



Syllabus

Introductory e-Course on Climate Change

$Q=0 \quad \Delta E = -W$
 $W=0 \quad \Delta E = Q$
 $\Delta E = 0 \quad Q = W$
 $Q=W=0 \quad \Delta E = 0 \quad \Delta T = 0$

$= \frac{3}{2} nRT$
 change

Multi slab
 $P_{cond} = \frac{A(T_u - T_l)}{\sum L/k}$



anastole
 Diotric
 Polytomic



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Background

Former UN-Secretary-General Ban Ki-moon has called climate change the “defining challenge of our time” and in many countries the impacts of it are already felt. At the same time, it is still very difficult for many people not working directly on the subject to understand the basics of climate change. For example, which gases are actually contributing to the greenhouse gas effect? What temperature change is projected for this century? How does the international climate change negotiation process work? What adaptation and mitigation options are available and how to select the most adequate ones? Where does the financing come from?

This free-of-charge e-learning course has been designed in order to provide answers to these and other basic questions about climate change. The course modules have been developed and peer-reviewed through UN CC:Learn, a partnership of more than 30 multilateral organizations which supports Member States in designing and implementing results-oriented and sustainable learning to address climate change (www.uncclearn.org).

Target Groups and Learning Objectives

The course provides clear, concise and up-to-date information for anybody interested in obtaining a general understanding about climate change. The course should be of particular interest to the following audiences:

- Civil servants in national ministries, provincial departments and local authorities;
- Environmental managers in private sector and civil society organizations;
- Faculty, researchers and students; and
- Interested citizens.

After completing the course, participants will be able to:

- Explain the fundamentals of climate change science.
- Present the international climate change legal and policy framework and explain key issues under negotiation.
- Describe the expected consequences of climate change and the role of adaptation.
- Provide a rationale for climate change mitigation and propose actions in key sectors.
- Identify main streams of climate change finance.
- Outline basic elements of planning processes to deliver climate change action.
- Analyse principal challenges and opportunities for climate change action.

Course Structure and Content

The course is structured around six basic modules.

Basic modules:

1. Climate Change Science
2. International Legal and Policy Framework for Climate Change
3. Climate Change Adaptation
4. Climate Change Mitigation
5. Climate Change Finance
6. Planning for Climate Change

Module 1: Introduction to Climate Change Science

Module 1 introduces the basics of climate change science. Section 1 provides an overview of key concepts such as climate, weather and the greenhouse gas effect. Section 2 looks at the human contribution to climate change and provides an overview of important greenhouse gases and their main sources. Section 3 describes some of the main observed changes in the climate since the industrial revolution. Section 4 presents projected future trends and impacts of climate change on surface temperature, precipitation, ocean pH, sea-level and Arctic sea-ice extent. The module concludes with an overview of main sources of scientific climate information, relevant programmes and institutions.

Learning Objectives

After completing Module 1, participants will be able to:

- Explain the basic concepts of climate change science.
- Identify the anthropogenic drivers of climate change.
- Explain observed and projected trends and impacts in the climate.
- Analyse different climate change scenarios and their implications.

Sections

1. Introduction to Climate Change Science
2. Anthropogenic Drivers of Climate Change
3. Observed Trends and Impacts of Climate Change
4. Projected Trends and Impacts of Climate Change
5. Sources of Scientific Data

Module 2: Introduction to the International Legal and Policy Framework to Address Climate Change

Module 2 provides an overview of how the international legal and policy framework to address climate change developed over time and points out some of the key issues under negotiation. Section 1 provides a brief history of international climate change negotiations and introduces the

United Nations Framework Convention on Climate Change (UNFCCC). Section 2 presents the key provisions of the UNFCCC, its organisational structure, and different Party groups under the Convention. Section 3 presents the Kyoto Protocol and its associated bodies, as well as key commitments by Parties. Section 4 provides an overview of main negotiation issues. Section 5 discusses how the negotiations have evolved over the past years (from a two-track to a one-track approach) and highlights some of the key issues relevant for a future climate change regime.

