Name of the course: Statistical research methods in Management

Method of teaching: Frontal teaching

Name of the lecturer: Shosh Shpigel

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Description of the course: Statistical research methods in Management

The course intends to provide a sufficient background in probability and statistics for students to understand how they are used in problem solving and decision making. The course includes implementation of the theoretical tools through case studies and SPSS statistical software.

References:


Aims of the course:
The course intents to provide basic knowledge in probability and statistics, especially inferential statistics, in the purpose of using statistical methods whenever there is the need to organize and present data, decision making, forecasting and implementing
basic statistical methods in research for social sciences. This course will take place in computers lab to enable students to learn the basics of SPSS software, and to implement the statistical tools in their discipline of research.

This course includes four main parts:

a. Descriptive statistics
b. Probability, probability space and randomly variables
c. Statistical inference
d. Regression

Course topics:

a. Descriptive statistics:
   - Quantitative and graphic tools describing the data that have been collected from research population.
   - Central tendency and Dispersion indexes that describe the Shape of the distribution
   - Measures of relative positioning, standardized variables and normal curve

b. Probability:
   - Unite, cutting and complementary events
   - Basic combinatorial. Calculate probability in united Probability space
   - probability function and her characteristics

c. Probability: random variables
   - expectancy and variance values of random variables

d. Normal distribution and using the table of normal standardized distribution.

e. Statistics: Sampling distribution
   - Sampling distribution of the mean, proportion, mean difference
- Central limit theorem
- t, F, \( \chi^2 \) distributions and the relationship between them.

f. **Statistics: Interval estimations**

- Interval estimations for parameters. The connection between accuracy, confidential level, and sample size.
- Confidential interval for mean, proportion means difference.

g. **Statistics: Hypothesis tests.**

- Null hypothesis and alternative hypothesis, Statistical significance.
  
  Critical region, Type I errors, Type II errors, statistical power.
  
- Calculations sample size
  
- Test: t-test, F-test, \( \chi^2 \)-test

h. **Pearson correlation and linear regression:**

Principle of least squares estimate, the regression line and Pearson correlation.

i. Chi square test for independency.

**Course requirements:**

1. The students will receive exercises that will constitute 20% from the final grade.

2. Final test that will constitute 80% from the final grade.