



MMPH6168 Infectious Disease Modelling (Summer Semester)

Coordinator: Prof J Wu

Course Description:

This course is an introduction to the use of mathematical models for studying infectious disease dynamics and control. The course is designed for students who have a strong background in infectious disease epidemiology and want to understand and interpret results from infectious disease modeling. Topics include basic epidemic theory, estimation of transmissibility and disease severity, stochasticity, assessment of uncertainty, cost and effectiveness evaluation of interventions, and optimization of control strategies under resource constraints.

Prerequisite: (i) CMED 6211 Infectious disease epidemiology, and (ii) Basic programming skills in R. Students who have little or no experience at computer programming are expected to pick up these skills via free online courses such as R Programming on Coursera (<https://www.coursera.org/learn/r-programming>).

Term 3 (Monday)

Contact person: Mr Jonathan Lau

Date	Time	Lecture Topic	Lecturer	Venue
15 May 2023	6:30 – 9:30 pm	1. Basic epidemic theory	Prof J Wu	SR4
22 May 2023	6:30 – 9:30 pm	2. Modeling interventions	Prof J Wu	3SR-SR1
		Tutorial or Q&A		
29 May 2023	6:30 – 9:30 pm	3. Parameter estimation 1	Prof J Wu	3SR-SR1
		Tutorial or Q&A		
05 June 2023	6:30 – 9:30 pm	4. Parameter estimation 2	Prof J Wu	SR4
		Tutorial or Q&A		
12 June 2023	6:30 – 9:30 pm	5. Assessing uncertainty	Prof J Wu	SR4
		Tutorial or Q&A		
19 June 2023	6:30 – 9:30 pm	6. Evidence-based modeling	Prof J Wu	SR4
		Tutorial or Q&A		
26 June 2023	6:30 – 9:30 pm	7. Stochasticity	Prof J Wu	SR4
		Tutorial or Q&A		
03 July 2023	6:30 – 9:30 pm	8. Health economic evaluation	Prof J Wu	TBC
		Tutorial or Q&A		
10 July 2023	6:30 – 9:30 pm	9. Molecular epidemiology	Dr T Lam	TBC
		Tutorial or Q&A		
27 July 2023	6:30 – 9:30 pm	10. Modeling logistics of epidemic interventions	Prof J Wu	TBC
		Tutorial or Q&A		
31 July 2023	6:30 – 8:30 pm	Final Examination	-	TBC

Course Assessment: Coursework: 70%
Examination: 30%

Recommended Textbook: 1. Vynnycky E, White RG. An Introduction to Infectious Disease Modelling. Oxford Univ. Press, 2010.

SR4: Seminar Room 4, G/F, Laboratory Block, LKS Faculty of Medicine Bldg., 21 Sassoon Road, HK
3SR-SR1: Room 302, 3/F, HKUMed Academic Building, 3 Sassoon Road, HK

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