

Marco Gaetani, Senior Researcher in Meteorology and Climatology

Course: Introduction to climate dynamics

Department: Technology and Society Sciences

Field: Science and Technology

Period: Semester I

Duration: 25 hours

Program

The theme of climate change and its present and future consequences has become a daily reality in the field of physical, natural, economic and social sciences, as well as in the political debate. The climate system is a set of complex interactions involving atmosphere, ocean, ice, land surface and biosphere: the knowledge of the dynamics of these interactions is crucial in understanding the implications of climate change and predicting its impact. The purpose of this course is to provide students with the minimum tools to interpret the knowledge produced and disseminated by the scientific community on climate change and adapt it to their respective scientific field.

The course will cover:

- 1) the main dynamic processes of the climate system;
- 2) the main features of global climate variability;
- 3) the main instruments of observation, analysis and climate forecasting.

During the course, scientific articles and climatic events of particular interest and relevance will be discussed in detail. A specific seminar will be dedicated to the discussion of the latest IPCC report on the current state of the climate and the projections for the future.

The course is open to students in the 4th year of the Technology and Society Sciences Department, in the field of Science and Technology. Upon request, students of other academic fields or years of course who have a specific interest in the topic of climate dynamics and basic knowledge in statistics, mathematical analysis and thermodynamics can also attend it.

The course material is in English; lessons will be held in Italian or English if requested.

Bibliography

J.D. Neelin, 2011: Climate change and climate modelling

D. Archer: Global Warming, Understanding the Forecast. Wiley, 2011, ASIN B00M3UMKGC

P. Peixoto & A.H. Oort: Physics of Climate, AIP & Springer Verlag, 1992, ISBN 0 88318-712-4

Lectures

The course has a duration of 25 hours and will take place from November 14th to December 17th 2019.

Schedule

November 13, 2019: 18-20

November 14, 2019: 18-20

November 15, 2019: 17-20

November 28, 2019: 18-20

November 29, 2019: 18-20

November 30, 2019: 10-13

December 3, 2019: 18-20

December 13, 2019: 18-20

December 19, 2019: 18-20

December 20, 2019: 17-20

Exams

First appeal 14 January 2020

Second appeal 11 February 2020