

Course organization

[Bookmark this page](#)

This course will be divided into five weeks.

- Week 1 is an introduction to queuing theory. We will introduce basic notions such as arrivals and departures. Particular attention will be paid to the Poisson process and to exponential distribution, two important particular cases of arrivals and service times.
- During week 2 we will analyze a first simple example of a no-loss queue, the so called M/M/1 queue, and we will compute its average performance metrics.
- Week 3 will be dedicated to a basic course in discrete time Markov chains. We will learn how they are characterized and how to compute their steady-state distribution.
- Then in week 4 we will move on to continuous time Markov chains. Again we will learn how to characterize them and how to analyze their steady-state distribution. Equipped with these tools we will then analyze the M/M/1 queue.
- In week 5 we will study multiserver and finite capacity queues and study how to dimension a loss network.

Each week of the course will include five or six video lectures, a quiz to test your understanding of the main concepts introduced during that week and a laboratory.