האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

Syllabus

Quantitative Models - 55815

Last update 07-09-2020

HU Credits: 3

Responsible Department: Business Administration

Academic year: 0

Semester: 1st and/or 2nd Semester

Teaching Languages: English and Hebrew

Campus: Mt. Scopus E. Safra

Course/Module Coordinator: Gur Mosheiov

Coordinator Email: msomer@huji.ac.il

Coordinator Office Hours: Sunday 14:00

Teaching Staff:
Mr. AMIR BRUDNER,
Dr. Binyamin Oz,
Prof Gur Mosheiov

Course/Module description:

Solving decision problems from various areas of management.

Course/Module aims:

Learning the technique of building models for decision making, and exercising different methods for solving decision problems.

Learning outcomes - On successful completion of this module, students should be able to:

At the end of the course students should be able to formulate a decision problem as a mathematical model (mainly linear programming models), and solve by using an appropriate software. They will be able to solve questions of project management, as well as sequential decision problems (by decision trees), the value of information, and the concept of using simulation.

Attendance requirements(%):

Teaching arrangement and method of instruction: Weekly class lectures.
Two classes for demonstration and exercise of the software will be given in the computer lab.
A weekly assignment. (At least 80% of the assignments should be submitted. The assignment grades is not part of the final grade.)
A midterm focusing on the use of SOLVER. (A "pass" grade is required. The grade is not part of the final grade.)
Final exam. (The final exam's grade is the course grade.)

Course/Module Content:

Solving linear programs of 2 variables.
The graphical method.
Sensitivity analysis (objective function coefficients, constraints - shadow prices).
Formulation of linear programs of various types.
Binary variables.
Solution by SOLVER.
Analysis of output.
Single-stage decision problems.
Sequential decision problems (decision trees).
The value of information.
Project management (PERT), finding the critical path.
Shortening the project time in minimum cost.
Principles of simulation.

Required Reading:
Relevant chapters in "Practical Management Science"; W.L. Winston, S.C. Albright, Prentice Hall, 2005.

Additional Reading Material:
Not relevant.

Course/Module evaluation:
End of year written/oral examination 100 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 0 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information:
Students are required to submit at least 80% of the weekly assignments. There will be a mid-term exam at the middle of the semester. (A "pass" grade is required.)