbert, M, **Harris MJ**, Williams L. Who is perceived to be an expert on COVID-19 vaccines on social media?: Biomedical credentials confer expertise, even among vaccine-hesitant and conservative observers. *Inf. Commun. Soc*. 2024 Dec.
4. Kirk D, Straus S, Childs M, **Harris M**, Couper L, Davies J, Forbes C, Gehman A, Groner M, Harley C, Lafferty K, Skinner E, O'Connor MI, Mordecai EA. Temperature impacts on dengue incidence are nonlinear and mediated by climatic and socioeconomic factors. *PLOS Climate*. 2024 Mar.
5. **Harris MJ**, Murtfeldt R, Wang S, Mordecai EA, West JD. The role and influence of perceived experts in an anti-vaccine misinformation community. *PNAS Nexus*. 2024 Feb.
6. Turner MA, Singleton AL, **Harris MJ**, Harryman I, Lopez CA, Forde R, Muraida C, Jones JH. Minority-group incubators and majority-group reservoirs for climate change adaptation. *Phil Trans B*. 2023 Sep.
7. **Harris MJ**, Cardenas KJ, Mordecai EA. Social divisions and risk perception can drive divergent epidemic dynamics and large second and third waves. *Evol Hum Sci*. 2023 Feb.
8. Holcomb KM, Mathis S, Staples JE, Fischer M, Barker CM, Beard CB, Nett RJ, Keyel AC, Marcantonio M, Childs ML, Gorris ME, Rochlin I, Hamins-Puértolas M, Ray EL, Uelmen JA, DeFelice N, Freedman AS, Hollingsworth BD, Das P, Osthus D, Humphreys JM, Nova N, Mordecai EA, Cohnstaedt LW, Kirk D, Kramer LD, **Harris MJ**, Kain MP, Reed EMX, Johansson MA. Evaluation of an open forecasting challenge to assess skill of West Nile virus neuroinvasive disease prediction. *Parasites Vectors*. 2023 Jan.
9. **Harris MJ**, Tessier-Lavigne E, Mordecai EA. The interplay of policy, behavior, and socioeconomic conditions in early COVID-19 epidemiology in Georgia. *J Ga Public Health Assoc*. 2021 Nov.
10. Childs ML*, Kain MP*, **Harris MJ***, Kirk D, Couper L, Nova N, Delwel I, Ritchie J, Becker AD, Mordecai EA. The impact of long-term non-pharmaceutical interventions on COVID-19 epidemic dynamics and control: the value and limitations of early models. *Proc Royal Soc B*. 2021 Aug.
11. Couper LI, Farner JE, Caldwell JM, Childs ML, **Harris MJ**, Kirk D, Nova N, Shocket M, Skinner EB, Uricchio LH, Exposito-Alonso M, Mordecai EA. How will mosquitoes adapt to climate warming? *eLife*. 2021 Aug.
12. Chande A, Lee S, **Harris MJ**, Nguyen Q, Beckett SJ, Hilley T, Andris C, Weitz JS. Real-time interactive website for US-county-level COVID-19 event risk assessment. *Nat Hum Behav*. 2020 Dec.

13. **Harris MJ**, Hay SI, Drake JM. Evidence of critical slowing down prior to malaria resurgence in Kericho, Kenya. *Biol Lett*. 2020 Mar.
14. **Harris MJ**, Caldwell JM, Mordecai EA. Climate drives spatial variation in Zika epidemics in Latin America. *Proc Royal Soc B*. 2019 Aug.
15. Zhang JY, Lee JH, Gu X, Wei ZZ, **Harris MJ**, Yu SP, Wei L. Intranasally Delivered Wnt3a Improves Functional Recovery after Traumatic Brain Injury by Modulating Autophagic, Apoptotic, and Regenerative Pathways in the Mouse Brain. *J Neurotrauma*. 2018 Mar.

