ISOM2700 Operations Management
Fall 2023

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

Fall 2023
L4: 3-4:20PM Tuesday, Thursday, LSK-G012

INSTRUCTOR:

Prof. Ronald Lau (rlau@ust.hk)
Office: LSK-4081; Phone: 2358-8348
Office hours: 1-3PM, Tuesday, Thursday or by appointment

TEACHING ASSISTANT:

Christine Ho (imhyho@ust.hk)
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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:

iPRS quizzes (best 5 out of 6)	20
Midterm exam	40
Final exam	40
Total	100

iPRS quizzes: Each quiz consists of 5 multiple choice questions with the same format as on the exam. You are allowed to use the course materials and your own notes for the quizzes. All iPRS quizzes are conducted at the beginning of class on the date indicated. 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 exam 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 closed-book, closed note and you are not allowed to use any notes (downloaded or written) or your own resources during the exam. A study guide and a list of formulas (that will be provided on the exam) will be available before the exam for you preparation.

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 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 September 5, 7	**Process analysis** ■ Little's Law and flow time analysis
Week 2 September 12, 14	**Flow rate and process capacity** ■ Bottleneck and throughput improvement
Week 3 September 19*, 21 **iPRS quiz #1*	**Capacity planning and management decision making techniques** ■ Decision tree method and expected value of perfect information ■ Cost concepts for strategic planning decisions **Case discussion** ■ Cathay Pacific: Building a world class air cargo terminal
Week 4 September 26, 28	**Resource optimization decisions** ■ Linear programming technique ■ Product mix problems
Week 5 October 3*, 5 **iPRS quiz #2*	**Managing waiting lines** ■ Psychology of waiting ■ Waiting line models and simulation ■ Queue configuration problems **Case discussion** ■ Fat Angelo's: Managing the customer waiting experience
Week 6 October 10, 12	**Managing process performance variability** ■ Quality management ■ Acceptance sampling plan ■ Statistical process control ■ Process capability and six sigma quality
Week 7 October 17* **iPRS quiz #3*	**Case discussion** ■ Germagic: Six-sigma quality in the making **Review for the midterm exam**
Mid-term exam (Part A only, 50 questions, 2 hours), October 17 (Tuesday), 7-9PM	

Part B: Synchronizing Supply and Demand	
Week 8 October 24, 26	**Demand management and forecasting** ■ Qualitative and quantitative approaches ■ Basic time series forecasting models ■ Forecasting errors **Case discussion** ■ Chinese Pharmaceuticals: Effective forecasting for optimal inventory management
Week 9 October 31*, November 2 **iPRS quiz #4*	**Inventory management** ■ Inventory classification and cycle counting ■ Basic inventory models: Order quantity and reorder point ■ Safety stock and service level
Week 10 November 7, 9	**Managing supply for short life cycle products** ■ Newsvendor model and applications **Case discussion** ■ Arome Bakery: Replenishment of fresh bakery products
Week 11 November 14*, 16 **iPRS quiz #5*	**Revenue management** ■ Revenue management with capacity controls ■ Overbooking, protection level, and dynamic pricing **Simulation game** ■ Revenue management game
Week 12 November 21, 23	**Supply chain management** ■ Bullwhip effect and supply chain coordination **Case discussion** Lenovo: Sustaining the global market leadership
Week 13 November 28, 30* **iPRS quiz #6*	**Best practices of lean synchronization** ■ Guiding principles and work practices ■ Major elements of just-in-time system **Review for the final exam**
Final exam (Part B only, 50 questions, 2 hours, except for those who need to take the 80-question comprehensive exam for 3 hours)	