Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Sustainable Food Production in the Era of Climate Change and the Role of Interdisciplinary Research（気候変動時代における持続可能な食料生産と学際的研究の役割） ILAS Seminar-E2 :Sustainable Food Production in the Era of Climate Change and the Role of Interdisciplinary Research	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Program-Specific Associate Professor,YASIR SERAG ALNOR MOHAMMED SERAG ALNOR		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	seminar (Face-to-face course)	Year/semesters	2025・First semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5
Classroom	01, Yoshida-South Campus Academic Center Bldg. West Wing	Language of instruction	English		
Keyword	Sustainable food production / climate change / Stress resilience / Plant breeding				

[Overview and purpose of the course]

This course is designed to provide knowledge on food production and the challenges of food production under changing climate. The students will learn about the concept of climate change and its effect on food production, the basics of plant breeding techniques, plant and environment interaction, sustainable food production, the role of plant breeding in climate change mitigation and resilience, the concept of integrated plant breeding, and how different knowledge can be integrated with plant breeding to provide solutions to the food security problems.

[Course objectives]

Understand what is plant breeding and what is climate change
Understand the basics of plant environment interaction
Gain knowledge of the concept of sustainable food production
Understand the importance of an integrated research approach
Think out how to provide integrated solutions to sustainable food production

[Course schedule and contents)]

The following topics will be covered during the 14 weeks of the semester. Week 15 is an exam session, and a feedback class is given in week 16.

1. Definition of plant breeding and basic plant biology
2. Plant breeding and basic crop improvement techniques
3. Breeding in self-pollinated crops
4. Breeding in cross-pollinated crops
5. Modern techniques of plant breeding
6. Field designs and crop evaluation
7. Climate change and sustainable food production

Continue to LAS Seminar-E2 :Sustainable Food Production in the Era of Climate Change and the Role of Interdisciplinary Research 気候変動時代における持続可能な食料生産と学際的研究の役割 (2) / 3

8. Plant-environmental interaction
9. Plant-microbe interaction
10. Drought stress
11. Heat stress
12. Salinity stress
13. Sustainable agriculture techniques/approaches
14. General discussion and seminars

[Course requirements]

None

[Evaluation methods and policy]

Grading: Class attendance and active participation (20%), assignments and quizzes (30%), and final exam or coursework (50%).

[Textbooks]

Not fixed
Introduced during class

[References, etc.]

（References, etc.）

Introduced during class
Introduced during class
Handouts and supplemental readings will be distributed electronically and/or as a hard copy in class

[Study outside of class (preparation and review)]

Students should read or listen to the required pre-class materials and submit any required assignment before the class, and come to class ready to participate in class activities.

[Other information (office hours, etc.)]

No fixed office hours. Students are requested to make appointments directly or by email.

[Essential courses]