RUTGERS
Rutgers Business School
Newark and New Brunswick

**Demand Planning & Fulfillment**
29:799:310:H6
Summer 2021- Course Index Number 02079
Online via Zoom
Mondays 6:00pm to 10:00pm and
Wednesdays 6:00pm to 10:00pm

**William T. Walker, CFPIM, CSCP-F, CLTD-F, CIRM**
Part-Time Lecturer
Email: wt_walker@verizon.net
ww234@business.rutgers.edu

Office Hours via email to: wt_walker@verizon.net
One-On-One Zoom by appointment

## ABOUT THE PROFESSOR

William T. Walker, CFPIM, CSCP-F, CLTD-F, CIRM is a Part-Time Lecturer in the Supply Chain Management Department at Rutgers Business School in Newark and Adjunct Professor of Supply Chain Engineering at New York University Tandon School of Engineering in Brooklyn where he teaches graduate students majoring in industrial engineering. He has taught supply chain topics to nearly 935 students at RBS and NYU since 2010. He was awarded the Dean's 2017-2018 Meritorious Award for PTL Teaching and Service at Rutgers Business School for this undergraduate course in Demand Planning and Fulfillment.

Walker retired as Director of Supply Chain Management from StarTrak Information Technologies, LLC after 42 years of practitioner experience in electronic hardware and software product development, project management, purchasing, planning, materials management, operations management, international logistics, and supply chain architecture for Hewlett-Packard, Agilent Technologies, Siemens Building Technologies, and StarTrak.

Walker is author of *Supply Chain Construction: The Basics for Networking the Flow of Material, Information and Cash*, author of *Supply Chain Architecture: A Blueprint for Networking the Flow of Material, Information and Cash*, and contributing author of *Supply Chain Networks and Business Process Orientation*. He is past Series Editor for the CRC Press/ Taylor & Francis Resource Management Series.

Walker is APICS Triple Fellow Certified in Production and Inventory Management, as a Supply Chain Practitioner, and in Logistics-Transportation-Distribution. In 2000 he co-developed the APICS Advanced Supply Chain Management Courseware on CD-ROM which predated the current APICS CSCP certification. Walker is a past APICS E&R Foundation President, a past APICS VP of Education-SIGs, a past APICS Region Two Vice President, a past APICS West Jersey Chapter President, and current 40-year APICS/ASCM chapter member. He currently serves as a subject matter expert on the CLTD certification subcommittee. Walker holds BSEE and MSIE degrees from Lehigh University.

## COURSE DESCRIPTION

Every business exists to serve the customer. Whether the business is in a business-to-business (B2B) market or business-to-consumer (B2C) market, being able to accurately forecast demand, manage inventory, and fulfill customer orders within a competitive delivery lead time is a critical component of business success. This course focuses on important planning strategies and tools

that are commonly used in business practice for demand planning and fulfillment of customer requirements. Major topics include:

- Setting the context for demand planning
- Pricing strategies and revenue management implications for demand planning
- Common forecasting methods
- Continuous improvement in demand planning
- Sales and operations planning (S&OP) and master production scheduling (MPS)
- Distribution/Materials/Capacity Requirements Planning (DRP/ MRP/ CRP)
- Enterprise Resource Planning (ERP)
- Inventory management
- Fulfillment of customer orders and service requirements
- Reverse supply chains
- Basic related Excel functions

The course is structured as a combination of lectures, in-class exercises, graded homework, quizzes, online discussion, and online exams. The course uses a textbook plus class-lectures and study guides posted on Canvas at: https://canvas.rutgers.edu

## COURSE MATERIALS

1. Textbook: *Demand Planning* ISBN-13: 9781307066531. This text includes selected Chapters on Forecasting, Aggregate Planning and Scheduling, MRP and ERP, and Inventory Management from William J. Stevenson, *Operations Management*, *13th Edition*, copyright 2018, McGraw Hill Education. This custom text is available as an eBook from the following link: https://www.mheducation.com/highered/custom/product/9781307066531.html
2. All class lecture slides and homework assignments are posted on Canvas. Please check regularly for updates at: https://canvas.rutgers.edu
3. Study guides are provided for the midterm and final exam.
4. Zoom lectures are recorded during the course and available for playback within Canvas.

## COURSE EQUIPMENT

Students will need the following equipment to participate online:

- A reliable Internet connection
- Access to Rutgers Zoom and Canvas
- A laptop computer with Internet browser, email, and Excel
- Audio listening and speaking
- A video connection
- A calculator

## LEARNING GOALS AND OBJECTIVES

This course is designed to help students develop skills and knowledge in the following areas:
1. Understand concepts in demand & supply planning and order fulfillment.
2. Equip students with the related quantitative and qualitative forecasting approaches and tools commonly used in practice.

