Climate change: facts, emergency, political and legal context

Professor: Ilija Sazdovski
Office hours: 24
Course Type: Compulsory
Credits: 3 ECTS
Term: First

Course Description

Humanity is facing an unprecedented challenge to preserve life on the Earth as we know it. The effects of climate change are undeniable today even for the biggest skeptics from the last decade.

Global international treaties managed to solve many environmental threats before, however, the climate change problem remains unsolved even after 30 years of multinational negotiations guided by the United Nations.

The main aim of the course is to increase the awareness of the students of the importance of climate change as a global threat and to provide them with applicable knowledge that they can use during their professional carrier.

The course provides students with the fundamentals of climate change, key concepts about mitigation, adaptation, and vulnerability to climate change and it explains, the importance of achieving a global agreement for solving the climate emergency.

Objectives (resultados de aprendizaje) and competences

The students will understand the institutional setup of the climate negotiation in the frame of the UNFCCC, the main processes, agreed climate emergency goals, and the international progress achieved.

They will understand the main methodological difference between climate mitigation, adaptation, and vulnerability

Also, the course will provide them with skills for the establishment of monitoring reporting and verification systems and basic knowledge of the emission trading scheme.

They will be introduced to the best practical examples of the three levels of climate mitigation and adaptation actions: international, national, and regional/local. As well

as the importance of reducing the personal carbon footprint as a prerequisite for the success of the upper-level policy actions.

During the study visit, they will recognize the importance of long-term, mid-term and short-term climate predictions and their purpose in the development of appropriate climate services mainly used in the renewable energy sector, agriculture, and adaptation to climate change.

To achieve the course objectives that will equip the students with necessary future skills, the following work plan will be conducted:

Week 1: October 14th

Topics: Introduction of the course, historical aspects of climate change, and theoretical aspects of greenhouse gases.

Week 2: October 21st

Topics: Theoretical basis of mitigation, adaptation, and vulnerability, National determent contributions, and overall mitigation goals.

Homework for the student's group work:

"News related to COP 27 - Following the developments for the preparation of the Conference of Parties (COP) 27"

The students would have to follow the political statements, expectations, and greenwashing presented in the media and prepare a presentation. The students will present their findings before the presentation of the high-level guest lecturer on November 4th. A discussion will follow on the expectations for COP and a comparison of the media statements and the technical expectations for the COP.

(COP 27 is organized in Sharm el-Sheikh, Egypt November 7th –18th).

Week 3: October 28th

Topics: Legal and social aspects of climate change;

European policy for fighting climate change (objectives, main strategic documents);

Presentation of the Group work:

"Evaluation of different climate change mitigation policies";

During the session, the students will be divided into groups (Local inhabitants, Environmental NGOs, State Institutions, and International Financial Institutions). They will have to prepare their standpoints and actively participate in the discussions, debating various points of view based on their assigned roles. The

main aim of the exercise is to provide the students with basic knowledge about the complexity of the evaluation of different mitigation measures against a set of pre-defined evaluation criteria.

Game: How climate-neutral are we?

(https://footprint.wwf.org.uk/#/)

After class: Preparation for the Group work (Group 1: Local Inhabitants)

Week 4: November 4th

Topics: Main processes of climate negotiations

Presentation of the homework: News related to COP 27

Guest lecture/discussion on expectations from the COP 27 (UN official or guest professor)

History of UNFCCC processes, main bodies, climate mechanisms, and importance of the Paris Accord.

After class: Preparation for the Group work (Group 2: Environmental NGOs)

Week 5: November 11th

Topics: News from COP (live call from Egypt)

Key legal and financial climate change mechanisms;

National, Local/Municipal, and initiatives from the private sector;

After class: Preparation for the Group work (Group 3: State Institutions)

Week 6: November 18th

Topics: News from COP (live call from Egypt)

Monitoring, Verification and Reporting Systems, Emission Trading Scheme, Carbon Pricing

After class: Preparation session for the Group work (Group 4: IFIs)

Week 7: November 25th

Topics: Study visit to the Barcelona Supercomputing Centre

Importance of the climate predictions and complexity of climate models. The practical importance of climate modeling in agriculture, renewable energy, and

climate adaptation. A special aspect will be given to climate services that are crucial for solving the climate challenge.

