Program on

Interdisciplinary Approaches to Climate Change for a Sustainable Growth (IACC)

A.Y. 2021-2022

Partners

In global partnership with:
- African Procurement Law Unit, Stellenbosch University, South Africa;
- Centro Studi Americani;
- Global Network for the Study of Human Rights and the Environment;
- Istituto Affari Internazionali;
- Kleinman Center for Energy Policy of the Weitzman School of Design, University of Pennsylvania;
- Seattle University.

With the Cooperation of:
- Center for Law, Energy and the Environment (CLEE), University of California, Berkeley, School of law.

Frontal lessons with the Professors of the Master

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Study Plan

1-year program (March 2022 – December 2022)

500h of frontal lessons with the Professors of the Master + 150h of internship + final thesis

Courses in detail

1) **Introduction to climate change and sustainability (50h) - 4 modules**

   a) **Introduction to climate change and sustainability (5h)**

   **Instructor:**
   Sara Valaguzza, University of Milan

   **Contents:**
   The initial moment of the Master is thought as a kick-off and get-together moment of presentation and interaction. Students will be introduced to each other, to organizers and to members of the faculty. The didactic modules, the professors, the teaching methods, the internship opportunities and the evaluation system will be presented. The Coordinator of the Master will explain the philosophy that lays beneath the program and its origination. Contacts and useful information will be provided and questions from the students on the organization of the program will be answered.

   b) **Climate change and sustainability communication (15h)**

   **Instructor:**
   Gianluca Schinaia FpS Lab

   **Contents:**
   This course will analyze how ideological bias plays a significant role in polarizing public debates on climate change policies. Urgent demands for global warming and sustainable development actions have become very popular among young people, international institutions, the scientific community and public opinion. On the other hand, the right-wing
Ideology has endorsed the ideas of the climate denial countermovement worldwide, claiming to protect low and middle-class workers of Western countries, weakened by a protracted economic crisis. Ideological beliefs create disagreement on the perception of and the solutions to tackle the climate crisis. Disagreement causes mistrust of scientific data regarding climate change. So, the ideological clash between left and right-wing parties on the significance of global warming and its impacts and remedies reduces the solutions to tackle the climate crisis.

Specifically, the course presents how sustainable development issues have been pushed forward by entities traditionally far away from the conservative electorate. Furthermore, how the right-wing ideology has endorsed the ideas of the climate denial countermovement worldwide, focusing on western countries. Finally, the communication problems and solutions to rise climate crisis awareness.

c) Geo-politics of climate change (15h)

Instructors:
Agostino Inguscio, Italian Prime Minister’s Office (7 h)
Elisabetta Vignati, European Commission Joint Research Centre (8 h)

Contents:
Climate change has massive geopolitical implications, requiring immediate extended and collaborative actions. In this course, the analysis of the theoretical issues related to climate change will be carried out through the clarification of the roles, responsibilities and relationships of the principal private and public actors of the geopolitical arena.

d) Ethics of climate change (15h)

Instructors:
Silvia Zorzetto – University of Milan

Contents:
The issue on how to modify lifestyles to fight climate change poses serious ethical dilemmas, as it involves responsible choices of fairness towards individuals, nations, new generations and the environment at large.
In this course, a deep ethical reflection on the relationship between societies and the environment will be carried out, analyzing the theories of deep ecology, de-crease and nature-based solutions and discussing their implications on policies and every-day lives. Lastly, the effective management of the so-called “commons” will be presented, including the social, economic as well as ecological dimensions.

2) The scientific basis of climate change (110h) - 5 Modules

The course will deal with the main effects of climate change, by providing scientific evidence and discussion on four main ambits of analysis: glaciers, oceans, animals and forests.

a) Geology of climate change (30h)
Instructors:
Guglielmina Diolaiuti, University of Milan (12h)
Maurizio Maugeri, University of Milan (13h)
Marco Masetti, University of Milan (5h)

Contents:
Climate change is investigated by physics and geologists to better understand its causes and
to prevent its negative effects on the environment and on the living communities.
Environmental geology can be instrumental in this, as the geologic knowledge supports
problem solving, helps in minimizing the environmental degradation and allows to optimize
the use of resources for the maximization of the environmental benefits.
The module will be concluded with a final on-site visit of a glacier.

