

IAN FORRESTER MILLER

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Education and Employment

Princeton University, *PhD candidate, Ecology and Evolutionary Biology*

- Advisor: C. Jessica Metcalf

Princeton, NJ
2017-2022 (expected)

Duke University, *Laboratory Manager*

- Advisor: Charles Nunn

Durham, NC
2016-2017

University of Virginia, *BS with Highest Distinction, Biology*

- Advisors: Janis Antonovics and Emme Bruns

Charlottesville, VA
2012-2016

Publications

- Miller, I.F., Metcalf, C.J.E. (in review) [No current evidence for vaccine-driven virulence evolution in SARS-CoV-2](#). *Plos Biology*.
- Rice, Benjamin L., Annapragada A., Baker, R. E., Bruijning, M., Dotse-Gborgbortsi, W., Mensah, K., Miller, I.F., Motaze, N.V., Raheerinandrasana, A., Rajeev, M., Rakotonirina J., Ramiadantsoa, T., Rasambainarivo, F., Yu, W., Grenfell, B.T., Tatem, A.J., Metcalf, C.J.E. (2021) [Variation in SARS-CoV-2 outbreaks across sub-Saharan Africa](#). *Nature Medicine*.
- Korevaar, H.M., Becker, A.D., Miller, I.F., Grenfell, B.T, Metcalf, C.J.E. (2020) [Quantifying the impact of US state non-pharmaceutical interventions on COVID-19 transmission](#). *medRxiv*.
- Miller, I.F., Becker, A., Grenfell, B., Metcalf, C. J. E. (2020) [Disease and healthcare burden of COVID-19 in the United States](#). *Nature Medicine*.
- Miller, I.F., Metcalf, C. J. E. (2019) [Vaccine-driven virulence evolution: consequences of unbalanced reductions in mortality and transmission and implications for pertussis vaccines](#). *J. R. Soc. Interface*.
- Miller, I.F., Metcalf, C. J. E. (2019) [Evolving resistance to pathogens](#). *Science*.
- Miller, I.F., Churchill, S., Nunn, C. (2019) [Speeding in the slow lane: phylogenetic comparative analyses reveal that not all human life history traits are exceptional](#). *Journal of Human Evolution*.
- Miller, I.F., Barton, R., Nunn, C. (2019) [Quantitative uniqueness of human brain evolution revealed through phylogenetic comparative analysis](#). *eLife*.
- Bruns, E., Miller, I.F., Hood, M., Carasso, V., Antonovics, J. (2019) [The role of infectious disease in the evolution of females: evidence from anther-smut disease on a gynodioecious alpine carnation](#). *Evolution*.
- Miller, I.F., Schneider-Crease, I., Nunn, C., Muehlenbein, M. (2018) [Calculating Infection Prevalence: Best Practices and Their Theoretical Underpinnings](#). *Ecology and Evolution*.
- Miller, I.F., and Bruns, E. (2016). [The effect of disease on the evolution of females and the genetic basis of sex in populations with cytoplasmic male sterility](#). *Proc. R. Soc. B*.

Professional Experience and Service

Graduate Representative, Princeton Dept. of Ecology and Evolutionary Biology

- Directed 6 committees, steered diversity and inclusion initiatives, and advocated for student interests as elected leader of the graduate student body
- Partnered with senior faculty leadership to resolve departmental disputes, navigate crises, and define goals

Expert Consulting

- Led COVID-19 epidemiological consulting project for the Missouri Governor's Office to guide distribution of ventilators and other emergency medical resources
- Conducted analyses for Pennsylvania policymakers to project COVID-19 burden in rural counties
- Counseled West Virginia COVID-19 task force on population-level disease control strategy
- Advised a global strategy firm on the future of whooping cough vaccines

Head Program Director, Madison House Medical Services

- Coordinated 33 program directors and 630+ hospital volunteers who contributed over 30,000 service hours
- Trained, managed, and mentored 23 volunteers in the Univ. of Virginia Hospital emergency department

Peer review

- Ad hoc reviewer for *Science*, *Phil. Trans. B.*, *Methods in Ecology and Evolution*, *Rapid Reviews: COVID-19*, *Emerging Infectious Diseases*, *International Journal of Disaster Risk Reduction*, *Lancet Global Health*

Misc. service

- Organizer, Princeton EEB Disease Group talk series, 2018-2019
- Organizer, Princeton EEB literature discussion sessions for departmental seminar series, 2018-2019

Advising and Teaching

Undergraduate Thesis Mentees

- Andrea Escoto (2021-2022)
- Juliana Jiranek (2019-2020, *Cannon Prize*, best departmental thesis), Current position: Lab Manager with Amanda Gibson at the University of Virginia
- Mckenna Brownell, 2019-2020, Current position: Medical student

Field Technicians

- Keenan Duggal, 2021
- Maria Stahl, 2020, Current position: D&R Greenway Conservation Fellow, PhD with Kari Veblen at Utah State
- Barrett Gray, 2020, Current position: USFS
- Sarah Coffey, 2020, Current position: Research Technician at Yale School of Medicine

Teaching

- Princeton EEB 328 Ecology and Epidemiology of Parasites and Infectious Diseases (assistant in instruction)
- Princeton EEB 201 Life on Earth: Chaos and Clockwork of Biological Design (assistant in instruction)
- Princeton EEB 327 Immune Systems: From Molecules to Populations (volunteer assistant in instruction/grader)

Grants and Fellowships

- National Science Foundation Graduate Research Fellowship 2019-2022 (\$138,000)
- Princeton Centennial Fellowship 2017-2022 (\$20,000)
- Princeton Environmental Institute Wallbridge Fund Award, 2019 (\$10,000)
- Princeton Center for Health and Wellbeing Graduate Research Grant, 2019 (\$4,650)
- Rock Mountain Biological Laboratory Graduate Fellowship, 2019 (\$690)
- NSF REU, Antonivics Laboratory, UVA, 2014

Presentations

- **Miller, I.F.**, and Metcalf, C.J.E. (upcoming 2021). Botany (invited talk)
- **Miller, I.F.** (2020) The Flax-Rust Project, RMBL Lab Chat series (talk)
- **Miller, I.F.**, and Metcalf, C.J.E. (2019) Pathogen life histories in plants and animals: Integrating concepts to predict the effects of climate change on plant pathogens. Ecological Society of America meeting (invited talk)
- **Miller, I.F.** (2018) Immunological Heterogeneity Impedes the Evolution of Hyper-virulent Pathogens: Implications for “Anti-toxin” Vaccines. Evolution and Ecology of Infectious Disease conference. (poster)
- **Miller, I.F.**, Barton, R.A., Churchill, S., Nunn, C.L. (2018) Quantifying human uniqueness through phylogenetic comparative methods. Human Biology Association meeting. (poster)
- **Miller, I.F.**, (2016) Sex Based Differences in Exposure to Disease. First Annual International Undergraduate Research Symposium, Centro Floristico, Parco Marguareis, Piemonte Italy (talk)
- **Miller, I.F.**, (2016) Infectious Disease and the Evolution of Plant Sexual Systems. Katz Undergraduate Research Symposium, University of Virginia (talk)
- **Miller, I.F.**, (2015) Disease and the Evolution of Plant Sexual Systems. Southeastern Population Ecology and Evolutionary Genetics Conference (talk)
- **Miller, I.F.**, and Bruns, E. (2015) Sex specific disease transmission in the anther smut system: implications for the evolution of sex and maintenance of females, University of Virginia Evolution and Ecology Group (talk)

Interests

- Avid outdoors athlete with a love for trail running, ultramarathons, peak bagging, backpacking, and rock climbing