

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Engineering Statistics

Subject Co-ordinator - Prof. Manjesh Kumar Hanawal

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Probability
- Lecture 2 - Consequences of Axioms
- Lecture 3 - Interpretation of Probability
- Lecture 4 - Total Probability law and Baye's Theorem - I
- Lecture 5 - Total Probability law and Baye's Theorem - II
- Lecture 6 - Random variables and Cumulative Density Function
- Lecture 7 - Discrete and Continuous random variables - I
- Lecture 8 - Discrete and Continuous random variables - II
- Lecture 9 - Expectation and Variance
- Lecture 10 - Function of Random variables
- Lecture 11 - Generating RVs, Joint Distribution of RVs
- Lecture 12 - Joint Distribution of RVs and Marginal densities
- Lecture 13 - Covariance of Random variables
- Lecture 14 - Moment Generating Functions
- Lecture 15 - Conditional PMF and PDF
- Lecture 16 - Law of Large numbers, Central Limit Theorem
- Lecture 17 - Application of Central Limit Theorem - I
- Lecture 18 - Application of Central Limit Theorem - II
- Lecture 19 - Gamma and Chi-square distributions
- Lecture 20 - Beta distributions and Exponential families
- Lecture 21 - Random Sampling, Sample mean and Sample variance
- Lecture 22 - Sampling from Gaussian distribution and t-distribution
- Lecture 23 - Student's t- distribution
- Lecture 24 - F-distribution and its properties
- Lecture 25 - Convergence of Random variables and Consistency
- Lecture 26 - Order statistics, Median and Percentiles
- Lecture 27 - Generating random sample-Direct method
- Lecture 28 - Generating random sample-Indirect method
- Lecture 29 - Introduction to python

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- Lecture 30 - Python- Loops and Numpy library
- Lecture 31 - Sufficiency Principles and Sufficient Statistics
- Lecture 32 - Sufficient Statistics and Characterization of Sufficient Statistics
- Lecture 33 - Characterization of Sufficient Statistics and Factorization Theorem
- Lecture 34 - Example of Factorization Theorem, Minimal Sufficient Statistics
- Lecture 35 - Minimal sufficient statistics
- Lecture 36 - Test for minimal sufficient statistics with examples, Ancillary Statistics
- Lecture 37 - Likelihood Functions, Maximum Likelihood Estimator
- Lecture 38 - Method of moments, Baye's Estimator
- Lecture 39 - Evaluating Estimator, Cramer Rao Bound, Fisher Information
- Lecture 40 - Evaluating Estimator, Cramer Rao Bound, Fisher Information (Continued...)
- Lecture 41 - Hypothesis Testing, Likelihood Ratio Test
- Lecture 42 - Hypothesis Testing, Bayes Test
- Lecture 43 - Type I and II errors, Power Functions
- Lecture 44 - Type I and II errors, Power Functions (Continued...)
- Lecture 45 - Calculations of Power Functions
- Lecture 46 - Unbiased Test, Uniformly Most Powerful Test, Neyman- Pearson Lemma, Interval Estimation
- Lecture 47 - Interval Estimation
- Lecture 48 - Interval Estimation (Continued...)
- Lecture 49 - Construction of Confidence Intervals from tests
- Lecture 50 - Python- numpy and pandas functions II
- Lecture 51 - Tutology of tests and confidence intervals
- Lecture 52 - Tutology of tests and confidence intervals (Continued...)
- Lecture 53 - p-value, p-test of significance of a statistical test
- Lecture 54 - t-test and F-test, ANOVA
- Lecture 55 - Non-parametric test, Goodness of fit, Chi-squared test
- Lecture 56 - Distribution of Chi-squared test statistics
- Lecture 57 - Kolmogorov-Smirnov test
- Lecture 58 - Lilliefors's test and Explorator Data Analysis, Q-Q Plot and P-P Plot
- Lecture 59 - Generating random samples using Python, Hypothesis Testing using Python
- Lecture 60 - Generating random samples using Python, Hypothesis Testing using Python (Continued...)