

BISC-407, Population Dynamics, Fall 2019

Lecture: Wed 11:30-12:20 AQ 5030
Fri 10:30-12:20 AQ 5030
Tutorial: Thurs (D101) 12:30-13:20 AQ 3148.1
Wed (D102) 10:30-11:20 AQ 3148.1

Instructor: Dr. Leithen M’Gonigle
e-mail address: lmgonigl@sfu.ca
Office Location: Shrum Science B8273
Office Hours: Tues, 10:30-11:30 & by appointment
Website: <https://www.sfu.ca/~lmgonigl>

Teaching assistant: Elijah Reyes
e-mail address: elijahr@sfu.ca
Office Location: Shrum Science, B8227
Office Hours: Wed, 1300:14:00 & by appointment

Pre-requisites: BISC 102 and either BISC 204 or GEOG 215, all with a grade of C- or better.

Course Description: Using a combination of theory and applied exercises students will explore various facets of population biology and evaluate the factors influencing the natural fluctuation and regulation of plant and animal populations.

Grade Breakdown:

Tutorial & Assignments	30%
Midterm Exam (Fri, Oct 11)	30%
Final Exam	40%

Letter Grade Distribution:

≤ 50	50–	55–	60–	65–	70–	75–	80–	85–	90–	95–
F	D	C-	C	C+	B-	B	B+	A-	A	A+

Final grades may be curved in a fair and impartial manner, with distribution reflecting the performance and effort of the class.

General:

- Attached to the end of this document is a tentative course schedule. This will be updated throughout the term.
- Exams are closed book, closed notes, unless instructed otherwise.
- No makeup assignments or exams will be given.

Course Schedule:

To be updated as we progress.

Week	Content	Tutorial Topic
Sept 2	Welcome and Introduction Introduction to Maple, Population growth	No tutorial
Sept 9	Population growth Model construction	Introduction to Maple
Sept 16	One locus selection Graphical analyses, Equilibria	Writing functions
Sept 23	Stability <i>No class Sept. 27th (Climate Strike)</i>	Graphing
Sept 30	Stability Applications of the theory	Finding equilibria and assessing stability
Oct 7	Midterm review Midterm	Review of previous labs
Oct 14	Dispersal Introduction to matrix algebra	More stability analyses
Oct 21	Matrix algebra Solving linear equations, general solutions	Ricker model
Oct 28	Solving linear equations Introduction to demography	Matrix algebra
Nov 4	Demography continued Lotka-Volterra competition	Eigenvectors
Nov 11	Multi-variable stability analysis	Growth with alternation of generations
Nov 18	Spread of disease Predator-prey models	Competition between two species
Nov 25	Simulation models Review	Predator-prey models