

Climat: sciences et politiques

Lecturers

Frank PATTYN (Coordinator) and Julien VANDEBURIE

Course mnemonic

ENVI-F405

ECTS credits

5 credits

Language(s) of instruction

French

Course period

Second term

Course content

This course is designed as an introduction for a large audience on the fundamentals, impacts and potential remediation mechanisms to Climate Changes. The part taught by Jean-Louis Tison essentially deals with the scientific bases underlying Climate Changes. A first chapter recalls the basic components of the Earth System and its Climate, with special focus on the role of the energy balance at the Earth surface. Chapter 2 deals with the natural variability of the Climate at various time scales and briefly introduces the set of archives that we can use to reconstruct it, with special focus on the specificity and wealth of the cryospheric archives. In Chapter 3, the Climate System is described, showing the tight interactions between the astronomical forcing and the Earth System feedbacks. Attention is drawn in chapter 4 on recent Climate changes (last centuries, a period that is now often referred to as the Anthropocene. Finally, a fifth chapter gives us a vision into the near future following the predictions of the IPCC (Intergovernmental Panel on Climate Change), within the context of the present-day "hot topic" of the potential anthropic origin of Climate Changes

Objectives (and/or specific learning outcomes)

To give the necessary basic understanding for a clear perception of the present-day problematics of recent climate changes and the potential responsibility of Mankind therein

Teaching method and learning activities

Powerpoint presentation, available for the students on the intranet

Evaluation method(s)

written examination

Evaluation method(s) (additional information)

Written exam

Programmes

Programmes proposing this course at the faculty of Sciences

MA-ENVI | **Master in Environmental Science and Management** | finalité Management of the environment/unit 1 and finalité Environmental Science/unit 1, MA-GEOG | **Master in Geography : General** | finalité Teaching/unit 1, finalité Teaching/unit 2 and finalité territorial Development/unit 2, MA-GEOL | **Master in Geology** | finalité Research - 1st year/unit 1 and finalité Research - 1st year/unit 2 and MA-IRBE | **Master in Environmental Bioengineering** | finalité Professional/unit 1 and finalité Professional/unit 2

Programmes proposing this course at the Brussels School of Engineering

MA-IRAR | **Master of science in Architecture and Engineering** | finalité Professional/unit 2, MA-IRBE | **Master in Environmental Bioengineering** | finalité Professional/unit 1 and finalité Professional/unit 2, MA-IRCB | **Master of science in Biomedical Engineering** | finalité Professional/unit 2, MA-IRCN | **Master of science in Civil Engineering** | finalité Professional/unit 2, MA-IREL | **Master of science in Electrical Engineering** | finalité electronics and information technologies/unit 2, MA-IREM | **Master of science in Electromechanical Engineering** | finalité Professional/unit 2 and finalité Operations engineering and management/unit 2, MA-IRIF | **Master of science in Computer Science and Engineering** | finalité Professional/unit 2, MA-IRMA | **Master of Science in Chemical and Materials Engineering** | finalité Professional/unit 2 and MA-IRPH | **Master of science in Physical Engineering** | finalité Professional/unit 2