



ISOM2700 Operations Management Spring 2020

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 L4 are designated as a blended learning course and you are expected to review the learning materials on Canvas before attending the instructor-led, face-to-face session or Zoom meeting (with ID: 872-121-053) every week. Please note the due time and date for the weekly online quizzes.

Spring 2020

L1: 16:30-17:50 Thursday (LT-E)

L2: 15:00-16:20 Friday (LT-J)

L3: 12:00-13:20 Thursday (LT-E)

L4: 16:30-17:50 Friday (CYT-G010)

INSTRUCTOR:

Prof. Ronald Lau (rlau@ust.hk)

Office: LSK-4081; Phone: 2358-8348

Office hours: Zoom meeting during regular class time or by appointment

**TEACHING
ASSISTANT:**

Athena Chau (imachau@ust.hk), Stacy Deng (imsdeng@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 (6)	20
Midterm exam	40
Final exam	<u>40</u>
Total	100

Quizzes: For week 3 to week 12 only.

- Each online quiz consists of 10 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. You must complete the quiz by the due time (23:59 on Saturday) each week.
- 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. 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 exams are done online and you are allowed to use the learning materials. More information will be available in due course.

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 the 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. Students are expected to complete all on-line learning activities each week and are encouraged to ask questions during the instructor-led, face-to-face session or Zoom meeting each week.

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.

Part A: Managing Business Process Flow

	Introduction <i>(Please watch the recorded class lecture)</i>
Week 1 February 20/21	Process analysis <ul style="list-style-type: none">■ Little's Law and flow time analysis
Week 2 February 27/28	Flow rate and flow capacity <ul style="list-style-type: none">■ Bottleneck and throughput improvement
Week 3 March 5/6 <i>March 7</i>	Capacity planning <ul style="list-style-type: none">■ Decision tree method and expected value of perfect information <i>Online quiz – 1</i> <i>(All online quizzes are due by 11:59pm, Saturday, at the end of the week)</i>
Week 4 March 12/13 <i>March 14</i>	Resource optimization decisions <ul style="list-style-type: none">■ Linear programming technique■ Product mix problems <i>Online quiz – 2</i>
Week 5 March 19/20 <i>March 21</i>	Managing waiting lines <ul style="list-style-type: none">■ Psychology of waiting■ Waiting line models and simulation■ Queue configuration problems <i>Online quiz – 3</i>
Week 6 March 26/27	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: Mid-term exam, March 30 (TBC), 7:30-9:30pm	

Part B: Synchronizing Supply and Demand

<p>Week 8 April 9/10</p>	<p>Demand management and forecasting <i>(Please watch the recorded class lecture)</i></p> <ul style="list-style-type: none"> ■ Qualitative and quantitative approaches ■ Basic time series forecasting models ■ Forecasting errors
<p>Week 9 April 16/17</p> <p><i>April 18</i></p>	<p>Inventory management</p> <ul style="list-style-type: none"> ■ Inventory classification and cycle counting ■ Basic inventory models: Order quantity and reorder point ■ Safety stock and service level <p><i>Online quiz – 4</i></p>
<p>Week 10 April 23/24</p> <p><i>April 25</i></p>	<p>Managing supply for short life cycle products <i>(Online learning)</i></p> <ul style="list-style-type: none"> ■ Newsvendor model and applications <p><i>Online quiz – 5</i></p>
<p>Week 11 April 30 / May 1</p>	<p>Public holiday (no class)</p>
<p>Week 12 May 7/8</p> <p><i>May 9</i></p>	<p>Revenue management</p> <ul style="list-style-type: none"> ■ Revenue management with capacity controls ■ Overbooking, protection level, and dynamic pricing <p><i>Online quiz – 6</i></p>
<p>Week 13 May 14/15</p>	<p>Supply chain management</p> <ul style="list-style-type: none"> ■ Bullwhip effect and supply chain coordination <p>Best practices of lean synchronization</p> <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)