

## **Computer Science & Statistics**

### **Introduction**

Along with technological growth of computer at present, statistical technique becomes a tool which is widely used by many people to finish the problems better, such as problems in management area, research, business, marketing, quality operation, best quality, forecast, risk analysis of consumer satisfaction, environment and others make the contribution of computer science and statistics is progressively growing important. The combination of two study majors into one program is designed to maximize the learning opportunities for the student who chooses the double majors.

### **Vision**

A world class department in Computational Statistics based on ICT

### **Mission**

The mission of Computer Science - Statistics Department is to contribute to the global community through the provision of world-class education by :

1. Educate students with fundamental knowledge & skills to apply Computational Statistics using ICT in acquiring business information for a career as a market researcher or business analyst
2. Provide solid learning experience through creating the most creative and value-added talents of leaders for global community as well as conducting professional services to improve the quality of life.
3. Provide high impact research that positively contributing to the quality of life in Indonesia and the international community

### **Program Objective**

The objectives of the program are :

1. To provide students with a solid knowledge ranging from Fundamental Statistics and Computer Science to Computational Statistics and Database Technology
2. To provide students with the abilities to conduct statistical analysis and marketing research that help to solve problems.
3. To prepare students with necessary skills in developing database and be expert in data mining to be excellence business analyst

### **Graduate Competency**

At the end of the program, graduates will be able to :

1. Apply, analyze and solve problems using the fundamental Statistics.
2. Interpret, analyze, and create statistical solutions in form of algorithms using appropriate Database Technology.
3. Recognize, apply, and appraise statistical processes.
4. Apply, analyze, formulate and evaluate problems in marketing research using advanced Computational Statistics.
5. Create and assess innovative database solution in order to solve real problems in economics and business.
6. Design and evaluate data warehouse and data mining.

### **Prospective Career of the Graduates**

The graduates of the double study program Computer Science and Applied Statistics are able to follow careers in:

1. Business (market researcher, forecasting analyst)
2. Management (business analyst, evaluator of company performance)
3. Information Technology area (database designer, system analyst)
4. Industry (decision making analyst, quality control analyst)
5. Finance and Accounting (risk analyst, profit growth analyst)

### Curriculum

With reference to the Vision and Mission UBINUS, the role of Computer Science and Applied Statistics in the future, and its current standing in Indonesia, the study program will contain the following elements:

1. Solid education to increase statistical analysis capability and ability to extract information from any kind of data that emerge in databases;
2. The academic atmosphere that will facilitate students' learning in order that the students will develop skills in communicating their statistical analysis and skills in developing database; and
3. An environment that fosters active learner independence and encourages students to be able to succeed in their professional career and in the fields related to Computer Science and Applied Statistics.

Furthermore, besides this department provides the means and expertise in Computer Science and Applied Statistics to prepare students for a career as a Market Researcher or Database Designer who be able to analyze any kind of data that emerge in databases to extract information, it also provides capability in developing Computer Science or Applied Statistics both in Indonesia and among the nations of the world in order to pursue higher degree of education

### Course Structure

Sem	Code	Course Name	SCU	Total
1	CB412	CB: Self Development	2	20
	T0152	Programming Language Concepts	2	
	T0016	Algorithm and Programming	4/2	
	T0604	Introduction to Information Technology	4	
	K0144	Discrete Mathematics	4	
	G1372	English Entrant	2	
2	CB422	CB: Spiritual Development	2	20
	K0034	Applied Linear Algebra	4	
	K0424	Calculus I	4	
	T0026	Data Structures	4/2	
	I0262	Probability and Statistics	2	
	G1382	English in Focus	2	
3	K0434	Calculus II	4	24
	I0372	Matrix Algebra for Statistics	2	
	I0164	Statistical Theory I	4	
	I0512	Statistical Computing Lab	2	
	I0522	Numerical Methods for Statistics	2	
	G1392	English Savvy	2	
	T0104	Program Design Methods	4	
	T0044	Object Oriented Programming	2/2	

Sem	Code	Course Name	SCU	Total
4	CB432	CB: Interpersonal Development	2	24
	I0642	Sampling Techniques	2	
	I0152	Simulation Techniques	2	
	T0316	Operating System	4/2	
	I0184	Statistical Theory II	4	
	T0206	Database Systems	4/2	
	I0422	Non Parametric Statistics	2	
5	CB442	CB: Professional Development	2	24
	I0533	Regression Analysis	2/1	
	I0542	Operations Research	2	
	I0054	Design and Analysis of Experiments	4	
	EN001	Entrepreneurship I	2	
	T0773	Database Design	2/1	
	J0594	Economics Theory	4	
	T0034	Algorithm Design and Analysis	4	
6	I0593	Econometrics	2/1	24
	I0414	Stochastic Process	4	
	I0563	Time Series Analysis	2/1	
	T1392	Advanced Object Oriented Programming	2	
	I0482	Linear Model	2	
	I0662	Interdisciplinary Seminar*	2	
	I0584	Multivariate Statistics	4	
	T0114	Software Engineering	4	
7	H0515	Computer Networks	4/1	24
	I0492	Categorical Data Analysis	2	
	I0572	Risk Theory	2	
	EN002	Entrepreneurship II	2	
	T0264	Artificial Intelligence	4	
	K0654	Mathematics of Finance	4	
	I0652	Statistical Marketing Research	2	
	T0233	Data Warehouse	2/1	
8	I0605	Actuarial Mathematics	4/1	24
	I0612	Structural Equation Modeling	2	
	I0622	Statistical Data Mining	2	
	I0674	Interdisciplinary Project*	4	
	T0324	Computer Architecture and Organization	4	
	T0593	Human and Computer Interaction	2/1	
	T1404	Mobile Programming	2/2	

Sem	Code	Course Name	SCU	Total
9	I0633	Statistical Quality Control	2/1	12
	I0552	Survival Analysis	2	
	T0053	Web Programming	2/1	
	T0174	Compilation Techniques	4	
10	I0336	Thesis/Final Project	6	6
	<b>Elective Courses</b>			
	G1402	English for Business Presentation	2	
	G1412	English for Written Business Communication	2	
<b>TOTAL CREDIT 202</b>				

\*) Entrepreneurship Embedded

**Student should pass all of these quality controlled examinations as listed below:**

No	Code	Course Name	Minimum Grade
1	CB412	CB: Self Development	B
2	EN002	Entrepreneurship II	C
3	K0434	Calculus II*	C
4	I0184	Statistical Theory II*	C
5	I0533	Regression Analysis	C
6	I0414	Stochastic Process	C
7	I0584	Multivariate Statistics*	C
8	I0633	Statistical Quality Control	C
9	T0016	Algorithm and Programming*	C
10	T0026	Data Structures*	C
11	T0206	Database Systems	C
12	T0316	Operating System	C
13	T0114	Software Engineering	C
14	I0622	Statistical Data Mining*	C

\*) Tutorial & Multipaper