

Rutgers Business School

NEWARK AND NEW BRUNSWICK

Department of Supply Chain Management

Course: 22:799:580 Supply Chain Logistics (Operations Analysis)

Exam date/time: Tuesday, January 21, 2020 (6:00 to 9:00 PM) NB
Wednesday, January 22, 2020 (6:00 - 9:00 PM) Newark

Exam Location: RBS New Brunswick, 100 Rockefeller Road, (BRR), Room 3095
RBS Newark Campus, 1 Washington Park, (1 WP), Room 921

Text book: **Book Title:** Managing Supply Chain Operations
Author: L. Lei, R. Oppenheim, Y. Zhao, and Len DeCandia
ISBN No.: ISBN-13: 978-9813108790 or ISBN-10: 9813108797
Publisher: World Scientific Publishing Co
<https://www.amazon.com/Managing-Supply-Chain-Operations-Lei/dp/9813108797>

Format: **Three (3)-hour exam, open book/notes, with calculator.** Other than basic function calculators, electronic devices such as cell phones, may be prohibited when taking the exam. Students are therefore encouraged to purchase hard copies of the text. (Please contact Prof. David Dreyfus, OA Challenge Exam Faculty Coordinator, with questions at ddreyfus@business.rutgers.edu).

This course covers fundamentals of operational analysis for various performance issues encountered in real life business processes. The major topics include demand forecasting and demand management strategies, sales and operations planning (S&OP), inventory planning models and deployment, uncertainty and safety stock management, supply chain collaborative planning, business capacity planning, and fundamentals of project management. Case studies on analyzing and designing cost-effective solutions for improving a company's operational efficiency and profit margin are used. The objective is to help our students to develop a strong knowledge of analytical thinking skills and supply chain strategies toward operational excellence in a highly dynamic and competitive business environment.

Major topics:

1. Introduction (Chapters 1)

- . Cost, profitability, and business processes
- . Designing a business process toward operational excellence
- . The flattening of the world and global SCM
- . Successful operations strategies and models used in practice
- . The bullwhip effect and supply chain coordination
- . The supply chain operations reference (SCOR) model
- . Overview of sourcing issues and supply chain strategies

2. Demand Forecasting (Chapter 2)

- . Fundamentals of forecasting techniques and laws of forecasting
- . Demand analysis and time series
- . Time series models for predicting stationary series
- . Trend-based forecasting methods: The Holt's model and the regression models
- . Analyzing and predicting seasonal series: The Winter's model and the regression model with seasonal adjustment
- . Overview: Demand management strategies

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3. Sales and Operations Planning (S&OP) Techniques (Chapter 3 & Appendix 3.2)

- . Overview of sales and operations planning techniques
- . Aggregate planning analysis
- . Linear programming and integer programming modeling techniques
- . Using Excel Solver to solve linear programming problems
- . Demand management techniques

4. Inventory models with known & unknown demand (Chapter 4)

- . The impact of inventory management on company's profit margin
- . Fundamentals of the EOQ models
- . Connecting the inventory theory and industry practices
 - The power of collaboration
 - Choosing the logistics partners
 - Consolidation of suppliers
- . The planned shortage model, and the mixed SKU model
- . Quantity discount analysis and the impact of discount policies on business performance
- . The classical newsboy models and applications for optimizing service capacity
- . The lot size - reorder point (Q, R) systems
- . The service level approaches (The α -service Level and the β -service level)
- . Deriving the optimal Q-R Policy subject to a given β -service level
- . Analysis of the cost of uncertainty
- . Managing safety inventory in a supply network and the Square Root Law

5. Project Scheduling and Management (Chapter 5)

- . Introduction to project planning and control
- . Project Management leaderships
- . The critical path method (CPM) and program evaluation and review technique (PERT)
- . Project risk analysis
- . Project cost/budgeting and resource allocation models

6. Service Management (Chapter 6)

- . The emerging role of services – so what?
- . Service management strategies
- . Waiting line management
- . Capacity management

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Supply Logistics Challenge Exam Registration Form

(\$50 non-refundable fee payable to Rutgers University by January 10, 2020)

Mail the form below with a check to:

Newark:

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Name	First	Last	
Student Number		Program	Full-time __ Part-time __
Email Address			
Cell Phone No.			
Mailing Address			
Test Location	<input type="checkbox"/> Newark	<input type="checkbox"/> New Brunswick	
NB or NWK Student	<input type="checkbox"/> Newark	<input type="checkbox"/> New Brunswick	