

**Course Title: ENVIRONMENTAL SCIENCES**

**Code Number: HPE-316**

**Credit Hours: 03 hrs**

**Pre-Requisites course Requirement/Skills: Nil**

### **Objective of Course**

At the successful completion of this course students will be able:

- 1) To learn that 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**

#### **Unit-I Introduction**

- 1.1 Basic Concept of Environment and Environmental sciences
- 1.2 Concept of biodiversity
- 1.3 Components of Environment
- 1.4 Physical, Biological, Social, Chemical and other effects on environment
- 1.5 Sports and Environment

#### **Unit-II Segments of Environment**

- 2.1 Atmosphere
- 2.2 Hydrosphere
- 2.3 Lithosphere
- 2.4 Biosphere
- 2.5 Mesosphere

#### **Unit-III Ecosystem**

- 3.1 Fundamental concept and characteristics of Ecosystem
- 3.2 Abiotic and Biotic components of Ecosystem
- 3.3 Trophic levels of ecosystem
- 3.4 Natural resources
- 3.5 Renewable and nonrenewable resources
- 3.6 Finite nature of natural resource

#### **Unit-IV Food and Food Sources**

- 4.1 Global food conditions
- 4.2 Agricultural, animal husbandry and fishery
- 4.3 Food resources in Pakistan
- 4.4 Food chains and energy system
- 4.5 Energy Pyramids
- 4.6 Concept of food chain and food web

## **Unit-V Biodiversity**

- 5.1 Concept of Biodiversity
- 5.2 Importance of uneven distribution of biological wealth
- 5.3 Biological diversity and future changes in climate
- 5.4 Land and Landscape

## **Unit-VI Pollution and Environment**

- 6.1 Basic concept of Pollution and Pollutants
- 6.2 Types of Pollution and Pollutants
- 6.3 Sources, causes, protective measures and solutions of Water, Soil, Air, Noise and other types of pollutants.

## **Unit-VII Environmental Ethics and Valued Education, Sustainable Development in Environment**

- 7.1 Environmental issues and ethics
- 7.2 Human health and Environment
- 7.3 Sustainable development and Environment
- 7.4 Eliminating threat to the global food security
- 7.5 Controlling the degeneration of biodiversity

## **Unit-VIII Environmental Sciences and Sports**

- 8.1 Sports and segment of Environment
- 8.2 Renewable and nonrenewable resources used in sports
- 8.3 Finite nature of natural resource and its effects on sports
- 8.4 Effects of sports on biodiversity
- 8.5 Importance of uneven distribution of biological wealth and sports
- 8.6 Biological diversity and future changes for sports
- 8.7 Effects of sports on water, soil and air pollution
- 8.8 Ethics and environmental issues regarding sports

### **Teaching Learning strategies**

- a) Inquiry based learning
- b) Cooperative Learning
- c) Multimedia usage
- d) Concrete examples
- e) Think -Pair-Share

### **Assessment and Examination**

#	Elements	Weightage	Details
1	Theory Examination based Assessment	40%	It takes Place at the mid-point of the semester. It is mostly in the form of a test but owing to the nature of the course. The teacher may assess their students based on

			term paper, research proposal development, field work and report writing etc.
2	Formative Assessment	60%	It is continuous assessment. It includes classroom Participation, attendance, assignments and Presentations, homework, attitude, and behavior, hands on activities, short test, quizzes etc.

### Recommended Books

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.