

TWO DAY'S WORKSHOP ON
“PROBABILITY, STATISTICS
AND RANDOM PROCESSES”

28 February and 1 March, 2015

Center of Excellence
Signal and Image Processing

Established in 2013

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TEQIP-II : Center of Excellence in Signal and Image Processing



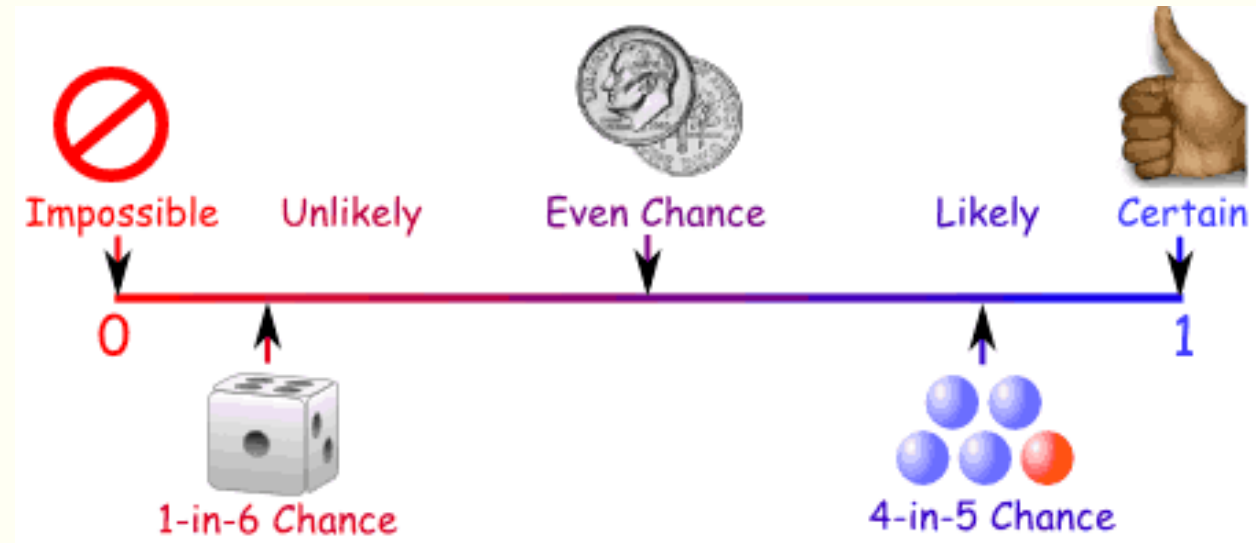
DAY 1 - 9:30 AM

INAUGURAL FUNCTION



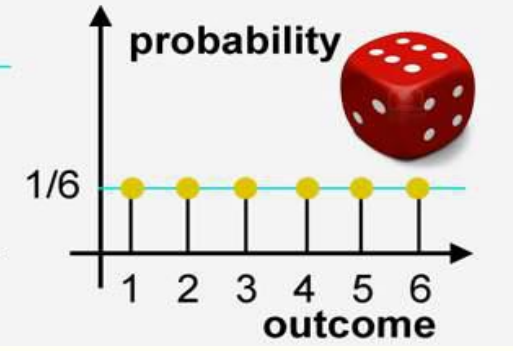
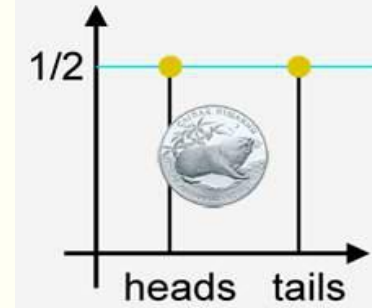
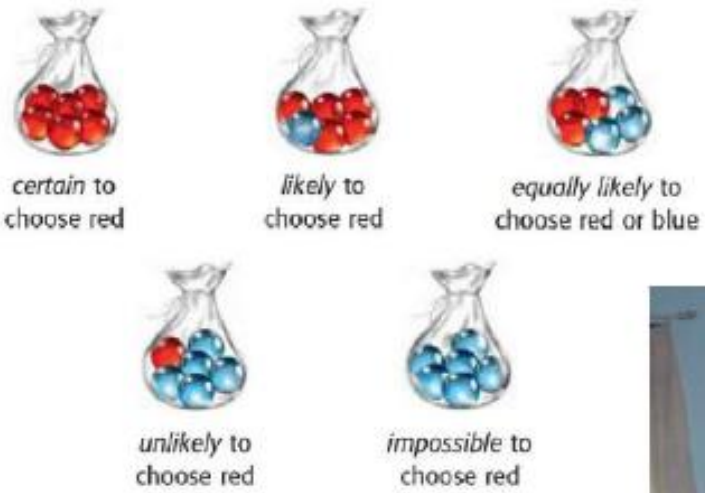
Session 1: Probability Theory and its development

