

Supply Chain Management
Course Number: 22:799:564
Course Title: Operations Analysis-Full Time

COURSE DESCRIPTION

This course provides an overview of quantitative models for the effective and efficient management of operations which produce and distribute products and services. Topics include concepts of supply chain management, demand forecasting, aggregate planning and linear programming, inventory management, and project scheduling. Cases, examples, and homework problems will be drawn from various manufacturing and service industries.

COURSE MATERIALS

TEXT: Lei, DeCandia, Oppenheim, and Zhao: *Managing Supply Chain Operations*, World Scientific Publishing Company 2017.

SOFTWARE: *Microsoft Excel - with Solver loaded*

All course materials are on <http://canvas.rutgers.edu> and all readings are mandatory. Your username is your Rutgers NetID (<http://netid.rutgers.edu/>).

LEARNING GOALS AND OBJECTIVES

This course is designed to help students develop skills and knowledge in the following area(s):

- **Business knowledge.** Students will have a command of operations analysis theory and practice.
Students who complete this course will demonstrate:
 - a) Mastery of fundamental operations analysis concepts and an ability to integrate and apply these concepts to solve practical business problems.
 - b) Proficiency at developing, analyzing and interpreting quantitative models to solve practical business problems.
- **Ethical judgement.**
Students who complete this course will demonstrate:
 - a) Recognition of ethical dilemmas in decision-making scenarios.
 - b) Ability to critically evaluation business decision-making scenarios and develop innovative and ethical solutions.
- **Global perspective.** Students will have the breadth of perspective necessary to effectively function in a global and diverse business environment.
Students who complete this course will demonstrate:
 - a) Ability to lead and/or participate in culturally and demographically diverse teams and classroom environment.

- **Persuasive communication.** Students will be effective communicators.
Students who complete this course will demonstrate:
 - a) Ability to construct clear, concise, and convincing written descriptions of how quantitative techniques are used in their businesses.
 - b) Ability to construct and deliver clear, concise, and convincing oral presentations.

Students develop these skills and knowledge through the following course activities and assignments:

- **Lectures.** Class lectures focus on the underlying theory and application of quantitative models to business situations. A significant amount of time is allocated to examples and homework solutions to illustrate the concepts covered in the lectures, and to a discussion of reading assignments.
- **Readings.** Readings from newspapers and magazines relevant to each topic are posted on canvas. In addition to required reading from the textbook, these readings are mandatory and will be discussed in class.
- **Homework.** Homework problems on the topics covered will be assigned at the end of every lecture and collected at the beginning of the next class. All assignments should be submitted on standard 8 1/2" x 11" paper and should either be typed or handwritten **legibly**. All assignments requiring computer work should be handed in with the necessary printouts including input and final output, with answers to all questions clearly indicated on a separate sheet. We will review each assignment as soon as it is collected at the beginning of class, so be sure you have an extra copy to follow along. If you will not be in class when an assignment is due, you must email it to me (with all computer output cut-and-pasted into a word file so it can be easily printed out and read) prior to the beginning of that class in order to receive credit for the assignment. All assignments must be done independently and no late homeworks will be accepted. Assignments by topic are shown in the table at the end of this syllabus.
- **Examinations.** There will be two non-cumulative, closed book, closed notes examinations, on (), and on (). You are expected to be present for the scheduled examinations. If you cannot be here on the scheduled date, you must let me know beforehand and make alternative arrangements. Only calculators without wireless capability (i.e., not calculators on smart phones) are permitted to be used during examinations.
- **Team Presentation.** Students will be expected to form groups of 5 or 6 and prepare a 10-minute presentation on an application of one of the topics in this course to one of the organizations for which you work or have worked, including a clear articulation of the problem to be addressed, the real data used, the techniques illustrated, and the conclusions/recommendations; OR on a current issue in supply chain management, including a clear summary of the current state of the selected technology, the major "players," examples of the quantitative models and computations used, problems in implementation, and future directions. A written alphabetical list of the names and email addresses of your group members is due at the beginning of class on (). **One-page** typed proposals are due from each group at the beginning of class on (), clearly describing the problem or topic you will be addressing, the data you will be using, the questions to be answered, and the quantitative techniques to be demonstrated. Presentations will be scheduled during the last three weeks of the course. Each team must submit a hard copy of their Power Point slides to me **prior to** beginning the presentation (i.e., at the beginning of that class).

