Tamkang University Academic Year 114, 1st Semester Course Syllabus

Course Title	INFORMATION VISUALIZATION	Instructor	CHIA-LING CHANG
Course Class	TGAXB0A ELECTIVES COURSES BY COLLEGE OF LIBERAL ARTS, 0A	Details	◆ Blended Course ◆ Selective ◆ One Semester ◆ 2 Credits
Relevance to SDGs	SDG4 Quality education SDG8 Decent work and economic growth SDG10 Reducing inequalities		

Departmental Aim of Education

Ⅰ. Training students to become intellectuals with humanistic concern and scientific spirit.

Ⅱ. Training the personnel to possess the abilities of knowledge management and cultural creativeness.

Subject Departmental core competences

A. The ability to apply knowledge of cultural and creative industries.(ratio:5.00)

B. The ability of expression in speaking and writing.(ratio:15.00)

C. The ability of history annotation.(ratio:20.00)

D. The ability of literature interpretation.(ratio:20.00)

E. The ability of media communication and application.(ratio:15.00)

F. The ability of aesthetics appreciating and application.(ratio:10.00)

G. The ability of creative thinking.(ratio:15.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:10.00)

2. Information literacy. (ratio:20.00)

3. A vision for the future. (ratio:20.00)

4. Moral integrity. (ratio:5.00)

5. Independent thinking. (ratio:20.00)

6. A cheerful attitude and healthy lifestyle. (ratio:5.00)

7. A spirit of teamwork and dedication. (ratio:10.00)

8. A sense of aesthetic appreciation. (ratio:10.00)

Course Introduction	This course develops students' skills in data analysis and visual communication, focusing on information visualization in Library and Information Science. Topics include visual cognition, graphic design principles, data transformation, exploratory data analysis (EDA), and statistical charts like histograms and scatter plots. Students use tools such as Excel and Power BI to design insightful visual narratives and apply them across LIS contexts, supporting research and decision-making.

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	Students will understand and be able to construct big data thinking	Cognitive
2	Students will be able to employ big data visualization.	Psychomotor
3	Students will interpret and understand information visualization.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDEFG	12345678	Lecture, Discussion	Testing, Study Assignments, Discussion(including classroom and online), Report(including oral and written), Activity Participation
2	ABCDEFG	24567	Lecture, Discussion	Testing, Study Assignments, Discussion(including classroom and online), Report(including oral and written)

3	ADEFG	12345678	Lecture, Discussion	Study Assignments, Discussion(including classroom and online), Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	114/09/15 ~ 114/09/21	Introduction	
2	114/09/22 ~ 114/09/28	Introduction on data visualization and information visualization	
3	114/09/29 ~ 114/10/05	Visualization in statistics applications and examples	Online Asynchronous Instruction
4	114/10/06 ~ 114/10/12	Image Communication theory	
5	114/10/13 ~ 114/10/19	GenAI x information visualization	Online Asynchronous Instruction
6	114/10/20 ~ 114/10/26	GenAI analysis- interpreting and understanding data	
7	114/10/27 ~ 114/11/02	Midterm Group report 1	
8	114/11/03 ~ 114/11/09	Midterm Group report 2	
9	114/11/10 ~ 114/11/16	Midterm Group report 3	
10	114/11/17 ~ 114/11/23	Telling Stories with Data Visualization	Online Asynchronous Instruction
11	114/11/24 ~ 114/11/30	GenAI on data preprocessing	Online Asynchronous Instruction
12	114/12/01 ~ 114/12/07	GenAI on analysis+ telling stories	
13	114/12/08 ~ 114/12/14	Discussion	
14	114/12/15 ~ 114/12/21	Group report 1	
15	114/12/22 ~ 114/12/28	Group report 2	
16	114/12/29 ~ 115/01/04	Group report 3	
17	115/01/05 ~ 115/01/11	Final Week of Diverse Assessments/Flexible Teaching Week for Teachers	Confirming the overall semester grades
18	115/01/12 ~ 115/01/18	Flexible Teaching Week for Teachers	

Key capabilities	self-directed learning Information Technology Social Participation Problem solving

Interdisciplinary	Competency-based education 'competency exploration' sustained competency or global issues STEEP (Society, Technology, Economy, Environment, and Politics)
Distinctive teaching	Learning technologies (such as AR/VR,etc.) incorporated to physical courses
Course Content	Computer programming or Computer language (students have hands-on experience in related projects)
Requirement	1. Course materials are mainly in English (textbooks, slides, datasets, excluding Excel and PowerBI). 2. Lectures are conducted entirely in Chinese. If this is unacceptable, please do not enroll. 3. Classroom activities, which are mandatory even if absent, account for 30% of the grade. If this is unacceptable, do not enroll. (Discuss any concerns with the teacher.) 3. Grading: Mid-term report (30%), final group report (30%), classroom activities (30%), attendance (10%). If this grading format is unacceptable, please do not enroll. 4. Grade confirmation will occur in the 16th week. No changes will be made after that. If this policy is unacceptable, please do not enroll. 5. Roll call is conducted in every class session. In accordance with University Regulation Article 38, students who are absent for six or more weeks without valid justification will receive a final grade of zero for the course.
Textbooks and Teaching Materials	Self-made teaching materials:Handouts, Videos Using teaching materials from other writers:Textbooks, Videos
References	Power BI X ChatGPT：實作大數據篩選分析與商業圖表設計(暢銷回饋版) 吳燦銘 出版社：博碩
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual： % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 30.0 % ◆ Other〈assignments〉：30.0 %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at https://web2.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. ※"Adhere to the concept of intellectual property rights" and "Do not illegally photocopy, download, or distribute." Using original textbooks is advised. It is a crime to improperly photocopy others' publications.