

# ENVIRONMENTAL SCIENCES

(3+0 Cr. Hr)

## COURSE OBJECTIVES

The environmental science major prepares you for career success in natural resources and conservation, public health, environmental monitoring and remediation, industrial environmental management, or research or education of environmental science.

## COURSE CONTENTS:

### i. Introduction

- a. Basic Concept of Environment and Environmental sciences
- b. Concept of biodiversity
- c. Components of Environment
- d. Physical, Biological, Social, Chemical and other effects on environment
- e. Sports and Environment

### ii. Segments of Environment

- a. Atmosphere
- b. Hydrosphere
- c. Lithosphere
- d. Biosphere
- e. Mesosphere

### iii. Ecosystem

- a. Fundamental concept and characteristics of Ecosystem
- b. Abiotic and Biotic components of Ecosystem
- c. Trophic levels of ecosystem
- d. Natural resources
- e. Renewable and nonrenewable resources
- f. Finite nature of natural resource

### iv. Food and Food Sources

- a. Global food conditions
- b. Agricultural, animal husbandry and fishery
- c. Food resources in Pakistan
- d. Food chains and energy system
- e. Energy Pyramids
- f. Concept of food chain and food web

**v. Biodiversity**

- a. Concept of Biodiversity
- b. Importance of uneven distribution of biological wealth
- c. Biological diversity and future changes in climate
- d. Land and Landscape

**vi. Pollution and Environment**

- a. Basic concept of Pollution and Pollutants
- b. Types of Pollution and Pollutants
- c. Sources, causes, protective measures and solutions of Water, Soil, Air, Noise and other types of pollutants.

**vii. Environmental Ethics and Valued Education, Sustainable Development in Environment**

- a. Environmental issues and ethics
- b. Human health and Environment
- c. Sustainable development and Environment
- d. Eliminating threat to the global food security
- e. Controlling the degeneration of biodiversity

**viii. Environmental Sciences and Sports**

- a. Sports and segment of Environment
- b. Renewable and nonrenewable resources used in sports
- c. Finite nature of natural resource and its effects on sports
- d. Effects of sports on biodiversity
- e. Importance of uneven distribution of biological wealth and sports
- f. Biological diversity and future changes for sports
- g. Effects of sports on water, soil and air pollution
- h. Ethics and environmental issues regarding sports

**BOOKS RECOMMENDED**

1. Nieuwenhuijsen, M. J. (Ed.). (2015). *Exposure assessment in environmental epidemiology*. Oxford University Press, USA.
2. Lehmann, J., & Joseph, S. (Eds.). (2015). *Biochar for environmental management: science, technology and implementation*. Routledge.
3. Ong, C. K., Black, C., & Wilson, J. (Eds.). (2015). *Tree-crop interactions: agroforestry in a changing climate*. CABI.
4. Hudson, N. (2015). *Soil conservation: fully revised and updated*(No. Ed. 3). New India Publishing Agency.

5. Houlihan, B., & Malcolm, D. (Eds.). (2015). *Sport and society: a student introduction*. Sage.