



The Hebrew University of Jerusalem

Syllabus

Statistics for Bio Medical Sciences - 94607

Last update 19-08-2018

HU Credits: 5

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Bio-Medical Sciences

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: Ein Karem

Course/Module Coordinator: Dr. Shai Carmi

Coordinator Email: shai.carmi@huji.ac.il

Coordinator Office Hours: Coordinate by email

Teaching Staff:

Dr. Shai Carmi
Mr.
Ms.
Mr.

Course/Module description:

Descriptive statistics and basic principles of probability and statistical inference

Course/Module aims:

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

- * To understand the statistical measures and analyses that appear in scientific texts in bio-medicine*
- * To solve simple problems in probability*
- * To perform estimation and hypothesis testing in simple research problems*

Attendance requirements(%):

Teaching arrangement and method of instruction:

Course/Module Content:

- * Descriptive statistics: measurement, types of variables, visualizations, location and spread measures, outliers.*
- * Correlation between variables: linear correlation, the correlation coefficient, linear regression.*
- * Probability: theoretical introduction, inclusion-exclusion principle, the multiplication rule for independent events, conditional probability, Bayes' rule, survival analysis.*
- * Random variables: discrete random variables, expectation and variance, the binomial distribution, continuous random variables, the normal distribution, the normal approximation to the binomial distribution.*
- * Introduction to statistical inference: a simple random sample, the sampling distribution, the central limit theorem.*
- * Estimation: point estimation of the mean and the proportion, confidence intervals, unknown variance.*
- * Hypothesis testing: principles, testing hypotheses on the mean and the proportion of a single population, the t-test, comparing the means of two populations, errors in*

hypothesis testing, chi-squared test.

Required Reading:

None

Additional Reading Material:

Course/Module evaluation:

End of year written/oral examination 85 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 0 %

Assignments 0 %

Reports 0 %

Research project 0 %

Quizzes 15 %

Other 0 %

Additional information:

Exercises: A problem set will be given every week. Final answers will be submitted through the course's website. To pass a problem set, its grade must be at least 60. To pass the class, it is required to pass at least 80% of the problem sets.

Quizzes: three quizzes will be given, to be submitted on a flexible time through the course's website. The weight of each quiz in the final grade is 15% (total 15%).

Prerequisites: high school-level probability.