

Course objectives

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Queuing theory aims at modeling waiting or blocking phenomena. To be more precise, in queuing theory, those phenomena are characterized by mathematical models.

This makes it possible to compute average system performance such as an average delay or a blocking probability. Reciprocally it is possible to dimension system resources in order to reach a given performance level.

In this MOOC, we will provide you the keys to understanding the theoretical basis of queuing theory.

We will start with important notions in probability such as the exponential law and the Poisson process. You will then acquaint yourself with Markov chains, in both discrete time and continuous time.

Equipped with these tools computing average performance values like blocking probability or waiting delay in a simple model will become child's play!

Classical queuing models such as the $M/M/1$ or the $M/M/C/C$ queue will be studied into details. At the end of this MOOC, the Erlang-B formula will not have secrets anymore for you!