



UNIVERSITY OF
CALGARY

DEPARTMENT OF BIOLOGICAL SCIENCES
COURSE OUTLINE

1. **Course: ECOLOGY 429 – ECOLOGY OF INDIVIDUALS**

Lecture Section(s) L01 MWF 13:00-13:50 MS 527 Fall 2017

LABS: B01 T 09:00-11:50 BI 234A
B02 T 12:00-14:50 BI 234A
B03 R 15:00-17:50 BI 234A

Course Coordinator: Dr. Robert Barclay

Instructor(s): Dr. R.M.R. Barclay BI 330 220-3564 barclay@ucalgary.ca
Dr. R. Cartar BI 355 220-3640 cartar@ucalgary.ca

Desire 2 Learn (D2L) course name <https://d2l.ucalgary.ca/d2l/home/156197>

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
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:

Midterm Exam Thursday, October 26	6:30-8:30PM	ENE 241	30%
Lab Reports			35%
Final Exam (Scheduled by the Registrar's office)			35%

* There will be a final exam scheduled by the Registrar's office

Passing grades in both the laboratory and lecture components are required for a student to pass the course as a whole.

Each piece of work (laboratory report, midterm test or final examination) submitted by the student will be assigned a numerical score. A student's scores for the various components weighted as indicated above will be combined to produce an overall percentage for the course, which will be used to determine the course letter grade, except that an F grade will result if the student does not pass the overall lab component or overall lecture component.

Tentative grade breakdown (thresholds may be lowered slightly, but will not be raised):

A+: 90 or higher
A : 86 and under 90
A-: 82 and under 86
B+: 79 and under 82
B: 76 and under 79
B-: 74 and under 76
C+: 70 and under 74
C: 66 and under 70
C-: 62 and under 66
D+: 57 and under 62
D: 50 and under 57
F: < 50

Percentages will be rounded to the nearest 0.1 (e.g., 72.45 → 72.5%, 72.44 → 72.4%)

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.6](#) of the University Calendar

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

Midterm Exam I Thursday, October 26

6:30-8:30PM

ENE 241

30%

Weekend field trip: Saturday September 23, 2017

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:** No textbook. Laboratory manual available via Desire 2 Learn
7. **Examination Policy:** Wireless access devices, including cell phones, **cannot** be used during the examination. Calculators can be used with permission of the Instructor. See also [Section G](#) of the University Calendar.
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. **Ethics in the Biological Sciences**

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. **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: _____
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ECOLOGY 429 – FALL 2017 TENTATIVE LECTURE SCHEDULE

Date		Topic	
Section I Life Histories – Barclay			
September	11	Introduction to the ecology of individuals	
	13	Life history ecology - What is a life history and how does it vary?	
	15	Demography and life tables	
	18	Net reproductive rate and reproductive value	
	20	Is there a cost of reproduction?	
	22	Why does reproductive effort vary?	
	25	Trade-offs: age and size at maturity	
	27	Trade-offs: size and number of offspring	
	29	Aging and senescence	
	October	2	Aging and senescence
		4	Sex ratio of offspring and its adjustment
6		Sex ratio of offspring and its adjustment	
9	THANKSGIVING – NO LECTURES		
Section II Behavioural Ecology – Barclay/Cartar			
October	11	Introduction to Behavioural Ecology	
	13	Social behaviour	
	16	Cooperation and altruism	
	18	Cooperation and altruism	
	20	Reproductive behaviours	
	23	Reproductive behaviours	
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	25	Foraging I	
	27	Foraging II	
	30	Foraging III	
November	1	Fleeing I	
	3	Fleeing II	
	6	Fighting	
Section III Physiological and Morphological Ecology – Cartar			
November	8	Introduction to physiological & morphological ecology	
	10	READING DAYS – NO LECTURES	
	13	READING DAYS – NO LECTURES	
	15	Size & shape	
	17	Self-thinning	
	20	Photosynthesis	
	22	Thermal sensitivity	
	24	Body temperature	
	27	Thermoregulation	
	29	Metabolic rate	
December	1	Metabolism & body size	
	4	Metabolic scaling I	
	6	Metabolic scaling II	
	8	Review session	

ECOLOGY 429 – TENTATIVE LAB SCHEDULE – FALL 2017

		Topic				
Week	Dates	Density effects on growth, phenology and reproduction	Ecological allometry	Herbivory effects on growth and reproduction	Bateman's principle	Mating behaviour
1	Sept 12, 14	Introduction + establish first cultures *Start 2x HD and 2x LD cultures				
2	Sept 19, 21	*Start 2x HD and 2x LD cultures	Data collection in field, Saturday Sept. 23			
3	Sept 26, 28	*Start 2x HD and 2x LD cultures *Count and weigh larvae from Week 1		Plant seeds		
4	Oct 3, 5	*Start 2x HD and 2x LD cultures *Count and weigh larvae from Week 2	Report due	*Thin plants *Assign herbivory treatments	Establish fruit fly cultures	
5	Oct 10, 12	*Start 2x HD and 2x LD cultures *Count and weigh larvae from Week 3		*Pollination for 4 days/plant	*Remove adult flies * Add 2-4 drops of water if media is dry	Design experiment
6	Oct 17, 19	*Start 2x HD and 2x LD cultures *Count and weigh larvae from Week 4	Report returned		*Count all offspring in vials A,B,C *Count number, sex and phenotype of offspring in vial D	Can be done at any time
7	Oct 24, 26 Midterm Oct 26)	*Count and weigh all larvae, pupae and adults			*Analysis	
8	Oct 31, Nov 2	*Analysis and stats			Report due	
9	Nov 7, 9	READING DAYS NO LABS			Report returned	
10	Nov 14, 16	Report due		*Compile data		
11	Nov 21, 23					Oral presentation
12	Nov 28, 30	Report returned		*Assignment help drop-in		
13	Dec 5, 7			Report due		

LAB REPORTS

Assignments are due at the start of your regularly scheduled laboratory day during the weeks indicated below. **Late assignments will be accepted no later than 24 hours after the due date, with a 10% penalty.**

Ecological allometry (Intro, Results, Discussion)	Due Week 4, return Week 6	5%
Bateman's principle (Intro, Results, Discussion)	Due Week 8, return Week 9	5%
Density effects (Intro, Analysis Methods, Results, Disc)	Due Week 10, return Week 12	9%
Mating behaviour (oral report)	Week 11	6%
Herbivory effects (Intro, Methods, Results, Disc)	Due Week 13	10%

Note – A fraction of the grade for each report will be assigned to your success at obtaining results. Therefore, handle all organisms carefully, double check that the experimental conditions have been implemented as expected, and be attentive to the state of the organisms each week. Also, measure as accurately as possible and proof-read your data records for errors of measurement or recording. If you detect a problem with your cultures/organisms/experiment, discuss them immediately with your TA.