

BIOM-300* covers mathematical techniques that are frequently used in biological modeling, particularly as it pertains to ecology and evolutionary biology. The material presented will center on how to formulate and construct sensible mathematical models for biological processes, how to obtain numerical solutions of the model, and how to use various mathematical techniques for analyzing the models in both discrete- and continuous-time. The course will introduce all techniques in the context of biological problems and examples, and will emphasize how to use mathematics to better understand biology.

The lab is centered around the software package Mathematica (Wolfram Research). Many of the calculations involved in analyzing the models presented in class can be done using this program, and the package also allows approximate solutions to be found numerically when exact analytical solutions are impossible. Mathematica also has extensive facilities for visualizing results using graphs.

Textbook: The textbook for the course is one that is currently in press by Dr. Sarah Otto (Univ. British Columbia) and T. Day (Instructor).

Prerequisite: A first year calculus course. Some linear algebra is recommended.

Instructor: T. Day

Evaluation:	8 Assignments (5% each)	40%
	Take Home Midterm	20%
	Final Exam	30%
	Computer Lab Participation	10%