

**Imperial College
London**



**MACHINE LEARNING
& GLOBAL HEALTH NETWORK**

Modern Statistics and Machine Learning for Global Health

22nd – 24th February 2024

The Machine Learning and Global Health Network

<https://mlgh.net>

Who are we?

Network spanning across institutes in London, Oxford, Bristol, Copenhagen, Kaiserslautern, and Singapore.

We are 9 principal investigators, 6 postdocs, and 20+ students.

WE ♥ DATA SCIENCE

WE ♥ STATISTICS

WE ♥ HELPING PEOPLE WITH OUR RESEARCH

What are we going to cover?

- Lecture 1: Introductions (9.00 - 9.30)

Bayesian Inference

- Lecture 2: Introduction to Stan for applied Bayesian analyses (9.30-10.00)
- Practical 1: Stan basics (10.00-11.30)
- Break (*15 min*)
- Lecture 3: Scalable Gaussian process regression models (11.45-12.30)
- Practical 2: Scalable GP regression models (12.30-13.00)
- *Lunch (1 hr)*
- Practical 2: Scalable GP regression models (14.00-16.00)

Friday February 23rd

Infectious Disease Transmission Modelling

- Lecture 4: Introduction to Infectious Disease Modelling (9.00-10.00)
- Lecture 5: Introduction to phylogenetics (10:00-10:40)
- *Break (20min)*
- Four remote research talks from the Machine Learning and Global Health Network
- (11.00-13:00)
- *Lunch (1 hr)*
- Practical 3: Running a phylogenetic pipeline (14:00-15:00)
- Lecture 6: SIR models (15:00 – 16:00)

Saturday February 24th

- Practical 4: Deriving SIR type models (13:00-14:00)
- Lecture 7: Introduction to Fitting an SIR model practical (14:00-14:10)
- Practical 5: Fitting an SIR model in Stan (14.10-16.00)
- Barbecue & cocktail: (16:00-18:00)

Your course demonstrators



Dr Juliette (Ettie) Unwin



Dr Alexandra (Alex)
Blenkinsop



Yu Chen



Shozen Dan

And you!

You are going to introduce your neighbour to the class.

- 1) What is their name?
- 2) Where are they from?
- 3) What do they hope to gain from this course?

Finding the course material

https://github.com/MLGlobalHealth/aims_rwanda_2024

The screenshot shows the GitHub interface for the repository `MLGlobalHealth / aims_rwanda_2024`. The repository is private and has 3 watchers, 0 forks, and 0 stars. The main branch is `main` with 1 branch and 0 tags. The repository contains four files: `AIMS-Imperial_course_outline_revised.pdf`, `LICENSE`, `README.md`, and `stan_installation.pdf`. The `README.md` file is selected, showing the title **North-South-AIMS-Imperial: modern statistics and global health** and a description: "This repository contains the material for the course at AIMS, Rwanda between 22nd and 24th February. This work is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](#)." The repository also has a CC0-1.0 license and no releases or packages published.

MLGlobalHealth / aims_rwanda_2024

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ettieunwin Merge branch 'main' of github.com:MLGlobalHealth/aims_rwanda_2024 c4541a2 · now 4 Commits

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LICENSE	Initial commit	36 minutes ago
README.md	Create README.md	15 minutes ago
stan_installation.pdf	Adds material	1 minute ago

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North-South-AIMS-Imperial: modern statistics and global health

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About

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