b) Climate change impact on oceans and coasts (20h)

Instructor:
Felice D’Alessandro, University of Milan

Contents:
The rising of the oceans and the subsequent impacts on coastal areas are a pivotal challenge
that governments around the world will have to face in the near future. In this module,
environmental engineers and oceanologists will discuss how the seas (and consequently the
coastal areas) will change as a consequence of the rising of the Earth’s temperatures.

c) Climate change impact on biodiversity (20h)

Instructors:
Marco Parolini – University of Milan (13 h)
Maurizio Ambrosini – University of Milan (7 h)

Contents:
Climate change strongly affects life on earth as we know it and is regarded to be the current
main driver of biodiversity loss on the Planet. In this module, zoologists will discuss the
main causes of biodiversity loss, its potential consequences and the most advanced
techniques that can be put in practice to preserve natural ecosystems.

d) Climate change, forestry and desertification (20h)

Instructors:
Maurizio Ambrosini – University of Milan (7 h)
Diego Rubolini – University of Milan (13 h)

Contents:
The lack of water, also accompanied by the human massive destruction of forests, brings
about dire consequences in terms of the mutating climate, exposing entire populations to
suffer extreme consequences. In this module, botanists and forest experts will deal with the
problems of saving the “green lungs” of our Planet - also considering their key role as “sinks” - setting forth a sound approach to the conservation of our most sacred resources.

e) Climate change, agriculture and food security (20h)

Instructors:
Alessandro Olper, University of Milan (10h)
Daniele Curzi, University of Milan (10h)

Contents: University of Milan
Agriculture is the sector of the economy mostly affected by climate change with important implications for global food security, trade and migration issues. The first aims of this module is to deal with the economic impacts of climate change in the agricultural sector, considering both global (macro) and local (micro) analyses. The economic implications from global and local economic analyses, will represent the starting point to introduce more complex phenomena related to: i. food security issues in developing countries and related policy; ii. the interaction between climate change impacts and international trade; iii. climate refugees, namely the emerging issue that link climate change, agriculture and migrations.

3) From science to policies: back and forward (20h) - 1 Module

Instructors:
Sara Valaguzza, University of Milan

Contents:
The module will investigate the relationship between science and politics, focusing on the characteristics of this complex relationship in the debate regarding climate change. The objective of the course is to reassess the role of science concerning politics, given that the relationship between the two has often been misunderstood.
Moving from the analysis of the different nature of politics and science, the responsibilities of politics to balance both the public and private interests of a specific community will be pointed out and discussed in relation to the democratic principle.
Moreover, it will be highlighted how politics has a duty towards the society to engage with the scientific community and to motivate, in terms of public interest, the decisions taken.

4) Policies and regulations (120h) - 5 Modules

In this section of the course, the principal policies and regulatory instruments currently in place to address climate change will be presented and discussed, with a special focus on the European and American dimension.
The module will involve both a reasoning on the regulatory techniques and the contents of the measures thus far implemented.

a) Carbon pricing (30h)

Instructors:
Marzio Galeotti, University of Milan (20 h)
Contents:
This module deals with different economic policy instruments to fight climate change (green taxes, pollution charges, targeted subsidies, tradable permits, liability rules, bonds, and deposit refunds schemes, among others), including their effectiveness, efficiency and equity aspects. Pros and cons of each policy measure will be discussed.
A detailed analysis of the state of carbon trading markets will be conducted and compared with carbon tax experiences worldwide.
A comprehensive overview of the European Emission Trading Scheme - the EU-ETS - will be presented. The discussion will focus on some key issues, including: i) whether it has fulfilled its mission so far; ii) what are the prospects for a European carbon market; iii) if national policies aimed at reducing emissions are effective or not; iv) how to improve future performances, and v) how to eventually introduce carbon border tax adjustments (CBAM), as recently proposed by the EU Commission within the European Green Deal ans the "Fit for 55" policy package.

b) Sustainable transportation (20h)

