



ISOM2700 Operations Management Spring 2023 (L1, L2, L3 and L4)

Department of Information Systems, Business Statistics and
Operations Management

COURSE: ISOM2700 Operations Management (3-0-0:3)
Production and service operations viewed from the strategic, tactical and operational levels: capacity planning, process selection, impact of technology, location and layout, material and resource requirements, scheduling and quality control. Exclusion: ISOM2720 and IELM4100

Spring 2023

L1: Tues & Thurs 3:00 – 4:20PM, Rm 2464 (Lift 25 – 26)

L2: Tues & Thurs 4:30 – 5:50PM, Rm 2464 (Lift 25 – 26)

L3: Tues & Thurs 10:30 – 11:50AM, G012 (LSK)

L4: Tues & Thurs 1:30 – 2:50PM, Rm 2464 (Lift 25 – 26)

INSTRUCTOR: Prof. Yiwen Shen (yiwen Shen@ust.hk)
Office: LSK-4039; Phone: 2358-7581
Office hours: Monday 5PM to 6PM or by appointment

TEACHING ASSISTANT: Jing Jia (imiing@ust.hk)
Office: LSK-4065; Phone: 2358-8543
Office hour: Wednesday to 9:30AM to 10:30AM or by appointment

TEXTS: Learning materials available on Canvas.
Recommended textbook (optional): Matching Supply with Demand by Cachon and Terwiesch

GRADING POLICY: Final course grade will be determined by the following criteria and maximum point distribution:

Homework (2)	10
Online quizzes (best 3 of 4)	15
Midterm exam	35
Final exam	40
Total	<u>100</u>

Homework:

- Total two homework will be assigned. The homework should be submitted before **23:59PM Sunday** of the weeks noted in the syllabus.
- Partial credits will be given based on solution steps.
- Late submission is not allowed.
- The homework solution will be posted in the following week.

Quizzes: Start from Week 3.

- Each online quiz consists of 10 multiple choice questions.
- Once you start the quiz, the timer will start automatically and you must complete it within the time limit.
- The quiz for the week will be released on **Monday morning**. You must complete the quiz by the due time (**23:59 on Sunday**) each

week, as noted in the syllabus.

- No makeup quiz will be given. The quiz for the week will be waived only if you have a valid reason, such as medical emergency.

Exam: The midterm covers only part A of the course while the final exam covers only part B. The mid-term (resp. final) exam consists of 40 (resp. 50) multiple choice questions. The midterm will last 1 hour and 40 minutes, and the final exam will last two hours. No makeup will be given for the midterm exam. If you miss the midterm exam for a valid reason that is approved by the instructor in advance, you will have to take a 3-hour, 80-question comprehensive final exam instead.

Regrading policy: Regrading request must be submitted within three days after the post of grade. The regrading will be based on the entirety of the homework/exam.

COURSE GRADE DISTRIBUTION:

In determining the final course grade, your instructor will consider the grade distribution of all ISOM 2700 classes taught by other instructors and the recommended grade distribution at HKUST

INTENDED LEARNING OUTCOMES:

This course is designed in such a way that, after completing it, you will be able to:

1. Describe the design and delivery of product/service in different organizations, and evaluate the systems for measurement and improvement of operations. [1,4]
2. Identify and select crucial variables and measurements in decision modeling. [1]
3. Identify and describe operations management as one of the core business functions. [3]
4. Integrate operations management with other business functions to support a coherent corporate strategy. [3]
5. Determine how operation management decisions impact other business functions. [3]
6. Identify a wide range of contemporary and pervasive global business issues, as well as cultural and technology advancement that impact the management of operations. [4, 6]
7. Apply a range of appropriate quantitative and qualitative methods and tools to solve business problems in which the management of operations is a critical issue. [4,7]
8. Discuss the role of operations management in sustainability and social responsibility. [8]

The numbers at the end of each learning goal correspond to those learning goals and objectives for the BBA-OM Program. For details, please visit our department web site at <http://www.bm.ust.hk/isom/>.

TEACHING APPROACH

The instructor will cover all required contents as well as some optional topics in class. The lecture slides will be distributed before each class via Canvas. Additional reading materials and other learning resources are also posted on Canvas. Students are expected to learn the core concepts from concrete business problems, manage necessary quantitative skills, and apply the managerial insights in other relevant settings. Students should complete on-line learning tasks each week

and are encouraged to ask questions during the instructor-led, face-to-face session or Zoom meeting.

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 any form of assessment and a zero mark will be given. In particular, any act of cheating on exam will automatically result in an F grade for this course.

Proposed Timeline of Class

Part A: Managing Business Process Flow	
Week 1 Feb 7 Feb 9	Introduction to OM Process analysis <ul style="list-style-type: none"> ■ A process view of organization ■ Little's Law and flow time analysis
Week 2 Feb 14 Feb 16	Bottleneck analysis <ul style="list-style-type: none"> ■ Bottleneck and throughput analysis OM and Finance <ul style="list-style-type: none"> ■ Inventory turnover analysis, ROIC tree ■ Basic statistics concepts
Week 3 Feb 21 Feb 23	Quality management <ul style="list-style-type: none"> ■ Variability in quality ■ Capability analysis ■ Conformance analysis ■ Acceptance sampling
Feb 26	Online Quiz 1 Due (11:59pm Sunday): cover Week 1 and Week 2
Week 4 Feb 28 March 2	Capacity planning <ul style="list-style-type: none"> ■ Decision tree method and expected value of perfect information ■ Linear programming techniques
Week 5 March 7 March 9	Capacity planning <ul style="list-style-type: none"> ■ Linear programming technique Managing uncertainty in service system <ul style="list-style-type: none"> ■ Queueing system
March 12	Online Quiz 2 Due: cover Week 3 and Week 4
Week 6 March 14 March 16	Managing uncertainty in service system <ul style="list-style-type: none"> ■ Queueing system ■ Basics in simulation

March 19	Homework 1 Due
Week 7 March 21	Mid-term review for Part A
Week 7: Mid-term exam, 40 multiple-choice questions March 24 evening, 7:00 – 8:40PM CYT-LTL (Cheng Yu Tung Building) and LTJ (Academic Building)	
Part B: Matching Supply and Demand	
Week 8 March 28 March 30	Forecasting <ul style="list-style-type: none"> ■ Qualitative and quantitative approaches ■ Time series forecasting models ■ Trend and seasonality Inventory management <ul style="list-style-type: none"> ■ Introduction to inventory management ■ Economic order quantity (EOQ) model
Week 9 April 4 April 13	Inventory management <ul style="list-style-type: none"> ■ Newsvendor model and applications
April 16	Online Quiz 3 Due: cover Week 8
Week 10 April 18 April 20	Revenue Management <ul style="list-style-type: none"> ■ Capacity-based revenue management ■ Price-based revenue management
Week 11 April 25 April 27	Supply Chain Management <ul style="list-style-type: none"> ■ Introduction and win strategies ■ Incentive conflict: risk-sharing strategies
April 30	Online Quiz 4 Due: cover Week 9 and Week 10
Week 12 May 2 May 4	<ul style="list-style-type: none"> ■ Risk sharing strategies (cont'd) ■ Intro to Behavioral OM (optional) Final review for Part B
May 7	Homework 2 Due
Final exam (for part B only, 50 multiple-choice questions, 2 hours, except for those who need to take the 80-question comprehensive exam for 3 hours)	

The instructor may make changes to above syllabus depending on the progress of class.