

Tamkang University Academic Year 111, 2nd Semester Course Syllabus

Course Title	ECOSYSTEM SERVICES EVALUATION OF WATER RESOURCES AND THE ENVIRONMENT	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	SDG11 Sustainable cities and communities SDG12 Responsible consumption and production SDG14 Life below water SDG15 Life on land		
Departmental Aim of Education			
<ul style="list-style-type: none"> 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			
<ul style="list-style-type: none"> A. Mathematical and engineering knowledge needed for water resources and environmental engineering applications.(ratio:20.00) 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:10.00) 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:10.00) 			
Subject Schoolwide essential virtues			
<ul style="list-style-type: none"> 1. A global perspective. (ratio:20.00) 2. Information literacy. (ratio:20.00) 3. A vision for the future. (ratio:5.00) 			

4. Moral integrity. (ratio:5.00)
5. Independent thinking. (ratio:15.00)
6. A cheerful attitude and healthy lifestyle. (ratio:15.00)
7. A spirit of teamwork and dedication. (ratio:15.00)
8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction

The goals of this course include learning the fundamentals of cost-benefit analysis(CBA); using CBA to evaluate ecosystem services of water resources and the environment.

We will concentrate on: 1) Theories – to allow you understand and contextualize CBA, and 2) skills and tools – to help you evaluate ecosystem services of water resources and the environment.

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	Using CBA to evaluate ecosystem services of water resources and the environment.	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, Experience	Testing, Study Assignments, Discussion(including classroom and online), Report(including oral and written), Activity Participation

Course Schedule

Week	Date	Course Contents	Note
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1	112/02/13 ~ 112/02/19	Introduction	
2	112/02/20 ~ 112/02/26	Review of Economics (I)	
3	112/02/27 ~ 112/03/05	Review of Economics (II)	
4	112/03/06 ~ 112/03/12	Fundamental Theories of Cost-Benefit Analysis	
5	112/03/13 ~ 112/03/19	Theories of Evaluating Cost of Environmental Protection	
6	112/03/20 ~ 112/03/26	Process of Cost-Benefit Analysis	
7	112/03/27 ~ 112/04/02	Methods of Market Valuation	
8	112/04/03 ~ 112/04/09	No Class	
9	112/04/10 ~ 112/04/16	Methods of Alternative Market Valuation	
10	112/04/17 ~ 112/04/23	Mid-term Presentation	
11	112/04/24 ~ 112/04/30	Ecosystem Services Evaluation- SoIVES	
12	112/05/01 ~ 112/05/07	Ecosystem Services Evaluation- InVEST	
13	112/05/08 ~ 112/05/14	Ecosystem Services Evaluation- CICES	
14	112/05/15 ~ 112/05/21	Ecosystem Services Evaluation- Contingent Valuation Method	
15	112/05/22 ~ 112/05/28	Ecosystem Services Evaluation- Travel Cost Method	
16	112/05/29 ~ 112/06/04	Ecosystem Services Evaluation- Hedonic Pricing Method	
17	112/06/05 ~ 112/06/11	Ecosystem Services Evaluation- Case Studies	
18	112/06/12 ~ 112/06/18	Final Presentation	
Requirement			
Teaching Facility		Computer, Projector	
Textbooks and Teaching Materials		蕭代基、鄭蕙燕、吳珮瑛、錢玉蘭、溫麗琪 (2003) . 「環境保護之成本效益分析 (理論、方法與應用) 」 . 俊傑書局股份有限公司。	
References			

Number of Assignment(s)	4 (Filled in by assignment instructor only)
Grading Policy	<ul style="list-style-type: none"> ◆ Attendance : 10.0 % ◆ Mark of Usual : 40.0 % ◆ Midterm Exam : 25.0 % ◆ Final Exam : 25.0 % ◆ Other () : %
Note	<p>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.</p> <p>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>