

Alexander Beams

Postdoctoral Fellow
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Education

- PhD University of Utah, United States May 4, 2023
Department of Mathematics
Advisor: Frederick R. Adler
- H.B.S. University of Utah, United States May 7, 2015
Mathematics with a Minor in Chemistry *Cum Laude*

Publications

- 7 **Alexander B. Beams**, Lindsay T. Keegan, Frederick R. Adler, Matthew H. Samore, Karim Khader, and Damon J.A. Toth, *Are Staphylococcus aureus Carrier Types Evidence of Population Heterogeneity?*, 2023, *The American Journal of Epidemiology*, 192, 3
- 6 **Alexander B. Beams**, Rebecca Bateman, and Frederick R. Adler, *Will SARS-CoV-2 Become Just Another Seasonal Coronavirus?*, 2021, *Viruses* 13,5.
- 5 Damon J. A. Toth, **Alexander B. Beams**, Lindsay T. Keegan, Yue Zhang, Tom Greene, Brian Orleans, Nathan Seegert, Adam Looney, Stephen C. Alder, and Matthew H. Samore, *High variability in transmission of SARS-CoV-2 within households and implications for control*, 2021, *PLoS One* 16, 11.
- 4 Hannah R Meredith, Emerson Arehart, Kyra H Grantz, **Alexander Beams**, Theresa Sheets, Richard Nelson, Yue Zhang, Russell G Vinik, Darryl Barfuss, Jacob C Pettit, Keegan McCaffrey, Angela C Dunn, Michael Good, Shannon Frattaroli, Matthew H Samore, Justin Lessler, Elizabeth C Lee, and Lindsay T Keegan, *Coordinated strategy for a model-based decision support tool for coronavirus disease, Utah, USA*, 2021, *Emerging Infectious Diseases* 27, 5.
- 3 Bishav Bhattarai, Sierra Quinn Sahulka, Aditi Podder, Soklida Hong, Hanyan Li, Eddie Gilcrease, **Alex Beams**, Rebecca Steed, and Ramesh Goel, *Prevalence of SARS-CoV-2 genes in water reclamation facilities: From influent to anaerobic digester*, 2021, *Science of the Total Environment* 796.
- 2 Damon JA Toth, Karim Khader, **Alexander Beams**, and Matthew H Samore, *Model-based Assessment of the Effect of Contact Precautions Applied to Surveillance-detected Carriers of Carbapenemase-producing Enterobacteriaceae in Long-term Acute Care Hospitals*, 2019, *Clinical Infectious Diseases* 69, Issue Supplement 3.
- 1 **Alexander B. Beams**, Damon J.A. Toth, Karim Khader, and Frederick R. Adler, *Harnessing Intra-Host Strain Competition to Limit Antibiotic Resistance: Mathematical Model Results*, 2016, *Bulletin of Mathematical Biology* 78, 1828.

Student Mentorship

Under the supervision of Frederick R. Adler:

- 2022 Emma Coates (Mathematics). Modeling Viral Interactions Between Endemic Viruses and Invader Viruses. REU project during the Spring semester.
- 2021 Jameson McCarty (Mathematics). COVID-19, social distancing, and the common cold: Effects of viral interaction and temporary non-pharmaceutical interventions on the long-term behavior of COVID-19. REU project during the Spring semester.
- 2020 Rebecca Bateman (Economics). Mask, or JASC: What are the conditions under which SARS-CoV-2 becomes Just Another Seasonal Coronavirus? resulting in publication [6] as well as a talk delivered to the Society for Mathematical Biology Epidemiology subgroup meeting in 2020. Undergraduate Research Opportunities Program project during the Summer and Fall semesters.

Awards and Funding

Significant Awards

- 2022 BioMerieux Scholarship
University of Utah, two graduate semesters of support including benefits and tuition
- 2011 Honors at Entrance Scholarship
University of Utah, four undergraduate academic years of tuition support

Additional Awards

- 2014-2015 Utah Math Department REU, Fall & Spring semesters
- 2014 UROP Assistantship, Spring & Summer semesters

Additional Funding

- 2020 Mathematically modeling the impact of viral interactions and evolution on the COVID-19 pandemic, COVID-19 Special Emphasis Award from the University of Utah VPR/University of Utah
May 1 - Dec 31 2020
- 2018 Modeling and Simulation to Support Epidemiological Decision-Making in Healthcare Settings (MInD - Healthcare)/CC/CDC HHS/United States
August 2018 - April 2020, and January-August 2021

Teaching

- 2022 Statistics for Biologists, Math 1180, Lab Teaching Assistant, Spring Semester
- 2021 Calculus for Biologists, Math 1170, Lab Teaching Assistant, Fall semester

Seminars

2020-2022 University of Utah Math Biology Journal Club Co-Organizer, four semesters

Conference Presentations

2022 CAIMS Annual Meeting, UBC Okanagan, Hybrid Online. "Using SIR Models to Detect Cross-Immunity in Healthcare Data: A Collision Course with Berkson's Bias" (June 13)

Employment

2018 University of Utah School of Medicine, Division of Epidemiology - Biostatistician I

2016-2018 Intermountain Healthcare - Phlebotomist

Departmental Service

2021-2022 Graduate Student Advisory Committee colloquium chair

2020-2021 Graduate Student Advisory Committee co-chair

Societies and Honors

Society for Mathematical Biology

Society for Epidemiologic Research

Society for Industrial and Applied Mathematics

Phi Kappa Phi

Pi Mu Epsilon

Undergraduate Research Scholar

Dean's List, Fall 2011-Spring 2015