Nowell Phelps

nowellphelps.github.io | nowell.phelps@gmail.com | Citizenship: UK and USA

Education

Master of Mathematics University of Oxford 2017 – 2021

Part C *Distinction* (74 weighted average)

- Masters' dissertation "A coevolutionary voter model for opinion dynamics on hypergraphs" graded 81.
- Written coursework "Predictive computational models for epidemiology" and "Stochastic block models and their use in network node classification".
- Courses taken: Networks, Probability and Statistics for Network Analysis, Computational Biology, Mathematical Physiology, Combinatorics, Probabilistic Combinatorics.

Part A and Part B *Second Class, Division One* (69 weighted average)

- Dissertation "The Thermohaline Circulation: Box Models and Stability" graded 72.
- Courses included: Probability, Statistics, Multivariable Calculus, Linear Algebra, Differential Equations, Real Analysis, Complex Analysis, Graph Theory, Mathematical Biology.

Research Experience

Research Assistant in Epidemiology and Population Health *Imperial College London* March 2022 - Present

RA in NCD-RisC, WHO Collaborating Centre on NCD Surveillance, Epidemiology and Modelling, modelling trends in risk factors for non-communicable diseases using a Bayesian hierarchical model in R.

- Lead author on paper, under review, on global trends in underweight and obesity.
- Adapted model and improved MCMC methodology for choosing initial values.
- Carefully identify, check, explore, extract and integrate new data sources into our database, working closely with data providers to ensure consistency of data.

Summer Studentship *Big Data Institute, University of Oxford* July – September 2021

Investigated the spatial distribution of treatment in villages in Mayuge District, Uganda, and designed household-level metrics for spatial schistosomiasis risk using QGIS and R.

Master's Dissertation *Mathematical Institute, University of Oxford* October 2020 – July 2021

Investigated opinion polarisation and consensus outcomes within the context of higher-order group interactions through deriving stochastic master equations and running Monte Carlo simulations in Python.

Undergraduate Research Project *Mathematical Institute, University of Oxford* August 2020

Social network theory. Investigating methods to distinguish between dyadic and community level influence on household-level adoption of a microfinance scheme in rural India.

Part B Structured Project *Mathematical Institute, University of Oxford* October 2019 –March 2020

Investigated the response of the thermohaline circulation to temperature increase, through extensions to Stommel's box model.

Publications

NCD Risk Factor Collaboration. "Worldwide trends in the burden of underweight and obesity from 1990 to 2022: a pooled analysis of 3566 population-representative studies with 219 million school-aged children, adolescents and adults". *Under review, **lead author**.*

NCD Risk Factor Collaboration. "Global variation in diabetes diagnosis and prevalence based on fasting glucose and hemoglobin A1c". *Accepted, Nature Medicine.*

NCD Risk Factor Collaboration. "Diminishing benefits of urban living for children and adolescents' growth and development." *Nature* 615, no. 7954 (2023): 874.

Invited Talk

"MCMC for a large Bayesian hierarchical model" Statistics seminar group, University of Kent. October 12, 2023

Outreach

Site Manager *Opportunity Oxford, University of Oxford* September 2020 & September 2021
Managed two ambassadors to ensure the wellbeing of students during a two-week residential program for incoming first year students from underrepresented backgrounds. Returned in role.

Ambassador *UNIQ, University of Oxford* July – August 2020
Student ambassador on summer school for state-educated year 12 prospective Mathematics and Computer Science applicants, providing academic and admissions support and encouragement.

Junior Members' Scholarship Representative *Jesus College Oxford* January – December 2018
Responsible for Jesus College Oxford's JCR higher-education access scholarship, managing budget, providing practical support, and researching opportunities for future iterations.

Prizes and awards

College Prize *Jesus College Oxford* 2021
For Distinction in Final Honour School of Mathematics.

Summer studentship *Big Data Institute, University of Oxford* 2021
Awarded £3000 to fund summer studentship.

Open Exhibition *Jesus College Oxford* 2020
Awarded for first-class performance in third-year undergraduate studies.

College Prize *Jesus College Oxford* 2018
Academic prize for excellent performance in collections (internal college exams).

Skills

Highly proficient in: R, HPC systems, LaTeX, Office
Experience with: Python, QGIS, MATLAB, Git, Adobe
Basic German (CEFR A2)

References

Majid Ezzati, Chair in Global Environmental Health, School of Public Health, Imperial College London
majid.ezzati@imperial.ac.uk

Goylette Chami, Associate Professor, Big Data Institute, University of Oxford
goylette.chami@ndph.ox.ac.uk

Renaud Lambiotte, Professor of Networks and Nonlinear Systems, Mathematical Institute, University of Oxford
renaud.lambiotte@maths.ox.ac.uk