DAY 1 - 9:45 AM to 11AM



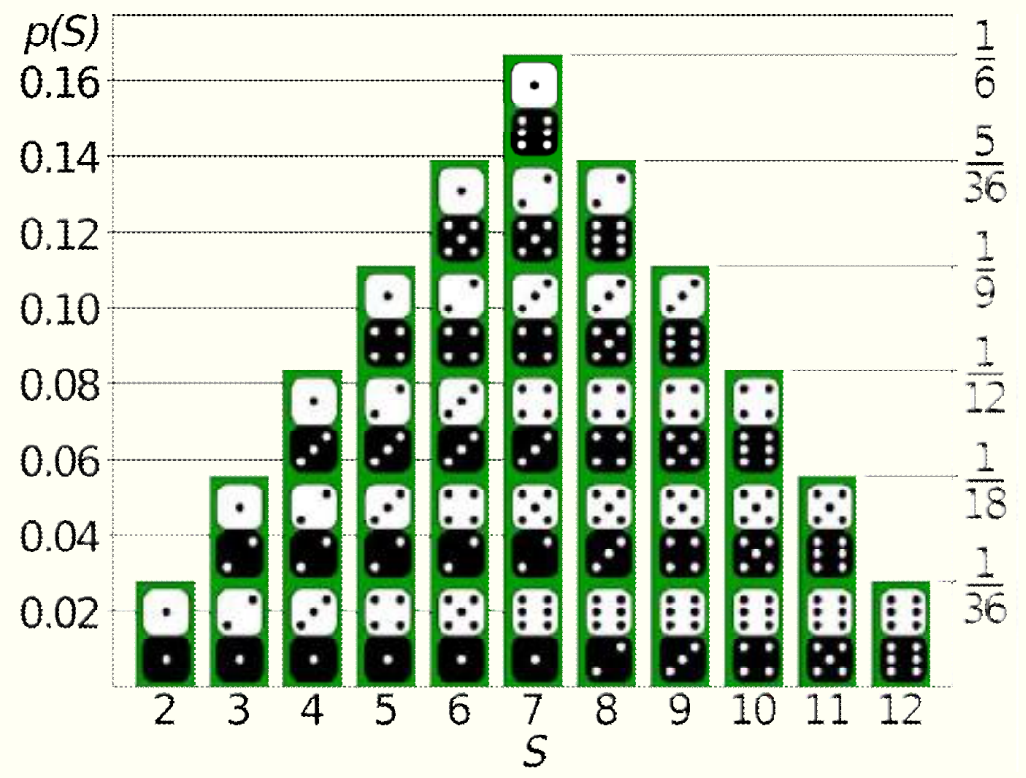
Speaker – Dr. Vivek Vijay, IIT Jodhpur.

