

## Tamkang University Academic Year 109, 1st Semester Course Syllabus

Course Title	SPECIAL LECTURE OF GROUNDWATER AND WETLAND	Instructor	CHEN-LING HUNG
Course Class	TEWXD1A DOCTORAL PROGRAM, DEPARTMENT OF WATER RESOURCES AND ENVIRONMENTAL ENGINEERING, 1A	Details	<ul style="list-style-type: none"> <li>◆ General Course</li> <li>◆ Selective</li> <li>◆ One Semester</li> </ul>
Departmental Aim of Education			
<ul style="list-style-type: none"> <li>I. Cultivating students with capabilities of carrying out practical works or academic research related to water resources and environmental engineering.</li> <li>II. Cultivating students with capability of solving problems through researching, planning, and management.</li> <li>III. Cultivating students to become professional engineers with care in environment and professional ethics.</li> <li>IV. Preparing students with the capabilities of engaging in international engineering business, to adapt to globalization and social needs, and to expand their global perspectives.</li> </ul>			
Subject Departmental core competences			
<ul style="list-style-type: none"> <li>A. Mathematical and engineering knowledge needed for water resources and environmental engineering applications.(ratio:50.00)</li> <li>C. Logical thinking, analysis, integration, problem-solving skills, engineering planning, design and implementation ability.(ratio:50.00)</li> </ul>			
Subject Schoolwide essential virtues			
<ul style="list-style-type: none"> <li>1. A global perspective. (ratio:25.00)</li> <li>2. Information literacy. (ratio:25.00)</li> <li>3. A vision for the future. (ratio:25.00)</li> <li>5. Independent thinking. (ratio:25.00)</li> </ul>			
Course Introduction	<p>This course introduces students to the concepts of the basic phenomena and fundamental theories underlying groundwater and wetlands. Students will learn an overall understanding of the hydro systems of groundwater and wetlands.</p>		

**The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.**

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.

II. Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.

III. Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.

No.	Teaching Objectives	objective methods
1	This course equips students with a breadth of knowledge of groundwater and wetlands and an understanding of the importance and role of hydrological processes in the hydro systems of groundwater and wetlands.	Cognitive

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	AC	1235	Lecture, Discussion, Practicum, Experience	Study Assignments, Discussion(including classroom and online), Practicum, Report(including oral and written), Activity Participation

**Course Schedule**

Week	Date	Course Contents	Note
1	109/09/14 ~ 109/09/20	Course Introduction and Expectations	
2	109/09/21 ~ 109/09/27	Wetlands and Hydrological Cycle	
3	109/09/28 ~ 109/10/04	Wetland Soils	
4	109/10/05 ~ 109/10/11	Wetland Ecosystems	
5	109/10/12 ~ 109/10/18	Wetlands and Water Chemistry	
6	109/10/19 ~ 109/10/25	Evapotranspiration and Wetlands	
7	109/10/26 ~ 109/11/01	Wetland Hydrology	
8	109/11/02 ~ 109/11/08	Wetlands and Water Purification	
9	109/11/09 ~ 109/11/15	Riparian Wetlands	

10	109/11/16 ~ 109/11/22	Wetland Biogeochemistry and Field Trip	Field Trip on 11/19
11	109/11/23 ~ 109/11/29	Constructed Wetlands	
12	109/11/30 ~ 109/12/06	Wetlands and Climate Change	
13	109/12/07 ~ 109/12/13	Wetland Paper Review Presentation	The 1st Presentation
14	109/12/14 ~ 109/12/20	Introduction to Groundwater Monitoring	
15	109/12/21 ~ 109/12/27	Groundwater Hydrogeology and Geochemistry	
16	109/12/28 ~ 110/01/03	Models for Groundwater Flow and Solute Transport	
17	110/01/04 ~ 110/01/10	Groundwater Pollution Investigation and Remediation	
18	110/01/11 ~ 110/01/17	Research Paper Review Presentation	The 2nd Presentation
Requirement			
Teaching Facility	Computer, Projector		
Textbooks and Teaching Materials	Wetlands (5th Edition) by William J. Mitsch and James G. Gosselink (2015) New York City, United States: Wiley, 456 Pages. Other SCI articles		
References	Groundwater Hydrology: Conceptual and Computational Models by K.R. Rushton (2003) New York City, United States: Wiley, 416 Pages.		
Number of Assignment(s)	3 (Filled in by assignment instructor only)		
Grading Policy	◆ Attendance : 20.0 %   ◆ Mark of Usual : 20.0 %   ◆ Midterm Exam : 30.0 % ◆ Final Exam : 30.0 % ◆ Other < > : %		
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at <a href="http://info.ais.tku.edu.tw/csp">http://info.ais.tku.edu.tw/csp</a> or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at <a href="http://www.acad.tku.edu.tw/CS/main.php">http://www.acad.tku.edu.tw/CS/main.php</a> . <b>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</b>		