

Introduction to Infectious Disease Modelling and its Applications

Provisional timetable 2024

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

Time		Lecturer
Monday 17th June		
8.45-9.30 (in person)	Registration for students attending in person	
9.30-10.00	Introduction to the course	EV, RW, NM
10.00-11.00	Lecture 1. Introduction to the epidemiology of infections	PF
11.00-11.30	Coffee break	
11.30-12.30	Lecture 2.. Why bother with modelling?	EM
12.30-1.15	Lunch break (course lunch in London)	
1.15-2.00	Resolving computing issues	
2.00-3.00	Lecture 3. Basic methods for setting up models I – difference equations	RW
3.00-3.30	Coffee break	
3.30-4.50	Practical 3. Setting up and interpreting simple models (measles in Excel)	
5.00-6.15	Guest lecture	
6.15-7.30 (in person)	Reception in London	
Tuesday 18th June		
8.30-9.00	Q&A on day 1 material	
9.00-10.00	Lecture 4. Basic methods for setting up models II – differential equations	RW
10.00-10.30	Coffee break	
10.30-12.00	Practical 4. Setting up and interpreting simple models in Berkeley Madonna	
12.00-1.00	Lunch break	
1.00-2.00	Maths refresher (optional)	NFu
2.00-3.00	Lecture 5. The natural dynamics of infectious diseases	TS
3.00-3.30 (in person only)	Course photo in London followed by coffee break	
3.30-4.55	Practical 5. Analysing the dynamics of infectious diseases	
5.00-6.00	Guest lecture	
Wednesday 19th June		
9.00-10.00	Lecture 6. Review (optional)	EV
10.00-10.30	Coffee break	
10.30-12.00	Practical 7. Further practice in setting up models in Berkeley Madonna – modelling influenza transmission	
12.05-1.00	Lecture 8. Applying modelling techniques to analyse seroprevalence data	EV
1.00-2.00	Lunch break	
2.00-3.00	Lecture 9. Fitting models to data	MJ
3.00-3.30	Coffee break	
3.30-5.00	Practical 8/9. Estimating forces of infection by fitting models to seroprevalence data	
5.15+ (in person)	Optional social outing in London (walk)	
5.15-5.30 (remote students)	Networking session for remote students	

Thursday 20th June

8.30-9.00	Q&A on day 3 material	
9.00-10.30	Practical 10. Contrasting the effects of rubella vaccination between high and low transmission settings	
10.30-11.00	Coffee break	
11.00-12.00	Lecture 11. Methods for incorporating non-random mixing into models	SFI
12.00-12.30	Introduction to the groupwork exercise	
12.30-2.00	Lunch break	
2.00-3.30	Practical 11. 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 group work exercise	
5.00 for 5.15-6.15	Social quiz (optional)	

Friday 21st June

8.30-9.00	Q&A on day 4 material	
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	SFI
12.00-12.30	Lunch break (sandwiches provided)	
12.30-1.45	Guest lecture	
1.45-3.00	Practical 14. Calculating basic reproduction numbers for non-randomly mixing populations	
3.00-3.30	Coffee break	
3.30-4.30	Session 15. Work on the groupwork exercise	
4.35+ (in person)	Optional social outing in London- meal + Eye	

Monday 24th 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	
2.00-3.00	Lecture 18. Fitting models to data II - numerical optimisation and sensitivity analysis	MJ
3.00-4.00	Lecture 19. Economic evaluation of infectious disease interventions	MJ
4.00-4.30	Coffee break	
4.30-5.50	Practical 19. Health economics and sensitivity analysis: Cost-effectiveness of seasonal influenza vaccination	

Time			Lecturer
Tuesday 25th June			
8.30-9.00	Q&A on day 6 material		
9.00-10.15	Practical 20. Setting up discrete-time stochastic models in Berkeley Madonna (modelling nosocomial transmission)		
10.15-10.45	Coffee break		
10.45-12.00	Session 21: Topical paper discussion		TB: GK Cov: YL Vet: OB
12.00-1.00	Lecture 22. An introduction to phylodynamics		SH
1.00-2.00	Lunch break		
2.00-3.30	Practical 22. The applications of phylodynamics		
3.30-4.00	Coffee break		
4.00-5.15	Session 23. Groupwork		
5.30-5.45 (remote)	Networking for participants attending remotely		
6.45+ (in person)	Optional social outing in London (theatre)		
Wednesday 26th June			
8.30-9.00	Q&A on day 7 material		
9.00-10.30	Session 24. Work on the group work exercise		
10.30-11.00	Coffee break		
11.00-11.55	Lecture 25. An introduction to real-time modelling		ND
12.05-1.00	Lecture 26. Models for the transmission dynamics of <i>M tuberculosis</i>	Lecture 27. 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 26. Modelling <i>M tuberculosis</i> transmission and disease	Practical 27. Applications of models to veterinary epidemiology and zoonoses	
3.30-3.50	Coffee break		
3.50-4.50	Lecture 28. Network modelling		NM
5.00-6.15	Guest lecture		
Thursday 27th June			
8.30-9.00	Q&A on day 8 material		
9.00-10.30	Practical 28 (cont). Network modelling		
10.30-11.00	Coffee break		
11.05-12.00	Lecture 29. Simple sexually-transmitted infection models	Lecture 30. Applications of real-time modelling	STI: RW RT: ND
12.05-1.00	Lunch break		
1.00-2.00	Guest lecture		
2.00-3.30	Practical 29. (cont). Simple sexually-transmitted infection models	Practical 30. Applications of real-time modelling	
3.30-3.50	Coffee break		
3.50-5.15	Session 31. Work on the group work exercise		
Friday 28th June			
8.30-9.00	Q&A on day 9 material		
9.00-11.00	Session 32. Poster presentations		
11.00-11.30	Coffee break		
11.30-11.50	Session 33. Conclusion to the groupwork exercise		EV
11.50-12.30	Course evaluation		EV, RW, NM
12.30-1.30	Course lunch in London		EV, RW, NM
1.30	End of course		

Tutors

KA	Kaja Abbas (LSHTM)
OB	Oliver Brady (LSHTM)
ND	Nicholas Davies (LSHTM)
JF	Johnny Filipe (LSHTM)
PF	Paul Fine (LSHTM)
SFI	Stefan Flasche (LSHTM)
HF	Han Fu (LSHTM)
NFu	Naomi Fuller (LSHTM)
LG	Lara Gosce (LSHTM)
SH	Stephane Hue (LSHTM)
MJ	Mark Jit (LSHTM)
GK	Gwen Knight (LSHTM)
AL	Ahyoung Lim (LSHTM)
YL	Yang Liu (LSHTM)
FM	Christopher Finn McQuaid (LSHTM)
NM	Nicky McCreesh (LSHTM)
CP	Carl Pearson (LSHTM)
TP	Timos Papadopoulos (UKHSA)
DP	Diane Pople (UKHSA)
AR	Alex Richards (LSHTM)
FS	Frank Sandman (LSHTM/ECDC)
TS	Tom Sumner (LSHTM)
EvL	Edwin van Leeuwen (UKHSA/LSHTM)
KvZ	Kevin van Zandboort (LSHTM)
JV	Juan Vesga-Gaviria (LSHTM)
JVA	Julian Villabona Arenas (LSHTM)
EV	Emilia Vynnycky (UKHSA/LSHTM)
RW	Richard White (LSHTM)