Teaching Plan

- **Name of the course: Statistics**
- **Academic Year: 2011-12 Year: 2nd Quarter: 1st and 2nd**
- **Bachelor Degree: Bachelor's degree in Business Sciences (EMP)**
- **Course code: 21847**
- **ECTS: 5+5 Hours of student dedication: 125 + 125**
- **Language of instruction: Catalan**
- **Instructors: Elisa Alòs, Anna Cuxart and David Roche**

Outline

1. Course presentation

The course *Statistics* is devoted to give a basic background to the student. It is organized in a two-quarters sequence, the first one devoted mainly to the study of the fundamental techniques used in Statistics and the second one devoted to the study of the *Inferencial Statistics* and the *Regression Analysis*. This sequence continues the course *Introduction to Data Analysis* that the students followed in the first quarter.

The aim of this course is to stablish a solid background on theoretical concepts and the capability of its practical application. After consolidanting this basis, the course will introduce the concepts and statistical techniques used in the Business field.

In the first quarter we complement the concepts introduced in the course *Introduction to Data Analysis* and we introduce some other news about discrete and continuous probability models and about sample distributions. This concepts will be useful not only in the study of Statistics but also in many other fields related with study of the Economy and the Business management.

The second quarter will be focused in the study of the basic techiques on the Inferential Statistics. The most simple comparison tests will be followed by the study of the simple and multiple linear regression techniques.

2. Competencies to be achieved

General competencies	Specific competencies
Instrumentals 1. Analyis and syntesis capability 2. Organization and planification capability, with self-demand, the academic work and its timing 3. Basic and general knowledge. 4. Problem resolution 5. Oral and writting comunication in the own language. **Interpersonals** 6. Critical capability. **Systemical** 7. Research abilities 8. Learning skills 9. autonomous and continuous-working abilities 10. Creativity and flexibility, capability to generate new ideas **Others** 11. Oral and writting comunication with a specialized language	1. Knowledge of the concepts and language of the Probability and the Statistics. 2. Capability to identify the elements in a real problem modelization by using a probabilistic model, and its fit from a data set. 3. Knowledge and application of the mathematical properties of the nvolved concepts. 4. Capability to use the Statistical software and the capability to read reading and to interpret the obtained results. 5. Knowledge and being able to use the basic concepts and techniques of the Inferential Statistics: estimation, confidence intervals, hypotesis tests, variance analysis and simple and multiple regression moldels. 6. Identification of the social and the economical reality where it is correct to apply the above models and techniques. Capability to understand the statistical results in the real data situation. 7. Capability to use the Statistical software to appy the above techniques.

3. Contents

First quarter

Block 1. Data analysis. Samping

Block 2. Probability and Conditioned Probabiliy. Statistical applications.

Block 3. Discrete distributions discretes. The binomial distribution. Statistical applications.

Block 4. Continuous distributions. The normal and the khi-square distributions. Statistical applications.

Block 5. Sample distributions. Statistical applications.

Block 6. Introduction to the Inferential Statistics. Confidence intervals.

Second quarter

1. Statistical Inference. Sample distributions. Confidence intervals.

2. Hypothesis testing.

3. Means and proportions comparison.

4. The imple linear regression model.

5. Introduction yto the multiple linear regression model.

4. Metodology

The process of teaching and learning is organized through lectures, seminars and student's personal work. Each quarter will have 16 theoretical one-hour-and-a -half sessions in the large group, in which we will introduce the concepts, techniques and their main applications and in which we will explain the contents that the student has to develop in their work outside the classroom .
Each quarter will have 6 workshop sessions by dividing the large group into four subgroups. The seminars will check the progress achieved by the student according to work commissioned and and we will set out exercices and situations to work individualy or in small groups. Some seminar sessions will include an examination.
The use of statistical software will be both in lectures by the teacher, as part of the student's work outside the classroom and seminars.

The student is expected to perform the following work each week:

- Before the lectures: locating and reading materials (autonomous).

- Attendance at theorerical classes (on-site).

- Personal study, study solved problems, review notes, solving the proposed exercises, consult textbooks (autonomous).

- Before the seminar sessions: solving the proposed exercises. Practice with statistical software (autonomous).

- Participation in seminars (on-site).

- Comparison of the results of the exercises with answers posted by teachers (autonomous).

5. Bibliography and learning resources

Books

Estadística aplicada básica_ QA276.12 .M66518 1998. Moore, David S. Barcelona : Antoni B Bosch, DL 1998

The Basic practice of statistics QA276.12 .M665 2004 Moore, David S. New York [N.Y.] : W.H. Freeman, 2004, 3rd ed

Statistics for business and economics QA276.18.N49 2007 Newbold, Paul.Upper Saddle River, N.J. : Prentice Hall, cop. 2007, 6th ed.

Estadística para administración y economía QA276.18 .N4918 2008 . Newbold, Paul. Madrid : Pearson Educación, cop. 2008, 6a ed.

Learning resources

Lecture notes, exercise lists with solutions, in Aula Global.

http://www.whfreeman.com/bps/ (by D. Moore)

http://shazam.econ.ubc.ca/newbold/ (Solutions to sombe problems in the book by P. Newbold)

5. Evaluation

This course evaluation depends on each quarter evaluation.

Evaluation of each quarter

- Controls in the seminar sessions. Two 30-minutes examinations in the seminar sessions, based on problems, similar to the problems studied in the lecture and in the seminar sessions (30% of the final mark).

- Evaluation of the seminar sessions. Participation (10% of the final mark), and homeworks (10% of the final mark),

- Final examination. About all the contents of the course. It will be a two-hours examination. (50% of the final mark). You will need a mark greater or equal than 4 to average with all the other qualifications of the quarter.

Final evaluation of the course

The final mark will be the mean of the marks obtained in the first and in the second quarter, but only if these two marks are equal or greater than 4. If not, the final mark will be 'fail'.

September evaluation

The students that failed will be able to do the examination of the quarter/quarters for those the obtained mark was less than 5. The final mark of this/these quarters will be obtained giving a 20% weight to the controls and seminar evaluation obtained during the course and a 80% weight to the September examination. The final mark for the course will follow the same rules as in the ordinary evaluation of the course.

7. Schedule

First quarter

Theoretical sessions

Block 1: September 26 and 27, October 3 and 4

Block 2: October 10 and 11

Block 3: October 17 and 18

Block 4: October 24 and 25

Block 5: November 7 and 8

BlocK 6: November 14, 15 and 21

Final session and final exam preparation: November 28

Seminar sessions

BlocK 1: October 5

Block 2: October 19

Block 3: October 26

Block 4: November 2

Block 5: November 16

Block 6: November 23

Controls

First control: Blocks 1 and 2 (October 26)

Second control: Blocks 3 and 4 (November 16)

Second quarter

Theoretical sessions

Block 1: January 9, 12 and 16

Block 2: January 19, 23 and 26

Block 3: January 30, February 2 and 6

Block 4: February 9, 13 and 16

Block 5: students in Group A1, Thursdays, February 23 and March 8;

Students in Group A2, Mondays February 20 and 27 and March 5.

Final session and final exam preparation:

Thrusday March 15 (GROUP A1); Monday March 12 (Group A2)

Seminar sessions

Block 1: January 24

Block 2: January 31

Block 3: February 14

Block 4: February 21 and 28

Block 5: March 6

Controls

First control: Blocks 1 and 2 (January 31)

Second control: Blocks 3 and 4 (February 28)