



# Lincoln University

**Course Title:** Quantitative Methods for Business and Finance Management  
**Course Number:** BA 460  
**Semester:** Fall 2017  
**Units:** 4 units (45 hours of lecture + 1 unit of self-study research project)  
**Class Hours:** Saturday 12:30 – 3:15 PM  
**Professor:** Dr. Miron Yoffe  
**Phone:** 617-538-4364  
**Email:** [myoffe@lincolnuca.edu](mailto:myoffe@lincolnuca.edu)  
**Office Hours:** By appointment

## Course Description

While solving a problem, managers must consider both qualitative and quantitative factors. This course covers quantitative methods which help to solve different business problems. Techniques include decision analysis, regression analysis, forecasting, transportation, and assignment models, Markov Analysis, stochastic equations, statistical quality control and others.

**Prerequisite: BA 45 or BA 241**

## Course Learnings Outcomes

Upon the completion of the course, students should have an:

	Course Learnings Outcome	Assessment Activities
1	Ability to translate verbal problem into math model	Class discussions, in-class and home assignments
2	Ability to use formal and precise expression of ideas with the aid of notations, symbols and formulas as they apply to structured set-ups and solutions	Class discussions, in-class and home assignments
3	Ability to face and solve complex problems by their breakdown to several ordered sub problems in a hierarchical manner.	Class discussions, in-class and home assignments

4	Ability to comprehending the necessary conditions in problem setups and in the structure of algorithms for problem solutions	Class discussions, in-class and home assignments
5	Ability to choose the correct model, select, and define its variables and interpret its results	Class discussions, in-class and home assignments

## Learning Objectives

This course introduces the students to formal mathematical and statistical reasoning in Business. It familiarizes the student with methods of decisions and measurement as applied in models that are widely used by decision-makers in industry and business. Special attention is given to applications in Financial Management. The latter are strongly affecting decision making in other disciplines, e.g., Marketing, Logistics, Management and Production. The course requires elementary knowledge in mathematics and statistics on which we will build further knowledge.

Several key topics in Operations Research and statistics are covered and applied. There is an emphasis on both procedure and rationale. The student is trained in problem formulation and setting and in the usage of procedures and algorithms in the solution of the problems. The student thus needs to pay attention to the rationale in problems setting as well as to the rationale embedded in the algorithmic process.

A self-study research project would be assigned and it is required for adding a fourth unit to the course credit. I would like to emphasize the importance of the quality of the research project and its presentation by the student. This research project must be of high quality. It would be presented to both class and faculty. At least one more faculty member would attend the presentation. Students are thus expected to dedicate considerable time to the project.

### The course objectives are:

1. Solidifying student prerequisites in algebra, geometry, statistics, and elements of computer science as applied to Quantitative Methods in Business and Financial Management.
2. Learning formal and precise expression of ideas with the aid of notations, symbols and formulas as they apply to structured set-ups and solutions
3. Learning to face and solve complex problems by their breakdown to several ordered sub problems in a hierarchical manner.
4. Comprehending the necessary conditions in problem setups and in the structure of algorithms for problem solutions
5. Paying attention to models and to modeling as they are affected by business reality on one hand and by philosophy and technological constraints of the disciplines that guide

modeling on another hand. The guiding disciplines are: mathematics, statistics, economics, and computer science.

6. Learning to choose the correct model, select, and define its variables and interpret its results

### **Instructional Materials and References**

Textbook: David R. Anderson; Dennis J. Sweeney; Thomas A. Williams; Jeffrey D. Camm; James J. Cochran; Michael J. Fry; Jeffrey W. Ohlmann.

Quantitative Methods for Business, 13<sup>th</sup> Edition, 2015

Cengage Learning. (ISBN-13: 978-1-285-86631-4)

### **Methodology:**

Lecture and exercise mode will mostly do the teaching. The students will achieve comprehension of the topics through routine individual problem set ups and solving.

Every student must be registered in CANVAS. We are using the CANVAS for monitoring attendance and participation, HW assignments, quizzes, submission time monitoring and grades. The HW files are submitted *only* through CANVAS. In addition, every student must bring the hard copy of the submitted HW for inspection at the beginning of the class and use it either to pass over the solutions or to present the student's solution to the rest of the class. Failing to do so may result in lower HW credit. HW is due by 1AM Saturday as instructed by CANVAS. If you are late, you still may use an automatic extension of 8 hours and submit the HW by 9 AM Saturday through CANVAS. CANVAS has a built-in time cut off function and would not allow submission past the deadline or the deadline extension. No further extension would be provided. Hence, any homework passed the due date extension deadline would not be accepted for grading.

In reporting to CANVAS every student must list on his/her assignment the following information: Student ID, Last Name and First Name as appear on the enrolment sheet.

The problems will be assigned from the textbook as well as from the recommended supporting sources. Students may be called to the board to demonstrate and explain their solutions.

Students should be aware that experience indicates that the overall effect of HW performance on the grade is on the average about 70% to 80%, even though the direct contribution of the HW to grade is only 10%.

