

# Matthew Knowles

mattknowles314@gmail.com

## EDUCATION

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### University of Sheffield

Sheffield, UK

*MSc, Statistics with Medical Applications, Grade: merit*

*September 2022 – September 2024*

- Studied part time while working at OPEN Health
- Modules in time series, bayesian statistics, medical statistics, and economic modelling
- Dissertation: A Network Meta-Analysis of Treatments of Locally Advanced/Metastatic Pancreatic Cancer

### University of York

York, UK

*MMath (Hons), Mathematics, Grade: 2:1*

*October 2018 – June 2022*

- Specialised in Statistics and Financial Mathematics in year 4. Focused on Pure Mathematics and Statistics in years 1-3
- Key modules included financial maths, portfolio theory, and bayesian statistics.
- Third year project: On Differential Equations in in-host Viral Pathology (70%)
- Final year project: Statistical Methods for Resetting Score Targets in Limited-Overs Cricket (72%)
- Recived full colours for representing the university at cricket

## EXPERIENCE

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### Senior Statistical Analyst

April 2024 – Present

*OPEN Health Evidence and Access*

*London, UK*

- Lead the survival analysis workstream update for a large clinical trial in chronic-lymphocytic leukemia
- Supported the delivery of a network meta analysis in crohn's disease
- Implemented a novel survival modelling technique into a cost-effectiveness model
- Conducted a non-proportional-hazards network meta analysis in ulcerative colitis

### Statistical Analyst

June 2022 – March 2024

*OPEN Health Evidence and Access*

*London, UK*

- Worked on building and maintaining in-house R packages for survival analysis
- Performed and reported on the survival analyses of four clinical trials for submissions to health technology assessment agencies
- Performed a network meta analysis in multiple myeloma
- Gave two internal talks about network meta analysis methodologies
- Developed a Shiny app to interface with a discrete event simulation
- Developed an analytics pipeline in VBA and Python from Excel to PowerBI to enable senior consultants to easily track their revenue
- Wrote statistical analysis plans for trial analyses and network meta analyses

### Research Intern (Mathematical Finance)

July 2021 – September 2021

*Department of Mathematics, University of York*

*York, UK*

- EPSRC-Funded research internship
- Working on algorithms for finding convex envelopes of a given set of functions
- Review current and past literature to identify possible improvements
- Implementing algorithms using Python and looking for improvements in efficiency.

### Research Intern (Bioinformatics)

July 2020 – September 2020

*Department of Biology, University of York*

*York, UK*

- Developed a pipeline in Python for using the Burrows-Wheeler-Aligner and SAMTools to collect, sequence, align and call the peaks of ChIP-Seq data
- Created an R pipeline to apply machine learning libraries to the acquired data
- Identified transcription factors for further study into breast cancer treatment

## PROJECTS

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### **A Network Meta Analysis for Treatments of Advanced/Metastatic Pancreatic Cancer** June 2023 – June 2024

- Collected publications on Pancreatic Cancer trials
- Digitised published Kaplan-Meier curves
- Developed an R package to standardise the survival analysis functions and extracting results for the thesis
- Performed an indirect treatment comparison using the multilevel network meta-regression framework
- Results published at ISPOR EU 2024

### **Statistical Methods for Resetting Score Targets in Limited-Overs Cricket** October 2021 - April 2022

- Wrote python scripts to clean large amounts of match data
- Performed exploratory data-analysis using R
- Built and trained a neural network to predict cricket scores
- Built an R package for reproducible results

### **Differential Equations in Viral Pathology** September 2020 - March 2021

- 3<sup>rd</sup> year group project, looking at deterministic vs stochastic differential equations, achieved 70%
- Wrote a Python program to graph the evolution of an infection in a host's cells
- Organised, chaired, and took minutes at group meetings.

## SKILLS

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**Programming Languages:** R, Python, C/C++, Stan

**Developer Tools:** Git, Vim, VS Code, Rstudio Server, Rstudio Desktop

**Communicative Languages:** English, Norwegian

**Presenting:** Experienced at creating and giving talks/presentations in both Beamer and PowerPoint

**Other:** Excel, VBA, PowerBI, RShiny, Tidyverse, R package development, L<sup>A</sup>T<sub>E</sub>X

## PUBLICATIONS

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**Comparative Efficacy of Treatments in Advanced/Metastatic Pancreatic Cancer: Demonstrating the Power of Multi-Level Network Meta Regression**, Value in Health, Volume 27, Issue 12, S2 (December 2024)

## PROFESSIONAL MEMBERSHIPS

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Associate Member, Institute for Mathematics and its Applications

Royal Statistical Society