

## FOLENS Syllabus

<b>Subject Title:</b> 水環境評価学 [Aquatic Environmental Assessment]							
<b>Subject Category:</b>	Water Environment	<b>Department</b>	MI	<b>Credit</b>	2	<b>Code</b>	059114
<b>Semester</b>	Second/Fall	<b>Day(s)/Period(s)</b>	Thursdays 3rd period 13:00-14:30				
<b>Class Format</b>	Lecture			<b>Location</b>	2-14		
<b>Instructor</b>	渡邊 裕純 [WATANABE Hirozumi]						
<b>Office</b>				<b>Email</b>	pochi@cc.tuat.ac.jp		

### ■ Outline & Target

Aquatic Environment Assessment --- application of water quality monitoring and modeling

Graduate School of Agriculture

Department of IEAS

Term: Fall

Dates: Thursdays 3rd period 13:00-14:30

Class room: 2-14

Office hours: Thursdays 10:30-12:00 at 2N306

Credit: 2

Class schedule No. : 059238

Objectives and outline

The objectives of the this course is to gain broad knowledge and concept which can be applied for the investigation and assessment of the environmental risk associated with the inorganic as well as organic pollutants such as nutrients, pesticides and heavy metals in the aquatic environments such as streams, rivers and lakes.

The lecture materials are prepared considering interdisciplinary approach in which students can be exposed to the fundamentals of stream biology, aquatic chemistry, and hydrology as well as the applications of environmental monitoring and modeling.

The first half of the class lectures introduce basic concept in hydrologic cycle and aquatic biology followed by the environmental hydrology, water chemistry and pollution. The send half of the class continues with discussion of the environmental fate, chemical analysis, monitoring and modeling for aquatic pollutants.

### ■ Course description

Class 1 Class orientation

Class 2 The aquatic environment --- an overview ---

Class 3 Environmental hydrology I

Class 4 Environmental hydrology II

Class 5 Environmental hydrology III  
Class 6 Basics in water quality  
Class 7 Aquatic pollution  
Class 8 Environmental fate of the pollutant  
Class 9 Review --- Hydrology and water quality  
Class 10 Mid term exam  
Class 11 Water quality monitoring I  
Class 12 Water quality monitoring II  
Class 13 Introduction to water quality modeling  
Class 14 Exposure risk assessment of rice pesticide in rice paddies.  
Class 15 Final examination

### ■ Prerequisites

Good oral, listening, writing skills in English is preferred

### ■ Textbook(s)

1. Agricultural Nonpoint source pollution Watershed Management and Hydrology Willam F. Ritter Adel Shirmohammadi, 2001 CRC Press LLC
2. Environmental Hydrology, Second Edition Andy D. Ward , Stanley W. Trimble, 2004 CRC Press LLC
3. Horne A. J., and Goldman, C. R. 1994. Limnology, Second edition. McGraw-Hill, Inc. New York.
4. Handbook of Hydrology, Ed. D. R. Maidmend, 1992, McGraw-Hill, Inc.
5. Water chemistry, Ed. V. L. Snoeyink, 1980 John Wiley & Sons., Inc.
6. Water quality, G. Tchobanoglous and E. D. Schroeder 1985 Addison-Wesley Publishing Company
7. Pesticide Risk Assessment in Rice Paddies: Theory and Practice. Karpouzas, Dimitrios and Capri, Ettore (Eds). Elsevier Science Ltd. (2007)

### ■ Reference publication(s)

Journal papers:

1. Watanabe, H., Takagi, K.: A simulation model for pesticide concentrations in paddy water and surface soil. I. Model development, Environmental Technology, 21, 1379-1391 (2000)
2. Watanabe, H., Takagi, K.: A simulation model for pesticide concentrations in paddy water and surface soil. II. Model validation and application, Environmental Technology, 21, 1393-1404 (2000)
6. Vu, H. S., Watanabe, H., Takagi, K.: Application of FAO-56 for evaluating evapotranspiration in simulation of pollutant runoff from paddy rice field in Japan, Agricultural Water Management, 76, 195-210 (2005).

### ■ Evaluation standards

Participation in the class and homework assignment (50%), Midterm exam (20%) and Final exam (30%)

### ■ Message from instructor(s)

Welcome to Aquatic Environment Assessment --- application of water quality monitoring and modeling

### ■ Course keywords

Aquatic Environment, Nonpoint source pollution, Risk assessment, Monitoring, Modeling

### ■ Office hours

Thursdays 10:30-12:00 at 2N306

### ■ Related URL

Reference URL: <http://www.tuat.ac.jp/~pochi/>

### ■ Language

English

### ■ Language Subject

English

### ■ Last update

4/6/2013 11:00:58AM