

**Strategy, Operations, & Entrepreneurship Group
Essex Business School**

Module Code	BE279
Module Title	Applied Statistics and Forecasting
Assessment Type	Individual Report (2,000 word)
Academic Year	2022/23, Spring Term
Submission Deadline	Refer to FASER

Task Specific Guidance

Please note that:

- You must submit a 2000-word main report in electronic format (PDF/Word) via FASER.
- This assessment represents 100% of the overall module mark.
- Your report must include table of contents after the front page. At the end of your report, incorporate a full list of references. An executive summary is not required.
- Carefully read and answer all questions under Question A and Question B by detailing all the required aspects.
- You are advised to use Excel Data Analysis tool, Excel data visualisation, and spreadsheet modelling features to answer the numerical questions. Include all your Excel model details (e.g., functions, screenshots) in the Appendix.
- All numerical and graphical analysis should be included in this document. Please include high resolution and clear graphs, figures, and charts. Make sure all graphs, charts, tables, and figures have legends and captions and are properly referred to in the main body of your report.
- This report must be well-referenced using Harvard referencing style where necessary.

Module Learning Outcomes

On successful completion of the module, students will be able to:

- obtain a critical understanding of principal-driven and data-driven approaches in statistical computing and modelling which can be used to analyse data for answering real-life questions,
- develop key analytical skills of analysing data using modern software tools and techniques from an application point of view,
- gain overall perspective on the importance of data analysis and statistics in both strategic and tactical decision making faced by decision makers in the modern business world,
- critically differentiate between the questions which can be tackled using qualitative methods and those which require statistical analytical techniques.

General Guidance

- Cite all information used in your work which is clearly from a source. Try to ensure that all sources in your reference list are seen as citations in your work, and all names cited in the work appear in your reference list.
- Reference and cite your work in accordance with the Harvard system, the Essex Business School's chosen referencing style. For specific advice, you can talk to Southend Campus Librarian or go to the library help desk, or you can access library guidance [here](#).
- The University has regulations relating to academic offence, including **plagiarism**. Detailed information are available on University's website about [Academic Offence](#) and [How to Avoid Academic Offence](#). If you need further help, you can find more help [here](#).
- Following University's regulations, +/-10% the word limit is allowed, please stay within the word limit. Front page, table of content and list of references are not included in the word count.

Marking Scheme

The EBS Making Scheme can be found on Moodle under *BE279>Assessment*. These criteria will be used to mark your work and will be used to support the electronic feedback you receive on your marked assignment. Before submission, check that you have tried to meet the requirements of the higher-grade bands to the best of your ability. Please note that the marking process involves academic judgement and interpretation within the marking criteria.

Assessment Tasks:

Question A

(50 Marks, 1,000 words)

A data analysis consultancy is tasked to rate four energy providers based on their response time to complaints. They have conducted a study and collected the amount of time taken by a sample of regular customers at each of these four energy providers to receive a response to their complaints. Collected data is available in BE279-2023-QAdata.xlsx file, available on Moodle under: *BE279>Assessment>Data Files*.

You are tasked to:

1. Calculate Numerical Measures (Central Location, Variability, and Relative Standing) of Descriptive Statistics for these datasets. Explain the application of the techniques you use in detail. (25 marks)
2. Compare the four sets of data, interpret the results obtained, and write a managerial report. Include graphical representation of the data sets in this report. (25 marks)

Question B

(50 Marks, 1,000 words)

A supermarket has recorded sales for two of their products (product A and product B) in the past 60 months. The manager of this supermarket wants to have the best demand forecasts for these products for the next period. The data is provided in *BE279-2023-QBdata.xlsx* file, available on Moodle under: *BE279>Assessment>Data Files*.

You are required to:

- a. Use Regression method to forecast the sales for the next month. Explain your approach in detail. (15 marks)
- b. Use Single Exponential Smoothing (SES) to forecast the sales for the next month. Explain your approach in detail. (15 marks)
- c. After conducting your full analysis, write a managerial report for the manager of the supermarket. Interpret your findings, analyse the graphical representation of the data, and explain what they show in this report. (20 marks)

End of Exam Paper