

## Supply Chain Management

Course Number: 33:799:310

Course Title: Demand Planning and Fulfillment

### COURSE DESCRIPTION

**WELCOME TO DEMAND PLANNING.** This is an upper-level undergraduate supply chain management course. It focuses on planning-related topics including: forecasting, inventory management, supply planning, and planning integration. Other topics including operations and supply chain strategy may also be covered.

Demand planning and fulfillment facilitates the effective supply of the products or services that an organization provides to its customers. Careful planning and management of internal and external operations is required if one organization be successful. While the course has a strong management emphasis, theoretical aspects and technical competence cannot be overlooked. Most managers and engineers find it difficult to consistently arrive at good solutions to problems without proper understanding of theory and proper use of analytical tools.

The purpose of this course is to:

- Introduce you to the important issues managers face in planning, controlling, and managing operations and supply chains.
- Equip you with SCM best practices and related analytical models/tools.
- Know-how to apply SCM models/tools within manufacturing and service contexts.

Successful planning includes a combination of “Art” and “Science.” Science uses analytical methods to provide accurate projection, calculate requirements, and optimize performance. Art is important to manage the “grey” areas of business, including decision making, organizational influences, and dealing with an imperfect world. This class will cover both the Art and Science of planning in each area.

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### COURSE MATERIALS

This book is a great support for those who want to learn more about analytics, using Excel and other tools.

Winston, Wayne. Microsoft Data Analysis and Business Modeling. Microsoft Press, 5<sup>th</sup> Edition, 2016 (ISBN-13: 978-1509304219). [https://www.amazon.com/Microsoft-Excel-Analysis-Business-Modeling/dp/1509304215/ref=sr\\_1\\_1?ie=UTF8&qid=1545233233&sr=1-1&keywords=Winston+Data+Analysis](https://www.amazon.com/Microsoft-Excel-Analysis-Business-Modeling/dp/1509304215/ref=sr_1_1?ie=UTF8&qid=1545233233&sr=1-1&keywords=Winston+Data+Analysis)

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## **LEARNING GOALS AND OBJECTIVES**

Upon completion of this course, students should have an in-depth understanding of production processes. More specifically, students should be able to:

- Understand the tradeoffs among different types of production/operations systems in terms of key characteristics, management tasks, organization and control, and impact on the strategy and direction of the firm.
  - Understand the strategic production/operations management issues and their relationship to the other functional areas of the firm.
  - Develop basic competence with the quantitative tools and techniques used by operations professionals in managing operations and setting operations policy.
  - Develop an understanding of the managerial implications of choosing policies that can be used to manage manufacturing and service systems based on the context; be able to create, analyze and evaluate alternative policies that can be generated from the tools.
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## **CLASS ADMINISTRATION**

Class notifications, announcements and assignments will be managed in class and via Canvas. Students should be active on Canvas ([canvas.rutgers.edu](https://canvas.rutgers.edu)).

Although this class is in person, where needed we will use Zoom in special circumstances. Make sure that you have an active account (<https://rutgers.zoom.us/>) and be sure to test connections before any class use.

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## **PREREQUISITES**

Course: Introduction to Supply Chain Management

Note: It is assumed that all students have completed basic statistics and are familiar with operating MS-Excel. As this course has a significant quantitative element, these materials and skills should be well developed to apply the concepts in class.

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## **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](http://business.rutgers.edu/ai) for more details.

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## ATTENDANCE AND CLASS PARTICIPATION

As you must attend class in order to participate, attendance will be taken in every class. It is important that you arrive on time so that we may start class promptly. Arriving late to class is very disruptive and discourteous to the class and will not receive full attendance marks.

Classroom participation is key to developing a positive learning environment. Students are expected to come on time to class, prepared and having done the reading. Students should also present ideas that foster discussion and show their insight on the topics discussed. Quality of input is most important.

Of course, I expect all of you to conduct yourself in a professional, courteous, and respectful manner. My goal is to create and maintain a learning environment where all students, no matter their experience/knowledge/skill levels, feel comfortable sharing their thoughts and receiving feedbacks and constructive criticism.

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## ASSIGNMENTS

Assignments for this class will be submitted through Canvas and may be composed of two parts:

- *Supply Chain Simulation*: student groups will be assigned to work as a team planning the supply chain for a fictitious company. The simulation will run for several weeks. Grading will be based on planning quality and a lessons learned assigned after each section.
  - *Homework*: Questions will be typed using 12 point font and may be submitted using Excel or Word documents; handwritten assignments will not be accepted. Show your work!
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## EXAMINATIONS

There will be two exams for the semester, a Mid-Term and a Final. These will be non-cumulative. The exams for the class will be used to demonstrate the students' ability to apply the concepts learned in class. The exams may include multiple choice, true/false and/or short answer questions. Quantitative and qualitative work may involve, as may case study analysis and critical thinking skills.

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## GRADING POLICY

Percentage of Final Grade:

Attendance and Participation	20%
Assignments	30%
Examinations	50%

### Grading Scale

90.00% - 100%	=	A
87.00% - 89.99%	=	B+
80.00% - 86.99%	=	B
77.00% - 79.99%	=	C+
70.00% - 76.99%	=	C
60.00% - 69.99%	=	D
59.99% and below	=	F

Note: grades are not rounded up. Final grades are final

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## COURSE SCHEDULE

1	Introduction, M1: Supply Chain Planning Integration	
2	M2: Demand Planning Fundamentals	Why do we Plan?
3	M2: Demand Planning Fundamentals	Developing a Demand Plan
4	M3: Time Series: Moving Average	Forecast Performance and Forecast Bias
5	M3: Time Series: Moving Average	Man vs Machine
6	M4: Time Series: Exponential Smoothing	80/20 rule
7	M4: Time Series: Exponential Smoothing	
8	M5:Seasonality,Decomposition	Consensus Forecasting

9	M6: Linear Regression, Assumption Based Plans	New Product Forecasting
10	M7: Demand Planning Simulation	
11	M7: Demand Planning Simulation	
12	M7: Demand Planning Simulation	
13	M7: Demand Planning Simulation	
14	<b>Exam #1 Part 1</b>	
15	<b>Exam #1 Part 2</b>	
	<b><i>NO CLASS</i></b>	
16	M8: Supply Planning Structure	
17	M8: Supply Planning Structure	Measuring Performance
18	M9: Inventory Management	Statistical Safety Stock
19	M9: Inventory Management	
20	M10: Distribution Planning	EOQ, ROP calculations
21	M10: Distribution Planning	
22	M11: Production Planning	Theory of Constraints
23	M11: Production Planning	Theory of Constraints
24	M12: Materials Management	
24	M13 Supply Simulation	
25	M13: Supply Simulation	
26	M13: Supply Simulation	
27	M14: Putting it All Together	Sales and Operations Planning
	<b><i>READING DAY</i></b>	
	<b>Exam #2 TBD</b>	
	<b>Exam #2 TBD</b>	

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## 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](http://ods.rutgers.edu).

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

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

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

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

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