27545 - Statistical Analysis for Finance

Syllabus Information

Academic Year: 2019/20
Subject: 27545 - Statistical Analysis for Finance
Faculty / School: 109 -

Degree: 449 - Degree in Finance and Accounting

ECTS: 6.0
Year: 4
Semester: Second semester
Subject Type: Optional
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

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 and computer practice sessions. In theoretical sessions the concepts and mathematical foundations of the statistical techniques will be exposed by means of slides and theoretical notes. Practice sessions will be taught with the computer in the computer classroom. In these sessions simulated and real financial time series will be analyzed by applying the statistical tools explained in the lectures.

In these classes some illustrative simulated and real time series will be set-up by the teacher and will be solved by the different teams during half hour with a posterior half an hour to discuss among all the groups, the obtained results.

Platform *Moodle 2.0* will be used to publish all the theoretical and practical materials and all the information about the development of the subject along time.

4.2.Learning tasks

The course includes the following learning tasks:

- Lectures (30h). These sessions will be taught by means of participative master classes where a set of slides will be used in order to explain the theoretical part of the subject. The aim of these sessions will be to establish the theoretical foundations of each theme, illustrating the studied concepts and ideas by means of illustrative practical examples. The professor will use his computer to illustrate in these examples, the application of the explained

statistical techniques. It is recommended to attend to these sessions because, in our experience, the theoretical part of the subject is the more difficult part to understand and study.

- Computer Practice sessions (30h). These sessions will be carried out in the computer rooms with the students working by teams. In these classes some simulated and real series will be set-up by the teacher and will be solved by the students. The R statistical package will be used to solve these practical problems.
- Autonomous work (90h)

4.3.Syllabus

The course will address the following topics:

Block 1: Introduction to R through a basic statistical data analysis

Topic 1: Introduction to R

Topic 2: Initial exploratory data analysis

Block 2: Multivariate statistical techniques

Topic 3: Dimension reduction techniques. Principal component analysis. Factorial analysis

Topic 4: Classification techniques. Cluster Analysis. Discriminant Analysis

Block 3: Dynamic analysis of financial series

Topic 5: Empirical characteristics of a financial series

Topic 6: Statistical modeling of volatility

Topic 7: Statistical techniques for risk assessment and management

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 Economics and Business website (https://econz.unizar.es/) and the Moddle Platform.

4.5.Bibliography and recommended resources