1. General Information

Course Subject	FINA
Course Number	2386
Course Title	Social Network Analysis in Finance
Academic Years	2024-2025
Grading Method	Letter

2. Instructors

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Subclasses: 1A

4. Course Description

Course Description	This course is an interdisciplinary undergraduate-level course that introduces students to the basic concepts and analysis techniques in Social Network Analysis (SNA). Students will explore the concept of social networks and their structural effects. In particular, students will learn how to identify key actors, groups, and patterns in social networks, and how to analyze the structure and dynamics of social networks. The course will cover both theoretical, methodological and computational aspects of SNA, including data collection, data management, data analysis, interpretation and presentation of findings. Applications of SNA in finance as well as other fields—such as sociology and business—will also be discussed.

5. Course Objectives

1. Define and explain the concept of social networks

2. Identify and construct different types of social network data through various data collection methods

3. Apply SNA methods to analyze social network data

4. Interpret and present SNA results, both graphically and statistically

5. Evaluate the strengths and limitations of SNA

6. Apply SNA to problems in the fields of finance and business

6. Faculty Learning Goals

Goal 1: Acquisition and internalization of knowledge of the programme discipline

Goal 2: Application and integration of knowledge

Goal 3: Inculcating professionalism

Goal 4: Developing global outlook

6. Faculty Learning Goals

Goal 5: Mastering communication skills
Goal 6: Cultivating leadership

7. Course Learning Outcomes

Course Teaching and Learning Activities	Aligned Faculty Learning Goals					
	1	2	3	4	5	6
CLO1. Understand social network analysis (SNA) concepts and principles.	✔					
CLO2. Identify and construct data on social networks.	✔	✔				
CLO3. Analyze and present network data using SNA techniques.	✔	✔			✔	
CLO4. Apply SNA techniques to problems in the fields of finance and business.	✔	✔	✔	✔	✔	✔

8. Course Teaching and Learning Activities

Course Teaching and Learning Activities #	Expected Study Hours	Study Load (% of study)
T&L1. Lectures	36	30
T&L2. Group Assignments / Midterm Examination	24	20
T&L3. Final Project	36	30
T&L4. Self study	24	20
	Total: 120	Total: 100

9. Assessment Methods

Assessment Methods	Description	Weight %	Aligned Course Learning Outcomes
A1. Tutorial participation		10%	1,2,3,4
A2. Assignments		20%	1,2,3,4
A3. Midterm Exam		30%	1,2,3
A4. Group Final Project		40%	1,2,3,4

10. Course Grade Descriptors

A+,A,A-	Strong evidence of superb ability to fulfill the intended learning outcomes of the course at all levels of learning: describe, apply, evaluate, and synthesis
B+,B,B-	Strong evidence of the ability to fulfill the intended learning outcomes of the course at all levels of learning: describe, apply, evaluate, and synthesis
C+,C,C-	Evidence of adequate ability to fulfill the intended learning outcomes of the course at low

10. Course Grade Descriptors

		levels of learning such as describe and apply but not at high levels of learning such as evaluate and synthesis
	D+,D	Evidence of basic familiarity with the subject
	F	Little evidence of basic familiarity with the subject

11. Course Content and Tentative Teaching Schedule

Topic/Session	Content
1	Week 1: Introduction to Social Network Analysis - What are social networks? - The history of social network analysis - Theoretical impetus for SNA (overview)
2	Week 2: Social Network Data - Types of social network data - Data collection methods - Ethical considerations in social network research
3	Week 3: Network Measures - Centrality measures (ego-centric) - Structural holes (ego-centric measures) - Triadic closure, density and other network-level measures - Theoretical perspectives on social networks I (structural properties)
4	Week 4: Network Visualization - Network graphs - Layout algorithms - Node attributes
5	Week 5: Clustering and Community Detection - Modularity - Hierarchical clustering - Community detection algorithms
6	Week 6: Network Dynamics - Network evolution - Diffusion and contagion - Network resilience - Theoretical perspectives on social networks II (diffusion and evolution)
7	Week 7: In-class Midterm Examination
8	Week 8: Applications of Social Network Analysis in Finance I - Social media and marketing - "Social capital": board interlocks and organizational structure - Theoretical perspectives on social networks III (social vs. human capital)
9	Week 9: Applications of Social Network Analysis in Finance II - Innovation and creativity - Market structure and competition - Theoretical perspectives on social networks IV (price theory)
10	Week 10: Applications of Social Network Analysis in Social Sciences - Structural inequality - Homophily and social influence - Social support and health - Theoretical perspectives on social networks V (classical influences)
11	Week 11: Critiques and Limitations of Social Network Analysis - Ethical and privacy considerations