BOOK CHAPTER

1. Shocket MS, Anderson CB, Caldwell JM, Childs ML, MacDonald AJ, Howard ME, Nova N, Han S, **Harris MJ**, Mordecai EA. Environmental drivers of vector-borne diseases. *Population Biology of Vector-Borne Diseases*. Oxford UP. 2018.

IN REVIEW OR IN PREP

1. **Harris MJ***, Sinclair AH*, Pullano G*, Beckett SJ*, LeJeune L*, Agusto FB, Bauch CT, Baur C, Berestycki H, Dushoff J, Griette Q, Levin SA, Velasco-Hernández JX, Wu J, Weitz JS. Emerging frontiers in infectious disease modeling: reassessing the data-driven feedback loop between human behavior and disease dynamics. In review.
2. **Harris MJ**, Sinclair AH, Andris C, Weitz JS. Economic loss due to health funding cuts as distributed across geospatial units. In revision.
3. Sinclair AH, **Harris MJ**, Cosme D, Fagerlin A, Peters E, Andris C, Cooke CL. Falk EB, Weitz JS. Communicating the economic impact of NIH funding cuts changes attitudes and motivates action. In review
4. **Harris MJ**, Arani A, Goel T, Zhang K, Beckett SJ, Lo NC, Dushoff J, Weitz JS. Anticipating and interpreting breakthrough infections amid expanded vaccine refusal. In prep (intended December submission).

* denotes shared first author

PRESENTATIONS

Interplay between human behavior and infectious diseases

- Ecology and Evolution of Infectious Diseases. Virginia Tech. 2026 (upcoming). *Invited keynote speaker*.

Local impacts of scientific funding cuts

- American Association for the Advancement of Science Meeting. Phoenix, AZ. 2026 (upcoming). *Postdoc talk*.
- STAT Summit. Boston, MA. 2025. *Invited panelist*.

Epidemic dynamics are sensitive to risk tolerance under realistic event-based risk estimation

- MIDAS Annual Meeting. Bethesda, MD. 2025. Lightning talk and poster.
- Mathematical Biology Seminar. Iowa State University. 2025. *Invited speaker*.
- Society for Mathematical Biology Annual Meeting. Edmonton, Canada. 2025. *Invited minisymposium speaker*.

The impact of climate change on dengue outbreaks

- IDWeek. Atlanta, GA. 2025. *Invited panelist*.
- Novel Data, AI, and Disasters: From Data to Public Policy. CrisisReady at CENAPRED Mexico. 2024. *Invited speaker*.
- MIDAS Annual Meeting. Washington, DC. 2024. Poster.
- Ecology and Evolution of Infectious Diseases. Stanford University. 2024. Poster.
- Climate-disease group meeting. Princeton University. 2024. *Invited speaker*.
- El Niño, Extreme Weather, and the Climate Crisis in Latin America. CrisisReady. 2024. *Invited speaker*.
- MIDAS Annual Meeting. Atlanta, Georgia. 2023. Poster.
- Bay Area Ecology and Evolution of Infectious Diseases. San Francisco State University. 2023. Poster.

The role and influence of perceived experts in an anti-vaccine misinformation community

- Achieving Accuracy in Medical Journalism Webinar. Centre for Science Communication, University of Stellenbosch. 2025. *Invited panelist*.
- Science Communication Conference. St. Olaf College. 2025. *Invited speaker*.
- Epidemics. Bologna, Italy. 2023. Presentation.
- Trust and Safety Research Conference. Stanford University. 2023. Lightning talk.
- Sunbelt Social Network Conference. Portland, OR. 2023. Presentation.
- Center for an Informed Public Weekly Meeting. University of Washington. 2023.

Social division and vaccine misinformation: Connecting decisions and diseases

- MIDAS webinar series (recording). 2023. Presentation.

Understanding and countering health misinformation

- Distinguished Humphrey Fellowship Program: Media and Information. University of Washington. 2023. *Invited speaker*.