Game: International Network of Terrestrial Stations in the cold North (game developed under the INTERACT Horizon 2020 project)

Week 8: December 2nd

Topics: Group work: Evaluation of different climate change mitigation policies (Role-play and oral presentations).

Preparatory activities for the test.

Methodology

The course comprises eight 3-hour sessions, which combine theory lecturing and student active participation in the classes.

During the course, the students will be assigned to a group work exercise and different homework assignments where the practical application of learned concepts will be applied. Activities will require both individual and group work.

Also, complex issues like personal impacts on climate or the importance of climate data monitoring will be introduced through group games.

A study visit will be organized to the most powerful supercomputer in Spain used for complex climate predictions (Mare Nostrum).

Evaluation criteria

Three elements concur in the final mark:

- **Final exam (50%).** The final exam is used to assess the individual level of knowledge and understanding of each student. It will include questions covering topics from all the classes. This item counts for 50% of the final mark. To pass the exam the minimum grade is 5.

- **Group work and homework presentation (30%).** Students will apply their knowledge to real-life situations during the development of the homework and the group work exercise. They are expected to use the topics they learned to use during the classes.

- **Class attendance and active participation (20%).** Attendance in every session is expected and recorded using an attendance sheet. It is your responsibility to comply with this measure. Class attendance is compulsory and will be considered in your final grades; punctuality is a must. Note that unexcused absences reduce your score on the "attendance and participation" element of your final grade. Two or more unexcused absences will result in an automatic score of zero and, in all likelihood, a fail mark for the course as a whole.

Attended all the sessions + actively and consistently participated in the class discussions during the entire course period	**20**
Attended all the sessions + actively and consistently participated in most of the class discussions	**15-19**
No more than one unexpected absence + often participated in the class discussions	**10-14**
No more than one unexpected absence + participated in some class discussions	**5-10**
No more than one unexpected absence + limited or no participation in class discussions	**1-5**
Otherwise	**0**

Other evaluation criteria to take into consideration:

- **Retake**

Students who fail the course during the regular evaluation will be allowed ONE re-take of the examination/evaluation. Students that pass any Retake exam should get a 5 by default as a final grade for the course. If the course is again failed after the retake, students will have to register again for the course the following year.

- **No-show**

In case of a justified no-show to an exam, the student must inform the corresponding faculty member and the director(s) of the program so that they study the possibility of rescheduling the exam (one possibility being during the "Retake" period). In the meantime, the student will get an "incomplete", which will be replaced by the actual grade after the final exam is taken. The "incomplete" will not be reflected on the student's Academic Transcript.

- **Plagiarism**

Plagiarism is to use another's work and present it as one's own without acknowledging the sources in the correct way. All essays, reports, or projects handed in by a student must be original work completed by the student. By enrolling at any UPF BSM Master of Science and signing the "Honor Code," students acknowledge that they understand the schools' policy on plagiarism and certify that all course assignments will be their own work, except where indicated by correct referencing. Failing to do so may result in an automatic expulsion from the program.

Bio of Professor

Ilija Sazdovski is a member of the International Association of Energy Engineers and between 2012 and 2018 he was part of the Scientific Advisory Board of the Conference for Sustainable Development of Energy, Water and Environmental Systems.

His previous work has been led by the urgent need to address climate change by putting it at the center of public policy.

He is an experienced researcher with a demonstrated history of 16 years working in the international development sector. During his engagement with GIZ, he provided technical support to energy-related ministries, and partners within the EU Energy Community Secretariat, in harmonizing the monitoring and verification methodologies for the National Energy Efficiency Plans.

Also, on a local level, he provided support to the capital cities of Southeast Europe in the EU initiative of the Covenant of Mayors in achieving the 20% greenhouse gas (GHG) reduction commitments.

Ilija is a co-author of the III National Energy Efficiency Action Plan for 2016-2018 for Macedonia and a national sub-law for Monitoring and verification of energy and GHG reductions. He authored and supported the development of several software solutions for energy monitoring and GHG Monitoring Reporting and Verification (MRV) systems. He was employed as an International Expert by United Nations for designing GHG MRV systems for the buildings sector.

He is authoring numerous technical reports, strategies, and conference and scientific papers.

Reading Materials/ Bibliography/Resources

No textbook is required for this course. All the required materials will be provided. Any readings, notes, handouts, datasets, or additional course material will be available through the course website.