OCES 3160 ECOLOGY

1. Instructor:

Dr. Cynthia YAU
Email: cynthiastyau@ust.hk
Office: 5436 (L17/18), Department of Ocean Science

2. Course Description

Credit points: 3
Pre-requisite: Nil
Exclusion: Nil
Brief description: This course is designed to equip students with a basic understanding of ecology, which includes organism-environment (biotic-abiotic) interactions, the characteristics of populations as a basic biological unit in an ecosystem, intra- and inter-specific interactions, and community ecology.

3. Intended Learning Outcomes

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

1. Describe 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. Define and explain core ecological terms, concepts, and theories.
4. Critically evaluate scientific literature to (i) identify the objectives of the study, (ii) appreciate the importance of the scientific questions addressed, (iii) understand the principles, advantages and limitations of the experimental design and data analysis methods, and (iv) evaluate the soundness of the conclusion drawn.

4. Course Format: Two lectures per week (three hours)

5. Course Assessment Scheme:

Midterm exam:	50%
Final exam:	50%

6. Student Learning Resources:

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

Reference textbook: Peter Stiling "*Ecology: Global Insights and Investigations"* 2nd edition (2015), McGraw-Hill Education

7. Course Schedule

Wk		Topic
1	L1	Introduction: What Is Ecology? Ecological Methods
	L2	The Ecology of Hong Kong
2	L3	Ecological Genetics I: Species Concept; Speciation
3	L4	Ecological Genetics II: Heredity; Mendelian and Non-Mendelian Genetics; Natural Selection
	L5	Ecological Genetics III: Hardy-Weinberg Equilibrium
4	L6	Physiological Ecology I: Plants
	L7	Physiological Ecology II: Animals
5	L8	Behavioural Ecology I: Foraging Behaviors
		Behavioural Ecology I: Foraging Behaviors (continued)
6	L9	Behavioural Ecology II: Social Behaviors, Kin Selection, Euscociality
	L10	Behavioural Ecology III: Mating Systems, Sexual Selection
7		**Mid-Term Exam**
8	L11	Life History Strategies
	L12	Population Ecology I: Populations, Demographic Techniques
9	L13	Population Ecology II: Population Growth
10	L14	Competition & Coexistence I: Intraspecific and Interspecific Competition
	L15	Competition & Coexistence II: Invasive Species, Lotka-Volterra Models
11	L16	Facilitation I: Types of Mutualism
	L17	Facilitation II: Types of Mutualism continued, Commensalism
12	L18	Predation I: Antipredator Strategies
	L19	Predation II: Lotka-Volterra Predator-Prey Model
13	L20	Herbivory: Herbivores, Plant Defenses, Strategies of Herbivores
	L21	Ecological Succession