

OCES3160 ECOLOGY (Fall 2025-26)

Class Schedule: Tuesday & Thursday 3:00 – 4:20 pm

Venue: Room 2407 (Lifts 17-18)

1. Course Description

Credit points: 3

Pre-requisite: Nil

Exclusion: Nil

This course is designed to equip students with a comprehensive understanding of fundamental ecology principles, their practical applications, and how the concepts relate to the real world with examples from published scientific studies. Ecology will be introduced at its different levels of organization, including organism-environment (biotic-abiotic) interactions, adaptations of plants and animals, the characteristics of populations as a basic biological unit in an ecosystem, intra- and inter-specific interactions, community ecology, and ecosystem ecology. Students will develop critical thinking and analytical skills by interpreting ecological data and applying theoretical knowledge to real-life scenarios. By the end of the course, students will have a solid foundation in ecological principles, preparing them for further study or careers in conservation, environmental science, scientific research, and related fields.

2. Course Intended Learning Outcomes (CILOS)

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

1. Define ecology and its different levels of organization, ranging from genetic, individual organism, population, community and ecosystem levels.
2. Demonstrate competency in knowledge of core ecological terminologies, concepts, and theories, including species concepts, adaptations, natural selection and evolution.
3. Explain the interactions between individuals of the same species (intraspecific interactions), between different species of organisms (interspecific interactions), and between living organisms and the physical environment (biotic-abiotic interactions).
4. Critically analyze and interpret figures and results from published ecological studies and comprehend the significance of the research.
5. Apply ecological theories and models to real-world scenarios and show understanding of ecological dynamics and interactions.

3. Course Instructor

Prof. Cynthia YAU (cynthiastyau@ust.hk)

Office: 5436 (L17-18), Department of Ocean Science

Office hours: by appointment

4. Course Format

Two lectures per week (three hours per week)

5. 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.

6. Course Assessment Scheme

Midterm exam: 50%

Final exam: 50%

Examinations are based on lecture content.

7. Mapping of Course ILOs to Assessment Tasks

Assessed Task	Mapped ILOs	Explanation
Midterm Exam	ILO 1, ILO 2, ILO 3, ILO 4	This task assesses students’ knowledge of and ability to explain the principles of ecology (ILO 1, ILO 2, ILO 3), analysis of ecological data and application of critical thinking to ecological studies (ILO 2, ILO 3, ILO 4, ILO 5).
Final Exam	ILO 1, ILO 2, ILO 3, ILO 4	This task assesses students’ knowledge of and ability to explain the principles of ecology (ILO 1, ILO 2, ILO 3), analysis of ecological data and application of critical thinking to ecological studies (ILO 2, ILO 3, ILO 4, ILO 5).

8. Final Grade Descriptors

Grade	Short Description	Elaboration on Subject Grading Description
A	Excellent Performance	Students demonstrate a deep and thorough understanding of ecological concepts and theory, including the ability to apply the knowledge to real life scenarios. They consistently display exceptional levels of critical thinking and excellent analytical skills. These students show a profound awareness of ecological principles.
B	Good Performance	Students exhibit a strong understanding of the core ecological concepts and are able to apply them effectively in various contexts. They demonstrate competent analytical skills and the ability to explain ecological theories. They are generally consistent in connecting the course material to broader scientific applications but may occasionally miss deeper or more nuanced insights.
C	Satisfactory Performance	Students have a satisfactory grasp of the fundamental concepts of ecology. They can apply these principles to basic problems but may struggle with more complex applications. Their analytical and critical thinking skills are adequate. These students show a reasonable awareness of ecological concepts but may not fully appreciate the more complex, interconnectedness of natural ecosystems.
D	Marginal Pass	Students demonstrate a minimal understanding of ecological concepts and theory. They may grasp basic theoretical concepts but

		have difficulty applying them effectively in real-world scenarios. Their analyses are often simplistic and may lack in-depth understanding of the underlying principles and thus are unable to assess problems critically. Their performance suggests a need for significant improvement in both knowledge and application.
F	Fail	Students have not met the minimum requirements for the course. They show a lack of understanding of the core concepts in ecology and are unable to apply these concepts to even basic problems. Their poor performance demonstrates a failure to engage with the lecture materials, and they are unable to provide explanations or solutions to ecological theories.

9. Communication and Feedback

Assessment marks for the Midterm and Final Exams will be communicated via Canvas within two weeks of the assessment date.

10. Course AI Policy

The use of Generative AI is not applicable to this course as the Midterm and Final Exams are closed book examinations.

11. Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to [Academic Integrity – HKUST – Academic Registry](#) for the University's definition of plagiarism and ways to avoid cheating and plagiarism.

OCES 3160 Ecology (Fall 2025-26) – Tentative Course Schedule

Tuesday and Thursday, 15:00 – 16:20

Venue: Room 2407 (L17-18)

Wk	Lecture	Date	Topic
1	L1	02 Sep (Tue)	Introduction: What Is Ecology? Ecological Methods
	L2	04 Sep (Thu)	The Ecology of Hong Kong
2	L2	09 Sep (Tue)	Ecological Genetics I: Species Concept; Speciation
	L3	11 Sep (Thu)	Ecological Genetics II: Heredity; Mendelian & Non-Mendelian Genetics; Natural Selection
3	L4	16 Sep (Tue)	Ecological Genetics III: Hardy-Weinberg Equilibrium
	L5	18 Sep (Thu)	Ecological Genetics III: Hardy-Weinberg Equilibrium (continued)
4	L6	23 Sep (Tue)	Physiological Ecology I: Plants
	L7	25 Sep (Thu)	Physiological Ecology II: Animals
5	L8	30 Sep (Tue)	Behavioural Ecology I: Foraging Behaviours
	L9	02 Oct (Thu)	Behavioural Ecology II: Social Behaviours & Kin Selection
6		07 Oct (Tue)	<i>Public Holiday – No Class</i>
	L10	09 Oct (Thu)	Behavioural Ecology III: Mating Systems & Sexual Selection
7	L11	14 Oct (Tue)	Mid-course Review
		16 Oct (Thu)	Mid-Term Exam*
8	L12	21 Oct (Tue)	Life History Strategies
	L13	23 Oct (Thu)	Population Ecology I
9	L14	28 Oct (Tue)	Population Ecology II
	L15	30 Oct (Thu)	Competition & Coexistence I
10	L16	04 Nov (Tue)	Competition & Coexistence II
	L17	06 Nov (Thu)	Facilitation I
11	L18	11 Nov (Tue)	Facilitation II
	L19	13 Nov (Thu)	Predation
12	L20	18 Nov (Tue)	Herbivory
	L21	20 Nov (Thu)	Ecological Succession/Island Biogeography (Community Ecology)
13	L22	25 Nov (Tue)	Ecosystem Ecology, Food Webs & Nutrient Cycling
	L23	27 Nov (Thu)	Course Review

*The Mid-Term Exam on 16th October will cover Lectures 1 to 10 (inclusive) and will be held in Room 2407, 3:00 - 4:20 pm.