

## **ISOM3210: Information Systems Analysis and Design (Fall 2019)**

**Lecture:** Dr. Xiaojun Zhang

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**Lab (LA1, LA2 and LA3):** Mr. Samuel S Y LAI

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**Lab (LA4):** Ms. Adrienne Y S LEE

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Office Hours: By appointment

**Class Schedule**<sup>1</sup>: L1: Tuesday & Thursday 12:00pm – 1:20pm Venue: BL 5620

L2: Tuesday & Thursday 1:30pm – 2:50pm Venue: BL 5620

L3: Tuesday & Thursday 9:00am – 10:20am Venue: BL 5620

**Lab Schedule:** LA1: Monday 1:30pm – 2:20pm Venue: LSK 1034 (Samuel)

LA2: Monday 4:30pm – 5:20pm Venue: LSK 1034 (Samuel)

LA3: Monday 12:00pm – 12:50am Venue: LSK 1034 (Samuel)

LA4: Monday 9:00am – 9:50am Venue: LSK 1034 (Adrienne)

**Course Website:** <http://canvas.ust.hk>

**Textbooks (for reference to topics only):**

1. “System Analysis and Design with UML: An Object-Oriented Approach”, by Alan Dennis, Barbara Haley Wixom and David Tegarden; 5th ed., 2015; John Wiley & Sons; ISBN 9-781118-804674.
2. AUCM: “Advanced Use Case Modeling,” 2<sup>nd</sup> printing, by Frank Armor and Granville Miller, Pearson, April 2001. ISBN 0201615924.

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<sup>1</sup> For detailed information about class schedule, please refer to the table at the end of the syllabus.

## 1. Introduction

Nowadays, information systems plays a major role in organizations by satisfying their diverse needs. Organizations must become adept in bringing in new information systems and managing the challenges that go along with implementing the systems. This course provides an overview of planning the development of information systems through clearly understanding and specifying what a system should do and how various components of a system should work together. In addition, students will learn the fundamentals of IS development and apply them to solve business problems through analyzing the requirements of information systems and designing such systems.

## 2. Key Components of the Course

The course includes the following three key components:

- **Lectures (online and offline):** explain and discuss the key topics on system analysis and design and work on exercises and cases relevant to the topics
- **Labs:** provide guidance for students to work on their team projects
- **Team project:** provide students with hands-on experience in applying knowledge and skills learned in class to model an information system

## 3. Learning Outcomes (Adapted from Outcome Based Education (OBE): PILOs-BBA-IS)

Student learning outcomes:

- Analyze the core issues and identify critical factors for IS development-related decision-making
- Solve business problems using analytical IS development methodologies
- Understand how IS interact with other business areas
- Demonstrate substantial knowledge and understanding of system analysis and modeling paradigms
- Apply IS development frameworks and tools to resolve business problems in the IS sector of an organization and other business sectors relying on IS
- Understand key IS development management issues and make sound IS development decisions as business managers

In addition, throughout the semester, students will have opportunities to develop ability to:

- Learn the course fundamentals on their own
- Produce professional quality business documents
- Deliver a professional quality presentation
- Communicate ideas persuasively to inform and convince others
- Understand team dynamics and the various roles played within the team
- Contribute to the successful and timely completion of a group project in line with their roles in teams
- Collaborate positively by actively seeking and engaging in discussion of the views of others while showing sensitivity to opposing views
- Lead a team to success

## **4. Grading**

- Exams (45%)
  - Mid-term exam (20%)
  - Final exam (25%)
- Team project (33%)
- Participation (15%)
  - Lecture (10%)
  - Lab (5%)
- Online learning and exercises (7%)

### **Examination**

One mid-term exam will be administered during the semester followed by a final exam in the official final exam period. The exams are expected to measure the degree to which students individually have understood the key concepts covered in class. To help you prepare for the examinations, review sessions will be offered. Makeup examinations will be allowed only in cases of documented health or family emergencies or for official, university-sanctioned activities. The instructor reserves the right to use a percentage score of the other examinations to make up for missed examinations. Advanced notification of missing an examination is required. Any uncoordinated absence from an exam will result in a score of 0 for the exam.

