

Course Syllabus

Lecture 1: Towards a New Climate Change Agreement

- Chapter 1: The Challenge of Human Induced Climate Change
- Chapter 2: The History of Climate Change Science
- Chapter 3: The UNFCCC
- Chapter 4: From Kyoto to Copenhagen
- Chapter 5: Towards COP21

Lecture 2: The Basics of Climate Change Science

- Chapter 1: The Earth's Energy Balance
- Chapter 2: The Greenhouse Gases and Feedbacks
- Chapter 3: The Relentless Ride of CO₂
- Chapter 4: Other Drivers of Climate Change
- Chapter 5: Recent History of Climate Change

Lecture 3: The 2-Degree Limit

- Chapter 1: The Business As Usual Trajectory
- Chapter 2: The Consequences of the BAU Trajectory
- Chapter 3: Limiting the Mean Surface Temperature Increase Below 2-Degrees Celsius vs. Pre-Industrial Levels
- Chapter 4: Debates Over the 2-Degree Celsius Limit

Lecture 4: The 2-Degree Carbon Budget

- Chapter 1: What is a Carbon Budget?
- Chapter 2: What is the Global Carbon Budget for the 2-Degree Limit?
- Chapter 3: What is the Global Emissions Reduction Pathway for the 2-Degree Limit?
- Chapter 4: How Does It Compare with the Potential Emissions from Fossil Fuel Reserves & Resources?

Lecture 5: The Deep Decarbonization of Energy Systems

- Chapter 1: What is an Energy System?
- Chapter 2: Energy-Related CO₂ Emissions Trends
- Chapter 3: The 3 Pillars of the Deep Decarbonization of Energy Systems
- Chapter 4: A Global Mitigation Scenario

Lecture 6: The Key Technological Challenges of Deep Decarbonization

- Chapter 1: The Need for Accelerated Development of Low-Carbon Technologies
- Chapter 2: Key Technology Areas for RDD&D
- Chapter 3: Grid Management of Power Systems with High Penetration of Renewable Energies
- Chapter 4: Carbon Capture & Sequestration

- Chapter 5: Advanced Nuclear Power
- Chapter 6: Electric Vehicles and Advanced Biofuels
- Chapter 7: The Role of Technology Roadmaps and Roundtables

Lecture 7: Deep Decarbonization Pathways: Country Case Studies

- Chapter 1: Why Countries Need Deep Decarbonization Pathways to 2050
- Chapter 2: The Deep Decarbonization Pathways Project
- Chapter 3: What We Learn From Countries' Deep Decarbonization Pathways
- Chapter 4: Lessons for the Global Agreement on Climate Change at COP21 in Paris in 2015

Lecture 8: Energy & Development

- Chapter 1: Energy & Poverty
- Chapter 2: A World Without Modern Energy
- Chapter 3: Energy for All in Africa
- Chapter 4: How Climate Change Threatens the Poorest of the Poor
- Chapter 5: Sustainable Energy for All

Lecture 9: Main Challenges of Climate Change Negotiations

- Chapter 1: Efficiency & Fairness
- Chapter 2: Basic Principles of a Global Agreement
- Chapter 3: What is Fair?
- Chapter 4: Making an Agreement Stick
- Chapter 5: Problem-Solving Versus Negotiating

Lecture 10: Towards a New Climate Agreement Based on 2-Degrees Celsius

- Chapter 1: The Three-Tiered Structure of Mitigation Commitments
- Chapter 2: Technology RDD&D
- Chapter 3: Climate Financing
- Chapter 4: Can Everybody Win? Should Everybody Win?
- Chapter 5: Achieving Large Global Goals