



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENVIRONMENTAL SCIENCES

DEPARTMENT OF ENVIRONMENTAL SCIENCE

**MASTER OF SCIENCE IN CLIMATE CHANGE AND SUSTAINABLE
DEVELOPMENT**

AGRICULTURE, FOOD SECURITY AND CLIMATE CHANGE

ECS 5104

Final Examination Paper

January 2025

This examination paper consists of 2 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: None

Examiner's Name: Dr Sani Mutale

INSTRUCTIONS

1. Answer any **FOUR** questions
2. Each question carries 25 marks

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25
TOTAL	100

1. Show how investments into priority areas such as market related infrastructure, research and technology developments help to accelerate agricultural growth in Southern Africa. Give examples to support your answer.
2. According to the intergovernmental Panel on Climate Change (IPCC), global temperatures are projected to rise by 1.5° C above pre-industrial levels by 2050. Explain in detail the extent to which agriculture contributes to this trend, and how it can be part of the solution to the problem?
3. Critically examine the effectiveness of smart agriculture techniques and tools towards increasing agriculture productivity and food supply in the face of climate change? Give relevant examples to support your answer.
4. With reference to third world countries explain in detail the contradictions faced by smallholder farmers when traditional farming methods are restricted for purposes of mitigating climate change.
5. If you were in a policy making position, suggest strategies that you could employ to create an enabling environment to adapt and mitigate climate change impacts on agriculture and food security.
6. Africa is said to be food secure at the national level, yet it is still food insecure at the household level as not all households have access to adequate food. Comment on the reasons for these discrepancies.