Lincoln University   Fall 2015

Course Title: Quantitative Methods for Business and Finance Management

Course Number: BA 460

Course Description (from catalog)

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 models, forecasting, transportation, and assignment models, Markov analysis, stochastic equations, statistical quality control and others. A one-unit written research project and its oral presentation are required for the course.

Prerequisite: BA 45 or BA 241

Instructional Contact Hours / Credit
Semester Credit: 4 units (45 hours of lecture + 45 hours of self-study research project)
Class Meetings: Thursday 9:00 - 11:45 AM
Instructor: Dr. Miron Yoffe
        BS and MS in Mathematics, Novosibirsk State University (Russia)
        Ph.D. student, Tashkent State University (Uzbekistan)
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Office Hours: Thursday 11:45 AM - 12:35 PM
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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 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

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, 13th Edition, 2015
Cengage Learning. (ISBN-13: 978-1-285-86631-4)

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.

Every student must be registered in CANVAS. We are using the CANVAS for HW collection, submission time monitoring and grade assignments. 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 for to the rest of the class. Failing to do so may result in lower HW credit. HW is due by 1AM Thursday 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 Thursday 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.

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 past 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. Simple calculator without <u>any</u> second function but with a square root function. Memory storage and recall functions are allowed.
2. Laptop with Microsoft Excel and Solver software.
3. Possession of the laptop and the simple calculator is required in every class meeting.

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

*Chapters are supported by other resources in form of supporting files and computer resources including Software for Modeling and Analysis

Course Tentative Schedule

Date^	Q.M.
08/27/15	Introduction
09/03/15	Linear Programming
09/10/15	Linear Programming
09/17/15	Linear Programming
09/24/15	Linear Programming
10/01/15	Linear Programming
10/08/15	Linear Programming

10/15/15	Mid Term Exam
10/22/15	Decision Making
10/29/15	Decision Making
11/05/15	Decision Making
11/12/15	Project Management with PERT and CPM
11/19/15	Project Management with PERT and CPM
12/03/15	Project Management with PERT and CPM
12/10/15	Final Exam

^These are tentative dates.

Special Dates: 11/24 - 11/28 Fall Recess

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	30%
Midterm exam	17%
Final exam	33%
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.
- 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 consisting of True/False and Multi Choice 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 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. 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.

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 20, 2015. Additional updates may follow. See Canvas for new updates.