



UNIVERSITY OF CALGARY  
 FACULTY OF SCIENCE  
 DEPARTMENT OF BIOLOGICAL SCIENCES  
 COURSE OUTLINE

1. **Course: ECOLOGY 439 – ECOLOGY OF POPULATIONS**

Lecture Sections: L01      MWF      11:00-11:50      BI 561      WINTER 2019

Course Coordinator:      Dr. J.W. Fox

Instructor:      Dr. J. W. Fox      BI 260      220-5275      jefox@ucalgary.ca  
                     Dr. J.R. Post      BI 581      220-6937      jrpost@ucalgary.ca

D2L Course name: W2019ECOL439L01: ECOL 439 L01 - (Winter 2019) - Ecology of Populations

Biological Sciences Department BI 186; (403) 220-3140; biosci@ucalgary.ca

NOTE: Students must use their UofC account for all course correspondence.

2. **PREREQUISITE(S):** Ecology 425 and 429  
 See section 3.5.C in the Faculty of Science section of the online Calendar  
 (<http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html>)

3. **Grading:** The University policy on grading and related matters is described sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

<b>Midterm Examination</b>	<b>30%</b>	<b>In-Class, Fri. Mar. 1</b>
<b>Final Examination</b>	<b>30%</b>	
<b>Laboratory Exercises</b>	<b>35%</b>	
<b>Participation</b>	<b>5%</b>	
<b>Total</b>	<b>100%</b>	

(There will be a final exam scheduled by the Registrar's office.)

**No late papers will be accepted for grading.** The student is responsible for the material covered in both lecture and laboratory on a cumulative basis.

Each piece of work (laboratory exercises, participation, midterm test or final examination) submitted by the student will be assigned a percentage score. The student's average percentage score for the various components listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

Letter Grade	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Min. Percent Required	96	90	85	80	75	71	68	64	60	56	52

4. **Missed Components of Term Work:** In the event that a student misses the midterm or any course work due to illness, supporting documentation, such as a medical note or a statutory declaration will be required (see Section N.1; for more information regarding the use of statutory declaration/medical notes, see FAQ). Absences must be reported within 48 hours.

The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in [Section 3.6](#). It is the student's responsibility to familiarize himself/herself with these regulations. See also [Section E.3](#) of the University Calendar

5. **Scheduled out-of-class activities:** Dates and times of approved class activities held outside of class hours. N/A

**REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY.**

6. **Course Materials:** There is no required textbook. Ted Case's (2000) *Illustrated Guide to Theoretical Ecology*, available at the library, is recommended for students who would like additional background reading.
7. **Examination Policy:** All examinations are closed book. The use of camera devices, MP3 Players and headphones, or wireless access devices such as cell phones, Blackberries, etc., during the examinations will not be allowed. Only non-graphing, non-text calculators are permitted. Students should also read the Calendar, [Section G](#), on Examinations.

8. **Writing across the curriculum statement:** In this course, the quality of the student's writing in laboratory reports will be a factor in the evaluation of those reports. See also [Section E.2](#) of the University Calendar.

9. **HUMAN & LIVING ORGANISM STUDIES STATEMENTS:**

Students will not participate as subjects or researchers in human studies.

See also Section E.5 of the University Calendar.

Studies in the Biological Sciences involve the use of living and dead organisms. Students taking laboratory- and field-based courses in these disciplines can expect involvement with and experimentation on such materials. Students perform dissections on dead or preserved organisms in some courses. In particular courses, students experiment on living organisms, their tissues, cells, or molecules. Sometimes field work requires students to collect a variety of living materials by many methods, including humane trapping.

All work on humans and other animals conforms to the Helsinki Declaration and to the regulations of the Canadian Council on Animal Care. The Department strives for the highest ethical standards consistent with stewardship of the environment for organisms whose use is not governed by statutory authority. Individuals contemplating taking courses or majoring in one of the fields of study offered by the Department of Biological Sciences should ensure that they have fully considered these issues before enrolling. Students are advised to discuss any concern they might have with the Undergraduate Program Director of the Department.

10. Students are expected to be familiar with Section SC.4.1 of the University Calendar.

**Reappraisal Of Grades:**

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See Section I.3 of the University Calendar.