Awareness-based protective behavior in a split population

- Annual Meeting of the Ecological Society of America. Palais des congrès de Montréal. 2022. Presentation.
- Ecology and Evolution of Infectious Diseases. Emory University. 2022. Poster.
- Annual Global Health Research Convening. Stanford University. 2022. Poster.
- Bay Area Ecology and Evolution of Infectious Diseases. UC Santa Cruz. 2022. Presentation.
- Ecology and Evolution of Infectious Diseases. Centre National de la Recherche Scientifique. 2021. Poster.

The interplay of policy, behavior, and socioeconomic conditions in early COVID-19 epidemiology in Georgia

- Bay Area Ecology and Evolution of Infectious Diseases. UC Davis. 2021. Presentation.
- Annual Meeting of the Ecological Society of America. 2020. Presentation.

Climate drives spatial variation in Zika epidemic characteristics in Latin America.

- Bay Area Ecology and Evolution of Infectious Diseases. Stanford University. 2019. Poster.

Evidence of critical slowing down prior to malaria resurgence in Kericho, Kenya

- Bay Area Ecology and Evolution of Infectious Diseases. University of California, Berkeley. 2020. Poster.
- Ecology and Evolution of Infectious Diseases. UC Santa Barbara. 2017. Poster.

SERVICE

Models of Infectious Disease Agent Study (MIDAS) (Trainee Network Executive Committee) 2025
Planning and facilitating events relevant to training in infectious disease modeling

Workshop on Disease Dynamics and Human Behavior (Organizer) 2023 – 2024
Helped to propose, select attendees, and develop schedule for workshop at the Brin Mathematics Research Center

Ecology and Evolution of Infectious Diseases (Science Committee Member) 2023– 2024
Assisted with abstract selection and conference logistics for EEID 2024 at Stanford University

REVIEWS

Vector-Borne and Zoonotic Diseases; SSM – Mental Health; Global Change and Emerging Infectious Diseases (book chapter); BMC Infectious Diseases; Information, Communication & Society; Science Advances; EcoHealth; Scientific Reports (3); AIDS and Behavior; Theoretical Population Biology; Epidemics; Royal Society Open Science; PLOS One (3); PLOS Computational Biology; Journal of Racial and Ethnic Health Disparities

COMMUNICATION AND OUTREACH

The Science & Community Impacts Mapping Project (SCIMaP)
Senior Data Analyst for an interactive map of localized impacts of scientific research. Lead author on a report projecting economic impacts of proposed NIH budget cuts for FY2026.

Scientists Speak Up (President) 2021 - 2023
Organized educational panels and workshops to teach students how to effectively communicate and advocate around controversial scientific topics (e.g., climate change, vaccination) and identify scientific misinformation.
Invited talks on scientific integrity and science denial for Program in Science, Technology, and Society; Epidemiology Supper Club; Current Issues in Genetics seminar; and Workshop in Biostatistics at Stanford.

The science of herd immunity 2021
Organized a public panel on misconception around herd immunity and new research frontiers in immunology, infectious disease modeling, and human behavior (recording).

COVID-19 event risk assessment planning tool 2021 - 2022
Text and conceptualization for an interactive map of daily COVID-19 risk by event size and county.

Potential long-term intervention strategies for COVID-19 2020
Text and conceptualization for an interactive model illustrating potential outcomes of various short and long-term non-pharmaceutical interventions to control COVID-19.

Girlology and Guyology 2016 –2018
Managed social media for doctor-led puberty and sex education programs in 22 states nationwide. Selected by Federal Office of Women's Health to lead digital educational initiative on sexually transmitted infections.

SELECTED MEDIA

- How retractions get weaponized on social media. *STAT News*. 2024.
- Climate change could broaden global reach of dengue fever. *USA Today*. 2024.
- With dengue cases at an extreme high, research points to climate change's role. *NBC News*. 2024.
- 'A warmer, sicker world': Mosquitoes carrying deadly diseases are on an unstoppable march across the US. *BBC*. 2024.
- Dengue fever is surging worldwide. A hotter planet will make it worse. *The Washington Post*. 2024.

