Environmental impacts: causes and effects

Professor: Alba Bala Gala
Office hours: by appointment
Course Type: Compulsory
Credits: 3 ECTS
Term: First

Course Description

Any human activity has an impact on the environment. Knowing these impacts, and how ecosystems and the natural environment work, is essential to be able to anticipate or mitigate them. The course helps the student to place environmental phenomena in the context of ecosystems and in the natural environment. It provides the basic concepts to understand these phenomena (environment, ecosystem...) and to contextualize environmental impacts (by nature, extent, intensity ...). Likewise, the course will provide information on the physical mechanisms by which different environmental impacts are generated and sufficient information for the student to identify the environmental impacts associated with different types of activities and industrial sectors.

Objectives and competences

At the end of the course, students should:

- Understand how environmental ecosystems work and learn some basic concepts (natural equilibrium, difference between ecology and environment, components of the ecosystems, main flows of materials, evolution of ecosystems)
- Understand the value of biodiversity and natural resources.
- Know the relationship between health and environmental conditioners.
- Know the main atmospheric contaminants (origin and environmental consequences or impacts)
- Know how hydric resources behave and their main sources of contamination (origin and environmental consequences or impacts)
- Know the environmental problems related to the generation and treatment of waste (recycling, incineration, and landfilling).

- Know the environmental impact related to different sectors:
    - Mobility and transport
    - Energy
    - Agriculture and livestock
    - Textile
- Understand the environmental issues related to cities (causes and environmental consequences or impacts)
- Understand some main concepts related to environmental sustainability (sustainability vs unsustainability, weak and strong sustainability, and substitutability)

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 engage in presentations of reports, cases, or 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 and videos that will help them to gain a deeper understanding of the material covered in the class.

Evaluation criteria

Three elements concur in the final mark:

- **Final exam (40%):** 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 40% of the final mark. To pass the exam the minimum grade is 5.
- **Practical exercises and deliveries (50%):** in this subject, a course project will be developed and presented in class, accounting for the 30% of the final grade. Apart from that, other exercises related to different topics would be either done in class or prepared at home to be delivered. In total, they will account 20% of the final grade.
- **Class attendance and active participation (10%):** Attendance in every session is expected and recorded by means of an attendance sheet. It is students' responsibility to comply with this measure. Class attendance is compulsory and will be considered in the final grades; punctuality is a must.

Note that unexcused absences reduce your score on the "attendance and participation" element of your final grade. In fact, two or more unexcused absences will result in an automatic score of zero and, in all likelihood, a failure mark for the course as a whole.

Attended all the sessions + actively and consistently participated in the class discussions during the entire course period,	10
Attended all the sessions + actively and consistently participated in most of the class discussions	8-9
No more than one unexpected absence + often participated in the class discussions	6-7
No more than one unexpected absence + participated in some class discussions	3-5
No more than one unexpected absence + limited or no participation in class discussions	1-2
Otherwise	0

Other evaluation criteria to take into consideration:

Retake
Students who fail the course during 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 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 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.

Bio of Professor

Dra. Alba Bala graduated in Environmental Science in 2000 at Universitat Autònoma de Barcelona (UAB). She holds a Master in Environmental Sciences and obtained her PhD from UAB in 2015.

She is currently researcher and responsible for the line on packaging and waste at the UNESCO Chair in Life Cycle and Climate Change, and lecturer at ESCI-UPF. She worked as a teacher in Ecodesign and Environmental Analysis of products at the School of Industrial Design (ESDI, Ramón Llull University) and at Elisava Design School. She was researcher at the Institute of Environmental Science and Technology (UAB). She has developed more than 30 national and international projects on LCA, green procurement and eco-design. Member of the Spanish LCA Network.

Awards. Finalist of the international awards "Europe Innova Awards", 2008 edition, awarded by the European Commission, DG Enterprise and Industry. Winning of the "Design for Recycling (2000)" awarded by the Catalan Government.

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.