- a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **15 days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall immediately submit the Reappraisal of Graded Term work form to the department in which the course is offered. The department will arrange for a reassessment of the work if, and only if, the student has sufficient academic grounds. See sections I.1 and I.2 of the University Calendar
- b. **Final Exam:** The student shall submit the request to Enrolment Services. See Section I.3 of the University Calendar.

11. **Other Important Information For Students:**

- a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, Mental Health Services Website) and the Campus Mental Health Strategy website (Mental Health).
- b. **SU Wellness Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see [www.ucalgary.ca/wellnesscentre](http://www.ucalgary.ca/wellnesscentre) or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The University of Calgary is committed to fostering a safe, productive learning environment. The Sexual Violence Policy (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>) is a fundamental element in creating and sustaining a safer campus environment for all community members. We understand that sexual violence can undermine students' academic success and we encourage students who have experienced some form of sexual misconduct to talk to someone about their experience, so they can get the support they need. The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email ([svsa@ucalgary.ca](mailto:svsa@ucalgary.ca)) or phone at 403-220-2208 .
- d. **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under Section K. Student Misconduct to inform yourself of definitions, processes and penalties. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. **These are only examples.**

- e. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on assembly points.
- f. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at [procedure-for-accommodations-for-students-with-disabilities.pdf](#). Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Associate Head, Undergraduate of the Department of Biological Sciences, Heather Addy by email [addy@ucalgary.ca](mailto:addy@ucalgary.ca) or phone 403 220-6979. Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See Section E.4 of the University Calendar.
- g. **Safewalk:** Campus Security will escort individuals day or night (See the Campus Safewalk website). Call 403-220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- h. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see Legal Services website.
- i. **Student Union Information:** VP Academic, Phone: 403-220-3911 Email: [suypaca@ucalgary.ca](mailto:suypaca@ucalgary.ca). SU Faculty Rep., Phone: 403-220-3913 Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca). Student Ombudsman, Email: [suypaca@ucalgary.ca](mailto:suypaca@ucalgary.ca).
- j. **Internet and Electronic Device Information:** Unless instructed otherwise, cell phones should be turned off during class. All communication with other individuals via laptop, tablet, smart phone or other device is prohibited during class unless specifically permitted by the instructor. Students that violate this policy may be asked to leave the classroom. Repeated violations may result in a charge of misconduct.
- k. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction (USRI) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.

Department Approval \_\_\_\_\_ ORIGINAL SIGNED \_\_\_\_\_ Date \_\_\_\_\_  
E439 co W19; 1/10/2019 8:56 AM

ECOL 439 W 2019 – tentative lecture and lab schedule. The schedule may deviate from this due to the needs of the class. Lectures 1-19 will be taught by Dr. Fox. Lectures 20-38 will be taught by Dr. Post.

<u>Week (dates)</u>	<u>Lecture topics</u>	<u>Lab</u>
1 (Jan. 11)	Introduction	no lab
2. (Jan. 14-18)	Modeling population growth; density dependence	lab 1
3. (Jan. 21-25)	Environmental and demographic stochasticity	lab 2
4. (Jan. 28-Feb. 1)	Time series analysis	no lab
5. (Feb. 4-8)	Time series analysis	lab 3
6. (Feb. 11-15)	Population structure	lab 4
7. (Feb. 18-22)	Reading Week, no classes	no lab
8. (Feb. 25-Mar. 1)	Population structure, review, midterm	no lab
9. (Mar. 4-8)	Predator-prey interactions	no lab
10. (Mar. 11-15)	Predator-prey and competitive interactions	lab 5
11. (Mar. 18-22)	Competitive interactions	lab 6
12. (Mar. 25-29)	Host-parasite interactions	lab 7
13. (Apr. 1-5)	Space and metapopulations	lab 8
14. (Apr. 8-12)	Applications to harvesting and conservation, review	no lab

COURSE OUTCOMES:

- Create and analyze the dynamics of competition, predator-prey and host-parasite models, including deterministic both stochastic approaches
- Use time series analysis to describe population dynamics, and develop and test hypotheses about the processes driving population dynamics
- Understand the application of ecological principles and models to applied problems involving disease, harvest and conservation
- Simulate ecological models and examine dynamic outcomes in “R”
- Communicate effectively both in writing and orally