



Winter Short Course, Australian Institute of Tropical Health and Medicine, James Cook University

Mathematical Modelling of Infectious Diseases

KEY DETAILS

- Course will be both on-site in Townsville and online
- Please send applications to tb-modelling@jcu.edu.au
- Applications close: *10th June, 2021*
- Event to be held online from 19th to 23rd July 2021

SUMMARY

The course is aimed at participants with a basic understanding of infectious disease modelling and some basic programming skills. What sets this course apart is that we use R, a freely available language and environment for statistical computing and graphics. We avoid programs that are developed for disease modelling -and therefore are constrained in their processes- and we avoid the use of commercial software. We will provide introduction to R as part of this course, so it is not essential to be familiar with R, but some understanding of programming is required.

On completion participants will be able to write and analyse the dynamics of a simple mathematical model and use it to consider cost and intervention scenarios. Student will also develop an introductory understanding of R programming.

We offer a limited number of fee-waiver scholarships to support course fees. These will be based on merit and need.

COURSE OVERVIEW

Mathematical modelling was used by policy-makers like never before during the early stages of the COVID-19 pandemic, and continues to be used by governments to guide vaccination strategies, border closures, physical distancing measures and other policies. The need for people with cross disciplinary skills is growing and this course aims to provide an introduction to the discipline which is hands-on and practical.

Mathematical modellers arrive at the discipline from STEM (science, technology, engineering and mathematics), clinical and other backgrounds. Mathematical modelling is an interdisciplinary activity which benefits from the broad skills and experience base of its practitioners.

This modelling short-course provides basic practical skills in coding in addition to understanding transmission dynamics which establish a foundation for further research or facilitate critical appraisal of mathematical modelling. A typical student will have studied the basics of infectious disease modelling and will have some preliminary (online or otherwise) training or aptitude in the R programming language.



The course will focus on COVID-19 but will help develop generic skills in infectious diseases modelling, provide a basic introduction to the R programming language and teach some of the tools of Bayesian inference, including Markov Chains and Monte Carlo.

TEACHERS

Your teachers come from diverse backgrounds including physicians, physicists, ecologists and health-economists. The teachers of the course have developed the material over the last several years and provided short courses across Australia, in Thailand and at Oxford University.

Professor **Emma McBryde**: Infectious Diseases Physician, mathematical modeller

Dr **Michael Meehan**: Physicist, Infectious Diseases Modeller

A/Prof **Roslyn Hickson**: Science Leader for Emerging Infectious Diseases

Dr **Anton Pak**: Econometrician, health economist

Dr **Jamie Caldwell**: Infectious disease ecologist and mathematical modeller

Mr **Samson Ogunlade** and Mr **Abdul Kuddus**: PhD scholars, Disease Modellers

COURSE ATTENDANCE

Registration for the 5-day course is \$880 which includes:

- Course registration and materials
- Lunch Monday to Friday, for those attending on-site in Townsville

Upon successful completion of the course, students will receive a certificate of completion from the Australian Institute of Tropical Health and Medicine.

SCHOLARSHIP FUNDING

The Australian Institute of Tropical Health and Medicine is offering 10 scholarships for course fees for the short course, particularly aimed at students and self-employed wishing to attend the course in person. Funding will be provided to cover course registration fees only.

APPLICATIONS

Applicants should contact the course organisers to express interest in attending either online or remotely using **email**: tb-modelling@jcu.edu.au.

EOI deadline 10th June 2021

Payment deadline 30th June 2021

Those seeking a scholarship fee-waiver:

This offer is part of a competitive scheme run through the AITHM and students must provide a CV and 200 word (max) cover letter outlining their reason for applying for funding and how the successful completion of this course will contribute to their current studies and future career aspirations.

Applications submitted to: tb-modelling@jcu.edu.au

Submission deadline: 10th June, 2021