COMP7990
Principles and Practices of Data Analytics

Lecturer:

Dr. Zhang Lu, Eric

Dr. Jin Yucheng

Lab Instructors:

Mr. Kenny Cheng (labs)

Ms. Florence Fok (quiz grading)

Teaching Assistants:

GENG Yu, WU Feilong, ZOU Bohou

About Me

- Dr. Zhang Lu Eric

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- Research Interest: Deep learning in genomics, Complex disease prediction, AI in drug discovery

- Served:
  - Stanford University – Postdoctoral scholar
  - CityU (PhD) and HKU (Mphil)

Contact Information

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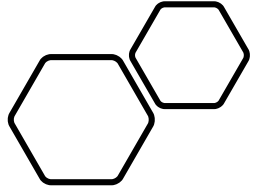
Outline

Timetable

Course Contents

Learning Outcomes

Assessment Method

Timetable (Section 3 and 4)

- Instructor:
  - Dr. Zhang Lu, Eric (Week 1- Week 4, Week 13)
  - Dr. Jin Yucheng (Week 5-Week 12 , Week 13)
- Time of our classes
  - 13 weeks from Sep 9 to Dec 2
  - Time: 18:30~21:20 (Friday)
- Quiz:
  - 29 Oct afternoon (Sat)
  - Venue: TBD

Course Content

- Data Mining – Data preparation; Data mining algorithms (classification; clustering)

- Data Analytics – Background mathematics; statistical analysis techniques

- Data Management – Database system concepts; Relational data model; SQL

- Data Visualization – Concepts of data visualization; charts, maps and infographics

- Data Security and Privacy – Concepts of data security and privacy; privacy protection principles

Tentative Class Schedule

Week	Topic	Section 1/2	Section 3/4/5/6/7
1	Data Preprocessing and Linear Regression	Dr. WANG King Hang, Kevin	Dr. Eric Zhang
2	Multivariate Linear Regression, Perception and Artificial Neural Network		
3	Support Vector Machine and k Nearest Neighbors (k-NN) Algorithm		
4	Unsupervised Learning + Lab 1: Weka		
5	Basic Statistic		Dr. Yin Yucheng
6	Inferential Statistics (I)		
7	Inferential Statistics (I) + Lab 2: Jamovi		
8	Data Management 1		
9	Data Management 2		
10	Visualization		
11	Lab 3: SQL and Tableau		
12	Security		
13	Revision		

Course Aims

- This course introduces principal concepts of data management and analysis.

- It covers various topics including database management, data analytics, data mining, data visualization, and data privacy.

- It is expected that students can grasp practical skills about how to collect, store, analyze, and visualize data.

Expected Learning Outcomes

- Knowledge
    - Describe fundamentals of database management
    - Explain concepts of data analysis techniques and data mining algorithms
    - Describe and explain concepts of data visualization
    - Describe concepts and legal foundations of data security and privacy
- Professional Skill
    - Formulate SQL queries on the database
    - Conduct statistical analysis and design visualization to present analysis results

Assessment methods

- Continuous Assessment (40%)
  - Lab1 (6%), Lab2 (6%), Lab3 (12%),
  - Quiz (16%)

- Examination (60%)
  - Final examination

- Import Notices
  - Plagiarism: Students who plagiarized and who were plagiarized will be given zero mark.
  - Final Exam: In order to pass this course, students should attain at least 30% of the final examination mark.
  - Cheating in exam: **Students who cheated in the exam/quizzes may receive a failure grade of the course and may defer their study for one year**.
  - A cumulative GPA of at least 2.50 for graduation

Support

Post	**Post your question on Piazza: https://piazza.com/class/l7gxelp6l824py**
Email	Email your instructors or TA
Video	Zoom lecture video will be posted online
Appointment	Make appointment for individual consultation with instructor and TA

Lab arrangement

- We have three labs for COMP7990 on Week 4 (lab 1), Week 7 (lab2) and Week 11 (lab 3).

- Please be mindful that you may be assigned to different labs due to limited capacity of each lab.

- You are not required to bring your own device for lab. However, you may also do that if you wish.

Cont.

- On week 4 and week 7, our lectures will be split into two sections.
- 1st section: in the lecture room (about 1 hour to 1.5 hour)
- 2nd section: Lab 1 and Lab2.
- On Week 11: our lecture will be in Lab3