

Statistics of Parametric Models

Teacher: Marco Raveri (UNIGE)

The primary objective of this course is to explore statistical techniques essential for understanding and analyzing parametric models, with a particular focus on applications in cosmological and gravitational wave parameter estimation.

Preferred prerequisites: basic statistics, general computing, and parameter estimation.

Program of the course:

The course discusses theoretical aspects of statistics of parametric models, with application to physical problems. These techniques were first developed for application to cosmological and gravitational wave parameter estimation.

The first part of the course will focus on the derivation of analytical results concerning parameter estimation, inference, information theory, and machine learning.

The second part of the course will consist of applying these techniques to a test case that is chosen by each student. We will first start with details of sampling algorithms to then move to statistical analyses.