

**City University of Hong Kong
Course Syllabus**

**jointly offered by Department of Computer Science
and Department of Information Systems
with effect from Semester B 2017/18**

Part I Course Overview

Course Title: Mobile Social Networks: Practices, Challenges, and Beyond

Course Code: GE2323

Course Duration: 1 Semester

Credit Units: 3 credits (75% CS and 25% IS)

Level: A2, B2

Arts and Humanities

Proposed Area: Study of Societies, Social and Business Organisations
(for GE courses only)

Science and Technology

Medium of Instruction: English

Medium of Assessment: English

Prerequisites: None
(Course Code and Title)

Precursors: None
(Course Code and Title)

Equivalent Courses: None
(Course Code and Title)

Exclusive Courses: None
(Course Code and Title)

Part II Course Details

1. Abstract

(A 150-word description about the course)

Mobile social networks (aka. MSN) such as Twitter, Instagram and Foursquare have experienced exponential growth in recent years. These MSNs offer attractive means, such as online service, platform, or site that focuses on facilitating the building of social networks or social relations among people who, for example, share interests, activities, backgrounds, or real-life connections.

This course aims to provide introduction level knowledge about the phenomenal “social” trend. The wide spectrum materials to be covered include: different levels of service models of MSN; the major underlying technologies and driving forces that support MSN, including both the technological and business perspectives; obstacles that might inhibit the growth and monetisation of MSN. The legal, ethical and societal aspects of social network security and privacy will also be discussed. Learning activities include lectures, group projects, case studies, hands-on assignment, and tutorial sessions.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs [#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Identify essential service requirements and issues through observation of the operations of online social network and discovering the practice and standards.	20%	✓	✓	
2.	Explore the driving forces that support MSN, in terms of both system architecture design, and the business model (through case study on the targeted advertising).	20%	✓		
3.	Understand the fundamentals of those various computing technologies support MSN, and relate those technologies to different application spectrum.	30%		✓	
4.	Discover the obstacles that remain to be addressed for the growth of MSN, and explore/evaluate security threat and vulnerabilities for online social network and their impacts, including legal, ethical and societal aspects.	20%	✓		
5.	Develop an attitude to address challenges in designing complex computer networks/systems and be prepared to propose solutions through independent investigation.	10%	✓	✓	✓
		100%			

* If weighting is assigned to CILOs, they should add up to 100%.

Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

Teaching pattern:

Suggested lecture/tutorial/laboratory mix: 2 hrs. lecture; 1 hr. tutorial

TLA	Brief Description	CILO No.					Hours/week (if applicable)
		1	2	3	4	5	
Lecture	Explain the key concepts, such as technical components, practice, standards as well as social impacts like security and privacy. Guest Lecture will be arranged if chance allows.	✓	✓	✓	✓	✓	2hrs/wk
Group Project	Require students to investigate the essential technical components of MSN and key issues of designing scalable computer network and service platforms. Students will also investigate topics related to data sharing, security and privacy etc., and create solutions for them through independent investigation.	✓	✓	✓	✓	✓	
Tutorial (in class case studies / discussion / demonstration)	Hands-on homework / tutorial sessions will be provided for students to learn the basic principles of social network, data sharing, targeted advertising, security and privacy, etc.	✓	✓	✓	✓	✓	1hr/wk

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.					Weighting*	Remarks
	1	2	3	4	5		
Continuous Assessment: <u>60%</u>							
Midterm Quiz	✓	✓	✓	✓	✓	12%	
Analysis Report Write-up	✓	✓	✓	✓	✓	8%	
Hands-on Homework	✓	✓	✓	✓	✓	5%	
Group Project and Presentation	✓	✓	✓	✓	✓	35%	
Examination [^] : <u>40%</u> (duration: 2 hours)							
						100%	

* The weightings should add up to 100%.

[^] For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Midterm Quiz	1.1 ABILITY to EXPLAIN the driving forces, underlying technologies and social impact of mobile social networks	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Analysis Report Write-up	2.1 CAPACITY for SELF-DIRECTED LEARNING to observe the practice, limitations and impacts of existing mobile social networks	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Hand-on Homework	3.1 ABILITY to EXPLAIN and MAKE USE OF the technologies supporting MSN.	High	Significant	Moderate	Basic	Not even reaching marginal levels
4. Group Project and Presentation	4.1 CAPACITY for SELF-DIRECTED LEARNING to observe and EXPLAIN the practice, limitations and impacts of existing mobile social networks and relate to daily life	High	Significant	Moderate	Basic	Not even reaching marginal levels
	4.2 ABILITY to notice and point out the shortcomings / risks of mobile social network and suggest solutions to the problems					
5. Final Examination	5.1 ABILITY to EXPLAIN the practice, limitations and impacts of existing mobile social networks and relate to daily life	High	Significant	Moderate	Basic	Not even reaching marginal levels
	5.2 ABILITY to notice and point out the shortcomings / risks of mobile social network and suggest solutions to the problems					

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

(An indication of the key topics of the course.)

Introduction to MSN, connections and social networks, ties and bridges, homophily, clustering coefficient, small world phenomenon, social network architecture, cloud computing and crowdsourcing, security and privacy, business perspective.

