

Class 9

A Stochastic Markovian Service Station in Steady State - Part I 4CallCenters - A Personal Tool for Workforce Management (WFM)

Modelling and Analyzing a Markovian Service Station

- On Simulation
- Analytical models:
 - “Exact” analysis of Approximate models
(vs. “Approximate” analysis of Exact models – to be taught later.)
- Mathematical framework: Ergodic (Steady-State) Markov Jump Processes (MJP).
 - Background reading: Hall Chapter 5;
 - Handout in Class (“Review: MJP”), and more.
- A Birth & Death Model: stability, MOP’s;
Some concrete models: Erlang B (Loss), Erlang C (Delay), self-service.
- Preparing the ground for **Erlang A** = M/M/n + M: The Fundamental Markovian Model of a Service Station (Call Center), namely Poisson arrivals, Exponential services and Exponential (Im)Patience.
- Introduction to Staffing.

Recitation 9:

- Part 1. Lognormal Service-Times and QQ-Plots.
- Part 2. Hazard Rate Function.

Recitation 10:

- Part 1. Patience Estimation.
- Part 2. Phase-type Distribution.