HKU BUSINESS SCHOOL
港大經管學院

Inspire·Empower·Lead

1. General Information

Course Subject	IIMT
Course Number	3643
Course Title	Data visualization and visual analytics
Academic Years	2024-2025
Grading Method	Letter

2. Instructors

Professor DENG, Yipu
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Subclasses: 2A

4. Course Description

Course Description	Data visualization is an essential skill required in today's data driven world. With its foundations rooted in statistics, psychology, and computer science, practitioners in almost every field use visualization to explore and present data. This course shows you how to better understand your data, present clear evidence of your findings to your intended audience, and tell engaging data stories that clearly depict the points you want to make all through data graphics. The skills learned in this course offer enormous value for creatives, educators, entrepreneurs, and business leaders in a variety of industries. Whether you are a seasoned visualization designer or just learning about it now, this course will serve as an introduction and reference to becoming visual with data. The course involves individual homework, exams, and projects. You will demonstrate your mastery of the material by applying what you learn. Some assignments will be well specified; others may be purposely less specific or less structured because an objective of these assignments is for you to not only solve the problem posed, but also to learn how to be creative in visualizing data. Class sessions will comprise 1) lectures/discussions of various data visualization concepts, 2) instructor laboratory demonstrations, and 3) student lab sessions. The purpose of this pedagogical approach is to introduce and reinforce ideas and skill sets so that students can master these on their own after class hours. You will be a critical element in class sessions, which will usually be interactive. You are strongly encouraged to ask questions to clarify and expand the covered material. Each class will provide important information. It is your responsibility to get this information if you are unable to attend a class. Class materials and discussions will often supplement the textbook and other readings.

5. Course Objectives

1. Present data with visual representations for your target audience, task, and data;
2. Experiment with and compare different visualization tools;
3. Create multiple versions of digital visualizations using various software;

5. Course Objectives
4. Employ cutting edge tools and technologies to analyze Big Data;
5. Identify appropriate data visualization techniques given particular requirements imposed by the data;
6. Apply appropriate design principles in the creation of presentations and visualizations; and
7. Analyze, critique, and revise data visualizations.

6. Faculty Learning Goals
Goal 1: Acquisition and internalization of knowledge of the programme discipline
Goal 2: Application and integration of knowledge
Goal 3: Inculcating professionalism
Goal 4: Developing global outlook
Goal 5: Mastering communication skills
Goal 6: Cultivating leadership

7. Course Learning Outcomes						
Course Teaching and Learning Activities	Aligned Faculty Learning Goals					
	1	2	3	4	5	6
CLO1. Understand the key concepts about visualization techniques and visual analytics.	✔		✔			✔
CLO2. Identify and evaluate the key issues in the application of visualization techniques.		✔	✔			✔
CLO3. Demonstrate effective use of visualization tools for data analysis.	✔					
CLO4. Learn how to obtain and present insights from data visualization.		✔			✔	
CLO5. Develop problem solving skills through data visualization and visual analytics.		✔				

8. Course Teaching and Learning Activities		
Course Teaching and Learning Activities #	Expected Study Hours	Study Load (% of study)
T&L1. Interactive lectures and discussions	25	20.8
T&L2. In-class quizzes	5	4.2
T&L3. Assignments	15	12.5
T&L4. In-class practice	25	20.8
T&L5. Self-study and self-training	50	41.7
	Total: 120	Total: 100

9. Assessment Methods			
Assessment Methods	Description	Weight %	Aligned Course Learning Outcomes
A1. Participation	Interactions and discussions.	10%	1,2
A2. Quizzes	In-class quizzes.	10%	1,2,3
A3. Assignments	Take-home assignments.	20%	1,2,3,4
A4. Midterm exam	One midterm examination.	35%	1,2,3,4,5
A5. Project	One Group Project.	25%	1,2,3,4,5

