

CPE 232 Data Models

Department of Computer Engineering, KMUTT, 2/2024

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Class Time:	Wed 13.30 - 15.30 (Lecture) 15.30 - 17.30 (Lab)	Room:	CB1103

The objective of this course is to introduce students to concepts of data modeling, how to create a visualization to represent data and gain more insights, along with techniques to analyze a real-world data.

COURSE LEARNING OUTCOMES:

- Students are able to evaluate and apply suitable data modeling techniques to analyze real-world data
- Students are able to create meaningful visualization to address relevant problems.
- Students are able to understand data science process along with roles of data scientists.

COURSE PLATFORM:

LEB2 will be used for course material download and submission.

COURSE GRADING:

Quiz	15%
Lab/Homework	25%
Midterm Exam	20%
Final Exam	20%
Project & Presentation	20%

HONESTY POLICY:

The Computer Engineering Department's honesty policy will be strictly enforced. Any assigned work including lab work, if copied with permission, all persons involved will receive a negative score equivalent to the full score of the assigned work for first violation; a second violation will result in F for the course.

LATE POLICY:

Student are given up to one week to complete the assignments. For each day late, 10% will be deducted. Work submitted after 5 days past the original due date **will not be accepted and receive a zero.**

RESOURCES:

- Wes McKinney (2022). Python for Data Analysis. O'Reilly Media. ([Link](#))
- Claus O. Wilke (2019). Fundamental of Data Visualization. O'Reilly Media. ([Link](#))
- Aurelien Geron (2019). Hands-On Machine Learning with Scikit-Learn & TensorFlow. O'Reilly Media. ([Link](#))

COURSE SCHEDULE:

The following is a tentative course schedule. The instructor may revise parts of the outline to conform to the background, knowledge, and interests of the students.

Week	Topics	Remarks
[1] 15/01	Introduction to Data Models	
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[2] 22/01	Python, Numpy, Matplotlib	
	Lab 1: Let's review Python!	
[3] 29/01	Types of Data	
	Lab 2: Let's see types of Data!	
[4] 05/02	Data Cleaning and Preparation	
	Lab 3: Let's play with data!	
[5] 12/02	-	
		Buddhist holiday
[6] 19/02	Period I Exam	No Class
[7] 26/02	Data Visualization & EDA	
	Lab 4: Let's visualize & explore data!	
[8] 05/03	Class Midterm <i>(Theory & Coding)</i>	Held in class
[9] 12/03	Machine Learning: Classification	
	Lab 5: Let's classify data!	Proposal due
[10] 19/03	Model Parameter Tuning	
	Lab 6: Let's play with parameters!	
[11] 26/03	Machine Learning: Regression	
	Lab 7: Let's predict from data!	

[12/13/14] 31/03 - 16/04	Period II Exam & Holidays	No Class
[15] 23/04	Machine Learning: Clustering	
	Lab 8: Let's group data!	
[16] 30/04	Project Consultation	
[17] 07/05	TBA	
[18] 14/05	Project Presentation	Project due
[19] xx/05	Final Exam (Theory)	

Note: Any additional modifications to the syllabus will be announced in class.