Laurea / B.A.
in Global Governance

Academic Year 2025-2026 Syllabus
Plants and Environment
6 CFU
Prof. Alessandro Travaglini & Prof. Aldo Ravazzi Douvan

Course Description

Scientific part

Our planet is changing rapidly. The climate is also changing. In recent decades, the human population has grown and its demand for energy, food and space has increased. Can plants help us? How? This course addresses the relationship between climate, plants and humans and the risks and consequences of climate change on vegetation and flora.

Brief history of the Earth's climate and the spread of plant species

According to recent WHO guidelines, air quality in urban areas will also be considered.

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

Some interesting recent case studies will be discussed. Possible strategies, methodologies and innovative policies. To provide students with a common understanding of the dynamics of biological life and the relationship with the human presence on earth.

Environmental global governance part

Issues that will be introduced: UN Agenda 2030 and its 17 Sustainable Development Goals; Climate and Biodiversity UN Conventions; Natural Capital and Ecosystems Services; going beyond GDP, Limits to Growth and Planetary Boundaries; economic and market-based instruments; the European Green Deal and National Resilience & Recovery Plans, the American IRA

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 of (and differences between) the Kyoto Protocol and the Paris Agreement (COP21); the conclusions of 2025 COP30-Amazonia (Belem, Brazil); major policy issues at stake; Italian policies for Energy and Climate;
- the UN-CBD (UN Convention on Biological Diversity), the Aichi Targets and the new GBF (Global Biodiversity Framework): origins and evolution of the CBD; COPs and SBSTTAs; the preparation of 2026 COP16 Yerevan (Armenia); 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; state of advancement half the way; 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 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, EHS, FFS, BHS; economic vs. environmental assessment instruments; carbon taxes, ETS, CBAM; 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; the Italian post-pandemic NRPP (National Recovery & Resilience Plan); the EU Fit-for-55 and the recent evolutions (e.g. "omnibus package"); the American IRA (Inflation Reduction Act) and recent new administration's measures;
- Green and Sustainable Finance: the European Strategy, the taxonomy for sustainable investments, green bonds, disclosure in company accounts (Non-Financial and Corporate Sustainability Reporting - EU NFRD and CSRD).

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. One field trip is planned - financial resources allowing - in innovative farms.

Schedule of Topics

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

Textbook and Materials

For Topics 1-8:
Hand-outs, reports and scientific papers will be distributed.
Readings from web:
- http://www.ipcc.ch/index.htm
- http://www.climatescienceandpolicy.eu
Suggested reading: Wolfgang Behringer (2009) "A Cultural History of Climate". Polity.

For Topics 9-16:

A) Anders Wijkman e Johan Rockström (2012), "Bankrupting Nature: Denying Our Planetary BoundariesA 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.

and one of the following:

B) Claude Henry, Johan Rockström, Nicholas Stern (eds.) (2020), "Standing up for a sustainable world", Elgar. (for students with more interest in sustainable development and projects).
C) Partha Dasgupta (2021). "The economics of biodiversity - The Dasgupta Review". London: HM Treasury. (for students with more interest in nature and natural capital).
D) Gianfranco Bologna (Nov. 2023, 2nd edition). "Noi siamo natura". Milano: Edizioni Ambiente. (for students with more interest in sustainability and science).
E) Jos Delbeke (ed.) (2024). "Delivering a Climate Neutral Europe". Earthscan Routledge. (for students with more interest in climate's institutional and European issues).
F) Paul Ekins (2024). "Stopping Climate Change: Policies for Real Zero". Earthscan Routledge. (for students with more interest in climate's economic and global issues).
G) William Nordhaus (2021), "The Spirit of Green. The Economics of Collisions and Contagions in a Crowded World". Princeton University Press. (for students with more interest in American issues).

Exam Rules

Module 1 (Travaglini) = The exam for topics 1-8 consists of a final written test. In addition, each student will prepare a PowerPointpresentation on topics chosen by the teacher. The written exam consists of multiple choice questions andwill also contain questions about the articles presented. The marks of the written test weigh 60% and the presentation weighs 40% of the final mark.

Module 2 (Ravazzi) = 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 theydo that, they will have to retake in the second round (appello) BOTH exams.

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) comprising both modules.

Note that the first round of the session for this exam will take place during midterm week, and the first round is available to both attending and non-attending students.

Office hours
Monday 4-5:30 PM
Dept. of Biology, Via della Ricerca scientifica 1, Rome

E-mail

Alessandro.Travaglini@uniroma2.it
Ravazzi.Douvan@economia.uniroma2.it

NOTE: If you are an Erasmus or a non-Global Governance student who would like to attend one or more courses in the Global Governance programme, please be aware that, before enrolling in the course, you should have read the code of conduct and the procedural rules characterizing our programme. We assume that, if you enrol in the course, you have read and accepted all Global Governance values and rules. Notice that attendance is expected from the very first lesson and you need to attend at least 80% of the course to be considered an attending student.

Description of the methods and criteria for testing learning

The examination assesses the student's overall preparation, ability to integrate the knowledge of the different parts of the program, consequentiality of reasoning, analytical ability and clarity of presentation, in accordance with the Dublin descriptors (1. knowledge and understanding; 2. applying knowledge and understanding; 3. making judgements; 4. learning skills; 5. communication skills).

The examination will be graded according to the following criteria:

Unsuitable: important deficiencies and/or inaccuracies in the knowledge and understanding of the topics; the topics are exposed in an incoherent manner and with inappropriate language.

18-20: barely sufficient knowledge and understanding of most of the topics, with some missing items; sufficient capacity for analysis; the topics are sometimes exposed in an inconsistent manner and with inappropriate/technical language;

21-23: basic knowledge and understanding of most of the topics; ability to analyze and synthesize correctly with sufficiently coherent logical argumentation, with possibly some inaccuracy in the technical language.

24-26: good knowledge and understanding of most of the topics; good analytical and synthetic skills with rigorously expressed arguments, though with possibly a few inaccuracies in the technical language.

27-29: complete knowledge and understanding of the topics; good capacity for analysis and synthesis. Arguments presented in a rigorous manner and with appropriate/technical language, with only minor inaccuracies.

30-30L: very good level of knowledge and thorough understanding of topics. Excellent analytical and synthetic skills and independent judgement. Arguments expressed in an original manner and in appropriate technical language.