Universidad Zaragoza

Academic Year/course: 2021/22

27019 - Mathematical Statistics

Syllabus Information

Academic Year: 2021/22
Subject: 27019 - Mathematical Statistics
Faculty / School: 100 - Facultad de Ciencias
Degree: 453 - Degree in Mathematics
ECTS: 7.5
Year: 3
Semester: Second semester
Subject Type: Compulsory
Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, problem-solving sessions, computer laboratory sessions, tutorials and autonomous work and study.

4.2. Learning tasks

This course is organized as follows:

- **Lectures.**
- **Problem-solving sessions.**
- **Computer laboratory sessions.**
- **Tutorials.**
- **Autonomous work and study.**

The teaching activities and assessment tasks will take place in a face-to-face mode, except in the case that, due to the health situation, the dispositions emitted by the competent authorities and by the University of Zaragoza compel to take them to a greater or lesser extent in a telematic form.

4.3. Syllabus

This course will address the following topics:

- **Topic 1.** Introduction to statistical inference. Population and random samples. Statistics. Sampling from the Normal distribution. Order statistics. Convergence concepts and limit theorems.
- **Topic 2.** Point estimation. Desirable properties of an estimator. Methods of finding and evaluating estimators. Large sample properties for máximum likelihood estimators. Interval estimation.

- **Topic 3.** Hypothesis testing. The Neyman-Pearson approach. The duality of confidence intervals and hypothesis tests. Likelihood ratio tests. Tests for normality, goodness of fit and independence. Comparing two samples.

4.4. Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the Faculty of Science website and Moodle.

4.5. Bibliography and recommended resources

http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=27019