PREREQUISITES

Knowledge of calculus and statistics, and a basic familiarity with Microsoft Excel.

ACADEMIC INTEGRITY

I do NOT tolerate cheating. Students are responsible for understanding the RU Academic Integrity Policy <http://academicintegrity.rutgers.edu/>

I will strongly enforce this Policy and pursue *all* violations. On all examinations and assignments, students must sign the RU Honor Pledge, which states, “On my honor, I have neither received nor given any unauthorized assistance on this examination or assignment.” I will screen all written assignments through *SafeAssign* or *Turnitin*, plagiarism detection services that compare the work against a large database of past work. Don’t let cheating destroy your hard-earned opportunity to learn. See business.rutgers.edu/ai for more details.

ATTENDANCE

Attendance is required; if for any reason you miss a class, you are responsible for all work covered. Please be sure to check the canvas site for the course prior to each class for any last-minute scheduling changes.

Academic Integrity Procedures to be used during Examinations

1. Cell phones must be shut and placed face down on the desk. Any use of a cell phone during an exam will result in automatic exam failure. If you have a possible family emergency in progress, you can have your phone on but you must sit in the front of the room with the phone face-down.
 2. Restroom breaks will not be permitted for an in-class (80 to 90 minute exam), unless you are ill. You can use the restroom before the exam begins. If you a medical condition that requires frequent restroom usage, please provide the necessary documentation prior to the exam.
 3. For the three-hour final exam, all restroom breaks will be handled as follows:
 - a. Your paper and cell phone must be brought up to the front of the room and submitted to the instructor or TA.
 - b. The instructor or the TA will record your name and log the time in and out.
 - c. The TA will escort the student out of the room and into the lounge / restroom area.
 - d. No more than one student can use the restroom at a time.
 4. Seats will be assigned for exams.
 5. If you have a question during the exam, do not leave your seat. Raise your hand and the instructor or the TA will come to your area to answer your question.
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GRADING POLICY

Exam #1	40%
Exam #2	40%
Team Presentation	10%
Homework and Class Participation	10%

COURSE TOPICS, READINGS, AND ASSIGNMENTS

Topic	Reading	Assignment
Introduction to Operations Analysis	Canvas Readings	
Demand Forecasting	Ch. 2	Ch 2/1,2abc-manual,
Subjective and Objective Forecasting	Canvas Readings	2def-excel,3a-manual
Forecasting Stationary Series:		3abc-excel, 4-excel,
Naïve methods, Moving averages, Exponential Smoothing		6-excel,9-excel
Forecasting Trends and Seasonality:		Stay Warm Call Ctr
Simple Regression		Case (sec 2.3.1)
Seasonal Factors		
Aggregate Planning	Chapter 3	Ch 3/1,2,4,7
Linear Programming Formulations	Canvas Readings	
Excel solutions		
Sensitivity Analysis		
Integer and Binary Programming		
Inventory Control	Chapter 4	Inventory Hwk Sheet
Known Demand	Canvas Readings	
EOQ Model		
Quantity Discount Model		
Project Management	Chapter 5	Ch 5/1,2,4,5,9
Critical Path Method (CPM)		R.C. Coleman Case
Time Costing (Crashing)		
Program Evaluation and Review Technique (PERT)		

SUPPORT SERVICES

If you need accommodation for a *disability*, obtain a Letter of Accommodation from the Office of Disability Services. The Office of Disability Services at Rutgers, The State University of New Jersey, provides student-centered and student-inclusive programming in compliance with the Americans with Disabilities Act of 1990, the Americans with Disabilities Act Amendments of 2008, Section 504 of the Rehabilitation Act of 1973, Section 508 of the Rehabilitation Act of 1998, and the New Jersey Law Against Discrimination. More information can be found at ods.rutgers.edu.

