ISOM2700 Operations Management
Fall 2024

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 2024
Class meeting for L4: 10:30-11:50AM, Monday and Wednesday, Room 4619

INSTRUCTOR:

Prof. Ronald Lau (rlau@ust.hk)
Office: LSK-4081; Phone: 2358-8348
Office hours: 9-10AM, Monday and Wednesday or by appointment

TEACHING ASSISTANT:

Ryan Yang (imryang@ust.hk)
Office: LSK-4065; Phone: 2358-8543

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:

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

PRS 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 PRS 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 your preparation.

COURSE GRADE DISTRIBUTION:

In determining the final course grade, your instructor will consider the grade distribution of all ISOM2700 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 2, 4	**Process analysis** ■ Little's Law and flow time analysis
Week 2 September 9, 11	**Flow rate and process capacity** ■ Bottleneck and throughput improvement
Week 3 September 16* **PRS quiz #1*	**Capacity planning and management decision making techniques** ■ Decision tree method and expected value of perfect information ■ Cost concepts for strategic planning decisions
Week 4 September 23, 25	**Case discussion** ■ Cathay Pacific: Building a world class air cargo terminal **Resource optimization decisions** ■ Linear programming technique ■ Product mix problems
Week 5 September 30, October 2* **PRS 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 7, 9	**Managing process performance variability** ■ Quality management ■ Acceptance sampling plan ■ Statistical process control ■ Process capability and six sigma quality
Week 7 October 14, 16* **PRS 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 23 (Wednesday), 7:30 pm	

Part B: Synchronizing Supply and Demand	
Week 8 October 21, 23	**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 28, 30* **PRS 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 4, 6	**Managing supply for short life cycle products** ■ Newsvendor model and applications **Case discussion** ■ Arome Bakery: Replenishment of fresh bakery products
Week 11 November 11, 13* **PRS quiz #5*	**Revenue management** ■ Revenue management with capacity controls ■ Overbooking, protection level, and dynamic pricing
Week 12 November 18, 20	**Supply chain management** ■ Bullwhip effect and supply chain coordination **Case discussion** Lenovo: Sustaining the global market leadership
Week 13 November 25, 27* **PRS 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)	