

Operation Research
COURSE NUMBER: 22:711:579
COURSE TITLE: Analytical Techniques for Decision-Making

COURSE MATERIALS

TEXT: For Hypothesis Testing and Regression: Levine, Stephan, Krehbiel & Berenson, *Statistics for Managers Using Microsoft Excel*, 7th Edition, Prentice Hall, 2014.

Anderson, Sweeney & Williams, *An Introduction to Management Science: Quantitative Approaches To Decision Making*, Revised 13th Ed., West Publishing, 2011.

SOFTWARE: *Microsoft Excel - with PHStat2 and Solver loaded.*

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

CLASS ORGANIZATION & ADMINISTRATION

Homework will be assigned at every lecture and reviewed at the beginning of the next lecture. In addition to assigned problems, one paragraph (typed hard copy) on how one concept in that day's class could be used in your work must be turned in at the beginning of the next class.

There will be one midterm examination (meeting 5) and one final examination (meeting 10). You are expected to make necessary arrangements to be here during scheduled exams. If you cannot be here on the scheduled exam date, you must let me know beforehand and make alternative arrangements.

Remaining study groups will be expected to make a 10-minute presentation on an application of one of the above topics (beginning with Regression Analysis). Proposals are due at the beginning of meeting 4.

FINAL GRADE ASSIGNMENT

Final grades will be based upon 42.5% weight for each examination, 10% for the presentation, and 5% for weekly paragraphs; if the presentation was given in the Statistics course, the final grade here will be based upon 47.5% weight for each examination and 5% for weekly paragraphs.

Operation research (22:711:573)

COURSE SCHEDULE

Topic	Reading	Assignment
Hypothesis Testing	Ch9/9.1,9.2, 9.3,9.5+Excel	9.9, 9.10, 9.16a- manual,excel,
Risks in Hypothesis Testing		9.30ade-excel, 9.51a-excel
One-Tailed and Two-Tailed Tests on the Mean		
Linear Regression and Correlation (Stat text)	Ch13/13.1-5,13.7-9,	13.9-excel,13.29-excel, 13.32a;
	Excel, bb readings	excel: 13.21ac, 13.47a, 13.61
		Note error in back of book –
		Ch13/14c – signs reversed
Introduction to Operations Research	Ch 1	
Inventory Models	Ch. 10/10.1-3	Ch10/excel + manual:
EOQ Model	Blackboard readings	4,5(manual only),15,16
		Note error in back of book – Ch10/15a
		Cb in denominator = 5, not 0.5.
Linear Programming	Ch. 2,3,4	Ch2/24a,41a
Formulations	Blackboard readings	Ch3/use Excel – NOT graph:
Computer solutions		Ch3/1abc,2ab,5
		Ch3/use Excel:14,15b,c
		Note error in back of book – Ch3/14c
		Ch4/use Excel: 3
		Ch7/ Excel NOT graph: 4abc

Queuing Theory	Ch. 11/11.1-.7	Ch11/1,2,3,4,14,
M/M/1, M/M/s and M/D/1 models	Blackboard readings	15,27
Economic analysis and optimization		