11. Course Content and Tentative Teaching Schedule

		- Reliability, bias and sampling issues:
		   o Data quality and representativeness
		   o Causality and endogeneity concerns
		- Dynamic network analysis and temporal dependencies

	12	**Week 12: Group Presentations** Weekly group assignments - Students will be organized into groups to work on weekly assignments with assistance in tutorials if necessary. Starting in week 2, groups are expected to have read the materials and submitted their weekly assignment prior to class. Mid-term Examination – An in-class examination will be administered in week 7 covering all materials from the first half of the course. The mid-term examination will include a mix of both quantitative and analytical questions designed to test students' understanding of SNA concepts and measures, as well as their ability to calculate those measures. As such, the exam will be calculation intensive. Final Term Project – The term project will consist of a write-up and a group presentation in the final class in week 12. Students will be expected to utilize the knowledge gained in the course to conduct SNA on a network of their choice and present their findings to the class. Points will be awarded for clear and concise interpretation of the network data, technically correct specifications and testing, and appropriate tone and style in presentation. Groups are expected to present their SNA findings in a professional and well-articulated manner. Students will have the opportunity to revise their project based on comments following their presentation. In comparison to the mid-term examination, the project will be interpretation and presentation intensive. Specific grading criteria for the final term project and presentation include: - Quality of ideas – logical coherence and clarity of arguments and hypotheses - Accuracy of analysis – appropriate research method, analysis and accuracy of calculations - Quality of presentation – professional and clear presentation of results - Written format, style, and coherence of paper - Oral presentation and communication skills Weighting of the different criteria and other details will be announced in class.

12. Required/Recommended Readings & Online Materials

Reading	Easley, David and Jon Kleinberg. *2010. Networks, crowds, and markets: Reasoning about a highly connected world.* Cambridge University Press. Hanneman, Robert A. and Mark Riddle. 2005. *Introduction to social network methods.* Riverside, CA: University of California, Riverside (published in digital form at http://faculty.ucr.edu/~hanneman/nettext/) Additional readings will be provided on-line. Required Tools R: A free and open-source statistical software; we will utilize packages such as igraph and ggplot2 for network analysis and visualization and base program for statistical analysis. A standard financial calculator such as Texas Instruments, Casio, and HP 12C.

13. Means / Processes for Student feedback on Course

Conducting mid-term survey in additional to SETL around the end of the semester
Online response via Moodle site
Others

14. Course Policy

1. Attendance

Attendance is required but not recorded, and class discussion is highly recommended. Beyond submitting the deliverables, students will benefit greatly from the course if they discuss the topics with other students both inside and outside of class. This is a fun topic with an incredible amount of real-life application both personally and professionally no matter what life-course one takes after the semester. We highly encourage students to approach this course as one that demands hard work, but also worthy of joyful inquisitiveness. The instructors will do all they are capable of to make this an intellectually rewarding course with a good dose of fun!

2. Academic Honesty and Integrity

The University Regulations on academic dishonesty will be strictly enforced. Please check the University Statement on plagiarism on http://www.hku.hk/plagiarism/.

Cheating or plagiarism of any kind would result in an automatic F grade for the course plus strict enforcement of all Faculty and/or University regulations regarding such behavior. Incident(s) of academic dishonesty will NOT be tolerated.

Academic dishonesty is a behavior in which a deliberately fraudulent misrepresentation is employed in an attempt to gain undeserved intellectual credit, either for oneself or for another. It includes, but is not necessarily limited to, the following types of cases:

1. Plagiarism - The representation of someone else's ideas as if they are one's own. Where the arguments, data, designs, etc., of someone else are being used in a paper, report, oral presentation, or similar academic project, this fact must be made explicitly clear by citing the appropriate references. The references must fully indicate the extent to which any parts of the project are not one's own work. Paraphrasing of someone else's ideas is still using someone else's ideas, and must be acknowledged.
2. Unauthorized Collaboration on Out-of-Class Projects - The representation of work as solely one's own when in fact it is the result of a joint effort.
3. Cheating on In-Class Exams - The covert gathering of information from other students, the use of unauthorized notes, unauthorized aids, etc.

Unauthorized Advance Access to an Exam - The representation of materials prepared at leisure, as a result of unauthorized advance access (however obtained), as if it were prepared under the rigors of the exam setting. This misrepresentation is dishonest in itself even if there are not compounding factors, such as unauthorized uses of books or notes.

15. Additional Course Information

Late assignments will be penalized at 50% per day. No late submissions will be accepted for the final term project.