Introduction to Infectious Disease Modelling and its Applications

Timetable 2012

Week 1

Monday, 2nd July

8.30-9.25	Registration	
9.30-10.00	Introduction	Introduction to the course
10.00-11.00	Lecture	1. Introduction to the epidemiology of infections
11.00-11.30		**Coffee break**
11.30-12.30	Lecture	2. Why bother with modelling
12.30-1.30		**Course lunch**
1.30-2.15		**Introduction to the computing network**
2.20-3.20	Lecture	3. Basic methods for setting up models I – difference equations
3.20-3.40		**Coffee break**
3.40-5.05	Practical	3. Setting up and interpreting simple models (measles in Excel)
5.15-6.15	Guest lecture	Guest lecture
6.15-8.00		**Garden party/Reception**

Tuesday, 3rd July

9.15-10.15	Lecture	4. Basic methods for setting up models II – differential equations
10.15-10.40		**Coffee break**
10.40-12.20	Practical	4. Setting up and interpreting simple models in Berkeley Madonna
12.20-1.00		**Lunch break**
1.00-2.00	Lecture	Maths refresher (optional)
2.05-3.05	Lecture	5. The natural dynamics of infectious diseases
3.05-3.25		**Coffee break**
3.25-5.05	Practical	5. Analysing the dynamics of infectious diseases
5.15-6.15	Guest lecture	Guest lecture

Wednesday, 4th July

9.15-10.15	Lecture	6. Review (optional)
10.15-10.35		**Coffee break**
10.35-12.30	Practical	7. Further practice in setting up models in Berkeley Madonna – modelling influenza transmission
12.45-2.00		**Lunch break**
2.00-3.00	Lecture	8. Applying modelling techniques to analyse seroprevalence data
3.15-3.40		**Group photo at 3.10 followed by coffee break**
3.40-5.05	Practical	8. Methods for analysing seroprevalence data
5.15-6.15	Guest lecture	Guest lecture
6.30+		**Optional social outing (walk)**

Thursday, 5th July

9.15-11.00	Practical	9. Contrasting the effects of rubella vaccination between high and low transmission settings
11.00-11.20		**Coffee break**
11.20-12.20	Lecture	10. Methods for incorporating non-random mixing into models
12.20-12.30		Introduction to the groupwork exercise
12.30-2.00		**Lunch break**
2.00-3.30	Practical	10. Simulating the effects of non-random mixing on transmission and control
3.30-3.50		**Coffee break**
3.50-5.05	Groupwork	11. Work on the groupwork execise
5.15-6.15	Guest lecture	Guest lecture

Week 1 (cont)

Friday, 1st July

9.15-10.15	Lecture	12. Estimating basic reproduction numbers for non-randomly mixing populayions
10.15-10.35		**Coffee break**
10.35-12.05	Practical	12. Calculating basic reproduction numbers for non-randomly mixing populations
12.05-12.45		**Lunch break**
12.45-2.00	Guest lecture	Guest lecture
2.00-3.15	Group work	13. Work on the group work exercise (Flu/Ebola)
3.15-3.35		**Coffee break**
3.35-5.00	Paper discussion	14. Topical paper discussion
5.05-6.00	Guest lecture	Guest lecture
6.15+		**Optional social outing – meal + Eye**

Week 2

Monday, 9th July

9.15-10.15	Lecture	15. Review (optional)
10.15-10.35		**Coffee break**
10.35-11.35	Lecture	16. Introduction to stochastic modelling and its applications
11.40-1.10	Practical	16. Setting up stochastic models of outbreaks
1.10-2.10		**Lunch break**
2.10-3.10	Lecture	17. Network modelling
3.10-3.30		**Coffee break**
3.30-5.00	Practical	17. Network modelling
5.15-6.15	Guest lecture	Guest lecture

Tuesday, 10th July

9.00-10.15	Practical	18. Stochastic modelling in Berkeley Madonna: modelling nosocomial transmission
10.15-10.35		**Coffee break**
10.35-11.35	Lecture	19. Fitting models to data
11.40-1.10	Practical	20. Applications of stochastic models: estimating R_n for eliminated and emerging diseases
1.10-2.10		**Lunch break**
2.10-3.10	Lecture	21. Sensitivity analyses
3.10-3.30		**Coffee break**
3.30-4.30	Lecture	22. From the population to the individual: a review of modelling methodologies
4.30-5.45	Groupwork	23. Groupwork exercise (Flu/Ebola)

Week 2 (cont)

Wednesday, 11th July

9.15-10.15	Lecture	24. Why might we need real-time modelling?	
10.20-11.20	BC/RT lecture	25. The methods for real-time modelling	26. Back-calculation and modelling diseases with long incubation periods
11.20-11.40		**Coffee break**	**Coffee break**
11.40-1.10	BC/RT practical	25. The applications of real-time modelling	26. Predicting the size of the vCJD epidemic in the UK
1.10-2.15		**Lunch break**	**Lunch break**
2.15-3.15	TB/VE lecture	27. Models for the transmission dynamics of *M tuberculosis*	28. Applications in veterinary epidemiology: Spatial transmission and meta-population models
3.15-3.35		**Coffee break**	**Coffee break**
3.35-5.05	TB/VE practical	27. Modelling *M tuberculosis* transmission and disease	28. Applications of models to veterinary epidemiology and zoonoses
6.45+		**Optional social outing (theatre)**	

Thursday, 12th July

9.00-10.00	STI/MAL lecture	29. Modelling sexually transmitted infections	31. Modelling malaria transmission and control
10.00-10.20		**Coffee break**	**Coffee break**
10.20-11.50	STI/MAL practical	29. Simple sexually transmitted infection models	31. The Ross-Macdonald model
11.55-12.55	HIV/MAL lecture	30. Modelling HIV transmission and control	32. Approaches for modelling vector-born diseases
12.55-2.00		**Lunch break**	
2.00-3.20	Clinic	33. Modelling clinic	
3.20-3.40		**Coffee break**	
3.40-5.15	Group work	34. Work on the group work exercise (Flu/Ebola)	

Friday, 13th July

9.15-11.00	Group work exercise	35. Poster presentations
11.00-11.30		**Coffee break**
11.30-11.45		36. Conclusion to the groupwork exercise
11.45-12.45	Lecture	37. Final perspectives on modelling...
12.50-1.50	Guest lecture	Guest lecture
2.00-3.00	Lunch/ Discussion	Course lunch followed by evaluation
3.00		**END OF COURSE**