

OUC Biol 303 - Population Biology Winter 1999

Professor: Brett Goodwin

Phone: 762-5445 ext. 7546

Web pages: <http://www.ouc.bc.ca/biol/>

Lectures: Mon., Wed. & Fri. 12:30-1:20, SCI 236

Tutorials: S01 Fri. 13:30-14:20, ART 216 or S02 Fri. 10:30-11:20, ART 114

Office hours: to be determined

Office: SCI 163

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Textbooks:

Begon, M., M. Mortimer & D.J. Thompson. 1996. *Population Ecology: A unified study of animals and plants*, 3rd ed. Blackwell Science Ltd., Oxford.

Smith, R.L. 1996. *Ecology and Field Biology*, 5th ed. HarperCollins College Publishers, New York. (This is the same text you used for Biol 203.)

Prerequisites: Biol 203

Corequisites: Biol 300 or Stat 230

Objectives:

This course will examine many facets of plant and animal population processes. We will investigate the following questions: What is a population? How can population structure and distribution be described? How can the growth of a single species population be modeled? How are populations regulated? What is the influence of interspecific competition on populations? What is the influence of predation, herbivory, harvesting, parasites or diseases on populations? What is a metapopulation? How does natural selection influence populations and population level processes? How do populations influence genetics?

By the end of the course you will be able to discuss the above topics, describe populations, use life tables and population matrices to make predictions about populations, and use graphical and mathematical tools to analyze population growth, interspecific competition, predation and population genetics.

It is important to be exposed to the literature since the field of population biology is growing rapidly. Therefore, we will discuss recent papers in population biology in weekly seminars. Reading lists for the seminar will be available on the course web pages. I will lead the first seminar and then a student will lead each of the rest of the seminars. You need to sign up to lead one seminar. One week after you have led your seminar you will hand in a short paper (5 pages or less excluding bibliography) discussing the paper from your seminar. Your participation in all seminars is vital in their being effective. Please attend only the seminar you are registered for. The seminar will account for 15% of your grade, with the marks as follows: leading your seminar (5%), the subsequent paper (5%), and your overall seminar attendance and participation (5%). Topics discussed in the seminars will be examined on the midterm and final exams.

Learning how populations work and about population models is best done hands on. Therefore, there are 5 assignments that will be given to you throughout the semester. The assignments will be available on the course web pages and will usually be due a week after they are provided (the due date will be indicated on the assignment). Each assignment will be worth 5% of your grade. No late assignments will be accepted unless arrangements have been made with me **before** the due date. In this case, we will discuss the penalty for a late assignment when we make arrangements. All assignments must be typed. Plagiarism will result in a mark of 0 on the assignment for the first offence and a mark of 0 in the course for the second offence.

Evaluation:

5 Assignments (5% each)	25%
Seminar	15%
Midterm Exam	20%
Final Exam	40%

Lecture Schedule:

Week of	Topic	Reading	
		Begon <i>et al.</i>	Smith
Jan. 4	Introduction, Describing populations		p. 361-72
Jan. 11	Describing populations continued	ch. 1	p. 372-87
Jan. 18	Single species population models	ch. 3	p. 390-96
Jan. 25	Population regulation	ch. 2, 6	p. 396-426
Feb. 1	Interspecific competition	ch.4.1-4.12	p. 484-99
Feb. 8	Competition continued Predation	ch. 4.13-4.16 5.1-5.10	p. 480-84 p. 508-13
Feb. 15	Predation continued	ch. 5.11-5.14	p. 502-08, 513-520, 541-47
Feb. 22	Reading Week		
Mar. 1	Harvesting Midterm (Mar. 3)	ch. 5.15	p. 547-56
Mar. 8	Herbivory	ch. 5.5.1 & 5.13.3	p. 522-533
Mar. 15	Parasites, parasitoids & disease		p. 503, 558-77
Mar. 22	Metapopulations	ch. 7.1-7.2	
Mar. 29	Natural selection and life-history strategies Good Friday		p. 428-53
Apr. 5	Easter Monday Population genetics		p. 456-67
Apr. 12	Population genetics continued		p. 467-77

This schedule is tentative and I will attempt to keep you updated depending upon how quickly or slowly we cover the material.