ISOM 3710 Business Modeling and Optimization

2023 Fall - Course Syllabus

THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY

Instructor

Dr. Jianyue Wang   imjywang@ust.hk

Office: LSK 5067 Office hour: Tue 13:30-14:30

Tutors

Mr. Piao Hu phuac@connect.ust.hk   Office: LSK 5017

Office hour: Mon 9:30-10:30 (Week 2, 4, 6, 8, 10, 12)

Ms. Siqi He   shebb@connect.ust.hk   Office: LSK 5067

Office hour: Mon 9:30-10:30 (Week 3, 5, 6, 9, 11, 12)

Class Schedule

L1   TuTh 12:00PM - 01:20PM   L2 TuTh 09:00AM - 10:20AM

T1   Mo   10:30AM - 11:20AM   T2 Mo   11:30AM - 12:20PM

Course Description

This course will focus on modeling and problem solving using Excel. The emphasis will be on building useful models for analyzing and solving practical problems. This is a hands-on course and we will adopt a workshop approach to learning. The teaching methods will include: mini lectures, demonstrations and practical exercises. Students will be exposed to a variety of managerial problems and their modeling skills will be enhanced around the following aspects: working with Excel; using formulas; manipulating information; analyzing business problems; identifying optimal decisions.

Learning Objectives

The course has a two-fold purpose. First, it introduces students to simple models that provide powerful and often surprising qualitative insights about a large spectrum of managerial problems. Second, it gives students a general idea for the kinds of problems that can be tackled quantitatively, the methods available for doing so, and the relevant data that needs to be gathered.

Course Materials

(1) Textbook: Practical Management Science, 6th edition, by Winston and Albright, Cengage, 2017. (Earlier versions: "Practical Management Science, 5th edition", "Management Science Modeling", "Essentials of Practical Management Science".)

// Below is information provided by the publisher. //

For Print Book,

Students could visit the booth which available from 28 Sep 2023-29 Sep 2023 to purchase the print book.

The Commercial Press – The Hong Kong University of Science and Technology

Address: Entrance Piazza G012 (Ex-Bank of East Asia's site)

For eBook,

eBook purchase link:

Practical Management Science, MindTap, 12 Months Digital Access

https://www.cengageasiaestore.com/hk/mindtap-practical-management-science-12months.html

Discount code: HK30923   Promotional period: 14th Aug 2023- 30th Sep 2023

Price: $350   Discount: HKD $30 off   Course key: MTPP-CB93-Q63V

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(2) Slides, Excel files and other course material downloadable from http://canvas.ust.hk using your ITSC account name/password.

Contents to be covered

Ch 2: Introduction to spreadsheet modeling

Ch 3: Introduction to optimization modeling

Ch 4: Linear Programming models

Ch 5: Network models

Ch 6: Optimization models with integer variables

Ch 7: Nonlinear optimization models

Grading Scheme

Midterm Quiz: 25%;

Homework: 15%;

Final examination: 55%;

Class Attendance: 5%;

Bonus for class participation: up to 5%.

Exam Information

Midterm Quiz:

Tentative schedule: Oct 16 10:30AM - 11:20AM (T1) & 11:30AM - 12:20PM (T2)

Venue: G021, LSK Bldg

Final Examination: To be announced by the university.

Important Policies

1. Quiz and examination will be close-book but open-note. Lecture notes will be available in K drive and all hand-written notes are allowed.

2. There is no makeup quiz: if you miss the quiz for any reason, its weight (25%) will be automatically shifted to the final examination.

3. Lectures are required, but tutorials are not. However, you are highly encouraged to attend the tutorials.

4. Class attendance will be taken for 3 times during the semester, and you will get full mark of this part if you don't miss more than once. (Note: signing attendance sheet for other students will be treated as cheating!)

5. There are two kinds of assignments: Homework and Exercises. You need to submit Homework on the due date, but Exercises are for your own practice only. Homework could be finished in team of up to three students. Solutions for homework/exercises will be discussed in the tutorial session and / or posted in Canvas.

6. Homework will be posted on Canvas at least one week before the deadline. **No late submission will be accepted.**

7. Homework will be graded based on both effort and accuracy.

8. Please turn off your mobile phone during any lecture.

9. To reduce interruption to the class, except approved beforehand, students are not supposed to enter classroom if they are late for more than 15 minutes and are not supposed to leave before the end of a lecture.

10. Without approval beforehand, students should attend their own sections of lecture / tutorial.

11. You are strongly encouraged to re-do all in-class exercises/examples by yourself after the class, as soon as possible, and discuss with the professor or the tutors for any problem you have.

12. Re-grading policy: The process of assigning the grades is intended to be one of unbiased evaluation. Students are encouraged to respect the integrity and authority of the professor's grading system and are discouraged from pursuing arbitrary challenges to it. If you believe an inadvertent error has been made in the grading of exams, a request re-grading may be submitted. In the event that you would like to request to re-grade:

    a) Email us within 3 days of receiving your grade, including a brief written statement of why you believe that an error in grading has been made. Last requests will not be entertained.

    b) We will re-grade your assessment/examination in its entirety. That is, We will re-grade all the items in your assessment/examination.

Academic Integrity

Students at HKUST are expected to observe the Academic Honor Code at all times. Zero tolerance is shown to those who are caught cheating on exams. In addition to receiving a zero mark on the exam involved, the final course grade will appear on your record with an X, to show that the grade resulted from cheating. This X grade will stay with your record until graduation. If you receive another X grade, you will be dismissed from HKUST.

For more information, see https://registry.hkust.edu.hk/resource-library/academic-honor-code-and-academic-integrity .

Tentative Schedule of Lectures

Week	Date	Topic
Week 1	Sep 5	Introduction
	Sep 7	
Week 2	Sep 12	
	Sep 14	Chapter 2 Introduction to spreadsheet modeling
Week 3	Sep 19	
	Sep 21	
Week 4	Sep 26	
	Sep 28	
Week 5	Oct 3	Chapter 3 Introduction to optimization modeling
	Oct 5	
Week 6	Oct 10	Chapter 4 Linear Programming models
	Oct 12	
Week 7	Oct 17	Midterm Quiz
	Oct 19	
Week 8	Oct 24	Chapter 4 Linear Programming models
	Oct 26	
Week 9	Oct 31	Chapter 5 Network models
	Nov 2	
Week 10	Nov 7	
	Nov 9	Chapter 6 Optimization models with integer variables
Week 11	Nov 14	
	Nov 16	
Week 12	Nov 21	Chapter 7 Nonlinear optimization models
	Nov 23	
Week 13	Nov 28	
	Nov 30	Final Exam Review

* The instructor reserves the right to make any changes on the schedule.