

Ulisses



UNIVERSITY OF LISBON
INTERDISCIPLINARY STUDIES
ON SUSTAINABLE ENVIRONMENT AND SEAS



Course Syllabus

Syllabus

Topic	OCEANS WITHOUT PLASTIC Development of innovative technological solutions to characterize and mitigate ocean pollution by plastics, ensuring biodiversity and sustainable reuse of these materials in applications with economic value.
Language	English
Prerequisites	Being currently enrolled in a university undergraduate or graduate programme. General interest in ocean sciences, ecology, environment, health and life sciences, biology, chemistry, engineering and interdisciplinary research in an international environment.

Course description

Preparatory phase (e-learning course)

Duration: 10 weeks

Start: March 22

Format: independent study of weekly packages

Module description: In this preparatory course, a wide range of online lectures and learning materials will be provided via the Moodle learning platform. The main goal is to summarize the fundamental and core competencies of the disciplines involved in the project, giving students with different academic backgrounds an overview of all the relevant scientific areas. This ensures that all participants can comfortably engage in discussions during the main project event.

The e-learning materials are accompanied by dedicated quizzes and also suggested activities (assignments) in order to evaluate the students' progress. For a successful completion of the preparatory course and qualification for participation in the Team Project Phase, passing them is required.

The communication tools available in Moodle will allow for advice and feedback from the instructors as well as discussion between the participants. Specific activities will be launched to enhance the development of the ULisses online community and its "team spirit".

Learning objectives: On successful completion of the course module, students will be familiar with:

- the fundamentals of diverse disciplines related to ocean sciences,
- the central principles of material science related to polymers,
- the impact of plastic pollution in the metabolism of biological systems,
- the basic principles of robotics and the design of autonomous vehicles for sea exploration,
- the basic techniques used to recycle materials and the principles of circular economy,
- project management methods.

And will be able to:

- analyze biodiversity and sustainability issues raised by ocean pollution,
- contribute to the development of innovative technological solutions targeting ocean pollution,
- provide alternatives for the sustainable reuse of ocean plastics in applications with economic value,
- plan and manage independently their online study process,
- use the functions of a digital learning environment for their learning process,
- connect with their colleagues in an international and interdisciplinary environment,
- improve their English language skills.

Resources: e-Learning content Available via the open-source Moodle platform.

Evaluation: Online evaluation via Moodle (suggested activities and quizzes).

Grading: pass/fail based.

Grades (A – excellent; B - very good; C – good; D – fair; – E, fail) may be awarded if required/requested

A pass grade for the e-learning course is a prerequisite for participation in the Team Project phase.

Team Project phase

Duration: 3 weeks

Start: July 5

Format: Supervised project work in virtual teams (weeks 1 and 2). Preparation and realization of the final team presentation and project dossier as well as individual essays (week 3).

Module description: The virtual Team Project phase includes two supervised and guided project weeks and an additional self-organized project week. As members of international and interdisciplinary teams of 8-10 participants, students are requested to solve a challenge related to ocean sustainability. The student teams work continuously (synchronously and asynchronously) in a virtual collaborative environment designed to enhance their communication and work process. In the first two weeks, teamwork is supported by mentors and scientific advisors. Specific questions may also be asked to senior faculty members during expert interviews. In the third week, participants have the opportunity to refine their interdisciplinary concepts and proposals and to prepare the final presentation of their project. In the last day, all teams present their projects to all participants in Ulisses and also to a panel of jurors.

Learning objectives: On successful completion of the course module, students will be able to:

- contribute to the design of innovative technological solutions dealing with ocean pollution, promoting sustainability and biodiversity,
- develop a goal-oriented solution to a complex problem through interdisciplinary collaborative research work,
- discuss possible solutions and take informed decisions based on relevant criteria,

- connect with their peers in an international and interdisciplinary environment and appreciate the corresponding academic and social diversity,
- plan, organize, and carry out tasks independently,
- plan and manage their online study process independently and use the functions of a digital learning environment for their learning process,
- facilitate effective virtual collaboration in distributed and remote teams,
- learn and use the functions of collaborative online tools, e.g., video conferencing tools, collaborative whiteboards, collaborative writing and presentation tools,
- improve their English language skills.

Resources:

- basic e-learning course content (available at the Moodle platform)
- Script and Project Guide (available at the beginning of the Team Project weeks)
- Additional resources (available on request)

Evaluation:

Category	%	Assessment
Final presentation: proposal and scientific concepts	75	(Team performance) Experts: detailed evaluation criteria defined in the script available at the beginning of the Team Project weeks.
Written team report: dossier	10	(Team performance) Program supervisors/coordinators: template provided during the Team Project weeks.
Individual contribution: essay	15	(Individual performance) Program supervisors/coordinators: template provided during the Team Project weeks.

Grading

pass/fail-based

Grades (A – excellent; B - very good; C – good; D – fair; – E, fail) may be awarded if required/requested

Transfer of credits: 6 ECTS

Requirements for credit allocation:

- (3 ECTS) Completion of all e-learning suggested activities and all quizzes with at least 51% correct answers (required also for participation in the Team Project weeks).
- (3 ECTS) Active participation in the teamwork, successful final presentation, submission of the team report and individual essay.

Homepage: <http://ulisses.ulisboa.pt>

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