Probability and Statistics (MA6.101)

Monsoon 2021, IIIT Hyderabad
16 November, Tuesday (Lecture 22)

Taught by Prof. Pawan Kumar

Probability

Joint Probability (contd.)

Conditional PMF and CDF

The conditional PMF of a random variable is a function which gives the probability of each event given a certain constraint on the value.

The conditional PMF of two variables is defined according to the joint probability. It is denoted as

$$P_{X|Y}(x_i, y_j) = \frac{P_{XY}(x_i, y_j)}{P_Y(y_j)}.$$

The law of total probability for joint distributions is

$$P(X \in A) = \sum_{y_j \in R_Y} P(X \in A \mid Y = y_j) P_Y(y_j).$$