The Hong Kong Polytechnic University

**Subject Description Form**

*Please read the notes at the end of the table carefully before completing the form.*

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>COMP1003</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subject Title</strong></td>
<td>Statistical Tools and Applications</td>
</tr>
<tr>
<td><strong>Credit Value</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Level</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Pre-requisite / Co-requisite/ Exclusion</strong></td>
<td>Nil</td>
</tr>
</tbody>
</table>

### Objectives

Upon completion of the subject, students will be able to:

- a. develop and extrapolate statistical concepts in data analysis and problem solving;
- b. use software tools and statistical packages in solving statistical applications;
- c. undertake the formulation of statistical problems through continuous self-learning;
- d. demonstrate the abilities of logical and analytical thinking.

### Subject Synopsis/Indicative Syllabus

**(Note 2)**

1. Problem and Application Formulation
   - Analysis of problems; formulation of solution; use of tools (e.g. Excel) to generate fast solutions (e.g. finding the standard deviation of a data set); handling large data sets.
2. Graphing
   - Excel: use of formulae; statistical functions; graph plotting; application of graph plotting, e.g. scattered plot.
3. Random variables
   - Excel: generation of random variables in various distributions; modeling using random variables; Monte Carlo simulation techniques and applications.
4. Regression
   - Excel: regression functions; regression analysis; SPSS: data definition; regression analysis.

### Teaching/Learning Methodology

**(Note 3)**

Practical problem solving and case study will be supported via hands-on experience in laboratories.
### Assessment Methods in Alignment with Intended Learning Outcomes

(Nota 4)

<table>
<thead>
<tr>
<th>Specific assessment methods/tasks</th>
<th>% weighting</th>
<th>Intended subject learning outcomes to be assessed (Please tick as appropriate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Lab work, homework, quizzes and mid-term test</td>
<td>100%</td>
<td>X X X X</td>
</tr>
<tr>
<td>Total</td>
<td>100 %</td>
<td></td>
</tr>
</tbody>
</table>

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

### Student Study Effort Expected

<table>
<thead>
<tr>
<th>Class contact:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory</td>
</tr>
<tr>
<td>Self studying</td>
</tr>
<tr>
<td>Total student study effort</td>
</tr>
</tbody>
</table>

### Reading List and References


**Nota 1: Intended Learning Outcomes**

Intended learning outcomes should state what students should be able to do or attain upon completion of the subject. Subject outcomes are expected to contribute to the attainment of the overall programme outcomes.

**Nota 2: Subject Synopsis/Indicative Syllabus**

The syllabus should adequately address the intended learning outcomes. At the same time over-crowding of the syllabus should be avoided.

**Nota 3: Teaching/Learning Methodology**

This section should include a brief description of the teaching and learning methods to be employed to facilitate learning, and a justification of how the methods are aligned with the intended learning outcomes of the subject.

**Nota 4: Assessment Method**

This section should include the assessment method(s) to be used and its relative weighting, and indicate which of the subject intended learning outcomes that each method purports to assess. It should also provide a brief explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes.