

GEOG. 204 ENVIRONMENTAL GEOGRAPHY

Course Brief:

Environmental Geography, one of the most traditional parts of the discipline of Geography, encompasses natural science, social science, and humanistic understandings of the Earth's environment. Environmental Geographers study the complex relationships between humans and the natural environment over time and through space.

Course Learning Objectives:

This course will provide a historical, geographical, and humanistic foundation for understanding the environment and the plethora of environmental issues that confront us at the beginning of this century. It is a major aim of this course to produce environmentally aware students and to equip them with skills to enable them to become future decision-makers on environmental matters in whatever field they wish to pursue in the future. By studying this course students will be able to recognize what the issues are, and to view them from a geographic perspective. They will recognize the responsibilities they have in relation to other people, the environment, and sustainability, and there will be opportunities to initiate personal action.

Course Contents:

I. Introduction

- i. Scope of the subject
- ii. Its importance, nature of environments
- iii. Principles of Ecosystems
- iv. The Structure of Ecosystems
- v. Ecosystem Functions
- vi. Photosynthesis and Respiration
- vii. Environmental Problems and the Principles of Ecology

II. Energy in the Ecosystems

- iii. Energy and Entropy
- iv. The Earth's Energy Budget
- v. Ecosystem energy Budgets
- vi. Energy Flow through the Ecosystem

III. Material Cycles

- i. Chemicals in Ecosphere
- ii. The Hydrological Cycle
- iii. The Atmosphere Cycles
- iv. Lithospheric Cycles
- v. Nutrient Cycles

IV. Energy: Sources and Uses

- i. Energy Sources
- ii. Major Categories of Energy Users
- iii. Energy Alternatives for the Future: Petroleum, Natural Gas, Solar Energy, Atomic Energy,
- iv. Hydroelectric Power, Geothermal energy, Other sources of Energy

IV. Soil resources

- i. Soil characteristics
- ii. Soil and ground water
- iii. Recharge of ground water
- iv. Aeration
- v. Soil biota
- vi. Soil classification
- vii. Soil fertility and its renewal
- viii. Soil erosion
- ix. Use and misuse of soil management and conservation

V. Mineral and Water Resources

- i. Mineral Resources and Reserves
- ii. Water Resources:
- iii. Hydrological cycle
- iv. Conflicts in the uses of water by urban, rural, agricultural, power, industrial and recreational agencies
- v. Problems created by shortage/excess of water
- vi. Water pollution and water treatment by industries
- vii. Water conservation

VI. Water Pollution

- i. Types of Water Pollutants
 - ii. Sources of Water Pollution
 - iii. The Impact of Water Pollution on Human Health, Animals and Plants
- Water Pollution Control and Treatment

VII. Air Pollution and their Sources:

- i. The Properties of air Pollutants
- ii. The Sources of Air Pollution
- iii. The Factors of Air Pollution
- iv. The effects of Air Pollution on Human Health
- v. The Effects of Air Pollution on Material, Animals and Plants
- vi. The Effects of Air Pollution on Ecosystem
- vii. The Effects of Air Pollution on Climate

VIII. Land use and Land misuse

- i. Soil
- ii. Soil Conservation
- iii. Land as a Resource
- iv. Land Disposal of Waste: Solid waste, Hazardous waste, radioactive waste

IX. Noise Pollution:

- i. The Nature of Sound
- ii. Sources of Noise
- iii. The Effects of Noise

X. Major Biotic regions

- i. Tundra
- ii. Boreal forests
- iii. Deciduous forests

- iv. Grass lands and deserts
- v. Mediterranean
- vi. Tropical
- vii. Savannas
- viii. Temperate biotic regions

XI. Major Environmental hazards and Problems:

- i. Global Warming
- ii. Earthquake
- iii. Floods
- iv. Deforestation
- v. Population Growth
- vi. Soil Erosion
- vii. Environmental Pollution

Books Recommended:

- Briggs, D. & Courtney, F. 1989 Agriculture and Environment: The Physical Geography of temperate Agricultural Systems, Longman, Singapore
- Buchman, Harry O. The Nature and Properties of Soils, Macmillan New York.
- Bunting, B. T. 1967 The Geography of Soil Hutchinson University Library London.
- Cornelius T.T. & Harold Environmental Education, John Wiley.
- Eyre, S.R. 1968 Vegetation and Soils, Edward Arnold London.
- Hamm, R.L. & Nason, 1964 An Ecological Approach to Conservation, Minnesapolias: Burgess Publishing Co.
- Kuiper, E. 1965 Water Resources Development, Planning, Engineering and Economics, Butterworths, London.
- Kupchella, C. E. and Hyland, M. C. (1989): Environmental Science: Living Within the system of Nature, Prentice Hall, New Jersey.
- Miller, C.E. Fundamentals of Soil Sciences, 2nd ed. John Wiley New York.
- Nebl, B. J. 1999: Environmental Science, Prentice Hall, New Jersey.
- Nebl, B. J. & Wright, R. T. 1998: Environmental Science the Way the world Works, Prentice Hall, New Jersey.
- O'Hare, G. 1992: Soils, Vegetation, Ecosystems, Oliver & Boyd, London.
- Odum, Eugene P. Fundamentals of Ecology, Sauders London.
- Simmons I.G. The Ecology of Natural Resources, Edward Arnol.
- Trivedi, P. R. & Raj, G. 1992: Concepts in Environment, Akashdeep, New Delhi.
- Trudgill, S. T. 1977 Soil and Vegetation Systems: Clarendon Press Oxford.
- Wellburn, A. 1994: Air Pollution and Climate Change: The Biological Impact, Longman, Singapore.
- White, I. D., Mottershead & Harrison, S. J. 1992: Environmental System: An Introductory Text, Chapman & Hall, London.