The Department of Mathematics
2021–22–B term

Course Name  Statistical methods for big data
Course Number  201.1.9131
Course web page  https://www.math.bgu.ac.il/en/teaching/spring2022/courses/demography
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Office Hours  https://www.math.bgu.ac.il/en/teaching/hours

Abstract

Requirements and grading

Course topics


2. Probability inequalities: Mean estimation, Hoeffding’s inequality.


Information may change during the first two weeks of the term. Please consult the webpage for updates
6. Parametric interval estimation
   a. Introduction.
   b. Pivotal Quantity.
   c. Sampling from the normal distribution: confidence interval for mean, variance.
   d. Large-sample confidence intervals.

7. Hypothesis testing concepts: parametric vs. nonparametric
   a. Introduction and main definitions.
   b. Sampling from the Normal distribution.
   c. p-values.
   d. Chi-square distribution and tests.
   e. Goodness-of-fit tests.
   f. Tests of independence.
   g. Empirical cumulative distribution function.
      Kolmogorov-Smirnov Goodness-of fit test.

8. Regression
   a. Simple linear regression.
   b. Least Squares and Maximum Likelihood.
   c. Properties of least Squares estimators.
   d. Prediction.

9. Handling noisy data, outliers.