Learning Objectives

After completing Module 2, participants will be able to:

- Describe the main aims and provisions of the UNFCCC and its Kyoto Protocol.
- Identify the main organizations and bodies that operate under the UNFCCC and its Kyoto Protocol.
- Explain why the UNFCCC and its Kyoto Protocol are important to developed and developing countries.
- Analyse key points relevant for a post-2020 climate change regime.

Sections

1. The Climate Change Policy Framework
2. Provisions of the United Nations Framework Convention on Climate Change (UNFCCC)
3. The Kyoto Protocol
4. Main Issues and Negotiation Streams
5. Towards a Post-2020 Regime

Module 3: Introduction to Climate Change Adaptation

Module 3 introduces the concept of climate change adaptation, highlights ways to measure vulnerability, introduces examples of adaptation solutions and summarizes how to prepare a planned response. Section 1 provides key definitions and introduces some of the expected consequences of climate change on key sectors. Section 2 provides a framework for assessing climate vulnerability. Section 3 lists different adaptation measures that can be implemented for various vulnerable sectors. Section 4 provides a short introduction to linkages between climate change adaptation and development. Section 5 presents a number of important international adaptation initiatives and programmes.

Learning Objectives

After completing Module 3, participants will be able to:

- Explain the importance of adaptation in preparing for and coping with climate change.
- Outline key elements of a vulnerability assessment.
- Identify adaptation options.
- Analyse linkages between climate change adaptation and development planning.

Sections

1. Introduction to Climate Change Adaptation
2. Conducting a Vulnerability Assessment
3. Identifying and Selecting Adaptation Options
4. Linking Adaptation and Development Planning
5. International Initiatives to Support Climate Change Adaptation

Module 4: Introduction to Climate Change Mitigation

Module 4 introduces the political context to greenhouse gas emissions, who the key emitters are and what strategies can be applied to bring down emissions to safe levels. Section 1 provides key definitions of mitigation and presents an overview of emissions levels and mitigation targets per country. Section 2 explores ways to integrate mitigation into development planning, through low-emission development strategies. Section 3 identifies the main economic sectors where mitigation actions can be applied. Section 4 presents some of the key international mechanisms created to assist countries in planning and implementing mitigation actions.

Learning Objectives

After completing Module 4, participants will be able to:

- Explain the importance of climate change mitigation and low carbon development.
- Describe relevant policy approaches and strategic frameworks.
- Identify key sectors for low carbon development and outline relevant mitigation options.
- Define main international mechanisms to support climate change mitigation and low carbon development.

Sections

1. Introduction to Climate Change Mitigation and Low Carbon Development
2. Strategic Frameworks and Policy Approaches for Mitigation and Low Carbon Development
3. Sectors with High Mitigation Potential
4. International Initiatives to Support Climate Change Mitigation

Module 5: Introduction to Climate Change Finance

Module 5 provides the learner with an understanding of existing financing flows and future needs, as well as a basic typology of financing sources. Section 1 discusses the different meanings of the term climate finance. Section 2 presents national financing and the centrality of the national budget in leveraging other sources of finance, including private sector finance. Section 3 features the major streams of international climate finance.

Learning Objectives

After completing Module 5, participants will be able to:

- Describe the overall landscape of climate change finance sources.

- Identify main elements of national planning for climate finance.
- Define key elements of the international climate change finance architecture.
- Analyse challenges and opportunities for developing countries in terms of accessing and managing climate finance.

Sections

1. Introduction to Climate Change Finance
2. National Climate Change Finance
3. International Climate Change Finance

Module 6: Introduction to Planning for Climate Change

Module 6 provides an overview of planning processes for climate change. Section 1 provides an overview of different dimensions and entry points for climate change planning. Sections 2 and 3 examine the roles of national and sectoral, as well as sub-national institutions in climate change planning. Section 4 explains a five-step methodology for preparing a low-emission climate-resilient development strategy. Section 5 presents some of the main international initiatives to support climate change planning.

