UAB
Universitat Autònoma de Barcelona

Statistical Inference II

Code: 103206
ECTS Credits: 6

Degree	Type	Year	Semester
2501919 Applied Statistics	OB	2	2

Contact

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Teachers

Alejandra Cabaña Nigro

Use of languages

Principal working language: catalan (cat)

Some groups entirely in English: No

Some groups entirely in Catalan: No

Some groups entirely in Spanish: No

Prerequisites

Although there are no official requirements, it is recommended to have taken a first course on Statistical Inference

probability.

Objectives and Contextualisation

This subject gives the mathematical bases of statistical inference, which is the part of the Statistics that seeks to

based on the data of a "representative" sample.

This matter has a central character within the studies since in this course

that can be done in professional development.

We will study the goodness of fit tests of Pearson and Kolmogorov-Smirn

We will study estimator properties suchs as sufficiency or efficiency.

We will also deal with the asymptotic theory that gives us the approximat

We will study the asymptotic distribution of the maximum likelihood estimator, and will use the delta method.
We will also see the
Neymann-Pearson Lemma and the test of likelihoods quotient.

Content

Topic 1: Chi squared tests.

goodness of fit test.

- Pearson

_ Test for independence and homogeneity.
Topic 2: Other goodness of fit tests.
-Tests of Kolgomorov-Smirnov, Cramer von Mises and Anderson-Darling
- Graphic analysis.

Topic 3: Non-parametric techniques.
 - Sign-based tests and inferences based on ranks.
 -Confidence intervals for quantiles.
Topic 4: Estimation.
- Sufficient statistics. Exponential models.
- Cramer-Rao inequality. Concept of efficiency
- Asymptotic distribution of the maximum likelihood estimator.
- The delta method.
- Introduction to Bayesian methods.

Topic 5: Parametric tests of hypotheses
- The Neyman-Pearson Lemma. Power function.
- The likelihoods ratio test.
- The "score" and Wald test.