Environmental and Symbiotic Sciences

Lecturer(s)

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Code	KZ4002	Numbering	KZ-MUL-332-AIM

Course overview

The lecture contains (1) an understanding regarding the basic theory of natural environment or environmental resources in Japan and the world and (2) an understanding of the environmental problems or social trends from the viewpoint of symbiosis.

Keyword(s)

Nutrient cycling, Agro ecology, Soil management, Soil microbe, Climate change, Toxic substances, Carbon cycle, Oxygen cycle

Learning objectives

Students can obtain the latest knowledge regarding environmental and symbiotic sciences throughout the lecture and discussion.

Lesson plans & homework

1. Introduction: What is “Environmental and symbiotic sciences” (KN)
2. Nature of the symbiotic association (KN)
3. The role of microorganisms in situ (KN)
4. Eutrophication problem of a lake (HK)
5. Water quality and hydrology, purification of a lake (HK)
6. Soil resource for agricultural production 1 (NS)
7. Soil resource for agricultural production 2 (NS)
8. Soil formation and plant-microbe-soil interactions 1 (NS)
9. Soil formation and plant-microbe-soil interactions 2 (NS)
10. Review of general chemistry -Molecular structure/interactions and reactivity (SM).
11. Enzymatic reactions and influence of toxic substances (SM)
12. Carbon and oxygen cycles in environment (SM)
13. Wrap-up discussions 1 (KN)
14. Wrap-up discussions 2 (KN)
15. Wrap-up discussions 3 (KN)

[Homework]

Texts and/or references will be shared using MS TEAMS. Self-learning (approximately 90 minutes/class) will be required for preparation. Students are encouraged to learn more about environmental and symbiotic sciences by reading academic papers and reference books.

[Active learning]

Group discussions will be held in each class.

Notes

Contact: AIMS Steering Committee (Dr. Nobuo SAKAGAMI) is anytime available through MS TEAMS.

On-line / face-to-face / blended

Blended (available for on-line AIMS students)

Device requirements

Laptop PC

Evaluation criteria

A+ (90-100):	able to suggest an action plan for sustainable management of environment
A (80-89):	able to assess the process for sustainable management of environment
B (70-79):	able to discuss what is sustainable management of environment
C (60-69):	obtain basic knowledge on sustainable management of environment
D (0-59):	unable to understand sustainable management of environment

Grading

Learning results are evaluated by reports on the assigned subjects (not evaluated by final examination).

Textbook(s)

ISBN: ; Title: ; Author(s): ; Publisher: ; Year:

Reference book(s)

ISBN: ; Title: ; Author(s): ; Publisher: ; Year:

Diploma policy

Large perspective of the world	very important
Knowledge and skills in a specific field	important
Problem-solving ability	very important
Communication skill	very important
Practical English skill	important
Attitude as a conscious member of society	slightly important
Focus on regional revitalization	slightly important

Active learning	Yes	**PBL**	-