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
Hosted in the laboratory of Dr. Sarah Cobey (Ecology and Evolution)

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 &   Eugene V. Cota-Robles Foundation Fellowship (funding for 1st and 4th year of PhD)
2016-2017   ($56,000+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)

Link to Google Scholar Profile   *Equal contribution

12) 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. (2021). Commentary on the use of the reproduction number R during the COVID-19 pandemic.
   - In press at *Statistical Methods in Medical Research*
   - Preprint: https://www.newton.ac.uk/documents/preprints

11) **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, R_t. *PLOS Computational Biology*. DOI: https://doi.org/10.1371/journal.pcbi.1008409.

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

SOFTWARE

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.

TEACHING

2021   Guest lecture, "Methods for *Rt* estimation." Drexel University Department of Epidemiology Journal Club

2020   Guest lecture, "Methods for *Rt* estimation." American Society for Mathematics Research Community Summer Program in the Dynamics of Infectious Diseases

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

2012   Co-coordinator and lead instructor of Princeton University's Wilderness First Aid and CPR program. Developed curriculum, coordinated multiple class sections and taught a week-long first aid class to over 50 Princeton University students each semester

2011   Volunteer teaching assistant in 5th grade math at a public elementary school in Anacostia, Washington DC

INVITED TALKS

2021 *scheduled*	Keystone Symposium on Respiratory Viruses: New Frontiers, Keystone, CO, USA
2021	Columbia COVID-19 Virtual Symposium, Columbia University, New York, NY, USA
2021	Society for Epidemiological Research annual meeting, San Diego, CA, USA
2020	COVID Modeling Consortium, University of Texas Austin, Austin, TX, USA
2020	Nuclear Security Summit, Georgetown University, Georgetown, DC, USA
2020	Department of Biostatistics Seminar, Georgia Southern University, Statesboro, GA, USA
2019	Theoretical Biology and Biophysics Group Seminar, Los Alamos National Laboratory, Los Alamos, NM, USA
2018	Darwin's Weekly Seminar, University of Chicago, Chicago, IL, USA
2017	NIH Vaccine Research Center Seminar, Bethesda, MD, USA
2017	Biology Department Seminar, Occidental College, Los Angeles, CA, USA

2020	Expert consultation on the Influenza Vaccines R&D Roadmap, hosted by CIDRAP and the Wellcome Trust
2020	Presentation on R_t estimation to WHO weekly COVID-19 modeling teleconference
2020	Presentation 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
2019	WHO Guideline Development Group meeting on the effectiveness of travel & trade restrictions to prevent, delay or control international spread of disease during outbreaks (declined)
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

CONTRIBUTED TALKS

2019	Ecology and Evolution of Infectious Diseases, Princeton University, Princeton NJ
2018	Seminar for Meyer and Kryazhimskiy Lab, University of California San Diego, San Diego, CA
2018	Seminar for Schief Lab, Scripps Dept. of Immunology and Microbiology, San Diego, CA
2018	Seminar for Wang Lab, UCLA Department of Physics, Los Angeles, CA
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

OUTREACH AND SERVICE

Supported COVID-19 response in Illinois – Worked with Cobey Lab members and CIVIS Analytics to conduct analyses supporting state-level decision making

Diversity, Equity and Inclusion Committee Member – University of Chicago Department of Ecology and Evolution (2020-present)

Guest speaker – University of 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 Ecology and Evolutionary Biology Graduate Students (2016-2017)

Graduate Student Seminar Series – Coordinator for UCLA Dept. of Ecology and Evolutionary Biology (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)

PEER REVIEW

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.

SELECT MEDIA COVERAGE

CNN (2021): Temperature checks are gone from some theme parks and elsewhere. Health experts say that's just fine.
> https://www.cnn.com/2021/05/15/health/amusement-parks-temperature-checks/index.html

Quanta (2021): R_0 and other numbers that define epidemics.
> https://www.quantamagazine.org/chasing-covid-19s-r0-and-other-numbers-that-define-epidemics-20210322/

Quanta (2021): The hard lessons of modeling the coronavirus pandemic.
> https://www.quantamagazine.org/the-hard-lessons-of-modeling-the-coronavirus-pandemic-20210128/

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 Naked Scientist Podcast (2020): Screening for disease spread.
> https://www.thenakedscientists.com/articles/interviews/screening-disease-spread

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

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.
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/