Course Information	
Course title	Information Visualization
Semester	110-1
Designated for	VARIOUS PROGRAM PROGRAM FOR KNOWLEDGE MANAGEMENT
Instructor	TIEN-I TSAI
Curriculum Number	LIS5079
Curriculum Identity Number	126 U1440
Class	
Credits	3.0
Full/Half Yr.	Half
Required/ Elective	Elective
Time	Tuesday 2,3,4(9:10~12:10)
Remarks	The upper limit of the number of students: 30. The upper limit of the number of non-majors: 5.
Ceiba Web Server	http://ceiba.ntu.edu.tw/1101LIS5079
Course introduction video	
Table of Core Capabilities and Curriculum Planning	Table of Core Capabilities and Curriculum Planning
Course Syllabus	
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Course Description	Information can be abstract and needs to be processed so that messages are converted to things that make sense to the receivers. Utilizing various digital tools to visualize information helps us deliver information to our target audience in an intuitive and efficient way. This course provides an overview about state of the art in information visualization. The course highlights the principles of producing effective visualizations and introduces practical visualization

	procedures, including how to visualize information with software and digital tools such as the Tableau, PlotDB, and Google fusion tables. Specific topics include: 1. The history and background of information visualization; 2. Design principles of information visualization; 3. Data analysis methods and hands-on applications of visualization techniques; 4. Interface design issues in information visualization; 5. Future trends in information visualization. The course will be delivered through a combination of lectures, presentations, class activities, and discussions.
Course Objective	This course aims to provide students with knowledge of how to effectively visualize information and hands-on experience in visualizing different types of information. The ultimate goal of this course is to provide non-technical students with tools to process, visualize, and analyze information of their own interests (e.g., data collected for their theses). Upon successful completion of the course, students will be able to: 1. Describe the principles of information visualization; 2. Use data analysis methods and visualization tools, such as Tableau, to manage and analyze abstract information; 3. Identify interface design issues in visualization; 4. Apply visualization techniques to specific domains of their own interests.
Course Requirement	Students are expected to do weekly readings, to participate in class, and to work in groups for projects. Specific course requirements include: 1. Weekly readings 2. Participation and in-class activities 3. Midterm Project 4. Final Project
Office Hours	Appointment required.
References	Books and Articles Börner, K., & Polley, D. E. (2014). Visual insights: a practical guide to making sense of data. Cambridge, Massachusetts: MIT Press. Few, S. (2009). Now you see it: Simple visualization techniques for quantitative analysis. Oakland, CA: Analytics Press. Few, S. (2012). Show me the numbers: Designing tables and graphs to enlighten (2nd ed.). Burlingame, Calif.: Analytics Press. Fry, B. J. (2004). Computational information design. MIT. Intel IT Center (2013). Big data visualization: Turning big data into big insights. Intel white paper. Knaflic, C. N. (2015). Storytelling with data: a data visualization guide for business professionals. Hoboken, NJ: John Wiley and Sons. Lankow, J. (2012). Infographics: The Power of Visual Storytelling. Hoboken, NJ: Wiley.

Magnuson, L. (2016). Data visualization: A guide to visual storytelling for libraries. Lanham: Rowman & Littlefield.
Mazza, R. (2009). Introduction to information visualization. London: Springer.
Spence, R. (2014). Information visualization: Design for interaction (3rd ed.). New York: Springer.
Tufte, E. R. (1997). Visual explanations: images and quantities, evidence and narrative. Cheshire, Conn.: Graphics Press.
Tufte, E. R. (2001). The visual display of quantitative information. Cheshire, Conn.: Graphics Press.
Tufte, E. R. (2006). Beautiful evidence. Cheshire, Conn.: Graphics Press.
Ware, C. (2013). Information visualization (3rd ed.). Waltham, MA: Morgan Kaufmann.

Online Resources
Dataviz website: http://www.improving-visualisation.org/case-studies
Google Charts website: https://developers.google.com/chart/
Lee, M. Data Visualization. Retrieved from http://muyueh.com/seeall/
PlotDB website: https://plotdb.com/
R project website: http://www.r-project.org/
R Tutorial. Retrieved from http://cyclismo.org/tutorial/R/ and http://www.statmethods.net/graphs/index.html
Stefaner, M. Visual tools for the social semantic web. Retrieved from http://well-formed-data.net/thesis
Tableau Free Training Videos: https://www.tableau.com/learn/training
Tableau Gallery: https://public.tableau.com/s/gallery
Tableau Whitepapers: https://www.tableau.com/learn/whitepapers
Visual methods: information visualization design for the people. Retrieved from http://visualmethods.blogspot.tw/

Note: Tableau's data visualization software is provided through the Tableau for Teaching program.

Designated reading: See course schedule

Grading

No.	Item	%	Explanations for the conditions
1.	Final project (group)	40%	
2.	Mid-term project (group)	30%	
3.	Participation and class activities/assignments	30%	

Progress

Week	Date	Topic
第1週	09/28	Course Overview
第2週	10/05	Introduction to Information Visualization: Overview, History, Relation to Other Disciplines
第3週	10/12	Visualization Design Principles
第4週	10/19	Cleaning Data and Preparing for Visualization
第5週	10/26	Visualization Systems and Tools
第6週	11/02	Data Analysis and Table/Graph Design
第7週	11/09	Geographic Data Visualization
第8週	11/16	Midterm project presentations
第9週	11/23	Temporal and Multidimensional Data Displays
第10週	11/30	Networks Visualization [guest lecture]
第11週	12/07	[Invited talk] Hierarchies and Trees Visualization
第12週	12/14	[Invited talk] Large Image Collections and Semantic Data Visualization
第13週	12/21	Interaction Techniques and Distortion Current Trends in Information Visualization
第14週	12/28	Groupwork and Discussion
第15週	01/04	Final project presentations
第16週	01/11	Final project presentations
第17週	01/18	[Final paper revision (optional)]
第18週	01/25	[Final paper revision (optional)]