Session 2: Probability Theory and its development



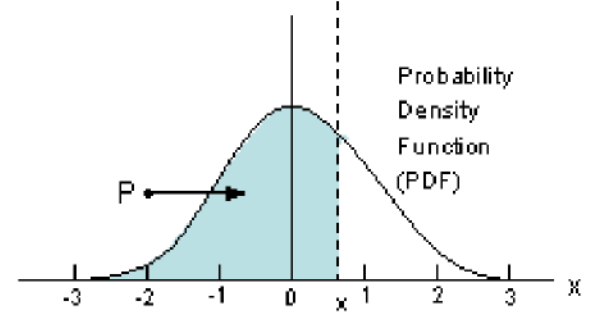
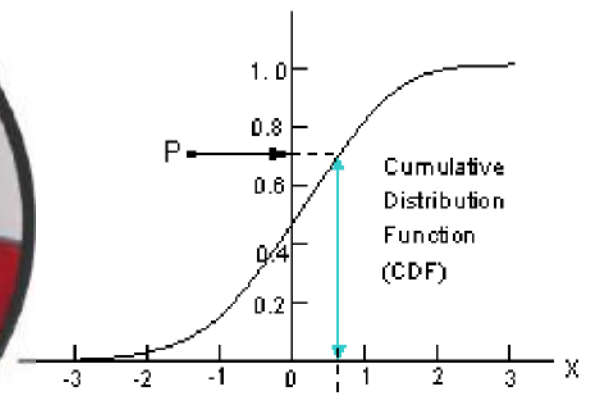
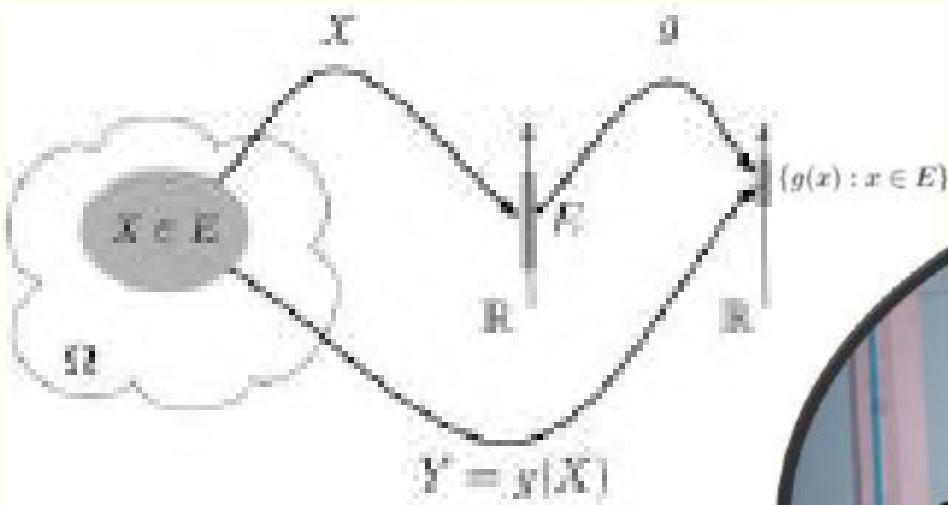
Session 3: A Random Variable and Its Distribution

DAY 1 – 1:45 PM to 3:15 PM



Session 4: Functions of a Random Variable

DAY 1 – 3:30 PM to 5:30 PM



Relations Between Two Different Typical Representations of a Population

Hexagonal Dice D1 D2

Sample Space: \mathcal{S}

D1 | D2

$S_1 = (5,3) \in \mathcal{S}$
 $S_2 = (4,4) \in \mathcal{S}$
 $S_3 = (2,3) \in \mathcal{S}$

