



AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF HEALTH SYSTEMS MANAGEMENT AND DEVELOPMENT
MASTER OF SCIENCE IN BIOETHICS
END OF SEMESTER EXAMINATION

MBE 718: RESEARCH DESIGNS AND STATISTICAL METHODS

DATE: DECEMBER 2025

TIME: Three Hours **Start:** 5:30 pm **Finish:** 8:30 pm

INSTRUCTIONS

1. This exam is marked out of 100 marks
2. This Examination comprises TWO Sections
3. Section A: Compulsory Question (25 marks)
4. Section B: Long Answer Questions (75 marks)
5. All questions in Section A are compulsory and Answer any THREE questions in Section B
6. This online exam shall take 3 Hours
7. Late submission of the answers will not be accepted
8. Ensure your web-camera is on at all times during the examination period
9. No movement is allowed during the examination
10. Idling of your machine for 5 min or more will lead to lock out from the exam
11. The Learning Management System (LMS) has inbuilt integrity checks to detect cheating
12. Any aspect of cheating detected during and or after the exam administration will lead to nullification of your exam
13. In case you have any questions call the invigilator for this exam on Tel. +254722774221 and Head of Department on Tel +254725984499 and michel.mutabazi@amref.ac.ke
14. For adverse incidences please write an email to: amiu.examinations@amref.ac.ke

SECTION A: ANSWER ALL QUESTIONS (25 MARKS)

1. A hospital ethics committee wants to study the relationship between patients' understanding of informed consent and their willingness to participate in clinical trials.
 - a) Identify the most appropriate research design for this study. (3 marks)
 - b) Justify your choice in (a) above. (2 marks)

2. A researcher is evaluating the impact of a new ethics training program for nurses on their ethical decision-making scores before and after the training.
 - a) Identify an appropriate statistical test. (3 marks)
 - b) Explain why this test is suitable. (2 marks)

3. In a bioethics study on end-of-life care preferences, researchers conduct focus group discussions with families of terminally ill patients.
 - a) Identify the type of research used. (3 marks)
 - b) Describe one advantage and one limitation of this approach. (2 marks)

4. During a study involving HIV-positive adolescents, a researcher discovers that participants are disclosing sensitive information about sexual behavior. Explain three ethical principles the researcher must uphold while handling such information (3 marks)

5. Distinguish between conceptual framework and theoretical framework in research (4 marks)

6. Highlight one difference between inductive and deductive reasoning in research (3 marks)

SECTION B: ANSWER ANY THREE (3) QUESTIONS OF YOUR CHOICE

7. A researcher at a national referral hospital wants to study the effect of a *new informed consent training program* on clinicians' compliance with ethical standards in patient care. The researcher plans to measure compliance scores before and after the training and compare them with a control group of clinicians who did not receive the training.
 - a) Identify the most appropriate research design and justify your choice. (5 marks)
 - b) Describe the sampling strategy you would recommend and justify it. (5 marks)
 - c) Discuss three key ethical considerations for this study. (6 marks)
 - d) Outline the data analysis plan, indicating suitable statistical tests. (5 marks)

- e) Explain four considerations to take when presenting the research findings. (4 marks)
8. A researcher conducts focus group discussions with HIV-positive mothers to explore barriers to disclosing their status to family members. During data collection, some participants reveal experiences of domestic violence and stigma.
- a) Identify the type of research design used and justify its appropriateness. (5 marks)
- b) Describe the data collection method and its advantages. (4 marks)
- c) Explain four ethical challenges the researcher might face and propose solutions. (8 marks)
- d) Discuss three qualitative data analysis techniques suitable for this study. (5 marks)
- e) Outline three ways in which the researcher can ensure trustworthiness of the findings. (3 marks)
9. Discuss ways in which mixed-methods research can be applied in a study evaluating the impact of *community bioethics education programs* on improving public understanding of genetic testing. Include:
- a. Definition and rationale for mixed-methods research. (5 marks)
- b. The design type most appropriate and justification. (5 marks)
- c. Two ways in which qualitative and quantitative data can be integrated in analysis and interpretation. (6 marks)
- d. Potential ethical concerns and how to address them. (5 marks)
- e. Ways to enhance validity and reliability in both data types. (4 marks)
10. a) Differentiate between probability sampling and non-probability sampling methods giving two examples for each (10 marks)
- b) Explain five differences between qualitative and quantitative research approaches (15 marks).