

HONG KONG BAPTIST UNIVERSITY
Task Force on Research Student Training Framework

Research Student Development Activity (For AY2026/27)

1. Activity Title

Practical Data Analysis in Excel

2. Offering Department/ Unit

Library

3. Target Student Group (e.g., All students, Research Postgraduate students)

All students (and staff)

4. Delivery Method (e.g., workshop, lecture, seminar)

Self-paced online lecture on Moodle (English videos with Cantonese narratives)
<https://buelearning.hkbu.edu.hk/course/view.php?id=111216>

5. Duration & Total No. of Hours (e.g., 2 hours per session per week for 3 weeks = Total 6 hours)

The 10 modules plus all formative quizzes take about 6 hours to complete.

6. Aims & Objectives

This course aims to develop students' ability to manage, analyse, and visualise data in Excel using intermediate-to-advanced features such as conditional functions, XLOOKUP, PivotTables, conditional formatting, data validation, and the Analysis ToolPak. It also aims to enable students to design reliable, spreadsheet-based workflows that support accurate data entry, robust summarisation, and clear communication of quantitative findings in academic and professional contexts.

7. Expected Development Outcomes or Knowledge/Skills Attainment

By the end of the course, students will be able to:

Design reproducible Excel-based data workflows

Integrate Data Validation, Form, and careful range design to build input templates that minimise data-entry error and support reproducible analysis pipelines.

Implement robust, auditable data querying

Construct parameter-driven XLOOKUP solutions using if_not_found, match_mode, and search_mode to support flexible data reconciliation, sensitivity exploration, and audit trails.

Develop advanced conditional aggregation logic

Use SUMIF, COUNTIF, AVERAGEIF, and SUBTOTAL in combination with Sort/Filter to implement layered conditional summaries suitable for exploratory data analysis and reporting.

Build analytical summaries for research datasets

Design PivotTables, PivotCharts, and formula-based summaries (GROUPBY, PIVOTBY) to compare groups, examine distributions, and support hypothesis generation from research data.

Use visual analytics to surface structure in data

Configure advanced Conditional Formatting (custom thresholds, icon sets for multi-level classification, colour-based filtering) to highlight patterns such as classifications, thresholds, and anomalies in large research datasets.

Apply and interpret descriptive statistics critically

Run the Descriptive Statistics tool from the Analysis ToolPak to generate core summary measures, and interpret them appropriately in the context of research questions (e.g. student performance, survey responses).

8. Expected Graduate Attributes Attained

[Input will be sought after the University completes the review process]