### **Participation**

Students are expected to come to class and lab prepared and to participate in discussion. We highly value your inputs, and so participation marks will be awarded to those who make an effort to attend regularly and actively engage in class discussions. Both quality and quantity of your contribution will determine the credit for participation. In addition, students will earn participation credits by studying course materials posted on Canvas and completing the online quizzes.

### **Team Project**

Students have to complete a team project requiring them to perform analysis and design activities on a proposed system. Each team needs to submit a project proposal and a final report, and make a presentation by the end of the semester. More details about the project will be provided.

## **5. Lab**

Students are required to work on more advanced and practical system analysis problems during lab sessions. You are expected to apply concepts that are learnt from online and offline lectures into lab sessions for these problems. You should attend lab sessions on time, complete the designated work and engage actively in the discussion.

## **6. Academic Integrity**

Academic integrity entails absolute honesty in one's intellectual effort. In general, students who are found cheating or plagiarizing other people's work will immediately fail the course and be subject to further disciplinary actions. For more information, please refer to the following Website:

<http://ugadmin.ust.hk/integrity/student-1.html>

**Class Schedule** (*Tentative, last updated on August 16 2019*)

Week	Date	Topic	Online Materials	Face to Face Sessions	Readings	Lab	Due
1	Sep 3	Course Introduction and Project Initiation		Course Introduction	Ch. 1 and 2	Sep 9: Introduction to Blended Learning and Course Grading Criteria	
	Sep 5			Project Identification and Initiation			
2	Sep 10	System Request and Feasibility Analysis	System Request Template and the Concept of Feasibility Analysis	Review and Group Case Study: System Request and Feasibility Analysis	Ch. 2	Sep 16: Introduction to Group Project -Form Groups -Identify System	Sep 16: Project Team Formation
	Sep 12			System Request and Feasibility Analysis of CHMS			
3	Sep 17	Requirement Analysis	<u>Lecture Video:</u> 3-1: Requirements analysis <u>CHMS Case Study Video:</u> 01. Functional and Non-Functional Requirements <u>Online Exercise 1:</u> Identify the Functional and Non-Functional	Q&A for Online Materials (Optional)	Ch. 3	Sep 23: Project Consultation -Project Proposal Template -Project Ideas	Sep 23: <u>Project Checkpoint 1</u>  Submit Project Idea
	Sep 19			Review and Group Case Study: Requirement Analysis			

			Requirements for CHMS				
4	Sep 24	Intro to UML and Use Case Modeling	<u>Lecture Videos:</u> 4-1 Introduction to UML 4-2 Base Use Case 4-3 Conditional Flow <u>CHMS Case Study Videos:</u> 02a: Actor and Use Case Diagram 02b: Base Use Case 03: Conditional Flow <u>Online Exercise 2:</u> Complete the Use Case Diagram and the Base Use Case Forms with Conditional Flows for CHMS	Q&A for Online Materials (Optional) Review, Group Case Study and Exercises: Use Case Modeling <u>Take-home Exercise:</u> Campus Housing System (Submit in project groups)	AUCM Ch. 7 Ch. 8 Ch. 9	Sep 30: Project Consultation -Refine Project Ideas -Complete Use Case Diagram	Sep 30: <u>Project Checkpoint 2</u> List of Actors, and Draft Use Case Diagrams
	Sep 26	Object-Oriented Modeling I - Base Use Case Description Object-Oriented Modeling II - Elaborated Use Case Description (Alternative and Conditional)					
5	Oct 1	Object-Oriented Modeling III	<u>Lecture Videos:</u> 5-1 Extending Use Case 5-2 Included Use Case <u>CHMS Case Study Videos:</u> 04a: Extending Use Case 04b: Included Use Case <u>Online Exercise 3:</u> Suggest EUC and identify IUC for CHMS	Public Holiday Review and Group Exercise: EUC and IUC	AUCM Ch. 10	Oct 7: Public Holiday	
	Oct 3	- Elaborated Use Case Description (Extending and Included Use Cases)					
6	Oct 8	Project Proposal Meeting		Project Proposal Meeting I		Oct. 14: <u>CHMS Tutorial 1:</u>	Oct 8 and 10 in-

