KATELYN M. GOSTIC

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EDUCATION

2019	**PhD**	**University of California Los Angeles**
		Ecology and Evolutionary Biology

2013	**AB**	**Princeton University**
		summa cum laude, Ecology and Evolutionary Biology, Quantitative Track

PROFESSIONAL APPOINTMENTS

2019-present	James S. McDonnell Foundation Postdoctoral Fellow, University of Chicago Jointly appointed in the laboratories of Dr. Sarah Cobey (Ecology and Evolution), and Dr. Patrick Wilson (Immunology)
2013-2019	PhD Research, Advised by Dr. James O. Lloyd-Smith, UCLA *Dissertation*, Who gets infected and why: Confronting models with data to determine drivers of pathogen susceptibility at the individual and population-level.

FELLOWSHIPS

2019-2021	James S. McDonnell Foundation: Understanding Dynamic and Multi-scale Systems Postdoctoral Fellowship (1 of 11 internationally) ($200,000)
2017-2019	NRSA F31 Predoctoral Individual Fellowship (NIAID) ($74,738)
2014-2016	NRSA Systems in Integrative Biology Training Grant (awarded through UCLA Dept. Biomathematics) ($48,000+fees)
2013-2014 & 2016-2017	Eugene V. Cota-Robles Foundation Fellowship (funding for 1st and 4th year of PhD) ($42,000+fees)

AWARDS

2018	Scherbaum Award, outstanding research by a graduate student (UCLA Dept. of Ecology and Evolutionary Biology) ($200)
2016	Charles E. & Sue K. Young Award, Highest award for a graduate student at UCLA (1 of 4 university-wide) ($10,000)
2014	Small Research Grant (UCLA Dept. of Ecology and Evolutionary Biology) ($1000)
2013	Leslie Kilham Johnson Thesis Prize, awarded for best thesis in Tropical Biology (Princeton University Dept. of Ecology and Evolutionary Biology)

MANUSCRIPTS ACCEPTED OR IN REVIEW

Gostic, K., McGough, L., Baskerville, E., Abbott, S., Joshi, K., Tedijanto, C., Kahn, R., Niehus, R., Hay, J., Salazar, P., Hellewell, J., Meakin, S., Munday, J., Bosse, N., Sherratt, K., Thompson, R., White, L., Huisman, J., Scire, J., Bonhoeffer, S., Stadler, T., Wallinga, J., Funk, S., Lipsitch, M., Cobey, S. (2020). **Practical considerations for measuring the effective reproductive number, Rt.**
- Accepted at *PLOS Computational Biology*
- Preprint: https://dx.doi.org/10.1101/2020.06.18.20134858

Vegvari, C., Abbott, S., Ball,; F., Brooks-Pollock, E., Challen, R., Collyer, B., Dangerfield, C., Gog, J., **Gostic, K**., Heffernan, J., Hollingsworth, T., Isham, V., Kenah, E., Mollison, D., Pannovska-Griffiths, J., Pellis, L., Roberts, M., Scalia Tomba,G., Thompson, R., Trapman, Pieter. (2020). Commentary on the use of the reproduction number R during the COVID-19 pandemic.
- In review at *Statistical Methods in Medical Research*
- Preprint: https://www.newton.ac.uk/documents/preprints

PUBLICATIONS

Link to Google Scholar Profile   *Contributed equally

10) Viboud, C., **Gostic, K.**, Nelson M., Price, G., Epstein, S., Perofsky, A., Sun, K., Trovao, N., Hensley, S., Cowling, B., Lafont, B., Spiro, D.J. (2020). Beyond clinical trials: evolutionary and epidemiological considerations for development of a universal influenza vaccine. *PLOS Pathogens.* DOI: https://doi.org/10.1371/journal.ppat.1008583

9) Helman, S.K., Mummah, R.O., **Gostic, K**., Buhnerkempe, M.G., Prager, K.C., Lloyd-Smith, J.O. (2020). Estimating prevalence and test accuracy in disease ecology: how Bayesian latent class analysis can boost or bias imperfect test results. *Ecology and Evolution*; 10: 7221– 7232. https://doi.org/10.1002/ece3.6448

8) **Gostic K.,** Gomez, A.C.R., Mummah, R.O., Kucharski, A.K., Lloyd-Smith, J.O. (2020). Estimated effectiveness of symptom and risk screening to prevent the spread of COVID-19. *eLife*; 9:e55570. DOI: 10.7554/eLife.55570

7) **Gostic K.**, Bridge R., Brady S., Viboud C., Worobey M,. Lloyd-Smith J.O. Childhood immune imprinting to influenza A shapes birth year-specific risk during seasonal H1N1 and H3N2 epidemics. (2019). *PLOS Pathogens.* DOI: https://doi.org/10.1371/journal.ppat.1008109

