

## Lecture-16: Limit Theorems and the Laws of Large Numbers

- 0.1 Weak law of large numbers, strong law of large numbers and central limit theorem for a sequence of iid random variables**
- 0.2 Proof of weak law of large numbers for the case of uncorrelated sequence satisfying a bounded variance assumption**
- 0.3 Definition of a random process;  $n^{\text{th}}$ -order joint distribution of a random process,  $n^{\text{th}}$ -order joint pmf/pdf**
- 0.4 Mean function and correlation function of a random process**
- 0.5 Strict-sense stationarity and wide-sense stationarity of random processes**
- 0.6 Correlation function of a wide-sense stationary process is a function of only one argument**
- 0.7 Jointly stationary random processes**