



SYLLABUS

FRM/FMIPA/063-01
3 September 2012

Faculty : Mathematics and Natural Sciences
Study Program : Mathematics Education
Course & Code : Mathematical Statistics, SMA 328
Credit Hours : Theory 2 credit, Practice 1 credit
Semester : V
Prerequisites & Code : Probability Theory, MAA 318
Lecturer : Rosita Kusumawati, M.Sc.

I. COURSE DESCRIPTION

The course is more focused on probability concepts than statistical mathematics. The materials of probability theory are combinatorial methods, probability, random variables and their distributions, joint distributions, properties of random variables, and functions of random variables.

II. BASED COMPETENCY

The students able to use probability and probability distribution for solving a real problem and mathematics problem which is need the calculation of probability, prove the theorems which related to probability, and find a relationship between distributions, and determine expected value of random variables.

III. ACTIVITIES PLAN

Meeting	Based Competency	Subject Matter	Activities	References
1-3	To understand CDF technique, Transformation methods and To gain the ability to compute the CDF of a new variable	CDF technique, Transformation methods	Discussion & Exercises	A: 31-39 B: 1-16 C: 1-113
4-6	To understand sums of random variables, order Statistics	Sums of random variables, Order Statistics	Discussion & Exercises	A: 1-30 B: 22-102 C: 1-113
7-10	To understand the concept of law large number, central limit theorem and its assumptions	Sequences of random variables, The central limit theorem, Approximations for the binomial distribution	Discussion & Exercises	A: 53-83 B: 117-134
11-15	To recognize and learn properties of stochastic convergence	Asymptotic normal distributions, Properties of stochastic convergence	Discussion & Exercises	A: 91-124 B: 134-224
16		Mid Test		

17-21	To solve sampling distributions	Sampling distributions, Large-sample properties,	Discussion & Exercises	A: 137-160 B: 232-286
22-26	To explain methods of estimation	Methods of estimation, Criteria for evaluating estimators	Discussion & Exercises	A: 171-188 B: 297-373
27-32	To gain the ability to use to Bayes and minimax estimation methods	Bayes and minimax estimators	Discussion & Exercises	A: 193-214

IV. REFERENCES

Compulsory textbooks :

- A. Bain, Lee J. & Engelhardt, Max. 1992. *Introduction to Probability and Mathematical Statistics*. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 2010. *A First Course in Probability*. New Jersey: Prentice-Hall.

Suggested reference books :

- C. Rice, John A., 1995. *Mathematical Statistics and Data Analysis*. Belmont: Duxbury Press.

V. EVALUATION

No.	Components	Weight (%)
1.	Participations	5
2.	Assignment	10
3.	Quiz	15
4.	Mid Test	30
6.	Final Test	40
Total		100

Verified by
Head of Department

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Yogyakarta, September 2012
Lecturer

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