Instructors:
Ehan Elkind, University of California, Berkeley School of Law

Contents:
Reducing emissions from transportation is critical to the success of tackling the broader global greenhouse gas emissions that cause climate change. Transportation is responsible for 14 percent of global greenhouse gas emissions, including 27 percent and increasing for the European Union and 28 percent for the United States, not including emissions from petroleum production. This module will provide an overview of the law and policies that most directly affect greenhouse gas emissions from transportation, as well as the range of technologies available to do so. Specifically, it will cover the various sources of transportation emissions, from per capita driving kilometers to burning fossil fuels used in a variety of transportation activities. Next, it will provide an overview of law and policy approaches that reduce driving kilometers and improve overall transportation efficiency, such as land-use changes and transit investments. The program will then summarize the key clean fuel technologies that can reduce transportation emissions, including low-carbon biofuels, hydrogen, and battery electric vehicles, and offers examples of laws and policies worldwide that have proven to help expedite the deployment of these low- and zero-emission fuels. These mechanisms include mandates and incentives for clean transportation and subsidies and support for private-sector action.

c) Clean energy (20h)

Instructor:
Mark Hughes, University of Pennsylvania, Kleinman Center for Energy Policy
Contents:

Energy powers industries, transports and services and shapes geopolitical balances. It is the world’s largest business and chief ingredient of state power. But it is also a cause of conflict, inefficiencies and often an obstacle to efficiency.
In this section of the course, policy process, design thinking, decision analysis, and policy design regarding energy and the way infrastructures are conceived will be presented and discussed.

d) Waste management and circular economy (20h)

Instructors:
Madeline Kass, Seattle University – Visiting Professor, University of Milan

Contents:
The module will examine the interrelated topics of climate change, sustainability, and waste by comparing the regulatory approaches of the European Union (EU) and the United States (US). Americans and Europeans produce vast quantities of non-hazardous, unwanted, and unusable material. In the EU, individual waste contributions are almost double the global average. In the US, the numbers are even higher, constituting more than four times the global average. The interrelationship between US and EU regulation of materials and waste and the problem of climate change center on greenhouse gas-emitting activities at various points along the product to waste continuum (including natural resource extraction, goods production, and use, recycling and re-use, waste collection and disposal, and materials transport). The US mostly follows a traditional linear approach to waste management. In contrast, the EU embraces and is moving towards a circular model of materials management. The module will describe and compare both approaches along with their implications for climate change and sustainability.

e) Climate change and consumer behavior (30h)

Instructors:
Alessandro Banterle, University of Milan (10h)
Alessia Cavaliere, University of Milan (10h)
Elisa De Marchi, University of Milan (10h)

Contents:
This module will analyze the main determinants of sustainable consumption models and their role in increasing environmental sustainability. There is increasing awareness that to achieve a low-carbon society peoples’ active involvement is essential, but this can be particularly challenging because they often tend to underestimate the negative impacts of
their consumption models. This part will examine the main factors affecting consumers’ consumption decision with a focus, among others, on motivational, socio-economic and demographic factors, attitudes, time preference, objective/subjective knowledge on sustainability-related issues, and will explore the effectiveness of possible policy approaches to successfully reorient consumptions patterns towards a more sustainable trajectory. Moreover, voluntary arrangements for environmental management will be analyzed such as environmental management standards, codes of conduct, sustainability reporting, public disclosure of corporations’ environmental performance, the ISO 14000 series, and others.

5) **Urban resilience (60h) - 1 Module**

*Sara Busnelli, Citterio-Viel and Partners (10 h)*
*Piero Pelizzaro, Municipality of Milan (5 hours)*
*Giulia Garavaglia, Metropolitan City of Milan (5 h)*
*Andrea Marroni, MRC Consultants (10 h)*
*Eduardo Parisi, University of Milan (10h)*
*Joris Fontaine, Université Paris I Panthéon-Sorbonne (20 h)*

Facing the threats of climate change imposes reasoning bottom-up, by looking at local experiences. Land use, urban planning and standards of design and domestic energetic policies are just as important as the international levels of regulation, since they have a direct impact on emission reduction, energy efficient uses and productive behaviors. This course will deepen the interactions between land use and climate change, by presenting the complex relationships between efficient and smart architectural choices and the reduction of environmental impact. Examples of innovative land use, urban planning and smart construction will be discussed by academics, professionals and experts from the private and public sectors. The most cutting-edge challenges that the next generations of leaders in smart and sustainable cities will necessarily face will also be addressed, drawing examples from the international arena, as well as from the practical experience of local public servants. Several case studies regarding best practices in the design and planning of resilient cities, to promote the reduction of soil consumption and to combat the so-called phenomenon of “gentrification” will be presented and discussed. Last but not least, the most modern architectural and engineering building techniques aiming at the realization of green buildings will be commented on.

