

**UNIVERSITY OF THE FREE STATE  
DEPARTMENT OF MATHEMATICAL STATISTICS AND  
ACTUARIAL SCIENCE  
STSM 2634**

**Tutorial 1**

**Full marks: 100 (7 tutorials total)**

Date: 28 Feb, 2025

Deadline: 28 Feb, 2025

**FOLLOW THESE INSTRUCTIONS METICULOUSLY, OTHERWISE  
MARKS WILL BE SUBTRACTED:**

- Save the answer file in MS-Word format as **'Tutorial1\_student number'** as the file name. Your **programming (code), and the output must be included in your answers**. Write the explanation after the code and the output as necessary.
- **After you finish the tutorial, please convert your answer file to pdf file. The final pdf file should be submitted.**
- You have freedom to write the code in your own way. **If the code fails to run, you will get 0 mark.**
- You are allowed to use the class notes, or any other help from the internet.
- **All computations must be done with the help of suitable R functions. Manual or calculator-based answers will not be accepted.**
- 0 marks for no submission.

Q1. Get a dataset from any online resource. You can find a dataset of your domain (e.g. if you are studying economics, you find an economics data). You are free to use google or any other search engine. Analyse the dataset using the R tools we have learned so far.

Q2. Create any two matrices A and B as you like. Write a R code to manually compute their matrix product,  $C = AB$ , without using the `%*%` operator, where:

Matrix A has dimensions 4 x 4

Matrix B has dimensions 4 x 4

What is the value of the element in the 3<sup>rd</sup> row and 4<sup>th</sup> column in C?

--- End ---