

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

NPTEL Video Course - Mathematics - NOC:Probability Theory for Data Science

Subject Co-ordinator - Prof. Ishapathik Das

Co-ordinating Institute - IIT - Thirupathi

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

- Lecture 1 - Introduction
- Lecture 2 - Sample Space and Events
- Lecture 3 - Special Events and Various Approaches to Defining Probability
- Lecture 4 - Important Theorems
- Lecture 5 - Numerical Examples and Introduction to Conditional Probability
- Lecture 6 - Definition of Conditional Probability and Independence
- Lecture 7 - Bayes' Theorem
- Lecture 8 - Random Variable
- Lecture 9 - Events Defined by a Random Variable
- Lecture 10 - Cumulative Distribution Function
- Lecture 11 - Properties of the Cumulative Distribution Function and Discrete Random Variable
- Lecture 12 - Probability Mass Function
- Lecture 13 - Continuous Random Variable and Probability Density Function
- Lecture 14 - Numerical Examples
- Lecture 15 - Moments
- Lecture 16 - Higher Order Moments and Variance of a Random Variable
- Lecture 17 - Numerical Examples of Moments and Bernoulli Distribution
- Lecture 18 - Binomial Distribution
- Lecture 19 - Applications of Binomial Distribution
- Lecture 20 - Poisson Distribution
- Lecture 21 - Applications of Poisson Distribution
- Lecture 22 - Numerical Examples of Poisson Distribution and Uniform Distribution
- Lecture 23 - Application of Uniform Distribution and Exponential Distribution
- Lecture 24 - Applications of Exponential Distribution
- Lecture 25 - Memoryless Property and Gamma Distribution
- Lecture 26 - Example of Gamma Distribution and Normal Distribution
- Lecture 27 - Properties of Normal Distributions
- Lecture 28 - Numerical Examples of Normal Distributions
- Lecture 29 - Applications of Normal Distributions and Conditional Distribution Function

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- Lecture 30 - Examples of Conditional Distribution Function and Bivariate Random Variable
- Lecture 31 - Example of Bivariate Random Variable
- Lecture 32 - Properties of the Joint Cumulative Distribution Function of a Bivariate Random Variable
- Lecture 33 - Independence Between Two Random Variables
- Lecture 34 - Examples of Joint Cumulative Distribution Functions, Marginals, and Independence
- Lecture 35 - Joint Probability Mass Function, Marginal Probability Mass Function, Examples
- Lecture 36 - Numerical Examples on Bivariate Discrete Random Variables and the Concept of Joint Probability
- Lecture 37 - Marginal Probability Density Function, Independence, and Examples
- Lecture 38 - Numerical Examples on Probability Density Function
- Lecture 39 - Conditional Probability Mass Function
- Lecture 40 - Conditional Probability Density Function
- Lecture 41 - Moments for Bivariate Random Variables
- Lecture 42 - Association Between Two Random Variables
- Lecture 43 - Numerical Examples on Moments for Bivariate Random Variables
- Lecture 44 - Conditional Mean and Variance for Discrete Random Variables
- Lecture 45 - Conditional Mean and Variance for Continuous Random Variables
- Lecture 46 - Numerical Examples on Conditional Mean and Variance
- Lecture 47 - Multivariate Random Variables
- Lecture 48 - Multivariate Probability Density Function and Independence
- Lecture 49 - Moments of a Multivariate Random Variable
- Lecture 50 - Numerical Examples on Joint Probability Mass Functions
- Lecture 51 - Numerical Examples on Joint Probability Density Functions
- Lecture 52 - Multinomial Distribution and Multivariate Normal Distribution
- Lecture 53 - Transformation of Random Variables
- Lecture 54 - Theorem on Transformation of Random Variables
- Lecture 55 - Transformation of Multivariate Random Variables
- Lecture 56 - Examples of Transformation of Bivariate Random Variables
- Lecture 57 - Convolution and Example on Transformation of n-variate Random Variables
- Lecture 58 - Transformation of Discrete Random Variables
- Lecture 59 - Moment Generating Functions
- Lecture 60 - Example of Moment Generating Functions
- Lecture 61 - Moment Generating Functions for the Transformation of Random Variables
- Lecture 62 - Chebyshev's Inequality
- Lecture 63 - Notions of Convergence, Law of Large Numbers, and the Central Limit Theorem