Water Resource Systems

United Nations University (UNU-IAS)

Autumn 2024

Location: 6F Lecture Room
Time: From October 2024 until February 2025

Lecturer: Martiwi Diah Setiawati, Jian Pu
Contact Information: (martiwi.setiawati@unu.edu, pu@unu.edu)
Office Hours: by appointment
As of 7 June 2024 (Subject to change)

Course Description

Water resources are under immense pressure due to increases in water demand owing to population growth and expanded industrial and economic activity. The stress has been further exacerbated by increasing water pollution and global climate change. Adequate water quality and quantity are essential for the sustainable growth of any region or country. This course aims to provide a broad understanding of hydrological processes, socio-economic development, global environmental changes, and their roles and interaction in water resources management. This course highlights integrated watershed management, providing watershed and system concepts. The course offers various issues related to water resources and sustainability through case studies and field visits.

Course Objectives and Learning Goals

The students will gain a comprehensive overview of water and its relation to human and environmental well-being. The students will be familiar with global and regional water-related issues and acquire basic knowledge and techniques to manage water-related problems.

Requirements and Grading Policy

Assessment will be based on class attendance, presentation and discussion, a short final test and extended essay with the following allocations;

- Attendance 30% (80% attendance is required)
- Presentation 30%
- Assignment 40%

Class Participation

The course requires students to attend all classes, to finish tasks in each class. At the discretion of the instructor, frequent late arrivals or absences may result in a lower grade. Please note that the first session is of particular importance and cannot be missed. Materials of each class will be shared by the instructor before the class.

Course Outline

Lecture No.	Title	Date	Instructors/Invited Speakers if any
1	Water resources	October 2 (Wed) 11:20-13:00	Jian Pu
2	TBD	October 9 (Wed) 11:20-13:00	Martiwi Diah Setiawati/Kensuke Fukushi
3	TBD	October 16 (Wed) 11:20-13:00	Martiwi Diah Setiawati/Kensuke Fukushi
4	**Field Trip to Kuramae Water House**	**October 23 (Wed) 11:20-13:00 (Gather at10:45 onsite)**	**Jian Pu**
5	Wastewater treatment systems	October 30 (Wed) 11:20-13:00	Jian Pu/Guest lecturer XX
6	**Field Trip to Shibaura Water Reclamation Center**	**November 6 (Wed) 14:00-15:40 (Gather at 13:45 onsite)**	**Jian Pu**
7	Satellite Remote Sensing and Water Resource Management	November 13 (Wed) 11:20-13:00	Martiwi Diah Setiawati
8	**Novel pollutants in water**	**November 20 (Wed) 14:00-15:0**	**Jian Pu/Guest lecturer (Yu Yang)**
9	Satellite Remote Sensing Application on Water Resource Management (Hands on training)	November 27 (Wed) 11:20-13:00	Martiwi Diah Setiawati
10	Student Presentation on Water Resource Management (case study)	December 4 (Wed) 11:20-13:00	Martiwi Diah Setiawati
11	Waste Water	December 11 (Wed) 11:20-13:00	Pu Jian
12	Water Withdrawal and use	December 18 (Wed) 11:20-13:00	Pu Jian
13	Urban water security	January 8 (Wed) 11:20-13:00	Martiwi Diah Setiawati/ Guest Lecture
14	Sustainable urban water management systems	January 15 (Wed) 11:20-13:00	Martiwi Diah Setiawati /Guest Lecture

Note: No. 4 and 6 are field trips. They are longer than regular classes and are considered as 1.5 classes each.

Course Readings (Required: instructor must coordinate with academic librarian whether or not student is reachable to the materials.)

- *Water Resources Engineering by Larry W. Mays, John Wiley & Sons, 2nd Edition, 2010.*

- *IPCC AR5 WG 2 Summary report for policy makers, 2014.*
- *World Water Assessment Programme (2009): The United Nations World Water Development Report 3. Water in a Changing World, UNESCO, Part 1 (Ch. 1, 3, 5), Part 2(Ch. 7, 8), Part 3(Ch. 10,11)*
- *Water Evaluation and Planning System (2012): A collection of stand-alone modules to aid in learning the WEAP software (http://www.weap21.org/index.asp?action=213)*

Additional reading materials: to be determined and selected by instructors for each session.

Important Information

Class Conduct & Etiquette

Students are expected to arrive on time and not to engage in disruptive behavior during class. This includes, among other things, private side conversations, the use of cellphones and other electronic devices, or the reading of newspapers. Cellphones should be switched off and stored in the bag. We wish to create an atmosphere of open and tolerant discussion in the classroom and request students to recognize every individual's right to have an opinion. The lecturer and other students should be treated with dignity and respect, in discussions on contentious political issues where a diversity of opinion is likely to arise. However, we also recognize that there are limits to tolerance and the lecturer reserves the right to request disciplinary action against any student who violates this policy or repeatedly shows disruptive behavior in class.

Academic Misconduct

If evidence of academic misconduct on tasks and final test should be found, the student may receive a failing grade for the entire course and will be reported to the appropriate authorities for disciplinary action.

Invited Speakers/Lecturers Bio

Dr. Yu Yang (Lecture 8)
Professor, School of Environment, Beijing Normal University

Prof. Yu Yang holds PhD degree of the University of Tokyo. She makes commitment to the research of water treatment technologies and membrane application in drinking water and wastewater treatment.