BARCELONA SCHOOL OF MANAGEMENT

ESCI School of International Business

MSc in Sustainability Management

Carbon Footprint

Professor: Sahar Azarkamand
Office hours: by appointment
Course Type: Compulsory
Credits: 3 ECTS
Term: Second

1. COURSE PRESENTATION

Course Description

The course provides information about the importance, the advantages and disadvantages, and the reasons for undertaking a carbon footprint. It provides the student with the knowledge associated with the existing carbon footprint standards and methods. The students will learn about product and corporate carbon footprint. This course also provides practical examples of carbon footprints applied at the product, service, and organizational level. Students will be trained to understand the results of carbon footprint, to carry them out, to carry out critical reviews of footprints, to propose measures to reduce the footprint and how to verify, report and communicate the results effectively. During this course, they will also learn about reduction targets, carbon neutrality, and carbon offsets.

In addition, the course will provide the students with the fundamental knowledge of water footprint. During this course, students will learn about the importance and the trends of water consumption in the world and in Europe. They will learn about corporate and product water footprint, as well as blue, green, and grey water footprint. They will be familiar with the water footprint standards and tools, and they will practice how to calculate the water footprint.

The course in the study plan

This **compulsory** course belongs to the subject of **Environmental Dimension of Sustainability** of the study plan. It takes place in the **second trimester** of the course once the knowledge on Climate Change: facts, emergency, political and legal context has been achieved.

Learning objectives

At the end of the course, students should be able to:

- Explain what climate change is, its physical and anthropogenetic causes and the waysof dealing with it.
- Understand the context of carbon and water footprint, and its importance.
- Describe the different methodologies, standards and sectoral guidelines for the carbonfootprint assessment.
- Apply and enhance the tools for carbon footprint allowing the students to assess anysystem.
- Conduct a simple measurement of two different organization's carbon footprint andidentify "hot spots".
- Conduct a simple measurement of any product carbon footprint and identify "hot spots".
- Conduct a simple measurement of any product water footprint and identify "hot spots".

2. COURSE LEARNING PLAN

Methodology

The course comprises eight 3-hour sessions, which combine theory lecturing with general debates and applied discussions on business cases and exercises. Participants will also engagein presentations of reports, cases and project assignments. Activities will require both individual and group work.

The course also involves a substantial amount of autonomous work outside the classroom combining readings that will help you to gain a deeper understanding of the material covered in the class.

To enhance the students' knowledge, they will visit a site to become familiar with the various scopes of carbon footprint and water footprint. Following the visit, they will practice calculating the site's carbon footprint in the classroom.

Hours devoted by the student (according to ECTS): 75

Evaluation criteria

Three elements concur in the final mark:

- **Final exam (40%):** To pass the subject the minimum grade is 5.
- **Case Studies (40%):** Students will apply their knowledge to real-life case studies. 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 by means of an attendance sheet. Unexcused absences reduce your score on the "attendance and participation" element of your final grade.

Other evaluation criteria to take into consideration:

Retake

Students who fail the course during regular evaluation will be allowed ONE re-take of the exam/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 to 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 ESCI 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 automatic expulsion from the program.

Calendar and Contents

	Date	Content
1	16/01/2025	1. Recognizing carbon footprint as an environmental impact 2. Concept of Climate Change 3. Concept of Global Warming Potential 3.1. Practice a case study 4. Concept of Carbon Footprint 4.1. Calculate the carbon footprint and offset (Online tool)
2	23/01/2025	1. Carbon Footprint regulations and legislations 2. Carbon Footprint standards 3. Carbon Footprint guidelines 4. Calculation steps 3.1. Present a case study (carbon footprint in a port) 5. Practice a case (Calculating the carbon footprint of a port)
3	30/01/2025	1. Corporate carbon footprint 2. Product carbon footprint 3. Allocation 4. Practice a case (Calculating the carbon footprint of a faculty and 1 kg pasta)
4	06/02/2025	Visit
5	20/02/2025	1. GHG Verification 2. GHG Reporting 3. Communicating carbon footprint

		4. Setting reduction target 5. Practice a case (Calculate the carbon footprint of an airport)
6	27/02/2025	1. Carbon neutrality 2. Mitigation and adaptation 3. Carbon offsets 4. European emission trading system 5. Classwork (Analyzing a company's carbon footprint and reduction targets)
7	06/03/2025	1. Concept of Water Footprint? 2. Corporate Water Footprint? 3. Product Water Footprint? 4. Blue, green, and grey water footprint 5. Water Footprint standard 6. Water Footprint assessment 7. Water stress 8. Calculate your water Footprint (Online tool) 9. Class work-Food menu water Footprint calculation
8	13/03/2025	1. Reviewing all the sections 2. Answering the students' questions 3. Explaining the structure of the exam and practice some questions
9	19/03/2025	exam

3. PROFESSOR

Dr. Sahar Azarkamand holds a PhD (2013) and an MSc (2006) in Environmental management. She got her second PhD in sustainability in 2021, at the Universitat Politècnica de Catalunya (Barcelona Tech – UPC). She is a postdoctoral researcher at the UNESCO Chair in Life Cycle and Climate Change (ESCI-UPF). Her primary research interests lie in Carbon Footprint, Environmental Impact Assessment, Life Cycle Assessment and Green Supply Chain Management.

4. READING MATERIALS/BIBLIOGRAPHY/RESOURCES

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