# ISOM 2010 – Introduction to Information Systems
**Fall 2023**

## Instructor Information

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| Professor: | **Prof. Hong Xu** |
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| | LSK 4059 |
| Office Hours: | By appointment through email |

Teaching Assistant

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| | LSK 4065 |
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| Questions related to lecture: | |
| Questions related to lab: | Lead TA of your lab section |

## Course Materials

Classes will include a mixture of videos, presentations, and lectures. There is **no required textbook** for this course. Additional readings and reference materials can be accessed through the course website.

Reference Book (Optional): *Essentials of Management Information Systems (11th Ed.)* Laudon and Laudon, Pearson Education, 2015 (ISBN13: 9780133576849).

## Course Description

In virtually every industry and every firm, information technology (IT) is driving change, creating opportunities and challenges. Leaders who don't understand the fundamentals of information systems (IS) will be at a strategic disadvantage. IS have moved beyond the automation of back office functions, into the foreground of business strategy. IS play critical roles in competitive positioning and business process design.

This course provides broad coverage of technology concepts and social and economic trends underlying current and future developments in IT, and fundamental principles for the effective use of computer-based IS in businesses and other organizations. There will be a special emphasis on the digital economy, e-commerce, and business analytics. Other topics include: hardware/software, networking, the Internet, database, security, and social media. In additional to the fundamental conceptual and propositions in the IS area, a number of business applications and cases will be discussed.

## Learning Outcomes

The goal of this course is to provide you with an introduction to IT-enabled approaches to information management in business contexts. (T-Taught, P-Practiced, M-Measured)

Upon completion of the course, students will be able to

1. Describe how a business organization's choice of strategy and process (what the firm does and how the firm does it) and their resulting effectiveness are closely related to the firm's information management and communications capabilities (OBE Goals 3, 4. T, P).
2. Develop a foundation to develop quantitative and analytical techniques to solve business problems with innovative perspectives that extends beyond this course (Goals 1, 9. T, P, M).
3. Analyze the core technological and business issues and identify critical factors for business decision-making (Goals 1, 4. T, P, M).
4. Evaluate information systems; examine their relations with business strategy, process, and organization (Goal 3. T, P, M).

This course will also provide students with:
1. Skills in producing professional quality business documents, delivering professional quality presentations and communicating ideas persuasively (Goal 2. T, P, M).
2. Ability to lead and work effectively in a team (Goal 5. T, P).
3. Proficiency in using IT applications in business and management; tools for searching, organizing and processing information using appropriate information technology and systems (Goal 7. T, P, M).
4. Preparation for future careers in business and social environments that are deeply permeated with and dependent upon IT (Goals 3, 9. T, P).

We believe that an understanding of the topics covered in this course will pay subtle and unexpected dividends throughout your careers (Goal 9. T, P).


**Detailed Learning Goals**

*Digital Economy*

1. Explain data, information, and information systems.
2. Know the meaning of Moore's law, Metcalf's law and their implications.
3. Understand the implications of globalization.
4. Discuss the use of information systems in organizations.
5. Describe the newer aspects of working in the digital world.
6. Define ethics and describe the major ethical problems posed by the digital world.

*Ecommerce*

1. Describe the nature of e-business.
2. Define the e-business value chain and disintermediation.
3. Describe the basic e-business models.
4. Examine the major online marketing methods.
5. Discuss the major issues that are created by and affect e-business.

Social Media
1. Describe the key component of social media.
2. Explain the 3 features of social media authoring.
3. Understand the meaning of Tagging.
4. Explain the differences between traditional and social media.


*Technical Foundations*
1. Identify the major components of hardware and networking technology.
2. Identify the different types of software.
3. Describe the process in software development.
4. Discuss the trends in hardware and software, and the implications to businesses.

*Big Data*

1. Explain how organizations use data and information.
2. Explain the basic concepts of data management (data creation, sharing, mining, reporting).
3. Define database management systems (DBMS) and describe their various functions.
4. Data storage within and across organizations.
5. Explain how the relational database model works.
6. Describe how databases are developed.
7. Explain how organizations can use data warehousing and data mining for decision making.
8. Describe advanced database models and when their use is appropriate.

