

**Management Science and Information Systems**  
**Course Number: 29:623:311**  
**Course Title: Production and Operations Management**

## **COURSE DESCRIPTION**

This course (i.e. POM) is an introduction to the concepts, principles, problems, and practices of production and operations management. Emphasis is on managerial processes for effective operations in both goods-producing and service-rendering organization. POM is intended to provide the students greater understanding of the problems and analysis related to the design, planning, control and improvement of manufacturing and service operations. We develop managerial insights and techniques for controlling production processes, planning, organizing, product design, quality management, capacity planning, supply chain management and operations strategy through quantitative techniques. We illustrate these concepts by combining theory, examples and practical applications.

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## **COURSE MATERIALS**

**- Textbook(s):**

*“Introduction to Management Science”* by Bernard W. Taylor III, Pearson, 13th Edition

**- Course Web Site:**

The *Canvas* site for this course will contain lecture notes, reading materials, assignments, and late breaking news. It is accessible via: <https://canvas.rutgers.edu/> . You should check it frequently to remain updated. You are responsible for keeping aware of the announcements on the course web site.

**- Software:**

This course uses Excel Solver Add-in to solve (Non-)Linear Programming models. You may install and use QM for the corresponding examples.

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## **LEARNING GOALS AND OBJECTIVES**

The goal of this course is to enable you to develop mathematical models for solving the decision problems faced by managers in various business domains. We shall discuss basic classes of most useful business models which can be drawn from manufacturing, transportation and distribution, marketing and finance. The following topics will be covered during the course: linear programming formulation and solution methodologies, transportation and assignment problems, network management, project management, integer programming, decision analysis, forecasting, simulation, etc.

This course aims to improve students understanding of above-mentioned concepts, principles, problems, and practices of operations management. After completing this course, students should be able to develop analytical tools to deal with such decision problems in POM.

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## PREREQUISITES

Management Information Systems (29:623:220); Statistical Methods (21:220:231) or equivalent (e.g. Business Research Methods (29:623:340)).

Also, some basic skills of Excel Spreadsheet are required.

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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 PREPARATION POLICY

- Expect me to attend all class sessions. I expect the same of you. If I am to be absent, my department chair or I will send you notice via email and Canvas as far in advance as possible. If you are to be absent, report your absence in advance at <https://sims.rutgers.edu/ssra/>. If your absence is due to religious observance, a Rutgers-approved activity, **illness**, or family emergency/death and you seek makeup work, also send me an email with full details and supporting documentation within two days of your first absence.
  - For weather emergencies, consult the campus home page. If the campus is open, class will be held.
  - Expect me to arrive on time for each 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 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 class session. I expect the same of you. Stay focused and involved. You cannot learn if you are not paying attention.
  - Look for **Announcements on Canvas**
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## NOTE

- The best way to contact me is via email.
- Instructor reserves the right to change/modify this syllabus as deemed necessary.
- Students are responsible for keeping themselves informed about any announcements, syllabus adjustments or policy changes made during scheduled classes.

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## CLASS POLICY

Class materials for each class will be posted on *Canvas* before class day. Students are permitted to use computers during class for note-taking and other class-related work only. Those using computers during class for work not related to that class must leave the classroom for the remainder of the class period. Generally, cell phones or any other course-unrelated electronic devices are prohibited from class meeting.

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## EXAMS, ASSIGNMENTS AND POLICIES

There will be two exams, i.e. one midterm and one final exam (please refer to course scheduling at the end of this syllabus). **No make-up exams will be given.**

Assignments (homework) are due at the beginning of the class period on the day they are due and have to be submitted (electronically) on *Canvas*. **No assignment will be accepted after due dates or late including the reasons of absence.**

During exams, the following rules apply:

- If you have a disability that influences testing procedures, provide me an official letter from the Office of Disability Services at the start of the semester.
  - No cell phones or other electronics are allowed in the testing room.
  - You must show a valid Rutgers photo ID to enter the room and to turn in the exam.
  - Alternate seating; do not sit next to another student or in your usual seat.
  - Use the bathroom prior to the exam start; bathroom breaks, if essential, will be escorted.
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## GRADING POLICY

Exam I (Midterm): 30%

Exam II (Final): 30%

Homework: 30% (2 assignments, 15% each)

Attendance & Participation: 10%

At the end of course, homework, attendance and test scores with the weights specified in the syllabus will be combined to get an overall score from 0-100. I then rank these scores, and choose sensible cutoffs between A, B+, B, C+, C, D and F. The final letter grade will be assigned as follows.

### **-Grading standard:**

A 90-100

B Plus 86-89

B 80-85

C Plus 76-79

C 70-75

D 60-69

F 59 and below

Your final grade is not subject to negotiation. If you feel I have made an error, submit your written argument to me within one week of receiving your final grade. Clarify the precise error I made and provide all due supporting documentation. If I have made an error, I will gladly correct it. But I will

adjust grades only if I have made an error. I cannot and will not adjust grades based on consequences, such as hurt pride, lost scholarships, lost tuition reimbursement, lost job opportunities, or dismissals. Do not ask me to do so. It is dishonest to attempt to influence faculty in an effort to obtain a grade that you did not earn, and it will not work.

## COURSE SCHEDULE

<i>Week</i>	<i>Material to be covered</i>	<i>Video Title in Media Gallery</i>	<i>Assignments</i>
I	Introduction (Ch.1)	<i>for reading</i>	
	Lin. Prog.: Model Form. & Graphical Sol. (Ch.2)	Ch2-1	
II	Ch.2	Ch2-2	HW #1 will be posted
	Computer Sol. & Sensitivity Analysis (Ch.3)	Ch3-1	
III	Ch.3	Ch3-2	
	Ch.3	Ch3-3	
IV	LP Appl.: Modeling Examples (Ch.4)	Ch4-1	
	Ch.4 & Integer Programming (Ch.5)	Ch4-2&5-1	
V	Ch.5	Ch5-2	
	Transportation, Transshipment, and Assignment (Ch.6)	Ch6	
VI	Network Flow Models (Ch.7)	Ch7	
	Nonlinear Prog. (Ch.10)	Ch10	
VII	<b>Q&amp;A and Review I</b>		<b>HW #1 due</b>
	<b>Exam I (Midterm)</b>		
VIII	<b>Prob. and Statistics (Ch.11)</b>	Ch11-1	
	<b>Ch.11</b>	Ch11-2	
IX	<b>Ch.11</b>	Ch11-3	<b>HW #2 will be posted</b>
	<b>Ch.11</b>	Ch11-4	
X	<b>Forecasting (Ch.15)</b>	Ch15-1	
	<b>Ch.15</b>	Ch15-2	
XI	<b>Ch.15</b>	Ch15-3	
	<b>Ch.15</b>	Ch15-4	
XII	<b>Inventory Management (Ch.16)</b>	Ch16-1	
	<b>NO CLASSES!</b>		
XIII	<b>Changes in designation of class days: NO CLASSES!</b>		
		Ch16-2	

	<b>Ch.16</b>		
<b>XIV</b>	<b>Ch.16</b>	Ch16-3	
	<b>Ch.16</b>	Ch16-4	
<b>XV</b>	<b>Q&amp;A and Review II</b>		<b>HW #2 due</b>
<b>XVI</b>	<b>Exam II (Final)</b>		

\*Schedule is tentative and subject to change

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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.]