Authored media

- Weitz JS, **Harris MJ**, Sinclair AH, Berg JM. Impoundment of funds endangers US investment in science and medical research. *Nature*. 2025.
- Sinclair AH, **Harris MJ**, Andris C, Cosme D, Peters E, Fagerlin A, Falk EB, Weitz JS. NIH indirect cost cuts will affect the economy and employment. *Nat Hum Behav*. 2025.
- **Harris MJ** in What it's like to have measles, mumps, whooping cough, and other vaccine-preventable illnesses. *STAT News*. 2025.
- Mordecai EA, **Harris MJ**. Will we ever reach herd immunity to Covid-19? *The Guardian*. 2022.
- Mordecai EA, **Harris MJ**, Lipsitch M. The US may never hit the herd immunity threshold. That's OK. *New York Times*. 2021.
- Weitz JS, **Harris MJ**, Chande AT, Gussler JW, Rishishwar L, Jordan IK. Online COVID-19 dashboard calculates how risky reopenings and gatherings. *Scientific American*. 2020.

TEACHING

Representing Infectious Diseases (Instructor) 2022
Ecology and Evolution of Infectious Disease in a Changing World (Course Assistant) 2021
Biology and Global Change (Teaching Assistant) 2021
Introduction to Research in Ecology and Evolutionary Biology (Teaching Assistant) 2020
Athens Area Girls Math Team (Lead Instructor) 2015 – 2017

GUEST LECTURES

Health misinformation and social media for Emerging Issues in Science Communications: Publication, Misinformation, and the Media (EHS 590), University of Washington, 2025

How human activity shapes disease dynamics for Quantitative and Computational Biosciences (BIOL 706), University of Maryland, 2025

Understanding and countering vaccine hesitancy for Environmental Determinants of Emerging Infectious Diseases(MIEH 321), University of Maryland, 2025

Attributing mosquito-borne illness to climate change for Environmental Determinants of Emerging Infectious Diseases(MIEH 321), University of Maryland, 2025

Social divisions and vaccine misinformation during epidemics for Infectious Disease Dynamics: A Systems Approach-19 (BIOL 708F), University of Maryland, 2025

Developing an early model of COVID-19 for Covid-19 Elective Course (PEDS 220), Stanford, 2023

Introduction to disease ecology for Introduction to Ecology (BIO 81), Stanford, 2022

MENTORSHIP

6 undergraduate students, 2 master's students, 2 rotation graduate students, 2 graduate students
Since 2020, I have supervised four summer undergraduate research experiences and 16 semester-long research experience across Stanford University, University of Washington, and University of Maryland. One honors thesis and four student co-authorships resulted from these projects.

WORKSHOPS AND ACADEMIC ENRICHMENT

Building Teams to Build Better Epidemiological Models 2025
Application-only workshop hosted by NSF to connect mathematical and social/behavioral/economic scientists

Workshop on Disease Dynamics and Human Behavior 2024
Host and presenter at weeklong workshop by Brin Mathematics Research Center at University of Maryland

Mathematics of Malaria Transmission Dynamics 2023
Invited presentation at weeklong workshop by Brin Mathematics Research Center at University of Maryland

Agnotology: The New Science of Creating and Preventing Ignorance 2023
Two-day workshop by Stanford Program in History and Philosophy of Science

Scientific Teaching Institute 2022
Three-day workshop at Stanford on assessment, active learning, and DEI

Pandemic Scenario Modeling and Science Communication Workshop 2022
Ecology and Evolution of Infectious Diseases Conference

Summer Institute in Statistics and Modeling in Infectious Diseases 2020
Simulation-based Inference for Epidemiological Dynamics, Causal Inference

Voting Rights Data Institute 2018
Metric Geometry and Gerrymandering Group, Tufts University

RESEARCH GRANTS AND FELLOWSHIPS

ARCS Scholar Award ($101,000)	2022 – 2024
Knight-Hennessy Scholarship ($250,000)	2019 –2022
Goldwater Scholarship	2017
University of Georgia Foundation Fellowship ($75,000)	2014 – 2018