



SYLLABUS

Faculty : Mathematics and Natural Sciences
 Study Program : Mathematics Education
 Course & Code : Advanced Statistics, MAA 315
 Credit Hours : Theory 2 credit, Practice 1 credit
 Semester : III
 Prerequisites & Code : Elementary Statistics, MAA 306
 Lecturer : Kismiantini, M.Si.

I. COURSE DESCRIPTION

This course contains simple linear regression, correlation, inference in linear regression analysis, a matrix approach to the analysis of simple and multiple linear regression, the basic principles of experimental design, the classification of experimental design, analysis of variance for single factor experiments, analysis of variance for two-factor experiment.

II. BASIC OF COMPETENCY

The students have ability to understand basic concepts of regression, correlation and regression analysis results, the basic principles of experimental design and skilled to analyze data from experiments one or two factors by using analysis of variance.

III. ACTIVITIES PLAN

Meeting	Based Competency	Subject Matter	Activities	References
1	To understand concept of simple linear regression, to determine linear regression equation, and to give meaning	Simple linear regression and correlation	Expository & Discussion	
2-3	To detect assumptions in simple linear regression	Assumptions in simple linear regression	Expository & Discussion	
4-7	To explain parameter estimation and hypothesis testing on simple linear regression and correlation	Inferences in simple linear regression and correlation analysis	Expository & Discussion	
8	To apply matrix approach in simple linear regression	Matrix approach to simple linear regression analysis	Expository & Discussion	
9-10	To determine multiple linear regression equation and give meaning	Multiple linear regression	Expository & Discussion	
11-12	To understand assumptions in multiple linear regression	Assumptions in multiple linear regression	Expository & Discussion	
13-15	To explain parameter estimation and hypothesis testing on multiple regression model	Inferences in multiple linear regression	Expository & Discussion	
16	Test 1			
17-19	To use extra sums of squares in multiple linear regression inferences	Extra Sums of Squares	Expository & Discussion	
20-22	To understand how to make model selection in multiple linear regression	Model selection	Expository & Discussion	
25	To understand the basic principles of experimental design and classification of experimental design	Basic design of experiments concepts	Expository & Discussion	
26-27	To explain analysis of variance for single factor experiments	Analysis of variance for experiments with a single factor	Expository & Discussion	

Meeting	Based Competency	Subject Matter	Activities	References
28-29	To detect assumptions in analysis of variance	The assumptions in analysis of variance	Expository & Discussion	
30-31	To explain analysis of variance for two factors experiments	Analysis of variance for experiments with two-factors	Expository & Discussion	
32	Test 2			

IV. REFERENCES

A. Compulsory textbooks :

1. Stephens, L. J. 2004. *Advanced Statistics*. New York: McGraw-Hill.
2. Kutner, M. H., Nachtsheim, C. J., Neter, J. & Li, W. 2005. *Applied Linear Statistical Models*. New York: McGrawHill/Irwin.

B. Suggested references books :

1. Triola, M. F. 2004. *Elementary Statistics*. New York: Addison-Wesley.
2. Weiss, N. A. 1995. *Introductory to Statistics*. New York: Addison-Wesley.

V. EVALUATION

No.	Components	Weight (%)
1.	Participations	10
2.	Assignments	10
3.	Quiz	15
4.	Test 1	20
5.	Test 2	20
6.	Final Test	25
Total		100