6) **Social impacts (60h) - 2 Modules**

This course of the Master's will tackle the most pressing consequences of climate change on the dynamics between people of the world, with the help of experts of constitutional, international and administrative law.

*a) Human rights and climate change (40h)*

**Instructors:**
*Angelica Bonfanti, University of Milan (8 h)*
Contents:
The rising temperatures, desertification and the melting of glaciers strongly impact on human lives, both endangering lives and modifying behaviors. Food and water shortages, the loss of properties, flooding, human migrations are only some of the direct effects of climate change, which affects the most vulnerable sectors of our societies. This module tackles these issues and aims to discuss the most accurate juridical solutions to these problems, by looking at the experience gained in international and domestic environmental law. Lastly, the role of business in promoting and/or challenging political reforms will be analyzed through the discussion of concrete cases.

b) Humanitarian and development aids for climate change (20 hours)

Instructor:
Annmaria La Chimia, Full Professor of Law and Development, Faculty of Social Sciences, Nottingham University (20 hours)

Contents:
Developing countries tend to suffer the most for the consequences of climate change, despite having contributed the least to its effects. Western countries, donors of aid and under the principle of “common but differenciated responsibilities”, have an obligation to assist developing countries in preventing and mitigating the effects of climate change, including by delivering development aid assistance. This module will look at various issues surrounding development aid – what it is, why it is donated and why it does not work- and at the specific issue of aid for climate change. The module will also look at the specific ways of aid delivery and at the various initiatives implemented to make aid more effective, including how to strengthen the procurement process linked to aid delivery. Indeed, public procurement is increasingly becoming a prominent instrument for governments to address social and environmental concerns and if understood correctly, efficient procurement policies could bring substantial benefits to developing countries. The failures and success of current initiatives will be assessed, in relation to the existing literature and the analysis of practical cases, discussing the need to promote best practices in the fields of poverty eradication, food security and environmental protection.

7) Business and climate change (30h) - 1 Module

Instructors:
Stefanella Stranieri, University of Milan (10 h)
Luigi Orsi, University of Milan (10h)
Sope Williams-Elegbe, Stellenbosch University (10)
Contents:

In this module, managerial economists will tackle the issues of setting forth organizing structures that may be capable of adapting to the new needs of the markets and to the sustainable policies required by the legal framework. Adaptation policies as well as organizational practices will be discussed in detail, with the help of examples and practical trainings.

8) Instruments for change (50h) - 3 Modules

a) Green and social public procurement (20 hours)

Instructors:
Sara Valaguzza, University of Milan (5 h)
Laura Carpineti, Martino&Parruters (15 h)

Contents:
This module will deal with the strategic regulation of public contracts towards the objectives of sustainability. The most common awarding procedures and contractual schemes will be presented through the analysis of concrete examples of effective procurement.

b) The future of monetary and fiscal policies within climate change risk (15 hours)

Instructor:
Isabella Alloisio, Florence School of Regulation

Contents:
Climate risk can affect the stability of the financial system, the solidity of individual intermediaries and interfere with the transmission channels of monetary policy and price stability. Central banks are well aware of this and are placing increasing emphasis on this issue.

This module of the course will analyze how fiscal, macroprudential and monetary policy actions may be triggered by increased climate damages so as to avoid dramatic consequences for the economy and social welfare.

c) Strategic litigation (15 hours)

Instructor:
Carole Billiet, University of Hasselt
Roberta Regazzoni, Milan Chamber of Commerce

Contents:
This module of the course will provide an overview of the litigation trends and of the key issues that courts more and more often face in climate change cases. The analysis will include a focus on strategic litigation in the field of environmental rights.
Through the analysis of case-law, it will be possible to discuss the most common legal arguments, standards of proof and external influence factors on the issue of climate change with a global perspective. The module will also present environmental mediation as an effective instrument of dispute resolution. The module will include the practical experience of some environmental mediation cases, simulating a controversy between opponent parties.