6) **Gostic, K.*.**, Wunder, E.A*. Jr., Bisht, V., Hamond, C., Julian, T.R., Ko, A.I., Lloyd-Smith, J.O. (2019). Mechanistic dose-response modeling of animal challenge data shows that intact skin is a crucial barrier to leptospiral infection. *Phil. Trans. B.* 374. DOI: https://doi.org/10.1098/rstb.2019.0367

5) Morris, D.H.,* **Gostic, K.**,* Pompei, S.,* Bedford, T., Łuksza, M., Neher, R.A., Grenfell, B.T., Lässig, M., McCauley, J.W. (2018). Predictive modeling of influenza shows the promise of applied evolutionary biology. *Trends in Microbiology.* 26, 102-118. DOI: https://doi.org/10.1016/j.tim.2017.09.004

4) **Gostic, K.,** Ambrose, M., Worobey, M., Lloyd-Smith, J.O. (2017). Maternal antibodies' role in immunity -- Response. *Science.* 355, 705. DOI: 10.1126/science.aam7389

3) **Gostic, K.,** Ambrose, M., Worobey, M., Lloyd-Smith, J.O. (2016). Potent protection against H5N1 and H7N9 influenza via childhood hemagglutinin imprinting. *Science.* 354, 722-726. DOI: 10.1126/science.aag1322

- Excellence Award for Outstanding Research Publication, UCLA Division of Life Sciences

2) Buhnerkempe M.G.*, **Gostic K.***, Park M., Ahsan P., Belser J.A., Lloyd-Smith J.O. (2015). Mapping influenza transmission in the ferret model to transmission in humans. *eLife.* 4:e07969. DOI: 10.7554/eLife.07969

1) **Gostic, K.*** Kucharski, A*. Lloyd-Smith, J. O. (2015). Natural history of infection influences effectiveness of screening measures for emerging pathogens. *eLife*. 4:e05564. DOI: 10.7554/eLife.05564

OTHER PUBLICATIONS

Sam Abbott, Joel Hellewell, Robin Thompson, **Katelyn Gostic**, Katharine Sherratt, Sophie Meakin, James Munday, Nikos Bosse, Paul Mee and Sebastian Funk (2020). EpiNow2: Estimate Real-Time Case Counts and Time-Varying Epidemiological Parameters. R package version 1.0.0.

INVITED TALKS

2021 *cancelled*	Keystone Symposium on Respiratory Viruses: New Frontiers, Banff, AB, Canada
2020	Department of Biostatistics Seminar, Georgia Southern University
2019	Theoretical Biology and Biophysics Group Seminar, Los Alamos National Laboratory
2018	Darwin's Weekly Seminar, University of Chicago
2017	NIH Vaccine Research Center Seminar, NIH Campus
2017	Biology Department Seminar, Occidental College

INVITED PARTICIPATION IN WORKING GROUPS AND WORKSHOPS

2020	Expert consultation on the Influenza Vaccines R&D Roadmap, hosted by CIDRAP and the Wellcome Trust
2020	Presented on R_t estimation to WHO weekly COVID-19 modeling teleconference
2020	Presented on R_t estimation to CDC MIDAS COVID-19 Epidemic Parameters group
2019	Exploratory workshop on immune imprinting for influenza vaccination, hosted by the Bill and Melinda Gates Foundation
2019-present	Working Group on Immunity, Aging and the Arrow of Time, supported by the James S. McDonnell Foundation and hosted by the Santa Fe Institute
2018	Workshop on Epidemiology and Evolution of Broadly Protective Influenza Vaccines, hosted by Fogarty International Center, NIH
2017	Session co-chair, 6th European Scientific Working Group on Influenza Conference, Riga, Latvia
2016	Workshop on Models for Influenza Vaccine Strain Selection, hosted by the World Health Organization and Princeton University

2019   Ecology and Evolution of Infectious Diseases, 17th Annual Meeting, Princeton University

2018   Seminar for Meyer and Kryazhimskiy Lab, University of California San Diego Dept. Biology

2018   Seminar for Schief Lab, Scripps Dept. of Immunology and Microbiology

2018   Seminar for Wang Lab, UCLA Department of Physics

2017   European Scientific Working Group on Influenza 6th Conference, Riga, Latvia

2016   Ecological Society of America 2016 Annual Meeting, Ft. Lauderdale, FL

2015   Joint Training Grant Research Symposium, UCLA, Los Angeles, CA

TEACHING

2020   Guest lecture, "Methods for *Rt* estimation." Workshop in epidemiology. for early-career mathematicians. Run by Dr. Lauren Childs (Virginia Tech), Dr. Julie Blackwood (Williams College); Drs. Olivia Prosper & Suzanne Lenhart (University of Tennessee, Knoxville)

2018   Teaching Assistant - Math for Life Scientists, UCLA Division of Life Sciences

2016   Teaching Assistant - Modeling in Ecological Research, UCLA Ecology and Evolutionary Biology

- Guest lecture, "Statistics in ecological modeling."

