

Sophie Meakin

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Education

PhD in Mathematics, University of Warwick

September 2016 – present (due for submission October 2019)

PhD thesis: Broadly explores the effect of a metapopulation structure on epidemic and endemic disease dynamics. I present a method for inferring interaction between populations from endemic disease incidence data using moment closure methods, and apply metapopulation modelling to the recent Ebola outbreak in Equateur Province in the Democratic Republic of the Congo.

Supervisor: Prof. Matt Keeling.

MSc with Distinction in Mathematics of Systems, University of Warwick

September 2015 – September 2016

MSc thesis: Correlations between stochastic epidemics in coupled populations.

Supervisor: Prof. Matt Keeling.

MSci Mathematics, First Class Honours, University of Bristol

September 2010 – July 2014

MSci thesis: Discrete choice behaviour and the multi-armed bandit problem.

Supervisor: Prof. David Leslie.

Academic positions

August 2018 – present *Senior Research Technician, School of Life Sciences, University of Warwick*

Mapping and modeling the spread of wild bird avian influenza risks posed to poultry at the national scale. With Dr Erin Gorsich.

Funding and academic awards

- Young Researchers of the Complex Systems Society Scholarship for Events on Complex Systems to attend IDDconf 2018.
- European Society for Mathematical and Theoretical Biology travel grant to attend the 10th Summer Institute in Statistics and Modeling Infectious Diseases.
- Scholarship from the Department of Biostatistics, University of Washington, to attend the 10th Summer Institute in Statistics and Modeling Infectious Diseases.
- Faculty of Science Prize and Best Overall Poster Prize, Postgraduate Research Showcase 2017, University of Warwick.
- Henry Ronald Hasse Prize 2014, best single honours mathematics student, University of Bristol.
- IMA Prize 2014, for outstanding final year performance, University of Bristol and Institute for Mathematics and its Applications.
- Faculty of Science Undergraduate Prize 2013, University of Bristol.

Publications

- Meakin, S. and Keeling, M. (2018). Correlations between stochastic epidemics in two interacting populations. *Epidemics*. doi: 10.1016/j.epidem.2018.08.005.

In preparation:

- S. Meakin, M. Tildesley, E. Davis, M. Keeling. A spatial model for the 2018 Ebola outbreak in Equateur province in the Democratic Republic of the Congo.
- Sophie Meakin and Matt Keeling. Correlations between stochastic epidemics in multiple interacting populations.

Conferences, workshops and schools

2018

- Contributed talk “A metapopulation model for the 2018 Ebola outbreak in Equateur Province in the Democratic Republic of the Congo” at IDDconf 2018, Ambleside, September 2018.
- Contributed talk “Correlations between stochastic epidemics in multiple interacting subpopulations” at the 11th European Conference on Mathematical and Theoretical Biology (ECMTB 2018), Lisbon, Portugal, July 2018.
- Invited talk “Two applications of metapopulation models in epidemiology” at the Institute for Disease modelling, Seattle.
- Contributed talk “Correlations between stochastic epidemics in interacting populations” at the NetSci 2018 satellite symposium: Integration of Empirical Data in Network Epidemiology (iodine), Paris, June 2018.

- Contributed talk “Inferring interaction parameters from disease incidence data” at the MathSys Annual Retreat, YHA Hawkshead, Cumbria, May 2018.
- Contributed talk “A stochastic epidemic model for interacting populations” at the Young Mathematicians Colloquium, University of Birmingham, April 2018.
- Web Data Collection and Analysis workshop, Warwick Q-Step Centre, February 2018.

2017

- Poster presentation “Correlations between epidemics in interacting subpopulations” at Epidemics6, Sitges, Spain, November/December 2017.
- Poster presentation at the Zeeman Launch event, University of Warwick, September 2017.
- Contributed talk at the Conference of Infectious Disease Dynamics, Ambleside, September 2017.
- Attendee at Cambridge Networks Day, University of Cambridge, June 2017.
- Contributed talk “Moment closure approximations “ at the Complexity Annual Retreat, YHA Ravenstor, Derbyshire, May 2017.
- Poster presentation “Correlations between epidemics in interacting subpopulations” at the Developing efficient methodologies for modelling stochastic dynamical systems in biology workshop, University of Bath, April 2017.
- Attendee at the Winter Workshop in Complex Systems (WWCS17), Petnica Science Centre, Serbia, February 2017.

2016

- Group poster presentation at the Complexity Annual Retreat, YHA Ironbridge Coalport, Shropshire, May 2016.

Public engagement

2018

- Science Faculty representative at Big Bang Fair UK Young Scientists and Engineers Fair, Birmingham, March 2018.
- Poster presentation at the Control and Containment of Epidemics Public Science evening, University of Warwick, February 2018.

2017

- Poster presentation at the Postgraduate Research Showcase, University of Warwick, June 2017.

Professional membership

- Member of the Complex Systems Society and Young Researchers of the Complex Systems Society.
- Student member of the European Society of Mathematical and Theoretical Biology.
- Member of the Network Science Society.

Other academic activities

- Reviewer for Bulletin of Mathematical Biology and CompleNet'18 (9th International Conference on Complex Networks).
- Co-organiser of DataBeers-Warwick September 2018 – present.
- Co-organiser of the MathSys Annual Retreat in Hawkshead, May 2018.
- Judge at the Postgraduate Research Showcase poster competition, June 2018.
- Student-Staff Liaison Committee representative 2015 – present.

Industry experience

Temporary Data Analyst

February 2015 – May 2015, Winton Group

Implemented the collection of financial data from new sources and processed this for use in research and trading using the relational database language SQL.

Skills and activities

Languages: English (native), Spanish (conversational), French (basics).

Programming: confident with Python and MATLAB; familiar with R, C++ and SQL.

Professional development: working towards the Postgraduate Certificate in Transferable Skills.

References

Prof. Matt Keeling

PhD supervisor

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Prof. David Leslie

MSci supervisor

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