

Lincoln University

Spring 2015  
Mr. Hibshoosh

**Course:** BA 241 – Quantitative Analysis  
**Credit:** 3 units (45 hours of lectures)  
**Class Meetings:** Wednesday 3:30 - 6:15 PM  
**Instructor:** Aharon Hibshoosh  
**Office Hours:** Wednesday 9:15 - 10:15 PM  
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**Textbook:** Lawrence L. Lapin and William D. Whisler. (2002). *Quantitative Methods for Business Decisions*, 7 ed. Belmont, CA: Duxbury, Thomson Learning. (ISBN 0-534-38024-7).

## **BA 241: Quantitative Analysis**

### **Course description:**

Catalog description: This course covers quantitative techniques for solving business problems and making management decisions. Techniques include production or output planning, capital investment and project analysis, linear and non-linear programming, probability theory, inventory control, scheduling, and waiting line models, as well as mathematical decision techniques. (3 units) Prerequisite: MATH 10 or MATH 15.

BA 241 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 formation 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.

### **Methodology:**

The teaching will be done mostly by lecture and exercise mode. The students will achieve comprehension of the topics through routine individual problem set ups and solving. The professor's requirements for set ups and solutions are often more stringent than those in the textbook. Thus, the course requirements supersede the textbook's requirements. The HW is individually and group supervised to assure turning of complete HW. We are using the CANVAS software for HW collection, submission time monitoring and grade assignments. The HW files are submitted for grade *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 to pass over the solutions or to present the student's solution for to the rest of the class. Failing to do so may result in lower HW credit. Every student must be listed with CANVAS. An adding student must belong to a group and inform the teaching assistant his/her adding status and group number. HW is due by 1AM Wednesday 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 Wednesday 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 by the following order the following information: Student ID, Last Name and First Name- as appear on the enrolment sheet and group number.

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. The textbook would be used as a handbook. It must be brought to class, whenever its topics are studied.

Students should be aware that past experience indicates that the overall effect of HW performance on the grade is on the average about 70 to 80 percent, even though the direct contribution of the HW to grade as computed is only 10%. There will be weekly exercise session were the Teaching Assistant would go over the solution of the given problems and help understanding most recently taught material. Attendance would be taken at these sessions.

Additional Material Requirements:

Simple calculator without any second function but with a square root function. Memory storage and recall functions are allowed. Possession of the textbook and of the simple calculator is required in every class meeting.

Course Learning Objectives:

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 formulae 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 in problem setups and in the structure of algorithms for problem solutions
5. Paying attention to models and in particular to modeling borders as they are affected by business reality on one hand and by philosophy and technological constraints of the

disciplines that guide modeling. 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

### **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 may be taken at least one time in of each class. In the case where more than one attendance is taken, only students participating in all attendances would be considered as present. Participation and attendance 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 on the material covered from a classmate in your group.
- To avoid distracting noise in class, cellular phones **must** be turned off or the ringing mode silenced.
- During an exam, the presence of any device capable of storing recoding any information in any form or image is strictly prohibited. This applies in particular to cell phones, organizers, cameras, recorders, advanced calculators, etc. Specifically, during an exam all recording devices of any form must be closed and stored in closed bags. (See also Examination Policy). The only exception is the simple calculator detailed above.

### **Examination Policy:**

The exams are closed books exams. I will use exams with mixed format. One part of every exam is objective, consisting of TF and MC questions. The student should be aware that questions in this part often require problem solving and or involve challenging conceptual questions. It is thus as challenging as the second part. The second part (with larger weight in the exam) is comprised of problems which require students written answers. No breaks are allowed during the midterm or 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 erasers, pencils, or any other material is allowed. No electronic instrument capable of copying material in any form (in particular, in print or visual image) is allowed in the exam. In particular, 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.

### **Grading Guidelines:**

Class attendance 10 pts  
Homework and assignments 10 pts  
Midterm 30 pts  
Final 50 pts.  
Total course points: 100 pts\*

The grade will be based on a curve, reflecting the standards of Lincoln University.

Grade	Satisfactory Cut points for Grade
A-, A	78, 83
B - B, B+	58, 68, 73
C-, C, C+	46, 51, 53
D, D+	40, 43
F	Below 40

\*Extra credit may be available through contribution to research projects defined by the instructor. The number of extra credits is very limited. Students interested in extra credit must approach the professor very early in the semester. A student not performing at relatively very high level in the course, at any time, would not be allowed to begin or continue with the extra study.

### **Course Schedule:**

#### **Topics and Tentative Schedule^**

We will focus on elements in the following chapters^, in Lapin and Whisler:

<u>Topics</u>	<u>Chapters and Other Resources*</u>
1/21 - 1/28 Introduction and Quantitative tools	8
1/21 - 2/18 Linear Programming I (Graphical Solution)	8
2/25 - 3/25 Linear Programming II (Multivariate and Computer Solutions)	9
3/25 - 4/15 Inventory Models	15 and elements of 16
4/15 - 4/29 Project Management with PERT and CPM	14

#### **Special Dates:**

3/17 - 3/21 Spring Recess

Exam Dates: Midterm 3/11. Final 5/6.

Flex. Sched. Mathematical and Statistical Software for Modeling and Analysis.

^These are tentative dates.

\*Chapters are supported by other resources in form supporting files and computer resources.

I will make an effort to expedite presentation and if time permits introduce some elective topic(s) in Linear Programming, Networks, Inventory, Probability or Decision Sciences. I will also expose interested students to advanced math and stat techniques and software outside the classroom. While these presentations will not be part of the required course material, this exposure is likely to support student's education and career.

**Updated:** January 5, 2015. Additional updates may follow. See Canvas for new updates.