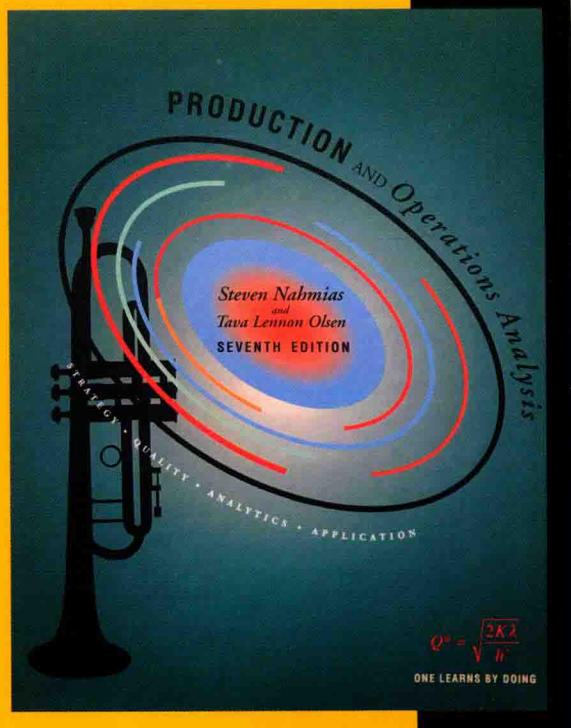


国外大学优秀教材——工业工程系列（影印版）

[美] 史蒂文·纳米亚斯 (Steven Nahmias) 编著  
成晔 改编

# 生产与运作分析

## （第7版）



清华大学出版社

国外大学优秀教材——工业工程系列（影印版）

# 生产与运作分析

（第7版）

**Production and Operations Analysis**  
**(Seventh Edition)**

[美] 史蒂文·纳米亚斯 (Steven Nahmias) 编著  
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清华大学出版社  
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# Foreword

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This textbook series is published at a very opportunity time when the discipline of industrial engineering is experiencing a phenomenal growth in China academia and with its increased interests in the utilization of the concepts, methods and tools of industrial engineering in the workplace. Effective utilization of these industrial engineering approaches in the workplace should result in increased productivity, quality of work, satisfaction and profitability to the cooperation.

The books in this series should be most suitable to junior and senior undergraduate students and first year graduate students, and to those in industry who need to solve problems on the design, operation and management of industrial systems.

  
Gavriel Salvendy

Department of Industrial Engineering, Tsinghua University

School of Industrial Engineering, Purdue University

April, 2002

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# 序 言

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本教材系列的出版正值中国学术界工业工程学科经历巨大发展，实际工作中对工业工程的概念、方法和工具的使用兴趣日渐浓厚之时。在实际工作中有效地应用工业工程的手段将无疑会提高生产率、工作质量、合作的满意度和效果。

该系列中的书籍对工业工程专业的本科生、研究生和工业界中需要解决工程系统设计、运作和管理诸方面问题的人士最为适用。

加弗瑞尔·沙尔文迪  
清华大学工业工程系  
普渡大学工业工程学院（美国）  
2002年4月

# About the Authors

**Steven Nahmias** is Professor of Operations Management and Information Systems in the Leavey School of Business Administration at Santa Clara University. He holds a B.A. in Mathematics and Sciences from Queens College, and B.S. in Operations Research from Columbia University, and the M.S. and Ph.D. degrees in Operations Research from Northwestern. He previously served on the faculties of the University of Pittsburgh, Georgia Tech, and Stanford University.

He is widely known for his research on stochastic inventory models with an emphasis on perishables. He has authored or co-authored more than 50 scientific articles which have appeared in a variety of national and international journals. He has served as Area Editor in Supply Chain Logistics for *Operations Research*, senior editor for *M&SOM*, associate editor for *Management Science*, and associate editor for *Naval Research Logistics*. He earned first prize in the Nicholson Student Paper competition (1971) and second prize in the TIMS student paper competition (1972) and the University Award for Sustained Excellence in Scholarship from Santa Clara University (1998). In 2011 he was named Distinguished Fellow of the Manufacturing and Service Operations Management Society and in 2014 Distinguished Fellow of *INFORMS*.

In addition to his academic activities he has served as a consultant to a variety of companies and agencies. In his spare time he enjoys biking and golf. He is also a semi-professional jazz trumpet player and performs regularly with several bands in the Bay Area.

**Tava Olsen** holds the Ports of Auckland chair in Logistics and Supply Chain Management at the University of Auckland Business School. Prior to joining Auckland, she was Professor of Operations and Manufacturing Management in the Olin Business School at Washington University in St. Louis, which she joined after serving as an Assistant Professor in the Department of Industrial and Operations Engineering at the University of Michigan, Ann Arbor. Dr. Olsen received her B.Sc. (honours) in Mathematics from the University of Auckland. She earned both her M.S. in Statistics and her Ph.D. in Operations Research from Stanford University.

Dr. Olsen's research interests include supply chain management; pricing and inventory control; and stochastic modeling of manufacturing, service, and health-care systems. Among other journals, her publications have appeared in *Management Science*, *Operations Research*, *Manufacturing and Service Operations Management (M&SOM)*, and the *Journal of Applied Probability*. In 2012, she received Auckland Business School's Sustained Research Excellence Award.

Dr. Olsen is the Academic Director of the Centre for Supply Chain Management. She is currently an Associate Editor for *Management Science*, *M&SOM* and *Operations Research*, is a senior editor of *Production and Operations Management*. She is a past president of the Manufacturing and Service Operations (MSOM) society for which she received the society's distinguished service award. She enjoys hiking, biking, and spending time with her husband and two daughters.

# Preface to the Seventh Edition

This edition is the most substantial to date. All of the changes have been to the first half of the book, which appears to comprise the most popular chapters. Chapter 1 is basically intact with the addition of a major section on servicization. In Chapter 2, the tables that appeared in the first six editions have been replaced with screen shots of spreadsheets with cell formula definitions. The section on seasonal decomposition has been streamlined, and several new snapshot applications were added. Chapter 3 has been retitled and repositioned. The chapter is now titled “Sales and Operations Planning.” It incorporates the aggregate planning material from prior editions, but includes new material on the planning process and discusses how production plans grow out of demand forecasts. Chapter 4 on deterministic demand includes a new Snapshot Application and a brief case study at the end of the chapter. In Chapter 5, there is a new appendix that derives a closed form expression for the expected cost function in a newsvendor model with normal demand. Chapter 6 on supply chains has been substantially revised and repositioned. Chapter 7 is new. It presents a comprehensive treatment of the analytical models for service systems and incorporates material on queueing and the Poisson process from the prior editions. The remaining chapters (8 through 13) are largely the same as the sixth edition.

Finally, I am very happy to welcome Tava Lennon Olsen as a co-author. She has brought a fresh perspective to the book and broadened the coverage substantially.

*Steven Nahmias*

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