Applied Stochastic Process-2023 (MTH-212a)

In this half-semester course we will be having around 18 lectures (11 in January and 7 in February) and 6 tutorials (3 in January and 3 in February). We have the following class timing: M (15:00-15:50), T,W (16:00-16:50) and F (12:00-12:50). All the classes will be held in L-4. There are 6 Saturdays. Please keep the Saturdays free from 11:00 - 11:50. In case I miss any class or tutorial, I will make it up on a Saturday. I am planning to cover discrete time and discrete state space Markov Chains in this course. First we will give some basic notions of probability and stochastic processes. Then we will give the concept of Markov Chain. Different properties of the transition probability matrices will be discussed. Classification of states, periodicity and stationary distributions will be discussed. Emphasis will be on different applications.

We will be mainly using the following books:

1. Sheldon M. Ross (2009) Stochastic Processes, Second edition, Wiley India.

2. Karlin, S. and Taylor, H. (1975), A first course in Stochastic Process, Second edition, Academic Press.

3. A. Goswami and B.V. Rao (2006), A Course in Applied Stochastic Process, Trim Series, Hindustan Book Agency.

The course will be evaluated by four quizzes and one final examination. There will be one makeup quiz. Each quiz will be of 15 marks. The maximum marks one can score in the makeup quiz will be 10. If any body misses any quiz and does not take the makeup quiz, then it be counted as 0. I will be giving assignments in regular intervals. The final grade will be based on: Quiz (60%) and Final (40%). The dates of the quizzes are: January 20, 2023 & January 27, 2023 & February 03, 2023 & February 10, 2023 and February 17, 2023 (Makeup). If I see any copying (or any unfair means) in any quiz or in final, all the concerned person(s) will be deregistered immediately and the matter may be reported to SSAC.