

Tamkang University Academic Year 109, 1st Semester Course Syllabus

Course Title	DATA VISUALIZATION	Instructor	
Course Class	TLXDM1A MASTER'S PROGRAM IN BIG DATA ANALYTICS AND BUSINESS INTELLIGENCE, 1A	Details	<ul style="list-style-type: none"> ◆ General Course ◆ Selective ◆ One Semester
D e p a r t m e n t a l A i m o f E d u c a t i o n			
<p>I . Cultivate students with ability to conduct research on big data.</p> <p>II . Cultivate students with ability for computer programming on big data.</p>			
Subject Departmental core competences			
<p>A. Ability to conduct research of big data.(ratio:30.00)</p> <p>B. Big data analysis skills.(ratio:40.00)</p> <p>C. Ability to integrate interdisciplinary knowledge.(ratio:30.00)</p>			
Subject Schoolwide essential virtues			
<p>2. Information literacy. (ratio:50.00)</p> <p>8. A sense of aesthetic appreciation. (ratio:50.00)</p>			
Course Introduction	<p>Data visualization as a problem-solving and knowledge discovery tool has become even more important as we enter the Big Data era. This course offers a study of data visualizations, including visual perception, visual cognition, data preprocessing, time series data visualization, spatial data visualization, network data visualization, etc. In addition to introducing the basic concepts of visualization, the course will also introduce visualization libraries and softwares such as D3.js, Data Desk, GAP, Orange3, Gephi, etc.</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	Basic theories and concepts of data visualization.	Cognitive
2	To understand different types of data visualization.	Cognitive
3	Can use some visualization softwares and libraries.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABC	28	Lecture	Study Assignments, Discussion(including classroom and online), Report(including oral and written)
2	ABC	28	Lecture	Study Assignments, Discussion(including classroom and online), Report(including oral and written)
3	ABC	28	Lecture	Study Assignments, Discussion(including classroom and online), Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	109/09/14 ~ 109/09/20	Introduction	
2	109/09/21 ~ 109/09/27	What: Data abstraction	
3	109/09/28 ~ 109/10/04	Why: Task abstraction	
4	109/10/05 ~ 109/10/11	Visual perception and cognition	
5	109/10/12 ~ 109/10/18	Data types and data transformation	

6	109/10/19 ~ 109/10/25	Basic statistical graphics	
7	109/10/26 ~ 109/11/01	Time series data visualization	
8	109/11/02 ~ 109/11/08	Spatial data visualization	
9	109/11/09 ~ 109/11/15	Network data visualization	
10	109/11/16 ~ 109/11/22	Interim report	
11	109/11/23 ~ 109/11/29	Hierarchical data visualization	
12	109/11/30 ~ 109/12/06	Text visualization	
13	109/12/07 ~ 109/12/13	High dimensional data visualization	
14	109/12/14 ~ 109/12/20	Interactive user interface	
15	109/12/21 ~ 109/12/27	Big data visualization	
16	109/12/28 ~ 110/01/03	Visualization libraries	
17	110/01/04 ~ 110/01/10	Visualization softwares	
18	110/01/11 ~ 110/01/17	Final Project Presentation	
Requirement			
Teaching Facility	Computer, Projector		
Textbooks and Teaching Materials			
References			
Number of Assignment(s)	2 (Filled in by assignment instructor only)		
Grading Policy	◆ Attendance : 10.0 % ◆ Mark of Usual : 10.0 % ◆ Midterm Exam : 30.0 % ◆ Final Exam : 50.0 % ◆ 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.		