Course guides  
230808 - STAT - Statistics

Unit in charge: Barcelona School of Telecommunications Engineering  
Teaching unit: 749 - MAT - Department of Mathematics.

Degree: Academic year: 2016  
ECTS Credits: 6.0

Languages: English

LECTURER

Coordinating lecturer: JOSEP M. AROCA FARRERONS

Others: JOSEP M. AROCA FARRERONS

PRIOR SKILLS

Probability, random variables.

REQUIREMENTS

PPEE.

TEACHING METHODOLOGY

- Lectures.
- Application classes.
- Laboratory classes.
- Exercises.
- Short answer test (Control).
- Short answer test (Test).
- Extended answer test (Final Exam).

LEARNING OBJECTIVES OF THE SUBJECT

Basic concepts and methods of statistics. Data analysis, hypothesis testing, estimation.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours small group</td>
<td>26,0</td>
<td>17.33</td>
</tr>
<tr>
<td>Self study</td>
<td>98,0</td>
<td>65.33</td>
</tr>
<tr>
<td>Hours large group</td>
<td>26,0</td>
<td>17.33</td>
</tr>
</tbody>
</table>

Total learning time: 150 h
## CONTENTS

### 1. Random variables

**Description:**
Basic concepts of random variables. Parameters. Important variables in statistics: Gaussian, chi-squared, Student's t, Fisher's F.

**Full-or-part-time:** 19h  
Theory classes: 3h  
Practical classes: 2h  
Self study: 14h

### 2. Descriptive statistics. Theory of sampling

**Description:**
Populations and samples. Distribution of sample statistics. Sample mean value and variance. Distribution of proportions, differences and sums, ratio of variances.

**Full-or-part-time:** 21h  
Theory classes: 3h  
Practical classes: 2h  
Laboratory classes: 2h  
Self study: 14h

### 3. Estimation Theory. Confidence Intervals

**Description:**

**Full-or-part-time:** 21h  
Theory classes: 3h  
Practical classes: 2h  
Laboratory classes: 2h  
Self study: 14h

### 4. Statistical hypothesis testing

**Description:**

**Full-or-part-time:** 22h  
Theory classes: 3h  
Practical classes: 3h  
Laboratory classes: 2h  
Self study: 14h
5. Regression

**Description:**

**Full-or-part-time:** 22h
Theory classes: 3h
Practical classes: 3h
Laboratory classes: 2h
Self study: 14h

6. Analysis of variance

**Description:**

**Full-or-part-time:** 22h
Theory classes: 3h
Practical classes: 3h
Laboratory classes: 2h
Self study: 14h

7. Non-parametric tests

**Description:**

**Full-or-part-time:** 23h
Theory classes: 4h
Practical classes: 2h
Laboratory classes: 3h
Self study: 14h

**GRADING SYSTEM**

The final grade is obtained from the works proposed by the professor (each one 10% to 35% of the total grade)

**BIBLIOGRAPHY**

**Basic:**

**Complementary:**