MATH4995 (L1) - Capstone Project for Data Science

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MATH4995: Capstone Project for Data Science

Fall 2023

Meeting: MoWe 12:00 - 13:20 at Room 2463 (Lift 25-26)

Instructor:

Jianfeng CAI, email: jfcai@ust.hk (mailto:jfcai@ust.hk) , Room 3438

Office Hours: Tu 13:00-14:00 or by appointment or walk-in.

Course Description:

This is a project-based course that trains students on applying computational and analytical tools (matrix computation, Fourier and wavelet transform, convex optimization, etc.) to real-world data analysis problems (recommendation system, signal processing, computer vision, etc.). Familiarity with a programming language is preferred, such as R, Matlab, or Python.

Assessment Scheme:

12.5%*4 Oral progress reports.
20% Final written report.
20% Final presentation.
10% Attendance

Tentative Course Schedule:

04 Sep: Course Introduction, Projects Introduction.
06 Sep: Group meetings for project selection.

===Deadline of project selection: 08 Sep.

11 Sep: Group meetings and discussions on projects.
13 Sep: Individual studies (no meeting).

18 Sep: Individual studies (no meeting).
20 Sep: Individual 1st oral progress reports (Overview, Motivation) and discussion
25 Sep: Individual 1st oral progress reports (Overview, Motivation) and discussion
27 Sep: Individual 1st oral progress reports (Overview, Motivation) and discussion
02 Oct: No class. National Day Holiday.

04 Oct: Individual studies. (no meeting)
09 Oct: Individual 2nd oral progress reports (Algorithms/Theory) and discussion
11 Oct: Individual 2nd oral progress reports (Algorithms/Theory) and discussion
16 Oct: Individual 2nd oral progress reports (Algorithms/Theory) and discussion

18 Oct: Individual studies. (no meeting)
23 Oct: No class. Chung Yeung Festival.
25 Oct: Individual 3rd oral progress reports (Theory/Experiments) and discussion
30 Oct: Individual 3rd oral progress reports (Theory/Experiments) and discussion
01 Nov: Individual 3rd oral progress reports (Theory/Experiments) and discussion

06 Nov: Individual studies. (no meeting)
08 Nov: Individual 4th oral progress reports (New Algorithm/Theory/Experiments) and discussion
13 Nov: Individual 4th oral progress reports (New Algorithm/Theory/Experiments) and discussion
15 Nov: Individual 4th oral progress reports (New Algorithm/Theory/Experiments) and discussion

20 Nov: Final presentation
22 Nov: Final presentation
27 Nov: Final presentation
29 Nov: Final presentation

Course Summary:

Date	Details	Due
Sun Dec 17, 2023	**Final Report** (https://canvas.ust.hk/courses/50975/assignments/306599)	due by 11:59pm
	Report 1 (https://canvas.ust.hk/courses/50975/assignments/303998)	
	Report 2 (https://canvas.ust.hk/courses/50975/assignments/303999)	
	Report 3 (https://canvas.ust.hk/courses/50975/assignments/305472)	

Date	Details	Due
	Report 4 (https://canvas.ust.hk/courses/50975/assignments/306596)	