

Draft Plan for the BMDS7010 Data Analysis Self-Studies

Here is a draft plan for the forthcoming BMDS7010 self-studies (to be combined with the synchronous learning in the course). Self-studies will focus on acquiring practical SPSS skills. These are given in “stepwise” objectives within self-study assignments (BMDS7010-02 to BMDS7010-06). A 30-minute face-to-face SPSS walk-through is also planned. A final self-study (BMDS7010-07) will look at the potential of Large Language Models (LLM’s) to analyse health records.

Overall Goal: To give practical SPSS skills for data analysis relevant to final year projects – hopefully building confidence and competence from basic to intermediate level.

The learning approach will use a combination of self-directed tasks for practice and reinforcement. Bear in mind that many step-by-step online tutorials are also available through the university’s [Linked-In Learning](#) licence (and also on YouTube). These may well come in handy if you get stuck. It will definitely assist understanding SPSS if you do some targeted modules on Linked In Learning for example.

High-Level Overview (subject to adaptation)

This is only to give some idea of what to expect

Assignment /Session	Title (placeholder)	Mode	Key Objectives	Relevance & SPSS Focus	Time Commitment (approx.)
BMDS7010-01	SPSS Installation	Self-Study	Successfully install and launch SPSS.	<i>Prerequisite assumed complete</i>	(Completed)
BMDS7010-02	Getting to Know SPSS: Interface and Data Entry	Self-Study	Understand the SPSS interface (Data View, Variable View). Manually enter a small, simple dataset. Define variables with appropriate names, types, and labels. Save an SPSS data file.	Entering patient demographics (age, gender, diagnosis code <i>simplified</i>). Understanding data types (numeric, string, date) common in NHS datasets.	1 hour
Sync Session 6th March 2025	SPSS Walk-Through	Face-to-Face	Reinforce understanding of the SPSS interface. Demonstrate basic data manipulation (sorting, filtering). Introduce descriptive statistics (mean, median, mode, frequencies). Q&A	Live demonstration using a realistic (but anonymised) NHS dataset. Focus on practical steps, not complex statistical theory.	30 minutes
BMDS7010-03	Data Import and Cleaning	Self-Study	Import data from an Excel file into SPSS. Identify and handle missing data. Check for data entry errors (e.g., out-of-range values). Recode variables (e.g., create age groups).	Importing waiting list data or patient survey results. Dealing with missing data in real-world NHS datasets.	1 hour
BMDS7010-04	Descriptive Statistics and Visualisation	Self-Study	Generate descriptive statistics (frequencies, percentages, mean, standard deviation). Create basic charts (histograms, bar charts, scatterplots). Interpret the output.	Analysing patient demographics, length of stay, or readmission rates. Visualising trends and distributions in key performance indicators.	1 hour
BMDS7010-05	Basic Hypothesis Testing (t-tests, Chi-square)	Self-Study	Understand the concept of hypothesis testing. Perform independent samples t-tests. Perform chi-square tests. Interpret p-values and draw conclusions.	Comparing outcomes between two treatment groups. Examining the association between patient characteristics and readmission.	1 hour
BMDS7010-06	Correlation and Linear Regression	Self-Study	Understand the concept of correlation. Calculate Pearson’s correlation coefficient. Perform simple linear regression. Interpret regression coefficients and R-squared.	Investigating the relationship between waiting time and patient satisfaction. Predicting length of stay based on patient characteristics.	1 hour
BMDS7010-07	ML, AI, LLM	Self-study	Survey of resources for ML, AI and LLM. Looking at the potential of LLM for record analysis.	Staying on top of the potentially overwhelming literature on AI, trying out record summaries by several methods.	

Key Considerations:

- **Real-World Data:** Learning steps will use made-up or synthetic datasets with zero privacy risk. Projects where the practices could be applied include patient satisfaction surveys, waiting list data, subsets of Hospital Episode Statistics (HES) or other NHS data where publicly available, data on public health or specific conditions or Quality and Outcomes Framework (QOF) data. Each piece of work should build on the previous one, gradually increasing complexity.

Overall Learning Objectives: See each piece of work.

Manageable Workload: Each self-study task is designed to be completed in approximately one hour, though all are extensible.

Search and Discovery: Students are encouraged to use SPSS help files, the online tutorials mentioned above, and any other resources to find answers. i.e. independent learning.

The NHS Context: The assignments try to be framed within the context of the NHS (if possible) making this content more relevant and applicable.

Face-to-Face Session Placement: The “statistical terminology session” and “SPSS walk-through” following BMDS7010-02 is intended to troubleshoot and ensure everyone has got things working (and introduce key concepts) before going on to more complex tasks.

The plan is foundation for more advanced work you may do in your final year project. You will however be given additional guidance at that time if relevant. See the individual assignments for more specific instructions, data sources, and SPSS commands when you're ready.