

## Tamkang University Academic Year 113, 1st Semester Course Syllabus

Course Title	INFORMATION VISUALIZATION	Instructor	CHIA-LING CHANG
Course Class	TGAXB0A ELECTIVES COURSES BY COLLEGE OF LIBERAL ARTS, 0A	Details	<ul style="list-style-type: none"> <li>◆ Blended Course</li> <li>◆ Selective</li> <li>◆ One Semester</li> <li>◆ 2 Credits</li> </ul>
Relevance to SDGs	SDG4 Quality education SDG8 Decent work and economic growth SDG10 Reducing inequalities		
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			
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)			

<b>Course Introduction</b>	<p>This course cultivates talent in utilizing visualization tools for effective data analysis and presentation. Topics include image communication, fundamental visualization concepts, data characteristics, analysis methods, and statistical techniques.</p> <p>Focusing on graphic narration, students interpret key insights from data swiftly.</p> <p>Tools like Excel, PowerBI, and word cloud are extensively used, providing hands-on experience. Upon completion, students proficiently communicate data-driven findings and leverage visualization as a powerful tool for data exploration and communication.</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	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	AB	124	Lecture, Discussion	Testing, Study Assignments, Discussion(including classroom and online), Report(including oral and written), Activity Participation
2	CDEFG	356	Lecture, Discussion	Testing, Study Assignments, Discussion(including classroom and online), Report(including oral and written)

3	EFG	2678	Lecture, Discussion	Study Assignments, Discussion(including classroom and online), Report(including oral and written)
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### Course Schedule

Note for Blended Course : When utilizing weekly digital instruction, please fill in "Online Asynchronous Instruction".

Week	Date	Course Contents	Note
1	113/09/09 ~ 113/09/15	Introduction	
2	113/09/16 ~ 113/09/22	One day off for Mid-Autumn Festival	
3	113/09/23 ~ 113/09/29	Introduction on data visualization and information visualization+ Image Communication theory	
4	113/09/30 ~ 113/10/06	Visualization in statistics applications and examples	Online Asynchronous Instruction
5	113/10/07 ~ 113/10/13	GenAI x information visualization	Online Asynchronous Instruction
6	113/10/14 ~ 113/10/20	GenAI analysis- interpreting and understanding data	
7	113/10/21 ~ 113/10/27	Midterm Group report 1	
8	113/10/28 ~ 113/11/03	Midterm Group report 2	
9	113/11/04 ~ 113/11/10	Midterm Group report 3	
10	113/11/11 ~ 113/11/17	Telling Stories with Data Visualization	Online Asynchronous Instruction
11	113/11/18 ~ 113/11/24	GenAI on data preprocessing	Online Asynchronous Instruction
12	113/11/25 ~ 113/12/01	GenAI on analysis	
13	113/12/02 ~ 113/12/08	GenAI on telling stories + Final Report Discussion	
14	113/12/09 ~ 113/12/15	Group report 1	
15	113/12/16 ~ 113/12/22	Group report 2	
16	113/12/23 ~ 113/12/29	Group report 3	
17	113/12/30 ~ 114/01/05	Confirming the overall semester grades	
18	114/01/06 ~ 114/01/12	Flex week, learning activities should be arranged.	

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	<ol style="list-style-type: none"> <li>1. Course materials are mainly in English (textbooks, slides, datasets, excluding Excel and PowerBI).</li> <li>2. Lectures are conducted entirely in Chinese. If this is unacceptable, please do not enroll.</li> <li>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.)</li> <li>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.</li> <li>4. Grade confirmation will occur in the 17th week. No changes will be made after that. If this policy is unacceptable, please do not enroll.</li> <li>5. Absence in the 18th week will result in a 2-point deduction from the total score.</li> </ol>
Textbooks and Teaching Materials	<p>Self-made teaching materials:Handouts, Videos</p> <p>Using teaching materials from other writers:Textbooks, Videos</p>
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	<p>◆ Attendance : 10.0 %    ◆ Mark of Usual :        %    ◆ Midterm Exam : 30.0 %</p> <p>◆ Final Exam : 30.0 %</p> <p>◆ Other &lt; assignments &gt; : 30.0 %</p>
Note	<ol style="list-style-type: none"> <li>1. This syllabus may be uploaded at the website of the Course Syllabus Management System at <a href="https://info.ais.tku.edu.tw/csp">https://info.ais.tku.edu.tw/csp</a> or through the link of the Course Syllabus Upload posted on the home page of the TKU Office of Academic Affairs <a href="http://www.acad.tku.edu.tw/CS/main.php">http://www.acad.tku.edu.tw/CS/main.php</a></li> <li>2. According to the Implementation regulations of distance education for junior college and above are prescribed pursuant to Article 2, "The distance learning course referred to in these Measures refers to more than one-half of the teaching hours in each subject."</li> <li>3. According to the regulations of Tamkang University Enforcement Rules for digital teaching, Paragraph 2 and Article 3, the distance learning course of our school must be "The course of digital teaching with distance learning platform or synchronous video system in our school. Teaching Hours include course lectures, teacher-student interaction discussions, quizzes and other learning activities."</li> <li>4. If there are any temporary course changes (including time changes and classroom changes of distance learning courses, blended courses), please make out an application according to regulations to the Office of Academic Affairs.</li> </ol> <p><b>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</b></p>