2014   Teaching Assistant - Research Immersion Laboratory (Senior Practicum), UCLA Microbiology, Immunology and Molecular Genetics

OUTREACH AND SERVICE

EID Committee Member – U. Chicago Ecology and Evolution (2020-present)

Guest speaker – U. Chicago Quantitative Biology Fellowship summer undergraduate research program (2020)

Brains On! Podcast – Scientific advisor for episodes on COVID-19 (2020) and influenza vaccination (2019)

DNA Day – Developed and led an on-campus event for LA middle school students coordinated by the UCLA Dept. of Human Genetics (2015, 2016, 2017 and 2018)

Eco-Evo Careers – Founded and coordinated a career discussion series for UCLA EEB Graduate Students (2016-2017)

EEB Graduate Student Seminar Series – Coordinator. (2014-2015)

EmpowHer STEM DAY - Developed and led an activity for LA middle school girls at an annual event coordinated by UCLA Empowering Women in Science (2014, 2015)

Visiting Scientist - Science Lunch Friday, University High School, Los Angeles, CA (2013)

Epidemics; Science; PNAS; Infection, Genetics and Evolution; Virus Evolution; PLOS Pathogens; PLOS Computational Biology; PLOS One; the Journal of the Royal Society Interface; the American Journal of Epidemiology; and Epidemiology and Infection.

PRESS

My research has been featured by several major news outlets. Select examples:

Salon (2020): Are temperature checks effective, or just "medical theater"?
https://www.salon.com/2020/10/15/are-temperature-checks-effective-or-just-medical-theater/

NBC News (2020): As schools spend big on temperature checks, experts warn it won't work.
https://www.nbcnews.com/tech/tech-news/schools-spend-big-temperature-check-tech-experts-warn-they-won-n1240246

The Wall Street Journal (2020): Airports Check Passengers' Temperatures for Coronavirus.
https://www.wsj.com/articles/airports-take-on-job-of-checking-passengers-temperatures-11598876255

Brains On! Podcast. (2020): Scientific advisor for two episodes of this NSF-funded podcast for children.
- Coronavirus episode - https://www.brainson.org/shows/2020/03/10/understanding-coronavirus-and-how-germs-spread-for-kids
- Influenza vaccination episode - https://www.brainson.org/shows/2019/10/08/how-do-flu-vaccines-work

The Washington Post (2020): Cruise ships kept sailing as coronavirus spread. Travelers and health experts question why.
https://www.washingtonpost.com/politics/cruise-ships-kept-sailing-as-coronavirus-spread-travelers-and-health-experts-question-why/2020/03/20/5b640f14-67e2-11ea-b5f1-a5a804158597_story.html

National Geographic (2020): The U.K. backed off herd immunity. To beat COVID-19, we'll ultimately need it.
https://www.nationalgeographic.com/science/2020/03/uk-backed-off-on-herd-immunity-to-beat-coronavirus-we-need-it/

The Chicago Tribune (2020): Chicagoans breathe a sigh of relief: friends and family of local family with the coronavirus are free of illness.
https://www.chicagotribune.com/business/ct-biz-coronavirus-illinois-another-case-20200213-5aqv4w26snajbgk3f2nbw7a23u-story.html

Science News (2020): As the coronavirus spreads we answer some key questions.
https://www.sciencenews.org/article/coronavirus-questions-covid19-symptoms-deaths-spread

Nature News (2018): The ghost of influenza past and the hunt for a universal influenza vaccine.
https://www.nature.com/articles/d41586-018-05889-1

Science AAAS Podcast (2016): What your first flu did to you. Listen at -
https://www.sciencemag.org/podcast/podcast-how-farms-made-dogs-love-carbs-role-dumb-luck-science-and-what-your-first-flu

NIH Director's Blog (2016): Birth year predicts flu risk. https://directorsblog.nih.gov/2016/11/22/birth-year-predicts-bird-flu-risk/

The Economist (2016): The year of your birth affects your resistance to flu.
https://www.economist.com/science-and-technology/2016/11/15/the-year-of-your-birth-affects-your-resistance-to-flu

The Atlantic (2016): Why some flus are deadliest in young adults.
https://www.theatlantic.com/health/archive/2016/11/flu-memory/507287/

CNN (2016): Your flu risk may be linked to the year you were born.
https://www.cnn.com/2016/11/10/health/flu-risk-birth-year/index.html

NBC News (2016): Birth year may affect your flu risk. Here's how.
https://www.nbcnews.com/health/health-news/birth-year-may-affect-your-flu-risk-here-s-how-n682076

BBC World Service Radio (2015): Screening for Ebola and other diseases inherently leaky.

USA Today (2015): Year of airport screening doesn't catch Ebola.
https://www.usatoday.com/story/news/2015/09/22/ebola-airport-screening-cbp-cdc/32493389/