



BINDURA UNIVERSITY OF SCIENCE EDUCATION



FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCES DEPARTMENT OF ENVIRONMENTAL SCIENCE

Semester: Aug 2024

Lecturer: Dr L Mabhungu. **Contacts:** Mobile 0772 953 353; loveness.mabhungu@gmail.com
Astra Campus. **Consulting time:** By appointment.

ESM 116: Introduction to Environmental Science

Preamble

This course equips students with the relevant knowledge to understand the interaction of organisms, in particular humans, with other organisms, and/or their environment, from an ecology perspective. This course also highlights several environmental issues: air, water, noise and waste pollutions. It familiarizes students with the environmental management tools essential for environmental scientists and managers in protecting the employees and the environment from pollution. Lectures and tutorials will be used. The course is aimed at providing students with knowledge to enable them to function at the highest levels regarding environmental issues.

Course Aims and objectives:

On completion of the course, students should be able to:

- Relate how human activities influence the environment.
- Contribute significantly in the decision-making with regard to environmental issues and to prevent further degradation of the environment.
- Be conversant with key international issues and trends in environmental management in order to ensure effective management and decision-making
- Develop sound knowledge of the environmental, social and economic implications of industrial emissions and how these affect development omission

Course outline

Week	Lecture (Hrs)	Content
1	1 (2)	1. introduction
	2 (2)	2. Ecosystem 2.1 Classification of Ecosystem 2.2 Terrestrial Ecosystem 2.3 Aquatic Ecosystem
2	3 (2)	3. Environmental management 3.1 Definition 3.2 Economic Implications

		3.3 Environmental management in Zimbabwe - Role of the Government; Role of industries; Community participation in Zimbabwe; Role of Employers and Employees
	4 (2)	3.1 Definition 3.2 Economic Implications 3.3 Environmental management in Zimbabwe - Role of the Government; Role of industries; Community participation in Zimbabwe; Role of Employers and Employees
3	5 (2)	3.5 International Guidelines and Statutes -Environmental Conventions
	6 (2)	3.6 Environmental Management Principles
4	7 (2)	3.7 Environmental Management Tools
	8(2)	4 Environmental Degradation 4.1 Air Pollution -Sources of Air Pollution -Fate of Air Pollutants -Impacts of Air Pollutions -Air Pollution Control Efforts
5	9 (2)	4.1 Air Pollution -Sources of Air Pollution -Fate of Air Pollutants -Impacts of Air Pollutions -Air Pollution Control Efforts
	10 (2)	4.2 Water Resources Pollution -Sources, impacts and control of Water Pollution
6	11 (2)	4.2 Water Resources Pollution -Sources, impacts and control of Water Pollution
	12 (2)	4.3 Land resources pollution Solid and Hazardous Waste, Municipal Solid Waste, Solid Waste Management
7	13-14 (4)	Test and Tutorials
8	15 (2)	4.3 Land resources pollution Solid and Hazardous Waste, Municipal Solid Waste, Solid Waste Management
	16 (2)	4.4 Noise Pollution -Sources, effect and control of Noise pollution
9	17 (2)	3.4 Noise Pollution -Sources, effect and control of Noise pollution

	18 (2)	5. Global Environmental Issues 5.1 Ozone depletion -Importance of Ozone, Ozone Formation -Causes of Ozone Depletion, Ozone Depletion Process -Ozone Destruction by Chlorofluorocarbons, The Ozone Hole
10	19 (2)	5.1 Ozone depletion -Importance of Ozone, Ozone Formation -Causes of Ozone Depletion, Ozone Depletion Process -Ozone Destruction by Chlorofluorocarbons, The Ozone Hole
	20 (2)	5.2 Global Warming - Greenhouse Effect, Climate Change, Potential Impacts of Climate Change
11	21 (2)	5.2 Global Warming - Greenhouse Effect, Climate Change, Potential Impacts of Climate Change
	22 (2)	5.3 Veld Fire Management - Causes of fire - Methods of Extinguishment Fire-fighting Strategies
12	23 (2)	Test
	24 (2)	Revision
13 -14		Examination

Assessment Continuous assessment

Students will be assessed through a two hour examination paper, which will account for 70% of the final assessment. Tests and assignments will account for the remaining 30%.

Recommended Literature

Acts of Parliament in Zimbabwe, (Public Health Act, Environmental Management Act, Pneumoconiosis Act, Factories and Works Act)

Chatterjee A.K, 1998, Water Supply, Waste Disposal and Environmental Engineering, Khana Publishers, Delhi,

Nathanson J.A, 2002, Basic Environmental Technology: Water Supply, Health and safety and Pollution Control 4th Ed, Prentice-Hall of India, New Delhi,

NSSA publications

Harrison M.R, (2000), Pollution: Causes, Effects and Control, 3rd Edition, Royal Society of Chemistry, Cambridge, UK

Jackson A.R.W and Jackson J.M., (1998), Environmental Science: The natural environment and human impact, Longman, England

Any relevant internet resources