Subject Description Form

Subject Code	AMA2D02
Subject Title	Statistics in Society
Credit Value	3
Level	2
Pre-requisite/ Co-requisite/ Exclusion	
Objectives	Statistical thinking is very important in all walks of life and in the society. From business and commerce to science and technology, statistics plays an essential role to help us explore issues and to understand problems in the real world. This subject aims to provide an introduction to the concepts of exploratory data analyses. Through studies of popular opinion polls in Hong Kong, students will learn to interpret and draw conclusions from real-world data. Using practical examples and case studies drawn from the society, students will learn about the practical uses and misuses of statistics. Statistical software will be used.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: 1. understand the fundamental concepts of exploratory data analyses, to summarize and to present numerical information both numerically and graphically. 2. be aware of the uses and misuses of statistics, to understand the reasons behind the calculations, the statistical assumptions under which they are valid. 3. properly interpret index numbers, opinion polls and other statistical results, and to draw conclusions from real-world data in the society.
Subject Synopsis/ Indicative Syllabus	*Exploratory Data Analysis* What are central tendency and dispersion and how to compute them? How to present graphical and numerical summaries of data? Students will start with a single variable and progressing into the relation between two variables in the application of these techniques. *Index Numbers* What is an index number? How are index numbers constructed? How to interpret an index number? Why are official statistics usually released in index number format? Simple examples relating to daily life will be illustrated. Important Index Numbers:

<table>
<tr><td></td><td>Consumer price index: What is its purpose? Is it an indicator of inflation? Its applications in daily life.

Share price indexes: Hang Seng Index, Dow Jones Index, Financial Times Index, Nikkei Index, etc. What are their purposes? How to interpret the index with a particular reference to potential investors?

Exchange rate index: What is its purpose? How to interpret the index?

Opinion polls
Do you think the opinion of a small sample can represent the population of a city? How are public opinions collected? What are the uses and misuses of opinion surveys? How to achieve reliable survey results? How to interpret survey results? Examples of popular opinion polls will be given.

Uses and Misuses of Statistics
How to gather data and produce and interpret numerical and graphical results for simple data sets? Errors, biases and misuses of statistics in presenting statistical results. Practical examples will be drawn and illustrated from the business setting and the society.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Lectures will be used to introduce the subject materials. Tutorials will include small group discussion. Practical case studies will be used to strengthen students' concepts, statistical interpretation and statistical presentation skills. Some examples of case studies include presenting economic trends, a class opinion poll, and understanding index numbers. During tutorials, statistical software such as R and Excel will be used and more hands-on examples will be illustrated. Students are required to reinforce their knowledge through assignments including additional case studies/mini-project in the course. There will be an end-of-term examination, which will test students on their understanding of statistical concepts, interpretation of graphs and statistical results and results of opinion polls.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="3">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>1</td><td>2</td><td>3</td></tr>
<tr><td>a. Assignments</td><td>30%</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>b. Tutorials</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>c. Exam</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100%</td><td>✓</td><td>✓</td><td>✓</td></tr>
</table>
</td></tr>
</table>

	The assignment consists of case studies and group project that will help students to develop critical thinking ability over computing and interpreting statistical summaries and graphs.	
Student Study Effort Required	Class contact:	
	■ Lecture	26 Hrs.
	■ Tutorial	13 Hrs.
	■ Examination	3 Hrs.
	Other student study effort:	
	■ Assignment	45 Hrs.
	■ Self-study	30 Hrs.
	Total student study effort:	117 Hrs.

Reading List and References	Textbook: Graham, A (2013) Teach Yourself Statistics. Hodder & Stoughton, London. Reference: Babbie, E.R. (2013) The Basics of Social Research. 6th ed. Thomson Frankfort-Nachmias, C. & Leon-Guerrero, A. (2014) Social Statistics for a Diverse Society. 7th ed. Pine Forge Press. Tufte ER (2001) The Visual Display of Quantitative Information. Graphics Press, 2nd ed. Hong Kong Economic Trends. Census & Statistics Department, HKSAR. Hong Kong Social and Economic Trends. Census & Statistics Department, HKSAR. Hong Kong Monthly Digest of Statistics. Census & Statistics Department, HKSAR. Useful websites: Census and Statistics Department, Hong Kong SAR http://www.info.gov.hk/censtatd/ Hong Kong Monetary Authority http://www.info.gov.hk/hkma/ Hong Kong Public Opinion Polls http://hkupop.hku.hk/english/popexpress/ United Nations http://www.un.org/