

Introduction to Infectious Disease Modelling and its Applications

Provisional timetable 2025

Unless otherwise stated, the timings for remote and in-person participants are identical

Time		Lecturer
Monday 16th June		
8.45-9.30	Registration for students attending in person	
9.30-10.15	Introduction to the course	EV, RW, RC
10.15-11.15	Lecture 1. Modelling infectious diseases: a brief overview	JE
11.15-11.45	Coffee break	
11.45-12.45	Lecture 2. Basic methods for setting up models I – difference equations	RW
12.45-1.30	Lunch break (course lunch in London)	
1.30-2.15	Resolving computing issues	
2.15-3.30	Practical 2. Setting up and interpreting simple models (measles in Excel)	
3.30-4.00	Coffee break	
4.00-5.15	Guest lecture	
5.15-7.00	Reception in London	
Tuesday 17th June		
	Q&A on day 1 material	RW
9.00-10.00	Lecture 3. Basic methods for setting up models II – differential equations	RW
10.00-10.30	Coffee break	
10.30-12.00	Practical 3. Setting up and interpreting simple models in Berkeley Madonna	
12.00-1.00	Lunch break	
1.00-2.00	Maths refresher (optional)	
2.00-3.00	Lecture 4. The natural dynamics of infectious diseases	TS
3.00-3.30	Course photo in London followed by coffee break	
3.30-4.55	Practical 4. Analysing the dynamics of infectious diseases	
5.00	Guest lecture	
Wednesday 18th June		
9.00-10.00	Lecture 5. Review (optional)	EV
10.00-10.30	Coffee break	
10.30-12.00	Practical 6. Further practice in setting up models in Berkeley Madonna – modelling influenza transmission	
12.05-1.00	Lecture 7: Applying modelling techniques to analyse seroprevalence data	EV
1.00-2.00	Lunch break	
2.00-3.00	Lecture 8. Fitting models to data	LG
3.00-3.30	Coffee break	
3.30-5.00	Practical 7/8. Estimating forces of infection by fitting models to seroprevalence data	
5.00	Optional social outing in London (walk) Networking session for students attending remotely	

Time		Lecturer
Thursday 19th June		
8.30-9.00	Q&A on day 3 material	EV
9.00-10.30	Practical 9. Contrasting the effects of rubella vaccination between high and low transmission settings	
10.30-11.00	Coffee break	
11.00-12.00	Lecture 10. Methods for incorporating non-random mixing into models	YL
12.00-12.30	Session 11: Introduction to the epidemic modelling exercise	
12.30-2.00	Lunch break	
2.00-3.30	Practical 10 (cont). Simulating the effects of non-random mixing on transmission and control	
3.30-4.00	Coffee break	
4.00-5.00	Session 12. Introductory session on the epidemic modelling exercise	
5.00	Guest lecture	
Friday 20th June		
	Q&A on day 4 material	YL
9.00-10.30	Practical 13: Further practice in setting up and fitting models in Berkeley Madonna: Modelling an influenza pandemic II	
10.30-11.00	Coffee break	
11.00-12.00	Lecture 14. Estimating basic reproduction numbers for non-randomly mixing populations	YL
12.00-1.00	Lunch break	
1.00-2.15	Practical 14. Calculating basic reproduction numbers for non-randomly mixing populations	
2.15-2.45	Coffee break	
2.45-3.45	Session 15. Work on the epidemic modelling exercise	
4.00-6.00	Commemorating 25 years of the modelling shortcourse - short talks from guest speakers	
6.00-7.30	Reception	
Monday 23rd June		
9.00-10.00	Lecture 16. Review (optional)	EV
10.00-10.30	Coffee break	
10.30-11.25	Lecture 17. Introduction to stochastic modelling and its applications	NM
11.35-1.00	Practical 17. Setting up stochastic models of outbreaks	
1.00-2.00	Lunch break/modelling clinic	
2.00-3.00	Lecture 18. Fitting models to data II - numerical optimisation and sensitivity analysis	LG
3.00-3.20	Coffee break	
3.20-4.20	Lecture 19. Economic evaluation of infectious disease interventions	JE
4.25-5.50	Practical 19. Health economics and sensitivity analysis: Cost-effectiveness of seasonal influenza vaccination	

