



# ENVIRONMENTAL & RESOURCE ECONOMICS

## PROF. SABUJ KUMAR MANDAL

Department of Humanities and Social Sciences  
IIT Madras

**PRE-REQUISITES :** Principles of economics/microeconomics

**INTENDED AUDIENCE :** Anyone interested to understand the issues related environmental degradation and policy making

**INDUSTRIES APPLICABLE TO :** Manufacturing, Oil & Gas, Mining

## COURSE OUTLINE :

This course is designed to guide students through the frontier areas of environmental economics. We begin by studying interaction between economy and the environment. Then we try to understand the welfare implication of national income and discuss the issues of sustainable development. We examine the impact of economic growth on environmental degradation. The issues of externalities and methods to regulate externalities are discussed next. We then examine the impacts of uncertainty and information asymmetry on the choice of policy instruments for regulating externalities. We then try to understand the methods for economic valuation of environmental goods and services. We end the course by discussing the optimal extraction strategy for renewable and non-renewable resources. After successful completion of the course students will understand issues related to environmental degradation and optimal resource extraction. In an era of corporate social responsibility, this course will be highly useful in industry and academia.

## ABOUT INSTRUCTOR :

Prof. Sabuj Kumar Mandal is currently working as an Associate Professor in the Department of Humanities and Social Sciences, Indian Institute of Technology Madras (IITM), Chennai. He completed his B.Sc (Economics) from the Scottish Church College Kolkata (1999-2002) and M.Sc (Economics) from the University of Calcutta with a specialization in Econometrics. He completed his doctoral degree in economics from the Institute for Social and Economic Change, Bangalore. His teaching and research interests include Applied Econometrics, Energy and Environmental Economics (efficiency analysis), Adaptation to Climate Change, Environmental regulation and Firm Performance and Behavioral & Experimental Economics. He has several national and international publications in his credit. He was awarded Young Economist Award 2015 by the Indian Econometric Society for his contribution to quantitative economics. Recently, he has been awarded Fulbright Nehru Academic and Professional Excellence Award 2020-21 (research category) for conducting research in the area of „Community Based Adaptation to Climate Change,“ taking Southeast Florida Regional Climate Change Compact (SFRCC) as a model for analysis. He aims to develop an economic framework based on rational choice theory, to identify the motivating factors that determine private participation in community based adaptation (CBA) focusing on individuals,„ perception about climate risk, time preference and their adaptive capacity

## COURSE PLAN :

**Module 1:**Interaction between economy and the environment

**Module 2:**Welfare implication of national income and sustainable development

**Module 3:**Economic growth and environmental degradation: Environmental Kuznets Curve (EKC) hypothesis

**Module 4:**Externalities and market failure

**Module 5:**Incentive design

**Module 6:**Environmental regulation and competitiveness

**Module 7:**Environmental efficiency and cost of pollution control

**Module 8:**Theory and methods for environmental valuation

**Module 9:**Optimal extraction of renewable and non-renewable resources