

UNITED STATES INTERNATIONAL UNIVERSITY-AFRICA
COURSE SYLLABUS
ENV 2001: ENVIRONMENTAL SCIENCE II
CREDIT: 4 UNITS

COURSE DESCRIPTION

The sustainable management of resources, agriculture, agro forestry, rangelands, and fisheries. The economics and environmental goals of improved management. Making things work, restoring previous damage, and improving the land.

COURSE OBJECTIVES

- To study some of the Earth's plant and animal species and how they are threatened from various natural and human causes.
- To examine the various ways in which man has contributed to ecosystem damage and habitat destruction.
- To examine various species (animals, plants and birds) that are endangered and study how they can be protected / preserved.

COURSE CONTENT

Week1

Sustainable Management of resources

- Resources: Water, Energy, Minerals
- Agriculture: food production approaches for sustainability, land degradation and restoration
- Agroforestry: Its application for sustainability in today's world
- Forestry: Natural and man-made forests, attempts to achieve sustainable management in Kenya, Reforestation and afforestation measures contributions

Utilisation and Management of range lands

Current situations: Global and local
Sustainable utilisation approaches
Possible strategies for range lands utilisation and management in future
Wildlife and rangeland management

Week 2

Fisheries Industry

Types of fish in East Africa and sites
Importance of the industry
Locations of industries and marketing distribution
Breeding of fish in controlled and open conditions
Successes and limitations of the fishery industry in East Africa
Sustainability approaches for the fishery: dealing with, pollution, weeds, silting , the variety of fish and fishing equipment, and community involvement

Week 3

Sustainable Utilisation and Management of Wetlands in Kenya

Locations of wet-lands in Kenya
Agricultural activities in the lands
Management approaches
Productivity vis-à-vis available machinery
Related health hazards

Week 4

Protection of special habitats

Coastal zones
Desert zones/marginal lands
Mountain slopes
Management approaches in each case

Introduction or Re-introduction of Species

Introduction of alien or exotic species approaches
Re-introduction of endangered or exterminated species
Examples and precautions taken
Sustainable utilisation and rational use of biological resources

MID-QUARTER EXAMINATION

Week 5

The Economics and environmental Goals for Improved Management

Sustainable development for a country or individual
Beautiful environment
Productivity in agriculture, better habitats, increase in biological resources
Better health and health environment
Resources depletion and degradation reduction
Pollution reduction
Efficient energy use

Week 6

The World's Minerals

Their characteristics, locations and use
Mining in Kenya: Location and technology
Management and exploration for minerals in Kenya
The coral reef and importance and use in Kenya

Week 7

Land Degradation and Improvement Methods

Improvement on/of:

- Erosion factors
- Desertification
- Agricultural practices
- Demographic factors

Week 8

Current Issue and Future Developmental Issues Related to Sustainable Use of Resources

Conventions and policies on land use

Depletion and degradation of resources

Management related issues

Health issues related to use of enmass production of biological foods: Breeding technology, use of hormones, etc.

Week 9

FINAL EXAMINATION

TEACHING METHODOLOGY

Instruction methods for the course include:

Lectures and demonstrations

Classroom discussions and presentations

Take away assignments, term paper and mid-quarter tests

Field trips to relevant sites

Video shows, where applicable

COURSE TEXT

1. Miller G.T. Jnr. (1997). *Living in the Environment. Principles, connections & solutions.* 10th ed. Wadsworth Publishing company

SUGGESTED READINGS

Watt, K.E.F., *Principles of Environmental Science* (New York: McGraw-Hill, 1973)

Colivaux, P.A., *Introduction to Ecology*(New York: John Wiley & Sons, 1973).

Standby, S.M., *Earth and Life through time* (New York: W.H. Freeman & Co., 1977)

Pomeray, D. and Service, M.W., *Tropical Ecology* (New York: Longman Inc., 1986)

Clark, J.R., *Coastal Ecosystem Management* (New York: John Wiley & Sons Ltd., 1977):

COURSE EVALUATION

Class attendance	10%
Group Discussions	15%
Assignment	10%

Mid-quarter Exam	25%
Final	25%
Term Paper	15%

GRADING

90	-	100	A
87	-	89	A-
84	-	86	B+
81	-	83	B
78	-	80	B-
74	-	77	C+
71	-	73	C
68	-	70	C-
65	-	67	D+
64	-	62	D
59	-	61	D-
Below 59		F	