

Tamkang University Academic Year 111, 1st Semester Course Syllabus

Course Title	WETLAND ECOLOGY AND ENGINEERING	Instructor	TA-KEN HUANG
Course Class	TEWXD1A DOCTORAL PROGRAM, DEPARTMENT OF WATER RESOURCES AND ENVIRONMENTAL ENGINEERING, 1A	Details	<ul style="list-style-type: none"> ◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	SDG6 Clean water and sanitation SDG13 Climate action SDG14 Life below water SDG15 Life on land		
Departmental Aim of Education			
I. Cultivating students with capabilities of carrying out practical works or academic research related to water resources and environmental engineering. II. Cultivating students with capability of solving problems through researching, planning, and management. III. Cultivating students to become professional engineers with care in environment and professional ethics. 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.			
Subject Departmental core competences			
A. Mathematical and engineering knowledge needed for water resources and environmental engineering applications.(ratio:15.00) B. Capabilities of planning and conducting experiments, analyzing and explaining experimental data, applying information tool, and collecting and compiling data. (ratio:20.00) C. Logical thinking, analysis, integration, problem-solving skills, engineering planning, design and implementation ability.(ratio:20.00) D. Skill of using professional foreign language and global perspective.(ratio:20.00) E. Capabilities of writing and presenting research report.(ratio:20.00) F. Awareness of the importance of teamwork, working attitude and professional ethics, and to learn continuously.(ratio:5.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:20.00) 2. Information literacy. (ratio:10.00) 3. A vision for the future. (ratio:20.00)			

4. Moral integrity. (ratio:10.00)
5. Independent thinking. (ratio:20.00)
6. A cheerful attitude and healthy lifestyle. (ratio:10.00)
7. A spirit of teamwork and dedication. (ratio:5.00)
8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction	<p>The course facilitates students' understanding of cutting-edge wetland ecology and engineering knowledge.</p> <p>Students in this class are expected to present their ability about reading and synthesize journal papers and present their knowledge about wetland ecology and engineering in English.</p>
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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	Equip students' abilities for synthesizing the cutting-edge knowledge of wetland ecology and engineering.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDEF	12345678	Lecture, Discussion	Discussion(including classroom and online), Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	111/09/05 ~ 111/09/11	Introduction	

2	111/09/12 ~ 111/09/18	Wetlands Human Use and Science	
3	111/09/19 ~ 111/09/25	Wetland Hydrology	
4	111/09/26 ~ 111/10/02	Wetland Biogeochemistry	
5	111/10/03 ~ 111/10/09	Wetland Vegetation and Succession	
6	111/10/10 ~ 111/10/16	Tidal Marshes	
7	111/10/17 ~ 111/10/23	Mangrove Swamps	
8	111/10/24 ~ 111/10/30	Freshwater Marshes	
9	111/10/31 ~ 111/11/06	Freshwater Swamps and Riparian Ecosystems	
10	111/11/07 ~ 111/11/13	Mid-term Presentation	
11	111/11/14 ~ 111/11/20	Peatlands	
12	111/11/21 ~ 111/11/27	Wetland Classification	
13	111/11/28 ~ 111/12/04	Human Impacts and Management of Wetlands	
14	111/12/05 ~ 111/12/11	Wetland Laws and Protection	
15	111/12/12 ~ 111/12/18	Wetland Ecosystem Services	
16	111/12/19 ~ 111/12/25	Wetland and Climate Change	
17	111/12/26 ~ 112/01/01	Wetlands and Water Quality	
18	112/01/02 ~ 112/01/08	Final Presentation	
Requirement			
Teaching Facility		Computer	
Textbooks and Teaching Materials		Mitsch, W. J., & Gosselink, J. G. (2015). Wetlands. John Wiley & Sons.	
References		Kadlec, R. H., & Wallace, S. (2008). Treatment wetlands. CRC press.	

Number of Assignment(s)	4 (Filled in by assignment instructor only)
Grading Policy	◆ Attendance : 20.0 % ◆ Mark of Usual : 30.0 % ◆ Midterm Exam : 25.0 % ◆ Final Exam : 25.0 % ◆ Other () : %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php . ※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.