

27106 - Statistics

Syllabus Information

Academic Year: 2022/23

Subject: 27106 - Statistics

Faculty / School: 100 - Facultad de Ciencias

Degree: 446 - Degree in Biotechnology

ECTS: 6.0

Year: 1

Semester: First semester

Subject Type: Basic Education

Module:

1. General information

2. Learning goals

2.1. Competences

On completion of the module the student should

- be able to tabulate, display and summarize sets of data
- understand the basic concepts of probability
- be able to calculate probabilities for simple experiments
- recognize random variables in real cases
- construct confidence intervals
- perform parametric and non parametric test and taking decisions
- fit simple linear models

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. Several teaching and learning tasks are implemented, such as lectures and problem-solving sessions with the statistical software package R with R commander.

Students are expected to participate actively in class throughout the semester.

Classroom materials will be available via Moodle. These include a repository of the lecture notes, computer practice guidelines and sets of exercises used in class, the course syllabus, as well as other course-specific learning materials, including a discussion forum.

Further information regarding the course will be provided on the first day of class.

4.2. Learning tasks

The course includes the following learning tasks:

- Lectures (30 hours). Lecture notes and a set of problems will be available for the students. At the end of each topic, some of the problems will be solved in class by the teacher and the rest will be done individually.

- Problem-solving sessions with a statistical software (30 hours). Two-hour sessions that take place every week in a computer classroom. Students are provided in advance with task guidelines for each session.
- Assignments. Different assignments and moodle questionnaires will be proposed during the course for autonomous work.
- Autonomous work.

4.3. Syllabus

The course will address the following topics:

1. Introduction to probability and statistics
2. Descriptive statistics
3. Probability and random variables
4. Statistical inference: point and interval estimation, parametric and non- parametric hypothesis testing.
5. Introduction to linear regression analysis

Software: R with R commander

4.4. Course planning and calendar

Schedules of lectures and problems will coincide with the officially established and will be available at: <https://ciencias.unizar.es/grado-en-biotecnologia>.

The places, calendar and groups for training and practical sessions will be established in coordination with the rest of maters at beginning of course. The Coordinator will produce the groups of students for these activities at beginning of course to avoid overlaps with other subjects.

For students enrolled in the subject, places, times and dates of lectures and practical sessions will be public via Bulletin Board advertisements of the grade on the platform Moodle at the University of Zaragoza, <https://moodle2.unizar.es/add/>, and in the moodle page for the course. These routes will be also used to communicate enrolled students their distribution by groups of practical sessions, which will be organized by the coordination of degree. Provisional dates will be available on the website of the Faculty of Sciences in the corresponding section of the Degree in Biotechnology: <https://ciencias.unizar.es/grado-en-biotecnologia>.

In this web there will be also available the dates of exams.

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=27106>