

TTTWWW 234234

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Course Outline

1. Climate Change and Global Warming

Weather & Climate; Climate Change; Global Warming; The Greenhouse Effect; Runaway Greenhouse Effect; Enhanced Greenhouse Effect; Indicators of Climate Change; Concentration Indicators; Weather Indicators; Biological & Physical Indicators; History of Climate Science; Breakdown of GHG emissions

2. Greenhouse Gases

Greenhouse Gases & Emission Sources; Radiative Forcing; Global Warming Potential (GWP); Carbon Dioxide; Methane; Nitrous Oxide; CFCs & HCFCs; Stratospheric Ozone Depletion; Montreal Protocol; UV Index; Carbon Cycle; Positive & Negative Feedbacks

3. Future Climate Change

Climate Change in the Past; The Milankovitch Theory; Climate Change in Future; Weather Forecasting; Climate Modeling; Emission Scenarios; IPCC RCP; IPCC Special Report on Global Warming of 1.5°C; Climate Projections for Türkiye

4. Impacts of Climate Change

Terrestrial Ecosystems; Marine (Ocean) Ecosystems; Freshwater Ecosystems; Water Cycle; Water Use; Agriculture & Climate; Food Supply; Human Health; Human Settlement & Infrastructure; Extreme Weather Events; IPCC Special Report on Climate Change and Land; IPCC Special Report on the Ocean and Cryosphere in a Changing Climate; Impacts on Biodiversity; Climate Change Impacts on Türkiye

5. International Conventions & Protocols

Formation of the Intergovernmental Panel on Climate Change (IPCC) and its functions; The UNFCCC; The Kyoto Protocol to the UNFCCC; The Paris Agreement; COP 31 Türkiye

6. Climate Change Mitigation & Adaptation

Mitigation Pathways; Carbon Capture & Storage (CCS); Disaster Risk Management (Early Warning); Agriculture & Forestry & Land Use; Food & Energy Security; Urban Planning for Climate Adaptation; Nature Based Solutions

7. Renewable Energy

Breakdown of Energy Sources; Fossil Fuels (Coal & Oil & Gas); Nuclear Power; Renewable Energy Sources (Biomass-Bioenergy; Wind; Geothermal; Solar-PV; Hydro; Ocean); Environmental Impacts of Renewable Energy Sources; Renewable Energy Sources of Türkiye

Course Materials

- Any relevant textbook from library
- Lecture notes@Moodle

Grading/Obligations

Midterm Exam: 40 % Date: TBA (in class)

Final Exam: 60 % Date: TBA

- It is obligatory to take the Midterm Exam in order to take the Final Exam.
- Academic dishonesty will not be tolerated.