Time	Lecturer		
Tuesday 24 th June			
8.30-9.00	Q&A on day 6 material		NM
9.00-10.15	Practical 20. Setting up discrete-time stochastic models in Berkeley Madonna (modelling nosocomial transmission)		
10.15-10.45	Coffee break		
10.45-12.15	Session 21: Topical paper discussion		TB: RC Cov: YL Vet: OB
12.15-1.30	Lunch break		
1.30-2.30	Lecture 22. An introduction to real-time modelling		ND
2.30-3.00	Coffee break		
3.00-5.00	Session 23. Epidemic modelling exercise		
5.15	Networking for participants attending remotely		
6.45+	Optional social outing in London (theatre)		
Wednesday 25 th June			
8.30-9.00	Q&A on day 7 material		ND
9.00-10.00	Lecture 24: Network modelling		NM
10.00-10.30	Coffee break		
10.30-12.00	Practical 24 (cont). Network modelling		
12.05-1.00	Lecture 25. Models for the transmission dynamics of <i>M tuberculosis</i>	Lecture 26. Applications in veterinary epidemiology: Spatial transmission and meta-population models	TB: TS VE: JV
1.00-2.00	Lunch break		
2.00-3.30	Practical 25. Modelling <i>M tuberculosis</i> transmission and disease	Practical 26. Applications of models to veterinary epidemiology and zoonoses	
3.30-4.00	Coffee break		
4.00-5.00	Lecture 27. Simple sexually-transmitted infection models	Lecture 28. Applications of real-time modelling	STI: RW RT: ND
5.00-6.15	Guest lecture		
Thursday 26 th June			
8.30-9.00	Q&A on day 8 material		NM, JV
9.00-10.30	Practical 27. (cont). Simple sexually-transmitted infection models	Practical 28. Applications of real-time modelling	
10.30-11.00	Coffee break		
11.00-12.00	Lecture 29. An introduction to phylodynamics		SH
12.00-2.15	Lunch break		
2.00-3.30	Practical/Demonstration 29. The applications of phylodynamics		
3.30-3.50	Coffee break		
3.50-5.15	Session 30. Work on the epidemic modelling exercise.		
Friday 27 th June			
8.30-9.00	Q&A on day 9 material		SH, ND,RW
9.00-11.00	Session 31. Epidemic modelling presentations		
11.00-11.30	Coffee break		
11.30-11.50	Session 32. Conclusion to the epidemic modelling exercise		EV
11.50-12.30	Course evaluation		EV, RW, RC
12.30-1.30	Course lunch in London		EV, RW, RC
1.30	End of course		

Tutors

OB	Oliver Brady (LSHTM)
CK	Chu-Chang Ku (LSHTM)
YC	Yoon Choi (UKHSA)
RC	Rebecca Clark (LSHTM)
AC	Alastair Clements(LSHTM)
ND	Nicholas Davies (LSHTM)
JE	John Edmunds (LSHTM)
JF	Johnny Filipe (LSHTM)
NFu	Naomi Fuller (LSHTM)
LG	Lara Gosce (LSHTM)
MH	Martin Harker (LSHTM)
RH	Rein Houben (LSHTM)
SH	Stephane Hue (LSHTM)
GK	Gwen Knight (LSHTM)
AL	Ahyoung Lim (LSHTM)
YL	Yang Liu (LSHTM)
FM	Christopher Finn McQuaid (LSHTM)
CMc	Ciara McCarthy (LSHTM)
NM	Nicky McCreesh (LSHTM)
DP	Diane Pople (UKHSA)(
AR	Alex Richards (LSHTM)
FS	Frank Sandmann (RKI/LSHTM)
TS	Tom Sumner (LSHTM)
EvL	Edwin van Leeuwen (UKHSA/LSHTM)
KvZ	Kevin van Zandvoort (LSHTM)
JV	Juan Vesga-Gaviria (UKHSA)
JVA	Julian Villabona Arenas (LSHTM)
EV	Emilia Vynnycky (UKHSA/LSHTM)
RW	Richard White (LSHTM)