

## **Course Code: ECON-427**

**Title: Environmental and Natural Resource Economics**

**Credit Hours: 03**

**Prerequisite: Intermediate Microeconomics, Intermediate Macroeconomics, Development Economics-I**

### **Course Objectives:**

According to Global Climate Risk Index (2019), Pakistan was the eighth most-affected country by extreme weather events for the period 1998-2017. At the same time, Pakistan's environment and natural resources are facing a lot of pressure from the country's significant population growth. Linkages between climate change, the ecology, natural resources and economic growth necessitate a careful analysis of how humans utilize natural resources—drawn from the ecological system—for economic production so that the rate of climate change can be mitigated, while also ensuring the conservation of the ecology as well as natural resources. This course will focus on using an economic perspective to carefully analyze the mentioned linkages. Some topics that will be covered include: climate change, resource and pollution management models, sustainable development and economic growth. Students will also be required to develop the expertise of conducting benefit/cost analysis using various methods, including Net Present Value (NPV).

### Learning Outcomes:

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

- what are the market failures where government have to intervene and play their roles.
- what are various methods of cost-benefit analysis and how government makes decisions regarding projects up take.

### Course Contents:

<b>Introduction</b>	What is environmental economics; review of microeconomics and welfare economics.
<b>Limitation of Market</b>	Excludable and rival goods, common pool resources and public goods
<b>The Theory of Externalities</b>	Pareto optimality and market failure in the presence of externalities; property rights and the Coase theorem.
<b>Valuing the Environment: Methods</b>	Introduction: theoretical aspects, Economic valuation of the environment: Methodologies and Applications
<b>Cost-Benefit Analysis and Other Decision Making Metrics</b>	Framework of BCA and its applications, Divergence of Social and Private Discount Rates, Cost-Effectiveness Analysis, Impact Analysis
<b>The Design and Implementation of Environmental Policy</b>	Overview; Pigouvian taxes and effluent fees; tradable permits; choice between taxes and quotas under uncertainty; selection of environmental policy instruments; implementation of environmental policy.
<b>International Environmental Problems</b>	Trans-boundary environmental problems; global pollution; economic significance of biodiversity; economics of climate change; trade and environment, dispute resolutions.
<b>Natural Resource Management</b>	Renewable resources, Non-renewable resources
<b>Measuring the Benefits of Environmental Improvements</b>	Non-Market values and measurement methods; risk assessment and perception. Incentive based solutions
<b>Contemporary Issues in Environmental Economics with</b>	Energy crisis, Water footprints, Forests, Fisheries, Economics of Pollution

<b>Reference to Pakistan</b>	
<b>Sustainable Development</b>	Concepts; Sustainability of Development, The Growth-Development Relationship measurement (conventional and alternative)

**Teaching Methodology:**

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

**Evaluation Criteria:**

<b>Evaluation Method</b>	
Quizzes/Assignments	
Mid-Term Exam	
Final-Term Exam	

**Recommended Books:**

- Tietenberg, Tom and Lynne Lewis. Environmental and Natural Resource Economics, (11th Edition). Publisher: Pearson Addison Wesley, 2018.
- David A. Anderson. (2014). Environmental Economics and Natural Resource Management”, Routledge, 4th Edition.
- Robert N. Stavins. (2005) Economics of the Environment: Selected Readings, W. W. Norton, 5th edition.
- Ian Wills. (2007). Economics and Environment; A signaling and incentive approach, 2nd edition.
- Thomas Sterner. (2003). Policy Instruments for Environmental and Natural Resource Management, Resource for the future.