

SEMESTER II
LSM4255 METHODS IN MATHEMATICAL BIOLOGY

Prerequisite: GCE 'A' Level or H2 Mathematics or equivalent, or MA1301 or MA1301X
Workload: 26 lecture hours + 26 lab hours

Course description:

The use of mathematics has a long history in life sciences and familiarity with basic, relevant mathematical techniques is becoming increasingly important for biologists. This course will focus on both current and classical themes in mathematical biology and will emphasise the acquisition of mathematical skills of relevance to current problems in ecology, evolution and epidemiology.

S/N	Topics	Lecture hours
1	Introduction and overview	2
2	Dynamical systems: difference equations	4
3	Dynamical systems: differential equations	4
4	Dynamical systems: cycles and chaos	2
5	Spatial models	2
6	Communities and ecosystems	6
7	Infectious diseases	2
8	Population genetics	2
9	Game theory and adaptive dynamics	2
	Total lectures :	26 h
	Tutorials (presentation):	0 h
	Practicals:	26 h
	Total hours:	52 h

TEXT BOOK (Reference books): Hastings, A. (1997). *Population Biology: Concepts and Models*. Springer, New York.

MODE OF ASSESSMENT: Practicals/laboratories (10%); Mid-term test (20%); Assignments (30%); Final exam (40%)

MODULE CO-ORDINATOR: Ryan Chisholm

LECTURER: Ryan Chisholm