Week1: Introduction to MSN: what does it mean to have a social relationship among human beings? What does it mean to have a social network? Why MSN is so popular today? How does it evolve from the past to today? What is its social impact to real human relationships, such as on human beings' perception of their own identity, on human rights protection vs. possible censorship, etc.?

Week 2: Introduction to a number of dedicated social network services: professional career development (LinkedIn), educations (Coursera, Academia), game-centred, etc., and their typical features and technical requirements.

Week 3: A tentative guest lecture may be arranged. The potential topic will be centred on how the social media sites are changing the Internet user behaviours. The course proposers may seek help from researchers outside of computer science, e.g. from School of Creative Media at CityU.

Week 4: Mobile social network architectures under the hood: how would it be possible to efficiently and effectively manage the billions of data records? What are the key technologies to support that today?

Week 5: Mobile social network architectures under the hood: comparison of two major technology trends, i.e, centralized & decentralized way, to support large scale social network system operations. Focuses will be given to service requirements, ease of management, resources demand for service providers and social users, control of data within the network, performance, etc.

Week 6: Mobile social network business model: Targeted advertising. If those social services are free, how do those service providers survive?

Week 7: Mobile social network business model: What are the driving technologies underlying the targeted advertising? How would social network service providers use those technologies to understand their users and improve their functionalities?

Week 8: Mobile social data privacy and protection: What are the potential security threats and concerns of using social network services?

Week 9: Mobile social data privacy and protection: How to achieve an online social network with user-defined privacy? Does data encryption satisfactorily solve the problem?

Week 10: Mobile social user privacy and protection: Is it possible to remain anonymous in MSN? Cool and unusual attacks in de-anonymizing users in social networks will be introduced. Its impact to understanding the goods and bads of using MSN and anonymous MSN will be discussed.

Week 11: Location based mobile social services and location privacy: how much does it reveal by only observing the user's location tracks? Countermeasures of location privacy will also be discussed.

Week 12: Towards privacy-aware system design: how to strike a balance between the benefits of mobile social networks, and user privacy protection. For example, can we achieve privacy-preserving user behaviour targeting?

Week 13: Course wrap-up and review.

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	Stephen P Borgatti, Martin G Everett and Jeffrey C Johnson, “Analyzing Social Networks”, SAGE Publications Ltd 2013
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2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	David Easley and Jon Kleinberg, “Networks, Crowds, and Markets - Reasoning About a Highly Connected World”, Cambridge Press 2010
2.	Sara Baase, “A Gift of Fire: Social, Legal, and Ethical Issues for Computing and the Internet”, Prentice Hall, 3 edition, 2008
3.	Lisa Guerin J. D., “Smart policies for workplace technology: email, blogs, cell phones & more”, NOLO, 2009
4.	Wm. Arthur Conklin, Gregory B. White, Chuck Cothren, Dwayne Williams and Roger L. Davis, “Principles of Computer Security: CompTIA Security+ and Beyond”, McGraw Hill, 3 edition 2011
5.	Social Network Wikipedia (http://en.wikipedia.org/wiki/Social_networking_service)
6.	The Privacy Guide of Using Facebook (https://www.facebook.com/privacy/explanation) – Topics: Facebook Security Take Action page, and Privacy Settings page
7.	The Twitter privacy policy (http://twitter.com/privacy) – Topics: Information Sharing and Disclosure Statements, and Policy Towards Children
8.	Cyberterrorism Wikipedia (http://en.wikipedia.org/wiki/Cyberterrorism) – Topics: History, Examples, and Military Responses

A. Please specify the Gateway Education Programme Intended Learning Outcomes (PILOs) that the course is aligned to and relate them to the CILOs stated in Part II, Section 2 of this form:

GE PILO	Please indicate which CILO(s) is/are related to this PILO, if any (can be more than one CILOs in each PILO)
PILO 1: Demonstrate the capacity for self-directed learning	
PILO 2: Explain the basic methodologies and techniques of inquiry of the arts and humanities, social sciences, business, and science and technology	CILO2
PILO 3: Demonstrate critical thinking skills	CILOs 2, 4 and 5
PILO 4: Interpret information and numerical data	
PILO 5: Produce structured, well-organised and fluent text	CILOs 1, 2, 3, 4 and 5
PILO 6: Demonstrate effective oral communication skills	
PILO 7: Demonstrate an ability to work effectively in a team	CILO 5
PILO 8: Recognise important characteristics of their own culture(s) and at least one other culture, and their impact on global issues	
PILO 9: Value ethical and socially responsible actions	CILO 2
PILO 10: Demonstrate the attitude and/or ability to accomplish discovery and/or innovation	CILO 5

GE course leaders should cover the mandatory PILOs for the GE area (Area 1: Arts and Humanities; Area 2: Study of Societies, Social and Business Organisations; Area 3: Science and Technology) for which they have classified their course; for quality assurance purposes, they are advised to carefully consider if it is beneficial to claim any coverage of additional PILOs. General advice would be to restrict PILOs to only the essential ones. (Please refer to the curricular mapping of GE programme: http://www.cityu.edu.hk/edge/ge/faculty/curricular_mapping.htm.)

B. Please select an assessment task for collecting evidence of student achievement for quality assurance purposes. Please retain at least one sample of student achievement across a period of three years.

Selected Assessment Task
Group project and presentation.