INTERNATIONAL UNIVERSITY LIAISON INDONESIA

IULI

SYLLABUS

Date/ Revision	23 May 2015
Faculty	Life Sciences
Approval	Dean of Faculty of Life Sciences

SUBJECT : STATISTICS

1. Identification of Subject:

Name of Subject : Statistics
Code of Subject : MATH-1120
SKS / ECTS : 2
Semester : 2
Study Program : Chemical Engineering, Biomedical Engineering, Food Technology
Lecturer : Petrick Gideon Effendi, S.T., M. Sc.

2. Competency

After having the course, students are expected to:

a) Understand the definition of basic terms in statistics
b) Understand the concept of descriptive statistics
c) Understand the concept of probability
d) Understand the discrete probability distributions
e) Understand the normal probability distributions
f) Understand the concept of confidence intervals
g) Understand the hypothesis testing with one and/or two samples
h) Understand correlation and regression
i) Understand the Chi-square test and the F-Distribution
j) Understand the concept of nonparametric tests

3. Description of Subject:

This course is intended for 1st year university students (2nd semester) who take science or engineering department. Learning this course, the students are expected to be able to process and analyze the data in the research. The delivering of this course consists of 3 parts in series. One of the parts is a prerequisite to another. First, we learn about descriptive statistics which include the introduction of statistics, mean, medium, modus, variance, standard deviation, quartile, etc. Second, we learn about the theory of probability and probability distribution, hypothesis formulation, and several statistic tests. Third, we learn about the nonparametric test for analyzing the data in the research.

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4. Learning Approach

Approach : Combination of Expository - inquiry and colaborative
Method : Discussion, question answer, sample problem, group work
Student Task : Homework, Quiz, Exam
Media : LCD projector, film.

5. Evaluation

a) Maximum Absence : 25%
b) Participation in discussion : 5 points
c) Homework, Classwork : 15 points
d) Daily Quiz : 20 points
e) Final Examination : 60 points

Total : 100 points

6. Contents/ Topics of Lecturing:

Week	Topics	Content	Remark
1	**Introduction to Statistics**	An Overview of Statistics, Data Classification, Experimental Design	Homework, Quiz
2	**Descriptive Statistics**	Frequency Distribution and Their Graphs, More Graphs and Displays, Measures of Central Tendency, Measures of Variation, Measures of Position	Homework, Quiz
3	**Probability**	Basic Concept of Probability, Conditional Probability and The Multiplication Rule, The Addition Rule, Counting Principles	Homework, Quiz
4	**Discrete Probability Distributions**	Probability Distributions, Binomial Distributions, More Discrete Probability Distributions	Homework, Quiz
5	**Normal Probability Distributions**	Introduction to Normal Distributions, The Standard Normal Distribution, Application of Normal Distributions	Homework, Quiz
6	**Normal Probability Distributions**	The Central Limit Theorem, Normal Approximation to Binomial Distributions	Homework, Quiz
7	**Confidence Intervals**	Confidence Intervals for the Mean (Large and Small Samples), Confidence Intervals for Population Proportions	Homework, Quiz
8	**Confidence Intervals**	Confidence Intervals for Variance and Standard Deviation	Homework, Quiz
9	**Hypothesis Testing with One Sample**	Introduction to Hypothesis Testing, Hypothesis Testing for the Mean, Hypothesis Testing for Proportions	Homework, Quiz
10	**Hypothesis Testing with One Sample**	Hypothesis Testing for The Variance and Standard Deviation	Homework, Quiz

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11	**Hypothesis Testing with Two Samples**	Testing the Difference Between Two Means, Testing the Difference Between Two Proportions	Homework, Quiz
12	**Correlation and Regression**	Correlation, Linear Regression, Measures of Regression and Prediction Intervals, Multiple Regression	Homework, Quiz
13	**Chi-Square Tests and The F-Distribution**	Goodness of Fit, Independence, Comparing Two Variances, Analysis of Variance	Homework, Quiz
14	**Nonparametric Tests**	The Sign Test, The Wilcoxon Tests, The Kruskal-Wallis Test, Rank Correlation	Homework, Quiz
15	**Final Examination**		
16	**Final Examination**		

7. Book Reference:

a) Probability and Statistics for Engineers and Scientists – Walpole and Myers – 9th Edition – Prentice Hall
Estimated book price: Rp 305,000, -
b) Applied Statistics and Probability for Engineers – Douglas Montgomery – 3rd Edition – John Wiley and Sons
c) Probability and Statistics for Engineering and The Sciences – Jay Devore – 8th Edition

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