USK UNIVERSITAS SYIAH KUALA

FACULTY OF AGRICULTURE

DEPARTMENT OF SOIL SCIENCE

UNDERGRADUATE PROGRAM **MODULE HANDBOOK**

Module designation	Experimental Design (SSOL2020)
Semester(s) in which the module is taught	4th Semester
Person responsible for the module	Dr. Ir. Muyassir, M.P
Language	Indonesian, English
Relation to curriculum	Compulsory module for Soil Science Department
Teaching methods	Lecture, small group discussion, interactive discussion
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	SSOL1014
Module objectives/intended learning outcomes	✔ Students master the basic concepts and can choose the appropriate experimental design, as well as perform statistical analysis using ANOVA. ✔ Students can conduct various post-hoc tests to separate the effects of qualitative treatments, both between treatments and between treatments and the control. ✔ Students can test the assumptions underlying the use of ANOVA and handle problematic and missing data.
Content	This course is designed to strengthen students' understanding of the concept of Experimental Design, Single-Factor Experiment in Completely Randomized Design (CRD), Randomized Block Design (RBD), Latin Square Design (LSD), Mean Difference Test, Factorial Experiment, Split-Plot Experiment, Basic Assumptions of Analysis of Variance (ANOVA), and Data Transformation and Handling Missing Data.
Exams and assessment formats	Assignment, Quiz, Case Method, Midterm exam, Final exam
Study and examination requirements	✔ Quiz: 8% ✔ Assignment: 16% ✔ Case Method: 60% ✔ Midterm exam: 8% ✔ Final exam: 8%

Reading list	1. Berger, P. D., Maurer, R. E., & Celli, G. B. (2018). Experimental design (pp. 449-480). Cham: Springer International Publishing. 2. Haaland, P. D. (2020). Experimental design in biotechnology. CRC press. 3. Ridder, H. G. (2017). The theory contribution of case study research designs. Business research, 10(2), 281-305. 4. Sileyew, K. J. (2019). Research design and methodology. In Cyberspace. IntechOpen. 5. Bloomfield, J., & Fisher, M. J. (2019). Quantitative research design. Journal of the Australasian Rehabilitation Nurses Association, 22(2), 27-30.