

# OPERATIONS & SUPPLY CHAIN MANAGEMENT

SCM 502: Quarter II  
Full-Time MBA Program  
W.P. Carey School of Business, Arizona State University

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<b>Contact</b>	Canvas Messages or Slack
<b>Office Hours</b>	Monday, Wednesday (1:10pm – 2:10pm)
<b>Time</b>	(Gold) 8am – 10:05am (Monday), 10:20am – 12:25pm (Wednesday) (Maroon) 10:20am – 12:25pm (Monday), 8am – 10:05am (Wednesday)
<b>Venue</b>	(Monday) MCRD 264 (Wednesday) MCRD 258

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## Course Pages

1. [Canvas](#): All course content such as announcements, slides, homework, grades and other required reading will be made available on Canvas. Contact me through messages.
2. [Slack](#): All communication within teams or public posts.

## Teaching Assistant TBD

1. Office Hours:
2. Contact:

## Required Material You are required to purchase the following material.

1. Case Packet: Please purchase the case packet available at [HBP: Case Packet 653666](#). The case packet contains the following cases:
  - (a) Kristen's Cookie Company,
  - (b) National Cranberry Cooperative,
  - (c) Delays at Logan Airport,
  - (d) Blanchard Importing & Distribution,
  - (e) LL Bean.
2. Download the case BlueSky Airlines (Case A) from [INFORMS Transactions on Education](#).

3. A simulation game will be played in the last session of the course – I will provide a link in-class. Approximate cost = \$20.
4. Access to a spreadsheet software (e.g., Microsoft Excel). See [here](#) for access to Microsoft Excel through ASU.

**Data Requirements** Any supplemental data required to complete homeworks will be provided on Canvas.

**Supplementary Material (OPTIONAL)** This is a restricted list of various interesting and useful resources that will be useful during the course.

- Gerard Cachon, Christian Terwiesch, *Matching Supply with Demand: An Introduction to Operations Management*, McGraw-Hill, 3rd edition. See [Online](#).
- R and R Studio: Both R and R Studio are available for free online – See [here](#) for details. There are plenty of resources online; please contact me if you have any questions regarding installation and/or use. These software are useful for statistical analysis or simulation.
- The Wall Street Journal (WSJ): You have access to the Wall Street Journal through [ASU Library Services](#). Articles from WSJ and other practice-oriented journals/popular outlets will be posted in-class/Canvas. You are encouraged to read these articles.

**Description** Broadly, there are two modules in this course: *Operations Management* (OM) and *Supply Chain Management* (SCM).

- **Operations Management:** Any business can be thought of as a process by which inputs of materials, labor, capital, and information are transformed into products and services which customers want and are willing to pay for. Operations Management (OM) is the cost effective management of resources to achieve organizational goals. OM focuses on the systematic planning, design, operation, control, and improvement of the processes which produce goods and deliver services.

Managing operations through effective and efficient utilization of resources is key for any organization to be successful in the long run. This is especially true today, when we see that significant competitive advantages accrue to those firms that manage their operations effectively.

By using a *process view* of an organization or a supply chain, we provide a framework for analyzing and solving a wide range of business problems in this course.

- **Supply Chain Management:** A supply chain comprises of all the parties involved in fulfilling a customer request. The integrated management of this network is a critical determinant of success in today's competitive environment. Supply Chain Management (SCM) requires cross-functional integration of key business processes (discussed in the *Operations Management* module) within the firm and across the network of firms that comprise the supply chain. Companies like Amazon, Procter & Gamble, and Wal-mart are proof that excellence in supply chain management is a must for financial strength and industry leadership.

The challenges lie in determining how to successfully integrate all stakeholders of a supply chain.

## Tentative Course Schedule

The schedule below is tentative. Any unexpected changes to the schedule will be announced in-class (as the course proceeds).

Session 1.1<sup>a</sup> ..... Administrivia, Introduction to Process Analysis.

Operations Strategy, Business Strategy, *Process* View

Session 1.2 ..... Key Measures (KPIs) of Process Analysis.

Flow Unit, Cycle Time, Flow Time, Capacity, Flow Rate, Bottleneck, Tasks, Resources, Process Schematic

Session 2.1 ..... Process Improvement and Redesign.

Parallel Resources, Utilization, Push vs. Pull Process, Process Flow Diagram, Gantt Chart, Cost-Benefit Analysis of Additional Resources, Labor Costs, Fixed vs. Variable Costs

Session 2.2 ..... Link Between Operations and Marketing and Finance

Demand vs. Supply Constrained Process, Little's Law, Inventory Turns, Inventory and Cost of Goods Sold

Session 3.1 ..... Buffers and Inventory Buildup

Fluctuating Demand Rate, Buffers, Inventory Holding, Waiting, Cost of Waiting

Session 3.2 ..... Service Operations

Variability, Poisson Process, Variability in Arrival, Variability in Processing, Queues, *VUT* Equation

Session 4.1 ..... Waiting Line Management

Pooled vs Dedicated Queues, Service Staffing, Optimal Staffing Plans, Scheduling, Psychology of Queues

Session 4.2 ..... Exam #1

Exam During Class Hours

Session 5.1 ..... Inventory Management of Long Lifecycle Products

Economies of Scale, Fixed and Variable Costs, Ordering Cost, Cost of Capital, Inventory Holding Cost, *Economic Order Quantity (EOQ)* Model, Delivery Leadtime

Session 5.2 ..... Inventory Management of Short Lifecycle Products

Demand Uncertainty, Critical Fractile, Fill Rate, Service Level, Managing Perishable Assets, Lost Sales, Opportunity Costs, Marginal Analysis, Newsvendor Model

Session 6.1 ..... Data-driven Inventory Management

Estimating Demand Distributions from Data, Curve-Fitting, Parameter Estimation, A/F Ratio, New Product Demand Forecasting, Safety Stock.

