INSA | INSTITUT NATIONAL DES SCIENCES APPLIQUÉES TOULOUSE

Probabilities and statistics

ECTS
3 crédits

Hourly volume
26h

Introducing

Objectives

Objectives:
At the end of this module, the student will have understood and be able to explain (main concepts):
- what a probability space is
- the notion of conditional probability and independence between events
- what a random variable (discrete or continuous) and its characteristics are
- how to apply limit theorems such as the Law of Large Numbers (LLN) or the Central Limit Theorem (CLT)
- the notion of statistical estimation

The student will be able to:
- to compute probabilities by Bayes formula
- to determine the law of a given random variable, to compute its expectation, variance, characteristic function, etc ¿
- to prove independence between random variables (when they are independent)
- to approximate distributions by using underlying limit theorems
- to estimate by confidence intervals some unknown parameters (expectation, variance, proportion) associated to a large population

Necessary prerequisites

Necessary knowledge:
Lectures of mathematics of first year (I1ANMAAR, I1ANMATC, I1ANMAEF).
Lectures of mathematics of second year (I2MIMT11, I2MIMT21)

Practical info

Location(s)

📍 Toulouse

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