# SYLLABUS

| **Date/ Revision** | January 19, 2017 |
|---|---|
| **Faculty** | Business and Social Sciences |
| **Approval** | Dr. Samuel Prasetya |

## SUBJECT : STATISTICS & PROBABILITY

### 1. Identification of Subject:

Name of Subject  : Statistics & Probability
Code of Subject   : MATH-2500
SKS / ECTS        : 2 SKS
Semester          : 4
Study Program     : B-MGT/B-IBA/B-HTM
Lecturer          : Dr. Samuel Prasetya

### 2. Competency

After having the course, students are expected to:
a) understand the basic of statistics, particularly the descriptive statistics
b) understand and be able to analyze the foundation of data and information
c) have the ability to identify, collect, display and analyze the numerical type of information generated by business operations
d) understand probability theory and be able to use it for solving problems encountered in business
e) have the ability to sample data for drawing inferences about the population from which the sample was taken
f) understand the limitations of statistical analysis
g) perform statistical hypothetical testing

### 3. Description of Subject:

This course discusses the necessity to collect, identify, display and analyze numerical data, which are generated by business operations. Probability theory is also discussed to see the practical implementation on business activities and decision making purposes. The basic drawing inferences about population and sample will also be discussed as a way to examine the large population from a handful of sampled data. Hypothetical tests and basic statistical analysis are exercised to equip students with the sufficient understanding toward the business implications.

### 4. Learning Approach

Approach      : Combination of expository - inquiry and collaborative
Method        : Discussions, questions/answers, sample problems/cases
Student Task  : Quizzes and group projects
Media         : LCD projector

## 5. Evaluation

a) Non-attendance maximum : 25%
b) Homework/Projects : 20 points
c) Presentation, Simulation : 10 points
d) Quiz : 10 points
e) Final Examination : 60 points

              Total : 100 points

## 6. Contents/Topics of Lecturing:

| Week | Content / Topics of Lecturing | Text Book Chapter | Remark |
|---|---|---|---|
| 1 | **What is Statistics?**<br>• Why study statistics?<br>• Types of statistics<br>• Types of variables<br>• Levels of measurements | Chapter 1 | |
| 2 | **Describing Data:**<br>• Frequency tables<br>• Frequency distribution<br>• Displaying & exploring data | Chapter 2 & 4 | |
| 3 | **Describing Data:**<br>• Numerical measurements | Chapter 3 | |
| 4 | **Concepts on Probability**<br>• Basic concepts<br>• Contingency table<br>• Conditional probability<br>• Decision tree<br>• Principles of counting | Chapter 5 | Quiz 1 Draft 1 |
| 5 | **Discrete Probability Distribution**<br>• Probability distribution<br>• Covariance<br>• Binomial distribution<br>• Poisson distribution | Chapter 6 | |
| 6 | **Continuous Probability Distribution**<br>• Normal distribution<br>• Measuring normality<br>• Normal distribution | Chapter 7 | |
| 7 | Review | Chapter 1-7 | Quiz 2 Draft 2 |
| 8 | **Semester Break: Only Make-Up Classes** | | |
| 9 | **Sampling Methods & Central Limit Theorem**<br>• Sampling method<br>• Sampling distribution | Chapter 8 | |

| Week | Content / Topics of Lecturing | Text Book Chapter | Remark |
|------|------------------------------|-------------------|--------|
| 10 | Estimation & Confidence Interval<br>• Confidence interval for mean<br>• Confidence interval for proportion | Chapter 9 | |
| 11 | One-Sample Tests of Hypothesis<br>• Hypothesis testing<br>• Testing for significance<br>• Testing for population mean<br>• Testing for proporation | Chapter 10 | |
| 12 | Two-Sample Test of Hypothesis<br>• Hypothesis testing on independent sample<br>• Hypothesis testing on dependent sample<br>• Testing on proportion<br>• Comparing means | Chapter 11 | Quiz 3<br>Draft 3 |
| 13 | Analysis of Variance<br>• F-distribution<br>• ANOVA test<br>• Comparing population variances | Chapter 12 | |
| 14 | Correlation Linear Regression<br>• Correlation analysis<br>• Coefficients of correlation<br>• Coefficients of determination<br>• Testing of significance<br>• Underlying assumptions | Chapter 13 | |
| 15 | Multiple Regression Analysis | Chapter 14 | Quiz 4<br>Draft 4 |
| 16 | **Semester Break: Only Make-Up Classes** | | |
| 17 | **Final Examination** | All Chapters (1-14) | |

## 7. Book Reference:

**a) Main Textbook**

Lind, Douglas A, William G. Marchal & Samuel A. Wathen, Statistical Techniques in Business & Economics, 15th Edition, McGraw-Hill/Irwin

**b) Supplement Articles**

Various online journal articles