



ISOM2700 Operations Management Spring 2022

**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

ISOM2700 L1 to L3 are designated as a blended learning course and you are expected to review the learning materials on Canvas before attending the instructor-led class meeting according to the class schedule every week.

Spring 2022

L1: 3:00-4:20PM Wednesday, Friday, Room 2464 (Lift 25-26)
L2: 4:30-5:50PM Wednesday, Friday, Room 2464 (Lift 25-26)
L3: 1:30-2:50AM Tuesday, Thursday, Room 2502 (Lift 25-26)

INSTRUCTOR: Prof. Ronald Lau (rlau@ust.hk)
Office: LSK-4081; Phone: 2358-8348
Office hours: 3-5PM Tuesday, Thursday or by appointment

TEACHING ASSISTANT: Athena Chau (imachau@ust.hk) and Jing Jia (imjing@ust.hk)
Office: LSK-4065; Phone: 2358-8746

TEXTS: No required textbook; learning materials are available on Canvas

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

Online quizzes (best 5 out of 6)	20
Midterm exam	40
Final exam	<u>40</u>
Total	100

Online quizzes:

- Each online quiz consists of 10 questions with the same format as on the exam. You are allowed to use the course materials and your own notes for the online quizzes. However, we suggest you to complete the exam without using them to help yourself better prepare for the exam.
- Once you start the quiz, the timer will start automatically and you must complete it within the time limit of 60 minutes.
- The quiz for the week will be released on Monday morning. You must complete the quiz by 11:59PM on Sunday, the date as noted in this syllabus.
- No makeup quiz will be given as we count only the best 5 out of 6 quizzes you attempt. The quiz for the week will be waived only if you have a valid reason, such as medical emergency and you have completed less than 5 quizzes.

Exam: The midterm covers only part A of the course while the final exam covers only part B. Each exam consists of 50 multiple choice questions and lasts 2 hours each. 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, you will have to take a 3-hour, 80-question comprehensive final exam

instead. All are closed-book exams and you are not allowed to use any notes or your own resources during the exam. A study guide and a list of formulas will be available before the 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, i.e.,

A	10% - 20%
B	25% - 40%
C	35% - 45%
D	5% - 10%
F	0% - 5%

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:

This is a blended learning course. Most lectures and solved problems are delivered in video format on Canvas. Additional reading materials and other learning resources are also posted on Canvas. The instructor will use the class time to reinforce your learning of OM concepts by using extra quantitative problems, business case discussions and simulation games, etc. Students are expected to complete all on-line learning activities each week and attend classes for the best learning experience.

ACADEMIC INTEGRITY:

Students at HKUST are expected to observe the Academic Honor Codes 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.

Part A: Managing Business Process Flow	
Week 1 February 4	Introduction (L3: Please watch the recorded class lecture)
Week 1 L3: February 8/10 L1-L2: February 9/11	Process analysis <ul style="list-style-type: none"> ■ Little's Law and flow time analysis
Week 2 L3: February 15/17 L1-L2: February 16/18	Flow rate and process capacity <ul style="list-style-type: none"> ■ Bottleneck and throughput improvement
Week 3 L3: February 22/24 L1-L2: February 23/25	Capacity planning and management decision making techniques <ul style="list-style-type: none"> ■ Decision tree method and expected value of perfect information ■ Cost concepts for strategic planning decisions Case discussion <ul style="list-style-type: none"> ■ Cathay Pacific: Building a world class air cargo terminal
February 27	Online quiz 1 (All online quizzes are due by 11:59pm, Sunday)
Week 4 L3: March 1/3 L1-L2: March 2/4	Resource optimization decisions <ul style="list-style-type: none"> ■ Linear programming technique ■ Product mix problems
March 6	Online quiz 2
Week 5 L3: March 8/10 L1-L2: March 9/11	Managing waiting lines <ul style="list-style-type: none"> ■ Psychology of waiting ■ Waiting line models and simulation ■ Queue configuration problems Case discussion <ul style="list-style-type: none"> ■ Fat Angelo's: Managing the customer waiting experience
March 13	Online quiz 3
Week 6 L3: March 15/17 L1-L2: March 16/18	Managing process performance variability <ul style="list-style-type: none"> ■ Quality management ■ Acceptance sampling plan ■ Statistical process control ■ Process capability and six sigma quality
Week 7 L3: March 22 L1-L2: March 23	Case discussion <ul style="list-style-type: none"> ■ Germagic: Six-sigma quality in the making
Mid-term exam, March 24, 7:00-9:00PM (to be confirmed)	

Part B: Synchronizing Supply and Demand	
Week 8 L3: March 29/31 L1-L2: March 30/April 1	Demand management and forecasting <ul style="list-style-type: none"> ■ Qualitative and quantitative approaches ■ Basic time series forecasting models ■ Forecasting errors
Week 9 L3: April 7/12 L1-L2: April 6/8	Inventory management <ul style="list-style-type: none"> ■ Inventory classification and cycle counting ■ Basic inventory models: Order quantity and reorder point ■ Safety stock and service level
April 10	Online quiz 4
Week 10 L3: April 19/21 L1-L2: April 20/22	Managing supply for short life cycle products <ul style="list-style-type: none"> ■ Newsvendor model and applications Case discussion <ul style="list-style-type: none"> ■ Arome Bakery: Replenishment of fresh bakery products
Week 11 L3: April 26/28 L1-L2: April 27/29	Revenue management <ul style="list-style-type: none"> ■ Revenue management with capacity controls ■ Overbooking, protection level, and dynamic pricing Simulation game <ul style="list-style-type: none"> ■ Revenue management game
May 1	Online quiz 5
Week 12 L3: May 3/5 L1-L2: May 4/6	Supply chain management <ul style="list-style-type: none"> ■ Bullwhip effect and supply chain coordination Case discussion Lenovo: Sustaining the global market leadership
May 8	Online quiz 6
Week 13 L3: May 10 L1-L2: May 11	Best practices of lean synchronization <ul style="list-style-type: none"> ■ Guiding principles and work practices ■ Major elements of just-in-time system
Final exam (for Part B only, 50 questions, 2 hours, except for those who need to take the 80-question comprehensive exam for 3 hours)	