

## COURSE ID SHEET



Course No. **5273**

**NTUA**

Semester:

**3**

Core

**X**

Elective

Specialization

Title:

**STATISTICS AND EXPERIMENTAL DESIGN**

Aim:

The aim of the course is the introduction to basic principles of probability theory and statistics as well as with the design of experimental applications. Complementing the basic principles, an introduction to basic computational techniques and statistical software (i.e. SPSS) will allow students to develop PC skills on actual real datasets.

Content:

The course contains 3 modules: a) The basic principles of Probability Theory, b) Applied Statistics, and c) The Design of Experiments. The aim of the first module is the introduction to basic concepts of probability theory in order to form the theoretical competence that will allow students to practice experimental data. The aim of the second module - including the practical application of techniques and tools in software environment - aims to the introduction of basic statistical techniques required for data analysis in the concept of quantitative and qualitative research, experimental data and field research results processing and evaluation of statistical inferences. The third module analyzes the concepts of factorial design in the concept of general experimental design, including two or more factors and two or more levels of values as well as optimal experimental design.

Hours per semester:

LECTURE	<b>45</b>	EXERCISES	-	LABORATORY	<b>65</b>	HOME-WORK	<b>70</b>	<b>TOTAL HOURS: 180</b>
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Student performance /evaluation:

The evaluation of the students will be done through a Final (written) Examination divided into two parts:

- the part of the Probability Theory, which contributes 50% to the final grade, and
- the part of the Statistics and Experimental Design, which contributes 50% to the final grade, respectively.

Optional homework tutorials delivered by students contribute with 10% (40% written examination + 10% exercises) on the Statistics and Experimental Design part.

**Final Grade = (Probability Theory)\*0.5 + (Statistics and Experimental Design)\*0.5**