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

- Online exercises and discussion
- Graded homework
- Graded quizzes and exams
- Practice using Excel
- Email with the professor
- Scheduled "office hours" with the professor

## PREQUISITES

Introduction to Supply Chain Management (29:799:301)

## ACADEMIC INTEGRITY

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. All suspected incidents of academic misconduct will be referred to an Academic Integrity Facilitator for investigation. Unfortunately, some Rutgers students are failed or suspended every year for violations of academic integrity. If you have any doubt what constitutes a violation of academic integrity, please visit the Student Judicial Affairs website at: http://academicintegrity.rutgers.edu/

Cheating is not tolerated at Rutgers Business School. Students are responsible for understanding RU Academic Integrity Policy at: http://myrbs.business.rutgers.edu/academic-integrity/students This Policy is strongly enforced. On all examinations and assignments, students must sign the Rutgers Honor Pledge, which states, "On my honor, I have neither received nor given any unauthorized assistance on this examination or assignment." Written assignments will be screened through *SafeAssign* or *Turnitin*, plagiarism detection services that compare the work against a large database of past work. Do not let cheating destroy your opportunity to learn.

## ATTENDANCE AND CLASS PREPARATION POLICY

Class attendance will be taken via WebEx login and Blackboard access logs. Every student is expected to contribute to class discussions. Continuing, thoughtful, and thorough participation in all aspects of the class will enable students to maximize their benefit from this course. The ground rules include:

- This online class requires that you bring a calculator and pen/pencil and plan to take notes during each class.
- Attend with an open mind – seek to learn.
- Engage in online class discussions – focus on substance/quality.
- Please email the professor in advance if you will be absent, late, or must leave early.
- Take advantage of contacting the professor with questions by email.
- Zoom lectures are recorded for secondary viewing.

## ONLINE CONDUCT

Online conduct is about respect for each individual student and respect for the professor. Please observe the following guidelines:

- Expect me to arrive on time for each online class session. I expect the same of you. Expect me to remain for the entirety of each class session. I expect the same of you.
- Expect me to prepare properly for each online class session. I expect the same of you. Complete all background reading and assignments. You cannot learn if you are not prepared.
- Expect me to participate fully in each online class session. I expect the same of you. Stay focused and involved.
- Please stay muted unless asking or answering a question.

## GRADING POLICY

Each grade component will be scored from 0->100 points and percentage weighed toward a total course score as follows:

| Category | Date | Score x Weight | Maximum Score |
|---|---|---|---|
| **Quiz #1** | July 19th | (0->100 Points) x 10% | 10 |
| **Excel Homework #1** | July 26th | (0->100 Points) x 15% | 15 |
| **Midterm Exam** | July 28th | (0->100 Points) x 20% | 20 |
| **Quiz #2** | August 9th | (0->100 Points) x 10% | 10 |
| **Excel Homework #2** | August 14th | (0->100 Points) x 20% | 15 |
| **Group Project** | As Assigned | (0->100 Points) x 20% | 10 |
| **Final Exam** | August 18th | (0->100 Points) x 20% | 20 |
| **Total Course Score** | | (0->100 Points) x 100% | 100 |

Your total course score will be determined based on the summation of the number of points that you acquire. Your numerical course score will be translated into your course letter grade as follows. Grading is individualized and is not based on a curve. Extra credit is not awarded.

| Final Grade | *Score* From | *Score* To | Percentage |
|---|---|---|---|
| A | 90.0 | 100 | 90.0% and higher |
| B+ | 85.0 | 89.9 | 85.0%-89.9% |
| B | 80.0 | 84.9 | 80.0%-84.9% |
| C+ | 75.0 | 79.9 | 75.0%-79.9% |
| C | 70.0 | 74.9 | 70.0%-74.9% |
| D | 60.0 | 69.9 | 60.0%-69.9% |
| F | 0 | 59.9 | 59.9% or lower |

For example: One student receives the following individual point scores: 70 for Quiz #1, 81 for HW #1, 84 for the Midterm, 90 for Quiz #2, 72 for HW #2, 90 for the Group Project, and 86 for the Final. The student's total course score and letter grade:

(70)(0.10)+(81)(0.15)+(84)(0.20)+(90)(0.10)+(72)(0.15)+(90)(.10)+(86)(0.20)=81.95 total score for a 'B' as the course letter grade.

