科目ナンバリング	U-LAS14 20052 LE68				
授業科目名<英訳>	Introductory Plant Ecology-E2 Introductory Plant Ecology-E2			担当者所属職名・氏名	農学研究科　准教授　HSIANG Tzu-Fan
群	自然科学科目群	分野(分類)	生物学(各論)	使用言語	英語
旧群	B群	単位数	2単位	週コマ数	1コマ	授業形態	講義（対面授業科目）
開講年度・開講期	2026・前期	曜時限	水3	配当学年	主として1・2回生	対象学生	理系向

[授業の概要・目的]

Plant ecology is fundamental to agriculture, conservation, and climate change research. This course explores key ecological principles, focusing on how light, water, nutrients, and disturbances shape plant distribution and adaptation.
Emphasizing real-world applications, students will examine crop responses to climate change, plant-microbe interactions in soil, and the impact of invasive species on agriculture. Modern tools, including genomics and ecological modeling, will be introduced to understand plant-environment interactions and support sustainable land management.
By the end of the course, students will be able to apply ecological concepts to challenges in sustainable agriculture, biodiversity conservation, and ecosystem resilience.

[到達目標]

Upon successful completion of this course, students will be able to:

1. Explain the key ecological processes that shape plant distribution, abundance, and adaptation, with a focus on agricultural and natural ecosystems.
2. Discuss plant-environment interactions, including crop responses to climate change, plant-microbe relationships, and the ecological role of invasive species.
3. Apply ecological principles to discuss issues of sustainable agriculture, biodiversity conservation, and ecosystem resilience.

[授業計画と内容]

Course Schedule
1. Introduction to Plant Ecology
2. Light and Plant Growth
3. Water Relations and Drought Adaptation
4. Soils, Nutrients, and Microbial Interactions
5. Evolutionary Processes and Ecological Adaptation
6. Population Structure and Dynamics
7. Growth, Reproduction, and Flowering Regulation
8. Community Structure and Ecosystem Function
9. Competition, Resource Allocation, and Invasive Species
10. Plant-Pathogen and Herbivore Interactions
11. Disturbance, Fire, and Agricultural Resilience
12. Succession and Land Use Change
13. Landscape Ecology and Agricultural Land Management
14. Global Change and Plant Responses
≪Final Exam≫

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Introductory Plant Ecology-E2(2)

[履修要件]

特になし

[成績評価の方法・観点]

Grading: Participation (20%), in-class practices (30%), in-class group presentation (20%) on a topic in the field of plant ecology, and an end of term exam (30%).

[教科書]

使用しない

[参考書等]

（参考書）

Handouts will be given out in class

[授業外学修（予習・復習）等]

Students are expected to come prepared and actively participate in class activities. Each session typically includes 10-20 minutes of in-class practice, during which students write short answers to one or two questions related to the lecture content.

[その他（オフィスアワー等）]

Open door policy during office hours, and anytime by email.

[主要授業科目（学部・学科名）]

理学部