Random Variable Mapping

$\mathcal{S} \rightarrow \mathbb{R}$

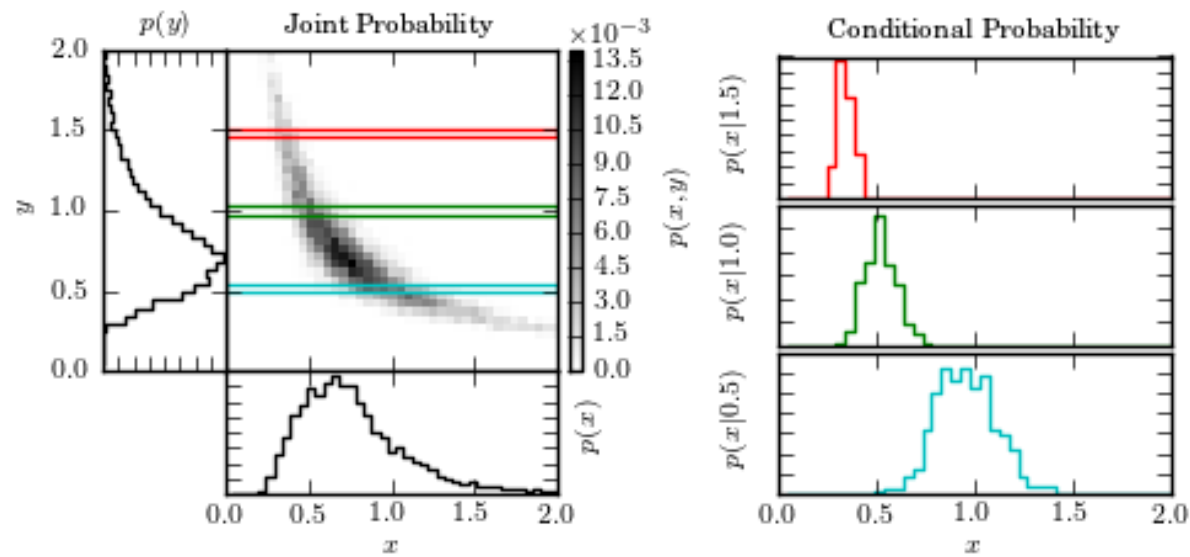
$X = D1 + D2$

x	2	3	4	5	6	7	8	9	10	11	12	R.V.
$P(X=x)$	$\frac{1}{36}$	$\frac{2}{36}$	$\frac{3}{36}$	$\frac{4}{36}$	$\frac{5}{36}$	$\frac{6}{36}$	$\frac{5}{36}$	$\frac{4}{36}$	$\frac{3}{36}$	$\frac{2}{36}$	$\frac{1}{36}$	$\sum_{x=2}^{12} P(x) = 1$

Session 1: Joint and Conditional Distributions

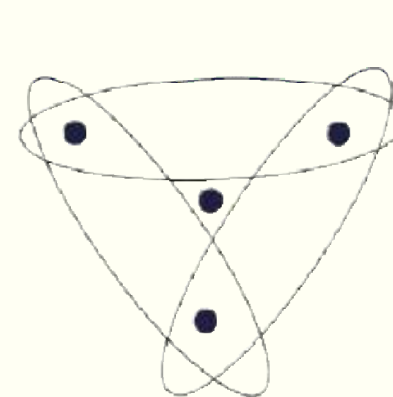
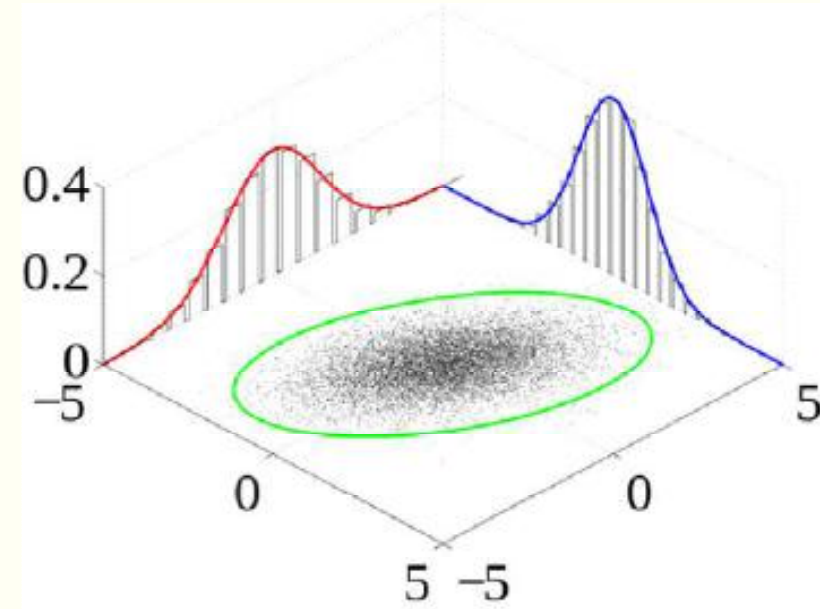
DAY 2 - 9:30 AM to 11 AM

