

LIFS/OCES 3160 Ecology

Fall 2018

1. Instructors:

Prof. Karen CHAN (KC)

Phone: 2358 7998; Email: karenchan@ust.hk

Office: CYT Room 5004, Division of Life Science

Office Hours: Thursday 4-5 p.m.

Prof. Stanley LAU (SL), Course coordinator

Phone: 23587329; Email: scklau@ust.hk

Office: CYT Room 5003, Department of Ocean Science

Office Hours: by appointment

2. Meeting Time and Venue: Tuesday and Thursday, 9:00 – 10:20 am; Room 2502

3. Course Description

Credit points: 3

Pre-requisite: Nil

Exclusion: Nil

Brief description:

This course is designed to equip students with basic understanding in ecology, which includes organism-environment interactions, the characteristics of population as a basic biological unit in an ecosystem, intra- and inter-specific interactions, as well as human impacts on biodiversity and ecosystems.

4. Intended Learning Outcomes

On successful completion of this course, students are expected to be able to:

1. Examine the different levels of organization in the biosphere (i.e. individual, population, community and ecosystem).
2. Assess the interactions between individuals of the same species, between different species of organisms, and between living things and the physical environment.
3. Identify major environmental problems and the scientific tools for evaluating and addressing the problems.
4. Critically evaluate scientific literature so as to (i) identify the objectives of the study, (ii) appreciate the importance of the scientific questions addressed, (iii) understand the principle, advantages and limitations of the experimental design and data analysis methods, (iv) evaluate the soundness of the conclusion drawn.

5. Assessment Scheme

Case Studies	10%
Midterm exam:	45%
Final exam:	45%

Case Studies: Students are required to study peer-reviewed articles in depth and come to class prepared to discuss the design, findings, and implications of the reading materials. Reading

materials and study questions will be made available on Canvas at least 5 days before class, however, the instructor's interpretation will only be shown and discussed in lecture.

Mid-term and final: Materials from lectures #1 to #11 will be covered in the mid-term and the final exam will serve as assessment for the remaining course content. Both exams will consist of multiple choice questions and short questions. There will be NO make-up exams. Students with legitimate academic conflict of schedule must seek approval and reschedule exam with the instructor within the first 2 weeks of the semester.

6. Student Learning Resources:

Textbook – Stiling, P. 2015. *Ecology: Global Insights & Investigations*, Second edition, McGraw-Hill.

Lecture notes and supplementary reading materials will be made available on canvas.ust.hk prior to each lecture.

7. Teaching and Learning Activities

Three hours of lecture per week

8. Other class policies

Email communication:

We follow a 24 hour email return policy i.e., please allow at least 24 hours before your email is addressed. Implication: Emails sent to the instructors the day before midterms or final exams will not be addressed in time before the due date.

Grade dispute:

Grade dispute should be requested in writing within 7 days of the announcement of results.

Academic Integrity:

Collaboration is encouraged and valued in this class. However, you have to complete your own work independently. Students committed cheating, plagiarism or other academic misconduct in assignments will receive a zero; the case will be reported to the department and handled according to University policy. Please refer to the <http://tl.ust.hk/integrity/student-1.html> as a refresher of appropriate your academic conduct.

Disability accommodation:

To request academic accommodations due to a disability, please contact Advisor to Students with Special Needs. If you have a letter from the advisor indicating that you have a disability which requires academic accommodations, please present the letter to the instructor so we can discuss the accommodations needed for this class within the first 2 weeks of class.

9. Course Schedule

Week	Date	Topic	Instructor
1	4 Sep	Introduction Scientific Methods, Statistics for Ecologists	KC
	6 Sep	Genetics and evolution (Eco-Evo-Devo)	
2	11 Sep	Population genetics Case study: Why are Cave Fish Blind	
	13 Sep	Physiological Ecology for Plants	
3	18 Sep	Physiological Ecology for Animals	
	20 Sep	Foraging Behaviors	
4	25 Sep	HOLIDAY	
	27 Sep	Social Behaviors, Group Selection	
5	2 Oct	Evolution of Sex, Sexual Selection Case study: Poecilogony	
	4 Oct	Population Distribution and demographic techniques	
6	9 Oct	Life History	
	11 Oct	Population Growth and Model	
7	16 Oct	Mid-term Exam	
	18 Oct	Competition and Coexistence	
8	23 Oct		
	25 Oct	Predation	
9	30 Oct	Case study: Indirect effect of predation on nutrient cycling	
	1 Nov	Parasitism	
10	6 Nov		
	8 Nov	Mutualism	
11	13 Nov	Case study: bacterial bioluminance in fish	
	15 Nov	Community structure and dynamics	
12	20 Nov	Case study: global resilience of tropical forest	
	22 Nov		
13	27 Nov	Large scale pattern of biodiversity	
	29 Nov	Human impacts on natural ecosystems	