QMS 101 Introductory Statistics

STATISTICAL DATA PORTFOLIO ASSIGNMENT

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1. Introduction

This assignment is designed to help students apply statistical concepts learned in QMS 101 in real-life situations. Students will collect, analyze, and interpret data step-by-step and present their findings. Topics will be provided by the lecturer.

2. Objectives

General Objectives

Students will:

- Collect and organize real-world data
- Present data using appropriate graphs
- Apply statistical methods (mean, median, mode, etc.)
- Interpret data for decision-making
- Develop teamwork and presentation skills

Learning Outcomes

By the end of the assignment, students should be able to:

- Understand real-world data collection
- Apply statistical methods practically
- Interpret business and social data
- Work effectively in teams
- Communicate findings clearly

3. Group Formation

- Students will work in groups of **10 members**
- Groups should be from the **same or related programs**
- Each group will work on **ONLY ONE assigned topic**
- Deadline for Submitting Groups: **17 April 2026**

Task 1: Data Collection Tool Design

- Design **questionnaire/data sheet/Observation check list**
  - Check the lecture slides (designing a questionnaire)
  - **Not more than 10 questions**
- Pilot test (**5 respondents**)
- Revise based on feedback

Important Notes

- **Deadline**
  - Submit your tool by **24 April 2026 before 8.00 AM via** anna.fome@juco.ac.tz
  - Late submission will attract a penalty
  - **"WRITE ONLY THE GROUP MEMBERS WHO PARTICIPATED IN THAT TASK"**

Important Notes...

- How?
  - At this stage: Online submission only
  - Do not print any document
- Next Task
  - To be Communicated

Task 2: Data Collection

- Administer the questionnaire or any tool your group prepared (paper or digital) to collect responses.
- **Output:** Cleaned raw dataset/table in **Excel format (.xlsx preferred)**.
- **Submit to:** anna.fome@juco.ac.tz
- **Deadline: 01.05.2026**
- **File name format: GROUPCODE_Task2.xlsx**
- **Example:** BP&BE4_Task2.xlsx
- Late submission will attract a penalty.
- Write **only names of members who participated in this task**.

Data Collection (Low or No Cost)

Use affordable and accessible methods such as:

- Asking classmates and friends
- Free online tools (e.g., Google Forms)
- Face-to-face data collection on campus
- WhatsApp, email, or social media platforms

Task 3: Frequency Distribution Table

- From the data you collected select one appropriate variable that can be used to calculate the mean, median and mode.
- Construct one grouped frequency distribution table containing all necessary columns required for the calculation of mean, median and mode

Task 4: Displaying data

Plot 1: Histogram and Frequency Polygon

- Using the data from Task 3, construct: a **histogram**, and a **frequency polygon** on the **same x–y axes**.

Plot 2: Ogive and Estimation of Median

- Construct an **ogive (cumulative frequency curve)** using the cumulative frequencies from the grouped frequency table.
  Using the ogive:
  - estimate the **median** graphically,
  - and clearly indicate the median point on the graph.

Task 5: Calculations and Interpretation

- Using the grouped frequency distribution table constructed in Task 3:
  1. Calculate the mean, median, and mode using the appropriate **grouped-data formulas**:
  2. Interpret your findings by explaining what the calculated: mean, median, and mode indicate.
  3. Discuss the **skewness** of the distribution by comparing the values of the mean, median, and mode.

Important Instructions

- Write these **by hand**.
- Show **all calculations and working steps clearly**.
- Submit **before 15 May 2026**.
- Submission venue: **Office No. 34, Block E**.
- **Late submission will not be considered.**
- Do not forget to write:
  - your **group code**, and
  - the **names of all participating students**.

Task 6: Using the grouped frequency distribution table constructed in Task 3

1. *Calculate Geometric mean and Harmonic mean (where appropriate, if not, explain why)*
2. *Find Q1, Q2, Q3, D5, P25, P75. (Provide an interpretation for each measure)*
3. *Calculate range, mean deviation, variance, SD. (*Provide an interpretation for each measure.*)*

Task 7: Write One paragraph for each item

1. From the data collected, define the population and sample. Also, identify all variables as qualitative or quantitative, and specify whether the quantitative variables are discrete or continuous
2. Answer your research question directly using your statistical findings.
3. Acknowledge the limitations of your study.
4. Make at least TWO practical recommendations based on the evidence.

What else to submit(*Appendices)*

Include:

- Data collection tool (exactly the same as submitted in Task 1)
- Raw data table (the same as submitted in Task 2)
- Pictures (if any)
- Any other relevant supporting materials

IMPORTANT

- Submit **before 15.00 hours, 29 May 2026**
- Submission venue: **Office No. 34, Block E**.
- **Late submission will not be considered.**

NEXT: GET READY TO PRESENT

- Anyone from the group will be chosen to present.
- The presentation date will be communicated later.