$$P(A | B) = \frac{P(B | A)P(A)}{P(B)}$$

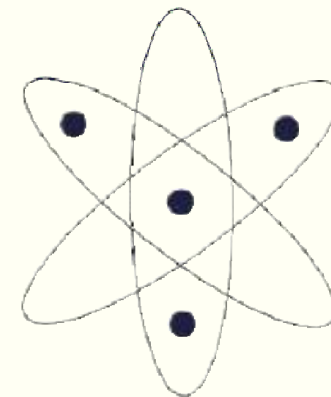


Session 2: Joint and Conditional Distributions

DAY 2 - 11:15 AM to 12:45 PM



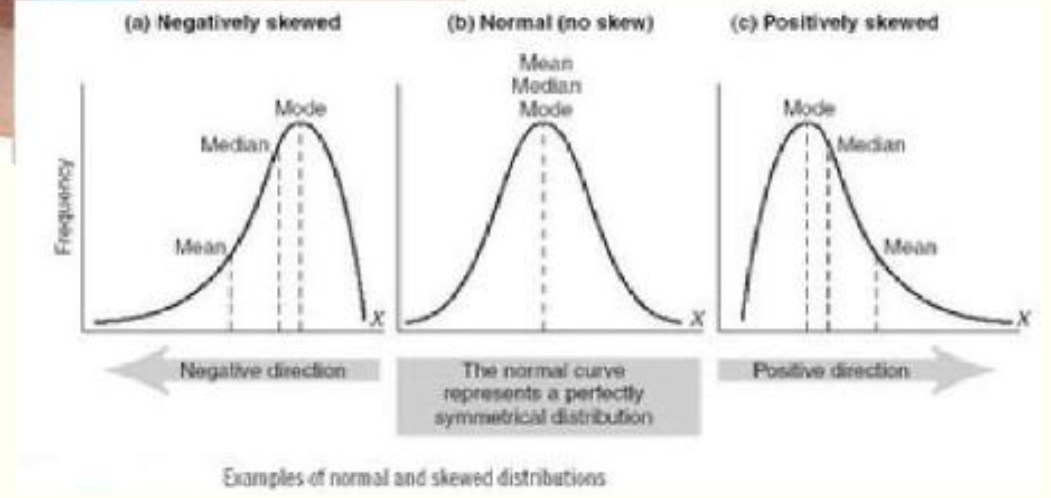
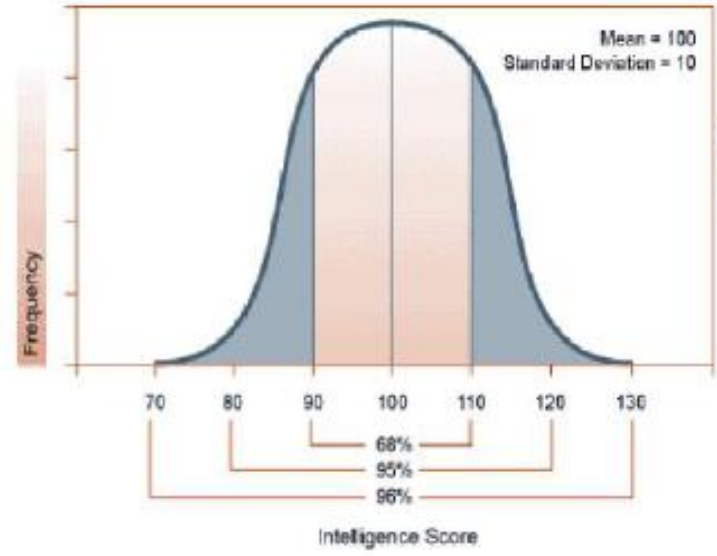
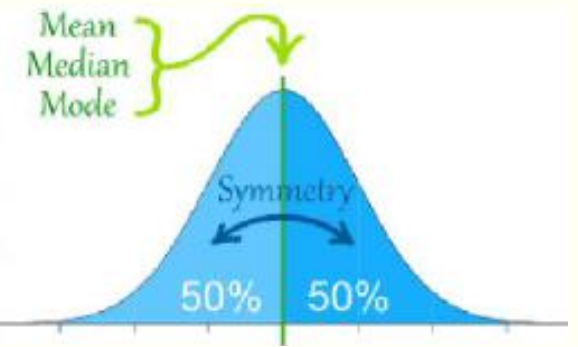
Example 1



Example 2

Session 3: Statistics

DAY 2 - 1:45 PM to 3:15 PM



Session 4: Covariance Matrix and Its Applications

DAY 1 – 3:30 PM to 5:30 PM



Group Photo with All Participants