*Business Analytics and Decision Makings*

1. Discuss the problems associated with management decision-making.
2. Explain the specific information needs of managers in different functional areas of an organization, including production, operations, marketing and sales, accounting, human resources and IT.
3. Explain the decision-making process.
4. Explain the increasing roles and responsibilities of accountants as user and owner of data and the corporate information system.
5. Describe decision support systems.
6. Describe the opportunities and threats to corporate information system including capabilities in data treatment and analysis, data integrity, system security and issues in access restriction, and business contingency/continuity.
7. Discuss the roles and trend of IT in business analytics and decision making

*Business, Accounting and Finance*

1. Formulate appropriate information systems strategies to support implementation of business and functional strategies.
2. Use the system development life cycle to plan, design, implement, and evaluate an IT system.
3. Describe the application of information technology to accounting systems and the generation, reporting, internal control and attestation of accounting information.
4. Recognize and understand the roles of accountants in all stages of the system development life cycle: systems analysis; systems design; systems implementation; and systems operation and maintenance.
5. Demonstrate an understanding of the behavioral issues of implementing information systems in organizations.
6. Describe how change management can contribute to successful implementation of information systems.

*Technology-Enabled Business Trends*

1. Identify major tech-enabled trends in near future
2. Examine impact of tech-enabled trends on individuals, firms, and society
3. Discuss business opportunities of new technologies

## Course Logistics

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| Participation | 15% |
| Labs | 15% |
| Research Project | 20% |
| Midterm Exam | 25% |
| Final Exam | 25% |
| Total | **100%** |

***Participation (15%):*** Students are expected to attend the class prepared and to participate in discussions. Students are also expected to attend the invited speakers' sessions in the "Industry Week" as part of course participation. In-class exercises will be conducted during selected lectures. The exercises contain short questions related to the lecture content. Students are expected to participate by submitting their answers to questions provided.

***Labs (15%):*** The lab sessions will be 50 minutes each, and will cover from basic to advanced skills and knowledge of various database management applications as well as other interesting topics. In almost every lab session, there is a task that you need to complete during the lab session. You MUST attend the lab session to which you are assigned; lab instructors will ask unregistered students to leave. ***You will not get credit for work done during a session for which you are not registered.***

***Research Project (20%):*** This is a group activity (5 students per group) that is intended to allow you to exercise your insights and analytical abilities to a real-life business/application. The paper can deal with a specific company (e.g. a publicly traded firm engaged in e-commerce), an emerging technology, compare two or more firms, discuss a particular business model, technology or any other topic that is ***relevant to the course*** subject to approval from the instructor. The general questions we are asking are: given your research on the company/technology (i.e. you have to do research and analysis), how well do you think it will perform in the future? What are the major issues facing this company/technology and how well do you think the company/industry is prepared to handle them? Rewards are given for going beyond the obvious (e.g. its future depends on its profitability) and applying some conceptual frameworks. The paper can adopt one of several styles but most importantly, whatever style is used must be done well. ***Presentations of the projects will be given in classes 21-24. There are 4 slots per class, 15 minutes per slot.*** Presentation quality will reflect clarity, level of effort, and content. Available slots will be filled on a first-come first-served basis.

***Mid-term (25%) and Final (25%):*** These are major check points to ensure that you understand the key concepts that we introduce in this course. The mid-term examination will cover topics in the first three modules, whereas the final examination will cover all other materials that we have introduced in this course. Review sessions will be scheduled to help you prepare for these examinations. In general, these examinations are non-technical in nature.

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**Academic Integrity**

Academic integrity entails absolute honesty in one's intellectual efforts. UST places a strong emphasis on academic integrity and has introduced new regulations to back this up.

In addition to the course content related to business ethics related to IS/IT, special attention will be put on academic integrity demonstrated when you take this course. You should be especially aware of the policies on cheating and plagiarism. Cheating is any action that violates University norms or an instructor's guidelines for the preparation and submission of assignments. Such actions may include using or providing unauthorized assistance or materials on course assignments, or possessing unauthorized materials during an examination. Plagiarism involves the representation of another's

work as your own, for example: (a) submitting as one's own <u>any</u> material that is copied from published or unpublished sources such as the Internet, print, computer files, audio disks, video programs or musical scores without proper acknowledgement that it is someone else's; (b) paraphrasing another's views, opinions or insights without proper acknowledgement <u>or</u> copying of any source in whole or in part with only minor changes in wording or syntax even with acknowledgement;  (c) submitting as one's own work a report, examination, paper, computer file, lab report or other assignment which has been prepared by someone else.  If you are unsure about what constitutes unauthorized help on an exam or assignment, or what information requires citation and/or attribution, please ask your professor. ***<u>Violations may result in the failure of the assignment, failure of the course, and/or additional disciplinary actions.</u>***