Please do not try to lobby for rounding up of scores, extra-credit assignments, or changes to your scores. You are responsible for doing the work, preparing, and meeting deadlines. Your final score is not subject to negotiation. If you feel I have made an error in scoring, submit your argument to me in writing. Clarify the precise error I made and provide all due supporting documentation. If I have made an error, I will correct it. I cannot and will not adjust grades based on your consequences of lost scholarships, lost tuition reimbursement, lost job opportunities, or dismissals. Please do not ask me to do so.

## QUIZZES AND EXAMS

There are two online quizzes and two online exams in this course:

- Quizzes are 33 minutes, open book, open notes, with eleven multiple choice questions related to course concepts and key vocabulary. The ten best answers are scored not to exceed 100pts.
- The Midterm Exam is 2.5 hours, open book, open notes with multiple choice computational questions. Students perform the calculations off-line, then select the best answer out of those presented. Midterm exam scores are posted on Canvas.
- The Final Exam is 2.5 hours, open book, open notes with multiple choice computational questions. Students perform the calculations off-line, then select the best answer out of those presented. Final exam scores are posted on Canvas with course letter grades posted to REGIS.

The details of each exam, including the material covered and format, will be discussed in-class prior to the exam. A brief review of the material to be covered in the exam will be part of the lecture prior to each exam. A study guide will be posted on Canvas for each exam. Students are asked to sign the Rutgers Honor Pledge on the start of each quiz and exam.

## GROUP PROJECT

There will be a Group Project in which students will prepare and present a discussion of the demand management and fulfillment aspects of a selected *Supply Chain Management Review* article. Groups of four students will be assigned by the professor. Each group will select one article to present from an approved list posted by the professor. Articles are easily accessible on-line from the Rutgers Library. While the format of the presentation is flexible, the total time allotted for each group is 20 minutes maximum. Each student in the group is expected to present some part of the whole presentation. Each student in the group will receive the same score. Students absent from the presentation will receive zero score points for the group project**.** Projects scores will be posted the week following the last presentation.

Group presentations will be conducted on Zoom. One student from the group will share their screen with the PowerPoint slides for the whole class to see. Each student in the group in-turn will unmute and present their portion of the presentation while the student sharing the PowerPoint file advances slides as requested. The presentation should address the following questions:

1) What problem did the article present?
2) How does the issue relate to this demand planning and fulfillment course?
3) How was the issue resolved?
4) If you were an employee facing a similar problem, what other techniques that we covered throughout the semester would you suggest?

## EXCEL HOMEWORK ASSIGNMENTS

Details for the two Excel Homework assignments are posted on Canvas and will be discussed in class. Excel Homework assignments are uploaded to Canvas by the due date specified in this Syllabus. Late homework will not be accepted**.** Homework will be graded based on the quality of the thinking, the analytical approach, and the connection to the course content. Students sign the Rutgers Honor Pledge on the first page of the homework. Homework answers will be reviewed prior to the midterm and final exam.

## STUDENT INSTRUCTIONAL RATING SURVEY

Every student is expected to complete a Student Instructional Rating Survey CTAAR at the conclusion of the course.

## COURSE SCHEDULE

Shown on the following page.