Learning Objectives

After completing Module 6, participants will be able to:

- Explain why it is important to integrate climate change into planning processes in a country.
- Explain the roles of national, sub-national and local institutions in planning for climate change.
- Analyse the main elements of a recognised climate change planning methodology.
- Identify international initiatives which support countries to plan for climate change.

Sections

1. Introduction to Climate Change Planning
2. The Role of National and Sectoral Institutions in Climate Change Planning
3. The Role of Sub-National Institutions in Climate Change Planning
4. A Methodology for Climate Change Planning
5. International Initiatives to Support Climate Change Planning

Methodology, Certification and Feedback

The course is self-paced and not moderated. It has been divided into six modules to help reach the overall learning objectives. The modules are self-standing and can be completed in any order. However, to receive a certificate of completion, at least the 6 Modules with general character must be completed and the associated quizzes successfully passed.

Each module contains an interactive lesson and a quiz.

The *interactive lessons* are provided with the purpose of achieving the 4 to 5 specific learning objectives of each module, and contain 40-70 slides of content supported by case studies, videos, external links and exercises. The lessons take around 2-3 hours to complete. All modules are also available as downloadable power point presentations that can be used for offline study or for training purposes. The modules also contain a wealth of links to other resources on climate change and are thus a gateway to more in depth and specific information. A glossary provides definitions of relevant concepts and technical terms.

The *quizzes* can be completed at any time. They assess the achievement of the learning objectives for each module. Each quiz can be attempted a maximum of three times. Once the six quizzes for the basic modules are passed with at least 70% each, the learner can download a certificate of completion from the course home page.

Participants will be requested to provide feedback on the course by filling a feedback form which can be accessed in the 'Certificate and Course Evaluation' section on the course home page.

Technical Requirements

Browser:

- The course works best with Firefox 3.6 or higher (download for free at <http://www.mozilla-europe.org/en/firefox>).
- The course is also compatible with Google Chrome (download for free at <https://www.google.com/intl/en/chrome/browser/>).
- For technical reasons, it is not recommended to use Internet Explorer.
- Note JavaScript & Cookies must be enabled.

Software:

- Adobe Acrobat Reader (download for free at <http://www.adobe.com/products/acrobat/readstep2.html>).
- Adobe Flash Player (download for free at <http://get.adobe.com/flashplayer>).
- Microsoft Office (Windows or Apple version) or Open Office (download for free at <http://www.openoffice.org>).

Platform: Windows 95, 98, 2000, NT, ME, XP or superior; MacOS 9 or MacOS X

Hardware: 64 MB of RAM, 1 GB of free disk space

Modem: 56 K

Key References

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- UNFCCC (2006). [UNFCCC Handbook.](#)
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- World Bank Report (2012). [Turn Down the Heat.](#)
- World Meteorological Organization (2012). [Greenhouse Gas Bulletins.](#)

About UN CC:Learn

UN CC:Learn is a partnership of more than 30 multilateral organizations supporting countries to design and implement systematic, recurrent and results-oriented climate change learning. At the global level, the partnership supports knowledge-sharing, promotes the development of common climate change learning materials, and coordinates learning interventions through a collaboration of UN agencies and other partners. At the national level, UN CC:Learn supports countries in developing and implementing national climate change learning strategies. Through its engagement at the national and global levels, UN CC:Learn contributes to the implementation of Article 6 of the UNFCCC on training, education and public awareness-raising, and the 2012-2020 Doha Work Programme. Funding for UN CC:Learn is provided by the [Swiss Government](#) and UN partners. The Secretariat for UN CC:Learn is hosted by the UN Institute for Training and Research ([UNITAR](#)).

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