COURSE OUTLINE

1. GENERAL

SCHOOL	AGRICULTURAL SCIENCES
DEPARTMENT	FOOD SCIENCE AND TECHNOLOGY
LEVEL OF COURSE	UNDERGRADUATE
COURSE CODE	**FST_200** **SEMESTER OF STUDIES** 2nd
COURSE TITLE	STATISTICS

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	WEEKLY TEACHING HOURS	ECTS CREDITS
Lectures	3	
Exercises	1	
Total	**4**	**5**
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Compulsory General background
PREREQUISITE COURSES:	Typically, there are not prerequisite course. Essentially, the students should possess knowledge provided through the previously taught course "Mathematics".
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek.
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No.
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/

2. LEARNING OUTCOMES

This course is the introductory lesson in the concepts of Statistics. It aims at introducing the students to the basic concepts of descriptive statistics, probability theory and statistical inference.
By the end of this course the student will be able to:

- understand the statistical way of thinking in dealing with problems that come

into sciences, but also in everyday life
- apply the statistical way of thinking to real problems from the field of food and agricultural sciences, but also from their everyday life
- know in-depth the basic theoretical knowledge about the subject
- use knowledge and understanding acquired in a manner that indicates a professional approach to their work or profession
- have competences typically demonstrated by developing and supporting arguments and solving problems within their field of knowledge
- communicate information, ideas, problems and solutions to both specialist and non-specialist public
- develop knowledge acquisition skills needed to continue to post graduate studies with a high degree of autonomy
- gather and interpret relevant data (in their knowledge field) to form judgments that include reflection on relevant scientific issues

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Search for, analysis and synthesis of data and information, with the use of the necessary technology*
Adapting to new situations	*Adapting to new situations*
Decision-making	*Decision-making*
Working independently	*Working independently*
Team work	*Team work*
Working in an international environment	*Working in an international environment*
Working in an interdisciplinary environment	*Working in an interdisciplinary environment*
Production of new research ideas	*Production of new research ideas*

By the end of this course the student will, furthermore, have developed the following skills (general abilities):
- Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous (Independent) work
- Promotion of free, creative and inductive thinking

3. SYLLABUS

This course is the introductory lesson in the concepts of Statistics. It aims at introducing the students to the basic concepts of descriptive statistics, probability theory and statistical inference.

1. **Probability & Probability Distributions:** the notion of probability, sample space and events, definitions and axioms of probability, theorems for the calculations of probabilities, conditional probability and independence, the law of total probability and Bayes' theorem, random variables, and common probability distributions. Limit theorems.

2. **Descriptive Statistics:** the concepts of population, sample and variable in Statistics, tabulation and graphical representation of quantitative and qualitative data, a procedure, and the purpose for grouping quantitative data into classes (Sturges' empirical formula, types of classes or intervals and class boundaries or exact limits), measures of central tendency and variability.

3. **Statistical Inference:** the approach for the generalization from a sample to the population using sample statistics and sampling distributions, point estimation (the method of maximum likelihood and the criteria for selecting among possible estimators).

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face

USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. Communication with students: through e-mail, department's website and platform e-class. The lectures content of the course for each chapter are uploaded on the internet, in the form of a series of .pdf files, where students can freely download them from the platform e-class.upatras.gr Software that supports statistical processing of data.	
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	*Activities*	*Work Load per semester*
	Lectures (3 hours per week x 13 weeks)	39
	Seminars (1 hour per week x 13 weeks)	13
	Final examination (3 hours)	3
	Non-guided study	70
	Total number of hours for the Course (25 hours of work-load per ECTS credit)	**125**
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	Written examination after the end of the semester (100%) including: • Multiple-choice questions • Solving descriptive statistics problems • Solving probability and probability distributions problems • Solving statistical inference problems • Benchmarking theory elements Grading scale: 1 to 10. Minimum passing grade: 5. Examination time: 3 hours.	

5. ATTACHED BIBLIOGRAPHY

1. Introduction to Statistics: Fundamental Concepts and Procedures of Data Analysis, Howard M. Reid, Paperback: 632 pages, Publisher: SAGE Publications, Inc; 1 edition (August 28, 2013), Language: English, ISBN-10: 1452271968.
2. Introduction to Statistics and Data Analysis, Heumann, Christian, Schomaker, Michael, Shalabh, Publisher: Springer International Publishing, 1st Edition, ISBN: 978-3-319-46160-1.
3. Introduction to Statistics, Carmine DeSanto, Richard Moscatelli, Rachel Rojas, Mike Totoro, Paperback: 872 pages, Publisher: Pearson Learning Solutions; 10 edition (January 25, 2015), Language: English, ISBN-10: 1323056300.