[Rutgers University-New Brunswick ODS phone (848)445-6800 or email dsoffice@echo.rutgers.edu]

[Rutgers University-Newark ODS phone (973)353-5375 or email ods@newark.rutgers.edu]

If you are *pregnant*, the Office of Title IX and ADA Compliance is available to assist with any concerns or potential accommodations related to pregnancy.

[Rutgers University-New Brunswick Title IX Coordinator phone (848)932-8200 or email jackie.moran@rutgers.edu]

[Rutgers University-Newark Office of Title IX and ADA Compliance phone (973)353-1906 or email TitleIX@newark.rutgers.edu]

If you seek *religious accommodations*, the Office of the Dean of Students is available to verify absences for religious observance, as needed.

[Rutgers University-New Brunswick Dean of Students phone (848)932-2300 or email deanofstudents@echo.rutgers.edu]

[Rutgers University-Newark Dean of Students phone (973)353-5063 or email DeanofStudents@newark.rutgers.edu]

If you have experienced any form of *gender or sex-based discrimination or harassment*, including sexual assault, sexual harassment, relationship violence, or stalking, the Office for Violence Prevention and Victim Assistance provides help and support. More information can be found at <http://vpva.rutgers.edu/>.

[Rutgers University-New Brunswick incident report link: <http://studentconduct.rutgers.edu/concern/>. You may contact the Office for Violence Prevention and Victim Assistance at (848)932-1181]

[Rutgers University-Newark incident report link: https://cm.maxient.com/reportingform.php?RutgersUniv&layout_id=7 . You may also contact the Office of Title IX and ADA Compliance at (973)353-1906 or email at TitleIX@newark.rutgers.edu. If you wish to speak with a staff member who is confidential and does **not** have a reporting responsibility, you may

contact the Office for Violence Prevention and Victim Assistance at (973)353-1918 or email run.vpva@rutgers.edu]

If students who have experienced a temporary condition or injury that is adversely affecting their ability to fully participate, you should submit a request via <https://temporaryconditions.rutgers.edu> .

If you are a military *veteran* or are on active military duty, you can obtain support through the Office of Veteran and Military Programs and Services. <http://veterans.rutgers.edu/>

If you are in need of *mental health* services, please use our readily available services.

[Rutgers University-Newark Counseling Center: <http://counseling.newark.rutgers.edu/>]

[Rutgers Counseling and Psychological Services–New Brunswick: <http://rhscaps.rutgers.edu/>]

If you are in need of *physical health* services, please use our readily available services.

[Rutgers Health Services – Newark: <http://health.newark.rutgers.edu/>]

[Rutgers Health Services – New Brunswick: <http://health.rutgers.edu/>]

If you are in need of *legal* services, please use our readily available services: <http://rusls.rutgers.edu/>

Students experiencing difficulty in courses due to *English as a second language (ESL)* should contact the Program in American Language Studies for supports.

[Rutgers–Newark: PALS@newark.rutgers.edu]

[Rutgers–New Brunswick: eslpals@english.rutgers.edu]

If you are in need of additional *academic assistance*, please use our readily available services.

[Rutgers University-Newark Learning Center: <http://www.ncas.rutgers.edu/rlc>

[Rutgers University-Newark Writing Center: <http://www.ncas.rutgers.edu/writingcenter>]

[Rutgers University-New Brunswick Learning Center: <https://rlc.rutgers.edu/>]

[Optional items that many faculty include:

- Students must sign, date, and return a statement declaring that they understand the RU Academic Integrity Policy.

- Students must sign, date, and return a statement declaring that they understand this syllabus.]