	Oct 10			Project Proposal Meeting II		Walkthrough the CHMS Suggested Solutions for Use Case Modeling  Q&A for Midterm	class: <u>Checkpoint 3</u> Project Proposal
7	Oct 15	Midterm Exam		Midterm Exam Review			
	Oct 17			Midterm Exam			
8	Oct 22	Class Diagram Overview	<u>Lecture Videos:</u> Class Diagram: 8-1 Overview 8-2 Class, Attribute and Method 8-3 Relationship <u>Online Exercise 4:</u> Identify Classes, Attributes and Methods (UST Thing and Clinic Appointment System)	Q&A for Online Materials (Optional)	Ch. 5		
	Oct 24			Summarize Midterm Survey  Review Class Diagram Concepts and Introduce Inheritance			
9	Oct 29	Develop Class Diagram from Use Cases	<u>Lecture Videos:</u> Develop Class Diagram from Use Cases: 9-1 Rules 9-2 Identification of Classes, Attributes and Methods	Q&A for Online Materials (Optional)	Ch. 5	Nov. 4: <u>CHMS Tutorial 2:</u> Walk though the Suggested Solutions for CHMS Class Diagram	
	Oct 31			Group Exercise: Class Diagram of Campus Housing System			

			<p>9-3 Specification of Relationships</p> <p><u>CHMS Case Study Videos:</u></p> <p>Develop the Class Diagram for CHMS:</p> <p>05a: Register as a Member</p> <p>05b: Reserve Facilities</p> <p>05c: Relationships</p> <p><u>Online Exercise 5:</u></p> <p>Complete the class diagram for CHMS</p>				
10	Nov 5	Sequence Diagram	<p><u>Lecture Videos:</u></p> <p>Sequence Diagram:</p> <p>10-1 Introduction</p> <p>10-2 Development</p> <p>10-3 Highlights</p> <p><u>CHMS Case Study Videos:</u></p> <p>06: Sequence Diagram of CHMS</p> <p><u>Online Exercise 6:</u></p> <p>Draw an Additional Sequence Diagram for One Use Case of CHMS</p>	Q&A for Online Materials (Optional)	Ch. 6	Nov. 11: Project Consultation -Finalize Use Cases	Nov. 11: <u>Project Checkpoint 4</u>  Confirmed Set of Use Cases
	Nov 7			Review and Group Exercise: Sequence Diagram			
11	Nov 12	Behavioral State Machine (BSM)	<p><u>Lecture Videos:</u></p> <p>BSM Diagram:</p> <p>11-1 Introduction</p> <p>11-2 Key Concepts</p>	Q&A for Online Materials (Optional)	Ch. 6	Nov. 18: Project Consultation -Presentation Requirements	
	Nov 14			Review and Group Exercise: BSM for			



			<u>Online Exercise 7:</u> BSM for Tune Order and Book Order	Clinic Emergency Care and CHMS		-Remaining Issues for the Project	
12	Nov 19	Exercise: Class Diagram, Sequence	<u>Reading Material:</u> Dr. Samuel Case	Q&A for Dr. Samuel Case (Optional)		Nov. 25: <u>CHMS</u> <u>Wrap up:</u>	
	Nov 21	Diagram and Behavioral State Machine Diagram Final Exam Review	<u>Online Exercise 8:</u> Dr. Samuel Case	Wrap up the Key Takeaway of Dr. Samuel Exercise Final Exam Review		-Walkthrough CHMS as Course Wrap-up - Remaining Issues for the Project	
13	Nov 26	Project Presentation		Project Presentation I			Nov. 25 (11:59PM): Presentation Slides and Final Project Report
	Nov 28			Project Presentation II			