OCES 3160 ECOLOGY (Fall 2024-25)

Class Schedule: Monday & Wednesday, 12:00 – 13:20

Venue: Room 2464 (Lifts 25-26)

1. Instructors:

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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 an introduction to the ecology of Hong Kong, ecological genetics and the theory of natural selection, organism-environment (biotic-abiotic or ecophysiological) interactions, behavioural ecology, the characteristics of populations as a basic biological unit in an ecosystem, intra- and inter-specific interactions, community ecology and ecosystem 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 and figures to (i) comprehend 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 per week)

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. 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), and application of critical thinking to ecological studies (ILO 2, ILO 3, ILO 4).
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), and application of critical thinking to ecological studies (ILO 2, ILO 3, ILO 4).

8. Final Grade Descriptors

Grades	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 examples. They consistently demonstrate exceptional levels of critical thinking and problem-solving 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	Student has 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 problem-solving skills are adequate. These students show a reasonable awareness of ecological concepts but may not fully appreciate the more complex, interconnected nature of natural ecosystems.
D	Marginal Pass	Students demonstrate a minimal understanding of ecological concepts and theory. They may grasp basic concepts but have difficulty applying them effectively in real-world or applied scenarios. Their problem-solving approaches are often simplistic and may lack in-depth understanding of the underlying principles and thus are unable to apply critical thinking adequately. 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 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.

12. OCES 3160 Ecology (Fall 2024-25) – Course Schedule

Monday and Wednesday, 12:00 – 13:20 **Venue: Room 2464 (L25-26)**

Wk		Date	Topic	Instructor
1	L1	02 Sep (Mon)	Introduction: What Is Ecology? Ecological Methods	CY & MU
	L2	04 Sep (Wed)	The Ecology of Hong Kong	CY
2	L3	09 Sep (Mon)	Ecological Genetics I: Species Concept; Speciation	CY
	L4	11 Sep (Wed)	Ecological Genetics II: Heredity; Mendelian and Non-Mendelian Genetics; Natural Selection	CY
3	L5	16 Sep (Mon)	Ecological Genetics III: Hardy-Weinberg Equilibrium	CY
		18 Sep (Wed)	*Public Holiday – no class*	
4	L6	23 Sep (Mon)	Physiological Ecology I: Plants	CY
	L7	25 Sep (Wed)	Physiological Ecology II: Animals	CY
5	L8	30 Sep (Mon)	Behavioural Ecology I: Foraging Behaviors	CY
	L9	02 Oct (Wed)	Behavioural Ecology I: Foraging Behaviours (continued)	CY
6	L10	07 Oct (Mon)	Behavioural Ecology II: Social Behaviours, Kin Selection, Eusociality	CY
	L11	09 Oct (Wed)	Behavioural Ecology III: Mating Systems, Sexual Selection	CY
7	L12	14 Oct (Mon)	Life History Strategies	CY
	L13	16 Oct (Wed)	Population Ecology I	MU
8		**21 Oct (Mon)**	**Mid-Term Exam***	**CY & MU**
	L14	23 Oct (Wed)	Population Ecology II	MU
9	L15	28 Oct (Mon)	Competition & Coexistence I	MU
	L16	30 Oct (Wed)	Competition & Coexistence II	MU
10	L17	04 Nov (Mon)	Facilitation I	MU
	L18	06 Nov (Wed)	Facilitation II	MU
11	L19	11 Nov (Mon)	Predation I	MU
	L20	13 Nov (Wed)	Predation II	MU
12	L21	18 Nov (Mon)	Herbivory	MU
	L22	20 Nov (Wed)	Ecological Succession/Island Biogeography (Community Ecology)	MU
13	L23	25 Nov (Mon)	Ecosystem Ecology and Nutrient Cycling	MU
	L24	27 Nov (Wed)	Course Review	MU

*The Mid-Term Exam will cover topics from Lectures 1 to 12 (inclusive) and will be held in Room 2464.

The date of the Final Exam is arranged by ARO and will be released when it is confirmed.