The Hong Kong University of Science and Technology (Guangzhou)

UG Course Syllabus Template

[Course Title] Social Information Network Analysis and Engineering

[Course Code] 4641

[No. of Credits] 3

[Any pre-/co-requisites] UFUG2104 OR AIAA2711

Name: [Instructor(s) Name] Dai, Enyan

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Office Hours: [Specify Office Hours and Location] Every Tuesday 10:30 AM-11:30 AM

Teaching Assistant: Shuo Yan

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Course Description

This course is an introduction to social information network analysis and engineering. Students will learn both mathematical and programming knowledge for analyzing the structures and dynamics of typical social information networks (e.g., Facebook, Twitter, and MSN). They will also learn how social metrics can be used to improve computer system design as people are the networks. It will cover topics such as small world phenomenon; contagion, tipping and influence in networks; models of network formation and evolution; the web graph and PageRank; social graphs and community detection; measuring centrality; social recommendation and information diffusion.

Intended Learning Outcomes (ILOs)

By the end of this course, students should be able to:

1. Understand basic concepts in social and information networks.

2. Identify important metrics and models and apply them to characterize networks.

3. Utilize software tools to visualize real-life network data.

4. Apply the concepts and techniques learned in class to analyse networks of their interest.

5. Explain behavior of social and information networks.

6. Communicate in the form of a technical report.

Assessment and Grading

This course will be assessed using criterion-referencing and grades will not be assigned using a curve. Detailed rubrics for each assignment are provided below, outlining the criteria used for evaluation.

Assessments:

[List specific assessed tasks, exams, quizzes, their weightage, and due dates; perhaps, add a summary table as below, to precede the details for each assessment.]

Assessment Task	Contribution to Overall Course grade (%)	Due date
Mid-Term	30%	30/03/2026*
In-course essay (Lab): The requirement will be released before each lab session	20%	After every lab session*
Group Project: 4~5 group member Evaluated by presentation and final report	20%	15/05/2026 *
Final examination	30%	22/05/2026

* Assessment marks for individual assessed tasks will be released within two weeks of the due date.

Mapping of Course ILOs to Assessment Tasks

[add to/delete table as appropriate]

Assessed Task	Mapped ILOs	Explanation
Mid-Term Examination	ILO1, ILO2, ILO5	Assesses students' understanding of core concepts, metrics, and models in social and information networks, and their ability to explain network behaviors.
In-course Essay (Lab)	ILO3, ILO4	Assesses students' ability to use software tools to visualize real-world networks and apply course concepts to analyze network data.
Group Project	ILO2, ILO4, ILO5, ILO6	Assesses students' ability to apply network models to a real problem, interpret network behaviors, and communicate findings through a technical report.
Final Examination	ILO1, ILO2, ILO5	Assesses comprehensive understanding of network concepts, analytical methods, and their application to explaining social and information networks.

Grading Rubrics

Rubrics will be determined before the release of assignment/lab/exam.

Final Grade Descriptors:

[As appropriate to the course and aligned with university standards]

Grades	Short Description	Elaboration on subject grading description
A	Excellent Performance	[Example: Demonstrates a comprehensive grasp of subject matter, expertise in problem-solving, and significant creativity in thinking. Exhibits a high capacity for scholarship and collaboration, going beyond core requirements to achieve learning goals.]
B	Good Performance	[Example: Shows good knowledge and understanding of the main subject matter, competence in problem-solving, and the ability to analyze and evaluate issues. Displays high motivation to learn and the ability to work effectively with others.]
C	Satisfactory Performance	[Example: Possesses adequate knowledge of core subject matter, competence in dealing with familiar problems, and some capacity for analysis and critical thinking. Shows persistence and effort to achieve broadly defined learning goals.]
D	Marginal Pass	[Example: Has threshold knowledge of core subject matter, potential to achieve key professional skills, and the ability to make basic judgments. Benefits from the course and has the potential to develop in the discipline.]
F	Fail	[Example: Demonstrates insufficient understanding of the subject matter and lacks the necessary problem-solving skills. Shows limited ability to think critically or analytically and exhibits minimal effort towards achieving learning goals. Does not meet the threshold requirements for professional practice or development in the discipline.]

Course AI Policy

Allowed with proper citations and prompt list.

Communication and Feedback

Assessment marks for individual assessed tasks will be communicated via Canvas within two weeks of submission. Feedback on assignments will include [specific details, e.g., strengths, areas for improvement]. Students who have further questions about the feedback including marks should consult the instructor within five working days after the feedback is received.

Resubmission Policy

No resubmission will be accepted

Required Texts and Materials

Reference textbook: Social Media Mining by Huan Liu https://www.socialmediamining.info/SMM.pdf

Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST(GZ)'s Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to Regulations for Academic Integrity and Student Conduct for the University's definition of plagiarism and ways to avoid cheating and plagiarism.

[Optional] Additional Resources

NA

Feedbacks

Please share your feedbacks with the official question survey or directly email the instructor.

Course Outline

Week 1	01/26, 01/27	Graph Essentials
Week 2	02/02, 02/03	Simulating Human Society with LLM
Week 3	02/24, 02/28 (made up class)	Network Visualization
Week 4	03/02, 03/03	Measures and Models 1
Week 5	03/09, 03/10	Measures and Models 2
Week 6	03/16, 03/17	Community Analysis 1
Week 7	TBD	Mid Exam
Week 8	03/30, 03/31	Community Analysis 2
Week 9	04/07	Node Embedding Learning
Week 10	04/13, 04/14	Recommendation
Week 11	04/20, 04/21	Influence and Homophily
Week 12	04/27, 04/28	Information Diffusion
Week 13	05/15	Final Project Representation
Week 14	TBD	Final Exam