

# Mathematical Techniques in Evolution and Ecology

## Syllabus Spring Quarter 2015

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March 20, 2015

**Time:** Friday, 10–12 am

**Location:** tbc

**First lecture:** 04/03/2015

**Last lecture:** 05/29/2015

Date	Topic (chapter in Otto and Day)	Remarks and alternatives*
04/03	How to construct a model (2)	
04/10	Some classic models in evolution and ecology (3)	
04/17	Functions and approximations (P1)	
04/24	Numerical and graphical techniques (4)	
05/01	Equilibria and stability analyses – one-variable models (5)	
05/08	General solutions and transformations – one-variable models (6)	
05/15	Equilibria and stability analyses – linear models with multiple variables (7)	Reading Primer 2 (Linear algebra) beforehand will be helpful
05/22	Equilibria and stability analyses – non-linear models with multiple variables (8)	Dynamics of class-structured models (10); Probabilistic models (13)
05/29	General solutions and transformations – models with multiple variables (9)	Evolutionary invasion analysis (12); Analysing discrete stochastic models (14)

\*For the last two lectures, I would like to offer three options: i) chapters 8 and 9, ii) chapters 10 and 12, or iii) chapters 13 and 14. We will decide together.