10. Course Grade Descriptors	
A+,A,A-	The student is able to apply all the methods learned in the course to new, unexpected situations, independently and in a novel manner that goes beyond expectations of a good student. Student has achieved an impressive mastery of course content.
B+,B,B-	The student is able to apply the methods learned in the course, but only under partial guidance. Student has achieved a basic mastery of course content, and thus meets expectations.
C+,C,C-	The student understands conceptually most of the methods learned, but cannot apply them all, even under guidance. Performance is that of an average student and content knowledge is that of a novice, which is below expectations.
D+,D	The student has shown some effort but has a highly limited understanding of course content. Performance and content knowledge are poor and not to the level expected for a future data analytics professional.
F	The student has shown little effort or understanding toward course content. Performance and content knowledge are completely unacceptable.

11. Course Content and Tentative Teaching Schedule	
Topic/ Session	Content
1	- Introduction to Data Visualization - Data Viz in Excel
2	- The Lunar New Year
3	- Data Viz in Excel
4	- Design of Data Viz - Project group member list due on Feb 10
5	- Basic Data Viz in Tableau
6	- Basic Data Viz in Tableau
7	- Basic Data Viz in Tableau
8	- Reading/Field Trip Week
9	- Basic Data Viz in Tableau
10	- Storytelling with Data Viz
11	- Storytelling with Data Viz

11. Course Content and Tentative Teaching Schedule	
12	- General Holiday
13	- Advanced Data Viz in Tableau
14	- Advanced Data Viz in Tableau
15	- Group Project Presentation

12. Required/Recommended Readings & Online Materials	
Reading	• Natalie Berg and Miya Knights. (2019). “Amazon: How the World’s Most Relentless Retailer will Continue to Revolutionize Commerce” Kogan Page. • Henry Etzkowitz and Chunyan Zhou (2017). “The Triple Helix: University–Industry–Government Innovation and Entrepreneurship 2nd Edition”, Routledge. • Chan Kim and Renée Mauborgne. (2017). “Blue Ocean Shift: Beyond Competing - Proven Steps to Inspire Confidence and Seize New Growth” Pan Macmillan UK. • Jim Dethmer, Diana Chapman, Kaley Warner Klemp. (2015). “The 15 Commitments of Conscious Leadership: A New Paradigm for Sustainable Success”. Dethmer, Chapman & Klemp. • Ben Horowitz. (2014). “The Hard Thing About Hard Things: Building a Business When There Are No Easy Answers”. Harper Business. • Dyer, Jeff; Gregersen, Hal; Christensen, Clayton M. (2011). “The Innovator's DNA: Mastering the Five Skills of Disruptive Innovators” Boston: HBS Press. • Christensen, Clayton (1997). “The Innovator’s Dilemma: When New Technologies Cause Great Firms to Fail”. Boston: HBS Press. • Ries, Eric. (2011). “The Lean Start up.” Crown Business. New York. • Thiel, Peter. (2014). “Zero to One”. Penguin Virgin Books. London. • Tricker, Robert and Li, Gregg. (2019). “Understanding Corporate Governance in China.” HKU Press. Hong Kong. • Baird, R. (2017). The Innovation Blind Spot: Why We Back the Wrong Ideas—and What to Do About It. Benbella Books. • Sutton, Robert J. and Rao, Huggy. (2014). “Scaling Up Excellence.” Crown Business Publishing, New York. • Barbara Minto. (2010). “The Pyramid Principle: Logic in Writing and Thinking”. Prentice Hall

13. Means / Processes for Student feedback on Course	
✔	Conducting mid-term survey in additional to SETL around the end of the semester
	Online response via Moodle site
	Others

14. Course Policy
General requirements in plagiarism, academic honesty and attendance apply. Any lateness or absence to the class needs to have the lecturer(s) officially informed with sound reason – otherwise penalty in the form of mark deduction might apply.

15. Additional Course Information

Further to what has been described in the assessment section, participation and engagement in the class and tutorial is required in this course. Lecturers will help students to see into their own work and to assist to bring it into its fullest manifestation, through an effective and interactive learning.