

FOLENS Syllabus

Subject Title: Training for Environmental Data Acquisition and Assessment							
Subject Category:	Domestic Training	Department	FOLENS	Credit	1	Code	n/a
Semester	Second/Fall	Day(s)/Period(s)	8-9 times, afternoon, from middle October to November One day whole day for field visit				
Class Format	Practical Training: Field survey and laboratory experiment			Location	Fuchu Campus, Tama River and so on		
Instructor	Hideshige Takada, Mitsunori Tarao and Hirokazu Ozaki						
Office	FOLENS Head Office Rm.306, Build. 5 and Rm.430, Build. 1, Fuchu campus			Email	h_ozaki@cc.tuat.ac.jp (Ozaki, main correspondent) shige@cc.tuat.ac.jp (Takada) tarao@cc.tuat.ac.jp (Tarao)		

■ Outline & Target

The aim is to obtain field sense for sample collection. We learn the skills and techniques for analysis, determination, and evaluation of the raw data obtained from the measurement. This course will be a basic for the overseas field training.

■ Course description

1st day: Introduction, by Prof. Takada and Ozaki

2nd day and after:

(Soil and geosphere part by Ozaki)

- Soil sampling by random and conventional procedures at FM Fuchu farm
- Soil treatment and trace element determination by AAS and ICP-MS
- Data calculation with taking care of calibration curve, detection limit, effective digit, tolerance, pure water quality
- Statistical investigation to compare the above two sampling procedure, estimate confident assessment, calculate suitable sample size to achieve confident result

Other potential works

- Determine radioactivity (Cs-137) of farm soil of TUAT
- Field visit at severely contaminated area by hexavalent chromium (Cr^{6+}) and see the local assemblyperson and residents

(Water part by Prof. Takada, Prof. Tarao, and Ozaki)

- Visit sewage water treatment plant (whole day)
- River water sampling upstream and downstream of the treatment plant
- Coliform counting

- Ion analysis by ion-chromatography
- Determine antibiotics
- Suspended solid measurement

■ Prerequisites

General knowledge on environmental chemistry

■ Textbook(s)

Will be distributed.

■ Reference publication(s)

Ayako Murata, Hideshige Takada, Kunihiro Mutoh, Hiroshi Hosoda, Arata Harada, Norihide Nakada (2011) Nationwide monitoring of selected antibiotics: Distribution and sources of sulfonamides, trimethoprim, and macrolides in Japanese rivers. *Science of the Total Environment* 409, 5305–5312.

Norihide Nakada, Hiroyuki Shinohara, Ayako Murata, Kentaro Kiri, Satoshi Managaki, Nobuyuki Sato, and Hideshige Takada (2007) Removal of selected pharmaceuticals and personal care products (PPCPs) and endocrine-disrupting chemicals (EDCs) during sand filtration and ozonation at a municipal sewage treatment plant. *Water Research*, 41, 4373-4382.

Ozaki,H., Segawa,S., Hasebe,Y., Takada,H., Nakata,H., Amano,A., Inouchi,Y., Tanabe,S., Nakajima,F., Fukushi,K., Kuno,K. and Watanabe,I. (2010) Heavy metal pollution and its long-term trends in Southeast Asian sediments. *The Southeast Asian Water Environment Book 4*, 199-206, IWA Publishing, ISBN: 9781843393627.

Ozaki Hirokazu, Co Thi Kinh, Le Anh Kha, Pham Viet Nu, Nguyen Van Be, Tarao Mitsunori, Nguyen Huu Chiem, Le Viet Dung, Nguyen Hieu Trung, Sagehashi Masaki, Ninomiya-Lim Sachi, Gomi Takashi, Hosomi Masaaki, and Takada Hideshige (submitted and will be accepted) Human factors and tidal influences on water quality of 1 an urban river in Can Tho, a major city of the Mekong Delta, Vietnam. *Journal of Environmental Monitoring and Assessment*.

Satoshi Managaki, Ayako Murata, Hideshige Takada, Bui Cach Tuyen and Nguyen H. Chiem (2007) Distribution of Macrolides, Sulfonamides, and Trimethoprim in Tropical Waters: Ubiquitous Occurrence of Veterinary Antibiotics in the Mekong Delta. *Environmental Science and Technolgy*, 41, 8004–8010.

Shimizu, A., Takada, H., Koike, T., Takeshita, A., Saha, M., Rinawati, Nakada, N., Suzuki, T., Suzuki, S., Nguyen H. C., Bui, C. T., Pham, H. V., Siringan, M. A., Kwan, C., Zakaria, M. P. & Reungsang, A. (2013). Ubiquitous occurrence of sulfonamides in tropical Asian waters. *Science of The Total Environment*, 452–453, 108-115.

Stephen Waite (2000) *Statistical ecology in practice: A guide to analysing environmental and ecological field data*, 440pp., Longman Group United Kingdom.

■ Evaluation standards

Participation, attendance (5 days or more)

Submit a report

■ Course keywords

Field survey, On-site feeling, How to collect sample, How to evaluate the data

■ Schedule

This domestic training course is held from October to November. The schedule is fixed by the beginning of October 2013 by consultation between students and faculty.

■ Related URL

http://www.tuat.ac.jp/~folens/curriculum/practice_e.html

http://www.tuat.ac.jp/~folens/documents/index_e.html

http://www.tuat.ac.jp/~folens/report/report23_e.html

http://www.tuat.ac.jp/~folens/report/nov_2010_charcoal_e.html

http://www.tuat.ac.jp/~folens/report/report14_e.html

<http://tokyo-ame.jwa.or.jp/en/index.html>

<http://www.data.jma.go.jp/obd/stats/data/en/index.html>