Session 6.2 ..... Thanksgiving Break

Session 7.1 ..... Revenue Management

Yield, Capacity Limits, Capacity Rationing, Overbooking, No-Shows

Session 7.2 ..... Supply Chain Management

Supply Chain, Value Chain Management, Information Sharing, Contracts, Bullwhip Effect

Session 8.1 ..... Exam #2

Exam During Finals' Week

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<sup>a</sup>Session *w.d* refers to the session on day *d* in week *w*, where *d* = 1 (resp., 2) refers to Monday (resp., Wednesday). For example, Session 1.1 refers to Monday's session in week 1.

**Important Dates****Homework**

Session 2.1 .....	Kristen Cookie Company
Session 3.1 .....	National Cranberry Cooperative
Session 4.1 .....	Delays at Logan Airport
Session 6.1 .....	Blanchard Importing & Distribution
Session 7.1 .....	LL Bean
Session 7.2 .....	BlueSky Airlines

**Exams**

Session 4.2 .....	Exam #1
■ An announcement regarding exam policies will be made closer to the exam date.	
Session 8.1 .....	Exam #2
■ An announcement regarding exam policies will be made closer to the exam date.	

**Grading Policy** Three components determine your grade: Exams, Case Homeworks and Case Presentation. The relative weights are as follows:

Exams .....	58%
■ Two exams, each accounting for 29%.	
Case Homeworks .....	36%
■ Six case homeworks, each accounting for 6%.	
Case Presentation .....	6%
■ Choose one case (among the list) to present in-class.	

Grades will be assigned based on a curve fitted to the cumulative final score. The guidelines of the curve are as follows:

- The median score will receive a  $B+$ .
- Anything above that can be an  $A+$ ,  $A$ ,  $A-$ .
- Scores below the median may be  $B+$ , depending on the distribution.

All grades (homeworks or exams) must be contested within a week of posting the grades. Grades not contested within a week are considered *final* and will not be changed.

**Learning Objectives** The key learning objectives of this course are:

- Gain an understanding of operations management and its importance in today's business environment.

- Understand process measures in manufacturing and service systems with regards to key operational dimensions.
- Design and compute optimal operational decisions and policies, and evaluate performance measures pertaining to costs and revenues.
- Develop *deep analytical thinking* in operations practices.

**W.P. Carey Learning Goals** The Full-Time MBA program at the W.P. Carey School of Business has established the following learning goals for its graduate students (Items in bold have significant coverage in this course):

1. **Critical Thinking.**
2. **Communication.**
3. **Discipline-Specific Knowledge.**
4. Ethical Leadership or Global Leadership

**Classroom Decorum** To facilitate learning, students are encouraged to attend class on a regular basis.

- Class sessions will focus on active learning methods in which students will be given a chance to explore the topics from the readings more deeply.
- These in class exercises are based on problems drawn directly from industry. As such, class attendance is important as is the need to do the reading before class
- Please avoid disturbing other students in class.
- There are no extra credit opportunities.
- Late homeworks are not accepted under any circumstances (Remember that best 5 out of 6 homeworks count. Use them wisely!)
- Make-up exams are offered only under special circumstances – If you end up taking a make-up exam, you must take the exam before the scheduled date. Please contact me regarding any special needs, should you take a make-up exam.
- You are obligated to read, understand, and obey the [ASU Student Academic Integrity Policy](#) and the [W. P. Carey student Honor Code](#). Students found to have engaged in any form of academic dishonesty will be subject to sanction.

**Prohibition Against Discrimination, Harassment, and Retaliation** Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited.

An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university.

If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources here.

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. [ASU Counseling Services](#), is available if you wish to discuss any concerns confidentially and privately.

**Absence Policies** Attendance in class is not required, but is highly recommended. However, any missed quizzes or assignments will not be made up except in the case of emergency unless documentation is provided. Exceptions to this are described in the Religious Accommodations and University- Sanctioned Activities described below.

**Religious Accommodations** Accommodations will be made for students with religious holidays: [Here](#) is the calendar of official religious holidays. Each holiday noted with two asterisks denotes an observance for which work is not allowed. For these holidays, students will not be penalized in any way for missing class or assignment. This means that this will not count as an absence in class and they will be granted a makeup assignment or exam, etc., as needed.

**University-Sanctioned Activities** Accommodations will be made for students who miss class related to university-sanctioned activities according to ACD 304-02. If you are participating in a university-sanctioned activity, please let me know as early in the course as possible so that accommodations can be made.

**Instructor Absence Policy** In the event the instructor fails to indicate a time obligation, the time obligation will be 15 minutes for class sessions lasting 90 minutes or less, and 30 minutes for class sessions lasting more than 90 minutes. Students may be directed to wait longer by someone from the academic unit if they know the instructor will arrive shortly.

**Threatening Behavior Policy** The university takes threatening behavior very seriously and these situations will be handled in accordance with the Student Services Manual, [SSM 104-02](#).

**Disability Accommodations** If you need an accommodation for a disability, you must register with the Disability Resource Center (DRC).