



**Syllabus**

**Plants and environment**

**6 CFU**

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## Course Description

Our planet is quickly changing. Also climate is changing. In the last decades, the human population has been growing up and its require of energy, food and space has been increasing. Can plants help us? How?

The course will deal with the relation between climate, plants and man. The risk and the consequence due to climate changes on vegetation and flora.

The IPCC report and the Document on Care of our common house will be used for the course.

According to the recent guidelines of WHO, also air quality in urban area will be considered.

Which impact on human health? How to mitigate effects of air pollution and climate change in urban environment?

Possible strategies and innovative methodologies and policy. To provide students a common knowledge of the biological life dynamics and relationship with human presence on earth.

Aspects related to environmental global governance will include:

- the UN-FCCC (UN Framework Convention on Climate Change) and the Paris Agreement: origins and evolution of the global convention on climate change; the COPs and SBSTTAs; major features and differences of the Kyoto Protocol and the Paris Agreement (COP21); the conclusions of COP25 (Santiago-Madrid); the preparation of COP26 (Glasgow-Milan); major policy issues at stake; the Italian National Plan for Energy and Climate;
- the UN-CBD (UN Convention on Biological Diversity) and the Aichi Targets: origins and evolution of the CBD; COPs and SBSTTAs; the prospects of the 2021 COP Beijing; how to measure biodiversity, how to define targets and indicators; scaling-up finance for biodiversity; major policy issues at stake;
- the UN Agenda 2030 and its 17 SDGs (Sustainable Development Goals): from growth and development to sustainable development; the 1992 Rio Summit and the 2012 Rio+20 Summit; integrating environment in the global and national agendas; the Italian Strategy for Sustainable Development;
- the concept and the attempts to measure Natural Capital and Ecosystems Services: the 4th Capital (the forgotten Capital); the Natural Capital Coalition; the World Bank Waves project (measuring Wealth Accounting and the Valuation of Ecosystem Services); the UK and Italy Natural Capital Committees and Reports; attempts to integrate Natural Capital and Ecosystems Services into public and private accounts and decision-making;
- economic and market-based instruments for supporting environmental and sustainable development policy: regulatory vs. voluntary vs. economic instruments; economic instruments (taxes, tariffs, subsidies and creation of markets); ecological fiscal reform; economic vs. environmental assessment instruments; global governance and economic instruments;
- going Beyond GDP, the Club of Rome's Limits to Growth and the Rockstroem's Planetary Boundaries: nature, limits and strengths of GDP; attempts to replace and integrate GDP with other indicators; the Stiglitz-Sen-Fitoussi Commission on the measurement of Welfare and Progress; making convergence in Italy between indicators for SDGs, BES, BES in DEF, National Strategy for Sustainable Development;

- the original American New Deal (1929 crisis) and the European Green New Deal; relations between green deal, green economy, green growth, circular economy and sustainable development;
- Green and Sustainable Finance: the international network of Financial Centres for Sustainability (FC4S), the European Strategy, the taxonomy for sustainable investments, green bonds, disclosure in company accounts.

## Teaching Method

The course will be carried out through lectures and power point presentations. Students will prepare short presentations on different topics. Each presentation, in class will be followed by discussion. Two or more field trips are planned in innovative farms.

## Schedule of Topics

<b>Topic 1</b>	Climate on Earth (2 hours)
<b>Topic 2</b>	Distribution of climate on Earth: causes of distribution (3 hours)
<b>Topic 3</b>	Tropical evergreen forest, tropical deciduous forest, Desert and barren (3 hours)
<b>Topic 4</b>	Temperate evergreen forest, mixed wood (3 hours)
<b>Topic 5</b>	Boreal wood, grassland and steppe Tundra (3 hours)
<b>Topic 6</b>	Urban environments (2 hours)
<b>Topic 7</b>	Air quality in urban area: type and measures of air pollutants (2 hours)
<b>Topic 8</b>	Climate change effects on environment; innovative agriculture (12 hours, off-campus class)
<b>Topic 9</b>	The UN-FCCC (UN Framework Convention on Climate Change) and the Paris Agreement (2 hours)
<b>Topic 10</b>	The UN-CBD (UN Convention on Biological Diversity) and the Aichi Targets (3 hours)
<b>Topic 11</b>	The UN Agenda 2030 and its 17 SDGs (Sustainable Development Goals) (2 hours)
<b>Topic 12</b>	The concept and the attempts to measure Natural Capital and Ecosystems Services (3 hours)
<b>Topic 13</b>	Economic and market-based instruments for supporting environmental and sustainable development policy (2 hours)
<b>Topic 14</b>	Going Beyond GDP, the Club of Rome's Limits to Growth and the Rockstroem's Planetary Boundaries (2 hours)
<b>Topic 15</b>	The original American New Deal (1929 crisis) and the European Green New Deal (1 hour) –
<b>Topic 16</b>	Green and Sustainable Finance (1 hour)

## Textbook and Materials

For Topics 1-8:

Hand-outs, report and scientific papers will be distributed.

Readings from web:

- <http://www.ipcc.ch/index.htm>

- <http://www.climatescienceandpolicy.eu>

For Topics 9-16: Anders Wijkman e Johan Rockström (2012), “Bankrupting Nature: Denying Our Planetary Boundaries - A Report to the Club of Rome”, Earthscan-Routledge; available also in Italian: Anders Wijkman e Johan Rockström (2014), “Natura in bancarotta: Perché rispettare i limiti del pianeta - Rapporto al Club di Roma”, Edizioni Ambiente.

## Assessment

The exam for topics 1-8 consists of a final written test. In addition, each student will prepare a powerpoint presentation on topics chosen with the teacher. The written exam consists of multiple choice questions and will also contain questions about the articles presented.

The marks of the written test weigh 60% and the presentation weighs 40% of the final mark.

For topics 9-16, a single written test of multiple choice questions will be held.

The final evaluation will be the sum of the different marks obtained in the various tests and presentations, with the weight for topics 1-8 equal to 70% and the weight for topics 9-16 equal to 30%.

**Please be aware: students can reject ONLY the final grade of the average of the 2 exams. If they do that, they will have to retake in the second round (appello) BOTH exams. This second exam will also be available for non-attending students and students who failed the exam (total grade, made of the average, below 18).**

Non-attending students (students with less than 80% attendance in the classroom) will be assessed 100% on a final written test (multiple choice questions and open questions on articles chosen by the teacher).

### Office hours

Monday 4-5:30 PM

Dept. of Biology, Via della Ricerca scientifica 1, Rome

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**NOTE:** Erasmus or non-Global Governance students who would like to attend one or more courses and take one or more exams need to contact the Secretariat of Global Governance by e-mail [global.governance@uniroma2.it](mailto:global.governance@uniroma2.it) for registration and inform the Professor of the course. They are required to sign a code of conduct like all Global Governance students, accepting all values and rules. Please read it carefully before enrolling.

Notice that attendance is required from the very first lesson and you need to attend at least 80% of the course to be considered an attending student.

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