

Module Code	19349029	Course Term	
Course Subject Name	<b>Agro-Production Environmental Engineering</b>	<h1>Autumn Semester</h1>	
Course Tutor	Toshinori Tabata Yoshiyuki Shinogi Tomoyuki Taniguchi Syuntaro Hiradate Takahiro Higashi Daisuke Yasutake		
Credit	2		Taught Day
Schools	School of Agriculture		<h1>WED-1</h1>
Taught Year	The 3rd year		
Campus	Ito campus		
Subject Area			
Course Subject Classification	Specialized Subjects	Wednesday, 1st period (8:40-10:10)	
Course Requirements	You are expected to attend classes and write assignments on topics assigned by the tutors.		
Course Requirement (Pre-requisite)	none		

### Course Outline

The most important elements in agriculture are crops including microorganisms, trees and animals. However non-biological factors like water, soil and atmosphere are also important to sustain profitable agricultural production. In this course, a series of introductory lectures are provided by six tutors who has plenty of expertise on these research fields.

### key words

Soil, Water, Atmosphere, Environment, Crop production

### Study Objectives (General)

The objective of the course is to gain basic insights into engineering science fields focusing on water, soil, and atmosphere.

### Study Objectives (Specific)

The course aims to achieve the following:  
The objectives are to understand basic scientific concepts that appear in hydrology, irrigation engineering, soil science, soil engineering and agricultural meteorology. The course is an introduction to these scientific fields and is helpful in further study. The course is also useful in better understanding of crop science, plant breeding, forestry, fishery as well as agricultural economics.

### Course Plan

- 1) (Tabata) Present situation of water resources and water environment. (Oct.2)
- 2) (Tabata) Water resource management and water environment conservation in watersheds. (Oct.9)
- 3) (Tabata) Introduction to mathematical modeling of water environment in agricultural watersheds. (Oct.23)
- 4) (Shinogi) Outline of water and irrigation management (Oct.30)
- 5) (Shinogi) Outline of biomass and it's use **(Feb.5)**
- 6) (Taniguchi) Introduction of water management in rural region (Nov.6)
- 7) (Hiradate) Overview of soil functions for plant production. (Nov.20)
- 8) (Hiradate) Two major functional materials in soils; clay minerals and humic substances. (Nov.27)
- 9) (Hiradate) Soil types and functions. (Dec.4)
- 10) (Higashi) Roles of soil and description of an assemblage of particles. (Dec.11)
- 11) (Higashi) Measurement of water content, void ratio, wet density, etc. for a soil.(Dec.18)
- 12) (Higashi) Let's consider on geotechnical disasters(slope failure and ground subsidence). (Dec.25)
- 13) (Yasutake) Outline of agricultural meteorology.(Jan.8)
- 14) (Yasutake) Environmental control for high yield production.(Jan.22)
- 15) (Yasutake) Environmental control for improving agricultural disaster. (Jan.29)

### Course Approaches

Engineering

### Textbooks

None

### Reference Books

You will be referred to relevant books in each class.

### Study consultation (office hour)

Toshinori Tabata ; Anytime when I am in my office (Room W5-884)

Yoshiyuki Shinogi; Monday 16:00-17:00 (Room W5-879)

Tomoyuki Taniguchi; Monday 12 : 00-13 : 00 (Room W5-880)

Syuntaro Hiradate; Monday 12:00-13:00 (Room W5-773)

Takahiro Higashi; Anytime when I am in my office (Room W5-775)

Daisuke Yasutake; Anytime when I am in my office (Room W5-885)

### Exams/Results

There are no final exams. You are graded on attendance (ca. 50%) and in-class tests or assignments

### Evaluation Method

on topics assigned by the tutors (ca. 50%).

### Others

None