### **Additional Material Requirements:**

1. Laptop with Microsoft Excel and Solver software.

### **Topical Outline**

Topic	Chapters*
• Introduction to Q.M.	1
• Linear Programming: Introduction	7
• Linear Programming: Sensitivity Analysis	8
• Linear Programming: Applications	9
• Decision Analysis	4
• Project Scheduling: PERT/CPM	13

\*There are other resources including Software for Modeling and Analysis supporting textbook

### Course Tentative Schedule

Session	Date	Topic.
1	08/26/17	Introduction
2	09/02/17	Linear Programming
3	09/09/17	Linear Programming
4	09/16/17	Linear Programming
5	09/23/17	Linear Programming
6	09/30/17	Linear Programming
7	10/07/17	Mid Term Exam (Ch. 7, 8)
8	10/14/17	Decision Making
9	10/21/17	Decision Making
10	10/28/17	Decision Making
11	11/04/17	Project Management with PERT and CPM
12	11/11/17	Project Management with PERT and CPM
13	11/18/17	Project Management with PERT and CPM
	11/25/17	Fall Recess
14	12/02/17	Final Exam (Ch. 4, 13)
15	12/09/17	Project presentations and additional tests for grade adjustments

### Assessment Criteria and Methods of Evaluating Students:

All activities will be graded according to the points as shown below.

Grade	Satisfactory Cut points for Grade
A-, A	80, 85
B - B, B+	60, 70, 75
C-, C, C+	48, 52, 55
D, D+	42, 45
F	Below 42

The final grade for the course will be given as the total weighted score for all activities according to the percentage shown in the table below.

Activity	%
Class participation and attendance	10%
Homework and assignments	10%
Research Project	20%
Midterm exam	25%
Final exam	35%
Total	100%

### **Student Conduct:**

- Please participate. What you put into the class will determine what you get out of it – and what others get out of it.
- Please come **on time**. Late arrivals disturb everyone else. Plan to stay during the whole class period. Attendance will be taken at least one time of each class. In the case where more than one attendance is taken, only students participating in all attendances would be considered as present. Attendance and Participation are part of the grade
- Students may not read other materials (newspapers, magazines) during class, and no multitasking is allowed.
- Students are not allowed to come and go during class sessions.
- If you miss a class, you are responsible for getting notes/slide printouts or the material covered from a classmate.
- To avoid distracting noise in class, cellular phones **must** be turned off or the ringing mode silenced.

### **Examination Policy:**

The exams are closed books exams. No breaks are allowed during the midterm and each of the parts of the final, if final is administered by parts. (I will make alternative testing opportunities where the need for break is medically required and professionally supported by a letter from a medical doctor).

The student is required to bring an approved simple calculator to the exams. No exchange of pencils, pens, erasers and any other material between students is allowed. No electronic instrument capable of copying material in any form (in particular, in print or visual image) is allowed in the exam. Cell phones, organizers, advanced calculators, tape recorders, cameras, computers, etc. must be closed and stored inside a closed bag. Students violating these requirements should expect an F score, as well as further disciplinary hearing.

### **Academic Integrity**

I encourage you to collaborate on assignments and learn from your fellow students. However, there is a fine line between collaboration and cheating. Collaboration means discussing problems and solution approaches with other students and independently writing your own answers; cheating means copying solutions from someone else or giving someone else your solutions. If you have questions about what is acceptable, please bring them to me *before* submitting your work.

Cheating, plagiarism and helping others commit these acts are all forms of academic dishonesty, and will not be tolerated. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal.

### **Disclaimer**

This syllabus is subject to modification. I am committed to letting students know changes to the syllabus as soon as possible.

**Last Update:** August 15, 2017. Additional updates may follow. See Canvas for new updates.

## Appendix. Program and Institutional Learning Outcomes.

<b>Institutional Learning Outcomes (ILOs)</b>	
<i>A Graduates of Lincoln University MS Program should be able to</i>	
<b>1</b>	Recognize and be able to work with the components of reasoning and problem solving; understanding concepts, assumptions, purpose, conclusions, implications, consequences, objections from alternative viewpoints, and frame of reference.
<b>2</b>	Gather and assess relevant information, using abstract ideas to interpret it effectively; being able to develop well-reasoned conclusions and solutions, and testing them against relevant criteria and standards
<b>3</b>	Be exemplary business professionals and try to ensure that the products of their efforts will be used in socially responsible ways, will meet social needs, and will avoid harmful effects to health and welfare
<b>4</b>	Lead by example in order to create highly collaborative organizational environment, and be able to develop and use strategies to encourage employees at all organizational levels to do the same.
<b>5</b>	Set goals and have a vision of the future. The vision should be owned throughout the organization. As effective leaders, they should habitually pick priorities stemming from their basic values.
<b>6</b>	Continually look for, develop, and offer new or improved services, and be able to use original approaches when dealing with problems in the workplace.
<b>7</b>	Demonstrate fluency in the use of tools, technologies and methods in the field. They should know how to evaluate, clarify and frame complex questions or challenges using perspectives and scholarship from the business discipline.

<b>Program Level Outcomes (PLOs)</b>	
<i>Students graduating our MS in Finance Management program will be able to:</i>	
<b>1</b>	Demonstrate expert-level understanding of the aspects of finance management including mathematical, statistical, financial, and economic.
<b>2</b>	Develop knowledge of finance management including international finance, international securities, commercial banking and lending, investment science, real estate, and stock market.
<b>3</b>	Recognize financial problems and provide creative solutions. Integrate theory and practice for strategic analysis in the field of finance management.
<b>4</b>	Apply quantitative methods of analysis to analyze financial data.
<b>5</b>	Communicate to relevant audiences including written and oral communication.
<b>6</b>	Work effectively with a team of colleagues on diverse projects.
<b>7</b>	Identify and analyze the ethical obligations and responsibilities in the field of finance management.

