

Bruce M.
Boghosian

Estimation

One-sample
tests

Two-sample
tests

Regression

Nonparametric
statistics

Review topics

Bruce M. Boghosian



Tufts
UNIVERSITY

School of Arts
and Sciences

Department of Mathematics

Tufts University

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- 1 Estimation
- 2 One-sample tests
- 3 Two-sample tests
- 4 Regression
- 5 Nonparametric statistics

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- Maximum likelihood estimation (1)
- Method of moments (2)
- Bayesian estimation (8)

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- Definition of confidence interval (3)
- Using the Central Limit Theorem (3)
- Bernoulli and binomial distributions (4)

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- Unbiasedness (5)
- Relative efficiency (5)
- Absolute efficiency (5)
- Cramér-Rao bound (5)
- Proof of Cramér-Rao bound (6)
- Cauchy-Schwarz inequality (6)
- Sufficiency (7)
- Factorization rules for sufficiency (10)
- Consistency (7)

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- Hypotheses and decision rules (9)
- Testing for equality and inequality (9)
- Type I and Type II tests (10)
- α and β (10)
- Power curves (10)
- The GLR and GLRT (11)

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- Gamma and beta functions (12)
- Gamma and beta distributions (12)
- The χ^2 distribution (12)
- Independence of \bar{Y} and S^2 (12)
- Fisher's F distribution (13)
- Student's T distribution (13)
- T testing (14)
 - Interval estimation of the mean (14)
 - Hypothesis testing of the mean (14)
 - Interval estimation of the variance (14)
 - Hypothesis testing of the variance (14)

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- Testing $H_0 : \mu_X = \mu_Y$ (15)
- The Behrens-Fisher problem (15)
- Testing $H_0 : \sigma_X^2 = \sigma_Y^2$ (15)
- Testing binomial data $H_0 : p_X = p_Y$ (17)
- Confidence intervals for two-sample problem (17)

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- Least-squares method (21)
- Least-squares with higher-degree polynomials (21)
- Nonlinear models using least-squares (21)
- The Linear Model (22)
- Estimating linear coefficients (22)
- Estimating $\hat{\sigma}^2$ (22)
- Covariance and correlation (23)
- The bivariate normal distribution (24)

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- The multinomial distribution and its properties (18)
- Pearson's goodness-of-fit test (19)
- Benford's Law (19)
- Goodness-of-fit test with unknown parameters (20)

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- The sign test (25)
- The Wilcoxon signed rank test (26)