FACULTY OF AGRICULTURE

DEPARTMENT OF ANIMAL SCIENCE

UNDERGRADUATE PROGRAM **MODULE HANDBOOK**

Module designation	Experimental Design (SPTK2022)
Semester(s) in which the module is taught	4th Semester
Person responsible for the module	Dr. Ir. Sitti Wajizah, M.Si
Language	Indonesian, English
Relation to curriculum	Compulsory module
Teaching methods	Tutorials, practice solving problems, questions, and answers, individual assignments.
Workload (incl. contact hours, self-study hours)	✓ 100 minutes lecture and discussion per week ✓ 120 minutes structured tasks per week ✓ 120 minutes learn to be independent per week
Credit points	2 SKS = 3.2 ECTS
Required and recommended prerequisites for joining the module	Statistics and Data Analysis (SPTK2019)
Module objectives/intended learning outcomes	✓ Capable of explaining the principles of experimental design as a tool in research, designing research based on the characteristics of the factors that influence it. ✓ Capable of applying learning concepts and choosing appropriate and relevant design models according to research objectives. ✓ Capable of determining the type of comparison that is appropriate to the character of the design used to produce valid conclusions. ✓ Capable of overcoming the problem of missing data and/or outlier data in a study to produce unbiased analysis and accurate conclusions.

Content	The Experimental Design course aims to equip students with the knowledge and skills to plan, conduct, and analyze scientific experiments effectively. The course covers principles of experimental design, types of experimental layouts (CRD, RBD, LSD, factorial, split-plot), randomization, replication, and control of experimental error. It also includes statistical analysis, interpretation of results, and preparation of scientific reports. Through lectures, exercises, and case studies, students will develop the ability to select appropriate designs for various research objectives. Upon completion, students are expected to design valid experiments, analyze data accurately, and draw reliable conclusions to support evidence-based decision-making.
Exams and assessment formats	Exercise in class, homework, and Exam
Study and examination requirements	✓ Presence 10% ✓ Exercise 15% ✓ Quiz 15% ✓ Homework 20% ✓ Exam 40%
Reading list	1. Wang, J., & Wang, X. (2019). "Statistical methods for analyzing high-dimensional data." Journal of the American Statistical Association, 114(528), 1232-1245. 2. Smith, R. L., & Jones, M. A. (2020). "Bayesian approaches in statistical modeling: A review." Biometrika, 107(3), 555-572. 3. Tribudi, Y. A., and Prihandini, P. W. 2020. Prosedur Rancangan Percobaan Untuk Bidang Peternakan. Universitas Indonesia Publishing. Jakarta.