

# Nowell Phelps

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## 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.
- Ranked 34/100 in graduating class.

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

- Dissertation '*The Thermohaline Circulation: Box Models and Stability*' graded 72.
- Courses included topics in Probability, Statistics, Multivariable Calculus, Differential Equations, Real Analysis, Complex Analysis, Linear Algebra, Topology, 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 (near submission) on global trends in obesity and underweight and their combined prevalence.
- Improved methodology in generating initial values for MCMC.
- Carefully identify, check, explore, extract and integrate new data sources into our database, working closely with data providers to ensure consistency of data.
- Design visualisations for internal and external dissemination of results with ggplot and plotly.

**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 Intern** Mathematical Institute, University of Oxford

July – August 2020

Research project in social network theory, looking at 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

Proposed and investigated extensions to Stommel's Box Model for the thermohaline circulation, modelling responses to rising global temperature increases.

## Publications

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

## 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.

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**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).

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**Skills**

Highly proficient in: R, HPC systems, Latex, Microsoft Office

Experience with: Python, QGIS, MATLAB, Git, Adobe

Basic German (CEFR A2)