UNIVERSITY OF CALGARY

DEPARTMENT OF BIOLOGICAL SCIENCES
COURSE OUTLINE

1. Course: ECOLOGY 425 - QUANTITATIVE BIOLOGY II

Lecture Section(s)	L01	MWF	10:00	MS 211	Fall 2017
LABS:	B01	R	0900	BI 182	
	B02	R	1200	BI 182	

Course Coordinator: Dr. J. Fox

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

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

2. Prerequisites: Biology 313 and 315
See section 3.5.C in the Faculty of Science section of the online Calendar
wwww.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:

Midterm Examination	**30 %**	**OCT. 24**	**ST 147**
Laboratory Assignments	**40 %**		
Final Examination	**30 %**		

There will be a final examination scheduled by the Registrar's office.

Passing grades in both the lab and lecture components are essential if the student is to pass the course as a whole.

Students must achieve a passing grade (minimum of D) for at least one of the midterm and final exams, and for the laboratory portion of the course to qualify for a passing grade overall.

Each piece of work (laboratory assignments, 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, bearing in mind that an F grade will result if the student does not pass the overall lab OR the overall lecture component.

Final Grade Scale :

A+: 95 or higher	C+: 65 and under 70
A : 90 and under 95	C : 60 and under 65
A- : 85 and under 90	C- : 55 and under 60
B+: 80 and under 85	D+: 53 and under 55
B : 75 and under 80	D : 50 and under 53
B- : 70 and under 75	F : <50

4. Missed Components of Term Work: 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.

Mid Term Exam: October 24, 2017 6:30-8:30 pm Location ST 147

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

6. **Course Materials:** None Required

7. **Examination Policy**: Calculators will be permitted on examinations. 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. **OTHER IMPORTANT INFORMATION FOR STUDENTS:**

(a) 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

(b) Assembly Points: In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on assembly points.

(c) Student Accommodations: 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 http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.pdf*.

Students needing an Accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the Associate Head of Biological Sciences, Dr. H. Addy by email addy@ucalgary.ca or phone 403 220-3140.

(d) Safewalk: Campus Security will escort individuals day or night (http://www.ucalgary.ca/security/safewalk/). Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

(e) Freedom of Information and Privacy: This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, 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 also http://www.ucalgary.ca/secretariat/privacy.

(f) Student Union Information: VP Academic Phone: 403 220-3911 Email: suvpaca@ucalgary.ca
SU Faculty Rep. Phone: 403 220-3913 Email: science1@su.ucalgary.ca, science2@su.ucalgary.ca and science3@su.ucalgary.ca;
Student Ombuds Office: 403 220-6420 Email: ombuds@ucalgary.ca; http://ucalgary.ca/provost/students/ombuds

(g) Internet and Electronic Device Information: You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

(h) At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference - please participate in USRI Surveys.

Department Approval ORIGINAL SIGNED Date _____

Associate Dean's Approval for
out of regular class-time activity: ORIGINAL SIGNED Date: _____
E425 F17; 8/16/2017 1:52 PM

ECOLOGY 425
FALL 2017

LECTURE TOPICS AND SCHEDULE

Dr. John R. Post (Sept. 11 – Oct. 23)

Aims and objectives of course, lecture and lab schedules and assignments
Models in Ecology – 12 lectures
Maximum Likelihood and Model Selection – 5 lectures

Dr. Jeremy Fox (Oct. 26-Dec. 9)

Introduction to linear models
Estimation vs. prediction vs. null hypothesis tests vs. causal inference
Hypothesis tests for linear models
Interaction terms
Model simplification
Hierarchical models; fixed vs. random effects; shrinkage estimators
Generalized linear models
Intro to study design
Dealing with nuisance variables
Nested designs
Principal components analysis
Frontiers

LABORATORY ASSIGNMENTS AND SCHEDULE

Modelling & Model Selection (20 marks)
Sep 21, 28
Oct 5, 12, 19

Linear models (20 marks)
Oct 26
Nov 2, 16, 23

EXAMS

Midterm Examination:	Oct. 24, 2017 6:30-8:30(2 hours)	Room: ST 147
Final Examination:	Scheduled in Final Exam Period (2 hours)	