For more information, please visit the following websites:

http://www.ust.hk/vpaao/integrity/student-1.html

http://www.ust.hk/vpaao/integrity/student-4.html

**Class Schedule L1 & L3**

| Week | Date | Class | Topic |
|---|---|---|---|
| 1 | Sept 1 | 1 | Introduction |
| 2 | Sept 6 | 2 | Digital Economy (I) |
| | Sept 8 | 3 | Digital Economy (II) |
| 3 | Sept 13 | 4 | Digital Economy (III) **(Due: Group List)** |
| | Sept 15 | 5 | E-Commerce (I) |
| 4 | Sept 20 | 6 | E-Commerce (II) |
| | Sept 22 | 7 | E-Commerce (III) **(Due: Project Proposal)** |
| 5 | Sept 27 | 8 | E-Commerce (IV) |
| | Sept 29 | 9 | Midterm Review |
| 6 | Oct 4 | 10 | Online Platform (I) |
| | Oct 6 | 11 | Midterm Exam |
| 7 | Oct 11 | 12 | Online Platform (II) |
| | Oct 13 | 13 | Online Platform (III) |
| 8 | Oct 18 | 14 | Industry Exposure (Tentative) |
| | Oct 20 | 15 | No Class: Please attend industry talks |
| 9 | Oct 25 | 16 | Business Analytics (I) |
| | Oct 27 | 17 | Business Analytics (II) **(Due: Presentation Slots Choice)** |
| 10 | Nov 1 | 18 | Big Data Analytics (I) |
| | Nov 3 | 19 | Big Data Analytics (II) |
| 11 | Nov 8 | 20 | Project Presentation (I) |
| | Nov 10 | 21 | Project Presentation (II) |
| 12 | Nov 15 | 22 | Project Presentation (III) |
| | Nov 17 | 23 | Project Presentation (IV) |
| 13 | Nov 22 | 24 | Project Presentation (V) |
| | Nov 24 | 25 | Emerging Technologies in IS |
| 14 | Nov 29 | 26 | Final Exam Review **(Due: Project Report)** |

**Class Schedule L2**

| Week | Date | Class | Topic |
|------|------|-------|-------|
| 1 | Sept 1 | 1 | Introduction |
| 2 | Sept 4 | 2 | Digital Economy (I) |
| | Sept 8 | 3 | Digital Economy (II) |
| 3 | Sept 11 | 4 | Digital Economy (III) **(Due: Group List)** |
| | Sept 15 | 5 | E-Commerce (I) |
| 4 | Sept 18 | 6 | E-Commerce (II) |
| | Sept 22 | 7 | E-Commerce (III) **(Due: Project Proposal)** |
| 5 | Sept 25 | 8 | E-Commerce (IV) |
| | Sept 29 | 9 | Midterm Review |
| 6 | Oct 2 | 10 | Public Holiday – No class |
| | Oct 6 | 11 | Midterm Exam |
| 7 | Oct 9 | 12 | Online Platform (I) |
| | Oct 13 | 13 | Online Platform (II) |
| 8 | Oct 16 | 14 | Industry Exposure (Tentative) |
| | Oct 20 | 15 | No Class: Please attend industry talks |
| 9 | Oct 23 | 16 | Public Holiday – No class |
| | Oct 27 | 17 | Business Analytics **(Due: Presentation Slots Choice)** |
| 10 | Oct 30 | 18 | Big Data Analytics (I) |
| | Nov 3 | 19 | Big Data Analytics (II) |
| 11 | Nov 6 | 20 | Project Presentation (I) |
| | Nov 10 | 21 | Project Presentation (II) |
| 12 | Nov 13 | 22 | Project Presentation (III) |
| | Nov 17 | 23 | Project Presentation (IV) |
| 13 | Nov 20 | 24 | Project Presentation (V) |
| | Nov 24 | 25 | Emerging Technologies in IS |
| 14 | Nov 27 | 26 | Final Exam Review **(Due: Project Report)** |

**Lab Schedule**

| Week (Dates) | Topic |
| --- | --- |
| Week 2,3 (Sep. 13,14,15,19) | Web Analytics |
| Week 3,4 (Sep. 20,21,22,26) | Business Analytics using Microsoft Excel |
| Week 4,5 (Sep. 27,28,29, Oct. 3) | Advanced Business Analytics I |
| Week 5 (Oct. 5,6) | Advanced Business Analytics II |
| Week 7 (Oct. 17,18) | Advanced Business Analytics II |
| Week 7,8 (Oct. 19,20,24,25) | Advanced Business Analytics III |
| Week 8,9 (Oct. 26,27,31, Nov. 1) | Database using Microsoft Access I |
| Week 9,10 (Nov. 2,3,7,8) | Database using Microsoft Access II |
| Week 10,11 (Nov. 9,10,14,15) | Database using Microsoft Access III |
| Week 11,12 (Nov. 16,17,21,22) | Big Data Analytics I |
| Week 12.13 (Nov. 23,24,28,29) | Big Data Analytics II |