## COURSE SCHEDULE

**RBS Summer 2021 29:799:310:H6 Course Index 02079**
**Online Demand Planning & Fulfillment**

| | Session | Subject | Excel | Assignments | %Score |
|---|---|---|---|---|---|
| 1 | Monday 6-10pm July 12th | Lesson 1. Introduction and the Nature of Market Demand<br>Course Structure, Grading, and Revenue, Pricing, Markets | | Read the Syllabus<br>Lecture Notes on Blackboard | |
| 2 | Wednesday 6-10pm July 14th | Lesson 2. Forecast Demand Right, Part 1<br>Time Series Forecasting, Excel Basics | SUMPRODUCT<br>Formatting | Read Forecasting: pp2-51<br>Lecture Notes on Blackboard | |
| 3 | Monday 6-10pm July 19th | Lesson 3. Forecast Demand Right, Part 2 + **Quiz #1**<br>Deterministic Trend, Regression, Seasonality Forecasting | VLOOKUP | Read Forecasting: pp2-51<br>Lecture Notes on Blackboard | 10%/10% |
| 4 | Wednesday 6-10pm July 21st | Lesson 4. Forecast Accuracy<br>MAD, MSE, MAPE, Tracking Signals, Excel Graphics | Histograms<br>Sparklines | Midterm Study Guide Posted<br>Lecture Notes on Blackboard | |
| 5 | Monday 6-10pm July 26th | **Excel Homewok #1 Due**<br>Lesson 5. Forecast the Right Demand+Reverse Supply Chains | Radar Charts | Lecture Notes on Blackboard | 15%/25% |
| 6 | Wednesday 6-10pm July 28th | Homework Answers + Midterm Review<br>**Online Midterm Exam** | | | 20%/45% |
| 7 | Monday 6-10pm August 2nd | Lesson 6. Aggregate Planning + **Groups A/B**<br>Sales & Operations Planning | | Read Aggregate Planning: pp64-94<br>Lecture Notes on Blackboard | |
| 8 | Wednesday 6-10pm August 4th | Lesson 7. DRP+MPS + **Groups C/D**<br>Distribution Requirements Planning, Master Scheduling | Excel Solver | Read Aggregate Planning: pp64-94<br>Lecture Notes on Blackboard | |
| 9 | Monday 6-10pm August 9th | Lesson 8. MRP + **Quiz #2**<br>MRP, MRPII, ERP | SUMIF<br>Pivot Tables | Read MRP and ERP: pp102-141<br>Lecture Notes on Blackboard | 10%/55% |
| 10 | Wednesday 6-10pm August 11th | Lesson 9. Inventory Management + **Groups E/F**<br>Inventory, EOQ, Reorder Point, and Safety Stock | | Read Inventory Mgmt: pp152-193<br>Final Study Guide Posted | 10%/65% |
| | Saturday, August 14th | **Excel Homework #2 Due** | | | |
| 11 | Monday 6-10pm August 16th | Lesson 10. Pull Planning and Global Fulfillment | | Lecture Notes on Blackboard | 15%/80% |
| 12 | Wednesday 6-10pm August 18th | Homework Answers + Final Review<br>**Online Final Exam** | | | 20%/100% |
| | August 20th | Final Exam Score on Blackboard + Course Grade on REGIS | | | |

**STUDENT ACCOMMODATION AND SUPPORT**

Rutgers University Newark (RU-N) is committed to the creation of an inclusive and safe learning environment for all students and the university as a whole. Campus based student accommodation and support may differ as long as RU-N remains online during the Covid-19 pandemic. Normally RU-N has the following resources to further the mission of student access and support:

For *Individuals with Disabilities*: The Office of Disability Services (ODS) is responsible for the determination of appropriate accommodations for students who encounter barriers due to disability. More information can be found at ods.rutgers.edu. Contact ODS at (973)353-5375 or via email at: ods@newark.rutgers.edu

For Individuals seeking *Religious Accommodations*: The Office of the Dean of Students is available to verify absences for religious observance, as needed. Contact the Dean of Students at: (973)353-5063 or via email at: DeanofStudents@newark.rutgers.edu.

For Individuals with *temporary conditions/injuries*: Students who have experienced a temporary condition or injury that is adversely affecting their ability to fully participate should submit a request via: https://temporaryconditions.rutgers.edu

*Absences*: Per University Policy 10.2.7, you are responsible for communicating with your instructors regarding absences. The Office of the Dean of Students is available to verify extended absences. Contact the Dean of Students at: (973)353-5063 or via email at: DeanofStudents@newark.rutgers.edu.

For *English as a Second Language* (ESL): Students experiencing difficulty in courses due to English as a second language (ESL) should contact the Program in American Language Studies via email at: PALS@newark.rutgers.edu

For *Gender or Sex-Based Discrimination or Harassment*: If you have experienced any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, relationship violence, or stalking, know that help and support are available. If you wish to report an incident, you may contact the Office of Title IX and ADA Compliance at: (973)353-1906 or via email at: TitleIX@newark.rutgers.edu You may also submit an incident report using the following link: tinyurl.com/RUNReportingForm 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 via email at: run.vpva@rutgers.edu

If you are in need of *mental health* services, please use our readily available services. Rutgers University-Newark Counseling Center at: http://counseling.newark.rutgers.edu/

If you are in need of *physical health* services, please use our readily available services. Rutgers Health Services – Newark at: https://www.newark.rutgers.edu/health-wellness

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 at:
https://www.newark.rutgers.edu/resources-student-veterans

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

If you are in need of additional *academic assistance*, please use our readily available services. Rutgers University-Newark Learning Center at: http://www.ncas.rutgers.edu/rlc and Rutgers University-Newark Writing Center at:
https://sasn.rutgers.edu/student-support/tutoring-academic-support/writing-center

Rutgers Business School works closely with the university CARE Teams to support you regarding technology, financial and other personal hardship issues during the Covid-19 pandemic at: https://myrun.newark.rutgers.edu/care-team In addition, if you need further assistance, please contact Sharon Lydon, Associate Dean at Rutgers Business School, at:
slydon@business.rutgers.edu

---