# 230808 - STAT - Statistics

<table>
<thead>
<tr>
<th>Coordinating unit:</th>
<th>230 - ETSETB - Barcelona School of Telecommunications Engineering</th>
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</thead>
<tbody>
<tr>
<td>Teaching unit:</td>
<td>749 - MAT - Department of Mathematics</td>
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<tr>
<td>Academic year:</td>
<td>2016</td>
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<tr>
<td>Degree:</td>
<td>BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional)</td>
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<td>BACHELOR'S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional)</td>
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<td>BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Teaching unit Optional)</td>
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<td>BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2010). (Teaching unit Optional)</td>
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<td>BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Teaching unit Optional)</td>
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<td>BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2010). (Teaching unit Optional)</td>
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<tr>
<td>ECTS credits:</td>
<td>6</td>
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<tr>
<td>Teaching languages:</td>
<td>English</td>
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## Teaching staff

- **Coordinator:** 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.
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<table>
<thead>
<tr>
<th>Study load</th>
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<tbody>
<tr>
<td><strong>Total learning time:</strong></td>
<td>150h</td>
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<tr>
<td>Hours large group:</td>
<td>26h</td>
<td>17.33%</td>
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<tr>
<td>Hours small group:</td>
<td>26h</td>
<td>17.33%</td>
</tr>
<tr>
<td>Self study:</td>
<td>98h</td>
<td>65.33%</td>
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</table>
# Content

## 1. Random variables

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

**Learning 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.

**Learning time:** 21h
- Theory classes: 3h
- Practical classes: 2h
- Laboratory classes: 2h
- Self study: 14h

## 3. Estimation Theory. Confidence Intervals

**Description:**

**Learning time:** 21h
- Theory classes: 3h
- Practical classes: 2h
- Laboratory classes: 2h
- Self study: 14h

## 4. Statistical hypothesis testing

**Description:**

**Learning time:** 22h
- Theory classes: 3h
- Practical classes: 3h
- Laboratory classes: 2h
- Self study: 14h
### 5. Regression

**Learning time:** 22h
- Theory classes: 3h
- Practical classes: 3h
- Laboratory classes: 2h
- Self study: 14h

**Description:**

### 6. Analysis of variance

**Learning time:** 22h
- Theory classes: 3h
- Practical classes: 3h
- Laboratory classes: 2h
- Self study: 14h

**Description:**

### 7. Non-parametric tests

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

**Description:**

### Qualification system

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

Basic:


Complementary:


Others resources: