COURSE OUTLINE

## (1) GENERAL

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|---|---|---|---|
| **SCHOOL** | ANIMAL BIOSCIENCES | | |
| **ACADEMIC UNIT** | DEPARTMENT OF ANIMAL SCIENCE | | |
| **LEVEL OF STUDIES** | Undergraduate [Free Elective] | | |
| **COURSE CODE** | 3515 | **SEMESTER** | 8th |
| **COURSE TITLE** | AGRICULTURAL EXPERIMENTATION | | |

| **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** | **CREDITS (ECTS)** |
|---|---|---|
| Lectures | 3 | 3 |
| Practical Lab Courses | 2 | 2 |
| | | |
| | | |
| **Total** | **5** | **5** |
| *Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).* | | |

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|---|---|
| **COURSE TYPE** *general background, special background, specialised general knowledge, skills development* | Scientific area |
| **PREREQUISITE COURSES:** | - |
| **LANGUAGE OF INSTRUCTION and EXAMINATIONS:** | Greek (Teaching & Exams) |
| **IS THE COURSE OFFERED TO ERASMUS STUDENTS:** | Yes (in English) |
| **COURSE WEBSITE (URL):** | - |

## (2) LEARNING OUTCOMES

**Learning outcomes**

*The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.*

*Consult Appendix A*

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The aim of the course is to train students in the design, statistical analysis, and interpretation of results from single- and multi-factor experiments in Agricultural Sciences. Upon completion of the course, students will be able to evaluate the effects of various interventions on their experimental material and make informed decisions in both the production process and research.

**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* | *Project planning and management* |
| *Adapting to new situations* | *Respect for difference and multiculturalism* |
| *Decision-making* | *Respect for the natural environment* |
| | *Showing social, professional and ethical responsibility and sensitivity to gender* |

| | |
|---|---|
| *Working independently* | *issues* |
| *Team work* | *Criticism and self-criticism* |
| *Working in an international environment* | *Production of free, creative and inductive thinking* |
| *Working in an interdisciplinary environment* | *.....* |
| *Production of new research ideas* | *Others...* |
| | *.....* |

- Search, analysis, and synthesis of data and information, using the necessary technologies
- Decision-making
- Independent work
- Generation of new research ideas
- Promotion of free, creative, and inductive thinking

## (3) SYLLABUS

Principles of Agricultural Experimentation (Randomization – Replication – Local Control). Experimental plot size and shape. Single-factor experiments. Completely Randomized Design, Randomized Complete Block Design, Latin Square Design, Subsampling. Multiple planned and post hoc comparisons of means. Factorial experiments. Relationships between two variables. Simple linear correlation and regression. Data transformations.

## (4) TEACHING and LEARNING METHODS - EVALUATION

| | |
|---|---|
| **TEACHING METHOD**<br>*Face-to-face, Distance learning, etc.* | In the classroom and in the field |
| **USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY**<br>*Use of ICT in teaching, laboratory education, communication with students* | • Use of electronic teaching aids<br>• Social media platforms |
| **TEACHING METHODS**<br>*The manner and methods of teaching are described in detail.*<br>*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.*<br><br>*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* | |

| ***Activity*** | ***Semester workload*** |
|---|---|
| Lectures | 39 |
| Lab exercises/Interactive teaching | 26 |
| Independent study | 60 |
| | |
| **Course total (25 h of workload per ECTS)** | ***125*** |
| | |

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|---|---|
| **STUDENT PERFORMANCE EVALUATION**<br>*Description of the evaluation procedure*<br><br>*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* | I. The language of assessment is Greek.<br><br>II. The grade for the theoretical component is determined 100% by the final written examination.<br><br>III. The grade for the laboratory component is based on the laboratory exercises and the final written examination. |

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|---|---|
| *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*. | |

## (5) ATTACHED BIBLIOGRAPHY

**Suggested Bibliography:**


A. G. Clewer, D. H. Scarisbrick, eds.: G. Menexes, P. Bempelis, V. Papasotiriopoulos, E. Tani, I. Tokatlidis, A. Katsiotis (2023). *Agricultural Experimentation*, Athens: Pedio Publications.

Kaltsikis, P. I. (1997). *Simple Experimental Designs.* Athens: Stamoulis Publications.

Kaltsikis, P. I. (1989). *Agricultural Experimentation – Factorial Experiments.* Athens: Stamoulis Publications.

Fasoulas, A. K. (2008). *Elements of Experimental Statistics.* Thessaloniki: Gartaganis Publications.

Gomez, K. A., & Gomez, A. A. (1984). *Statistical Procedures for Agricultural Research* (2nd ed., pp. 680). New York: John Wiley and Sons.

Kuehl, R. (2000). *Design of Experiments: Statistical Principles of Research Design and Analysis* (2nd ed.). Pacific Grove (Calif.): Duxbury Press.

Montgomery, D. C. (2012). *Design and Analysis of Experiments* (8th ed.). Hoboken (N.J.): Wiley.

Peterson, R. G. (1994). *Agricultural Field Experiments: Design and Analysis.* New York: Marcel Dekker.

Hoshmand, A. Reza (1994). *Experimental Research Design and Analysis.* CRC Press.


**Relevant Scientific Journals:**

*Crop Science*, *Molecular Breeding*, *Euphytica*, *Transgenic Research*