



The Hebrew University of Jerusalem

Syllabus

INTRODUCTORY STATISTICS & DATA PROCESSING B - 71724

Last update 27-08-2024

HU Credits: 4

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Environmental Economics & Management

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: Rehovot

Course/Module Coordinator: Dr. Dizza Bursztyn

Coordinator Email: dizza.bursztyn@mail.huji.ac.il

Coordinator Office Hours: Tuesday 11-12

Teaching Staff:

Dr. Dizza Bursztyn,
Dr. hadas Don

Course/Module description:

Point estimation and properties. Maximum likelihood estimators. Confidence interval for the mean and for proportion. Hypothesis testing basic concepts. Hypothesis testing for one sample mean, one sample proportion. Statistical inference for mean differences: independent and paired samples and for proportion differences. Chi-square test for goodness of fit and for independence. Statistical inference for one and two population variances. One-way analysis of variance (ANOVA) and multiple comparisons. Simple linear regression

Course/Module aims:

Acquiring tools of statistical inference. Application of methods using Excel.

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

Understanding and implementing statistical inference methods in the analysis of simple research.

Examination of properties of a point estimator.

Estimate of parameters using confidence intervals.

Choice of appropriate test in simple problems.

Understanding outcomes of statistical analyses.

Attendance requirements(%):

100

Teaching arrangement and method of instruction: Lectures, frontal exercise and mandatory homework

Course/Module Content:

Central limit theorem.

Normal approximation to the binomial distribution.

Point estimation, bias and efficiency.

Maximum likelihood estimation.

Confidence interval for one population mean.

Confidence interval for one population proportion.

Hypothesis testing: basic definitions, type I and II errors and power.
Hypothesis testing for one sample mean with known variance (z-test), p-value.
Sample size calculations.
Hypothesis testing for a proportion.
Statistical inference for a single mean with unknown variance (t-test)
Statistical inference for difference of means in paired and independent samples.
Statistical inference for one variance and for two variances ratio.
Statistical inference for two proportions.
Chi-square tests.
One-way Analysis of Variance and contrasts.
Simple linear regression.

Required Reading:

Leviatan and Raviv: Introduction to probability and statistics (vol 1 and 2):
Probability and Statistical Inference.

Additional Reading Material:

Eizenbach Ronit: Statistics for non-statisticians.

Grading Scheme:

Written Exam % 90
Submission assignments during the semester: Exercises / Essays / Audits / Reports
/ Forum / Simulation / others 10 %

Additional information:

None