Syllabus

Humanity's Greatest Challenges

SDG 14 – Life Below Water





UNIVERSIDADE
CATÓLICA
PORTUGUESA

Information about the course

- → Classes are schedule to start on February 9 and finish on May 12
- → Classes take place online on Monday and Tuesday, from 17h30 to 18h45
- → The link to the classes will be available on Moodle
- → Elective course
- → Second semester of the academic year 2026/27
- → 5 ECTS
- → Taught by ten professors from eight different Schools
- → In English

Contents

Week 1– February 9 and 10
Topic: Historical Context, Sustainable Development and SDGs, the SDG 14 - Life Below Water
Professor: Filipa Pires de Almeida, Católica Lisbon School of Business and Economics

- → Why are SDGs so important as a universal language for prosperity?
- → 2030 Agenda: SDG per SDG
- → Systemic approach of the SDGs: Multilevel, multisector, interdisciplinary
- → SDG 14: Why is it important?
- → The role of organizations and citizens in the SDGs and the SDG #14

Objectives

- → Understand why SDGs are important as a universal language and a strategy for the future of humanity.
- → Understand the challenge exposed by SDG #14 with multiple lenses: the public, private and civil sector
- → Inspire for action

Week 2 – February 23 and 24
Topic: The Strategic Dimensions of the Ocean
Professor: Sónia Ribeiro, Instituto de Estudos Políticos

- → The 3 timeless strategic dimensions of the Ocean: science, economics, and (geo)politics.
- → The centrality of the Ocean at the end of the 1st quarter of the 21st century: the multidimensionality of human presence in the Ocean.
- → The UNCLOS: 40 years later, implications in national and international politics.
- → The next 10 years: critical paths and structuring challenges for the Ocean.

Objectives

- → Understand the strategic dimensions of the Ocean and its intrinsic interconnection.
- → To know and understand the causes and developments that have occurred in the last 4 decades that have led to a renewed interest in the Ocean in its multiple dimensions.
- → To know and understand the essential points of the UNCLOS in its relationship with the strategic interest that the Ocean (re)acquired in recent decades.
- → To know and understand the evolutionary process of national and international policy facing the Ocean in recent decades.
- → To know and understand the scientific, technological, and economic dynamics that foster strategic competition in the oceans and will influence international policy in the coming years.

Week 3 – **March 2 and 3**
Topic: Oceans, Empires & Marine Resources - Six Geohistorical Moments
Professor: Jorge Santos Alves, Faculdade de Ciências Humanas

- → Moment 1. 21st century (Global China)
- → Moment 2. 20th century (Imperial Japan)
- → Moment 3. 19th century (USA)
- → Moment 4. 16th to 18th centuries (European & Ottoman Empires)
- → Moment 5. 15th century (Imperial China)
- → Moment 6. 11th century (India)

Objectives

- → To understand the link between SDG 14, the history of naval empires, and the history of the Oceans.
- → To understand how the six geohistorical moments can be studied according to five dimensions: economy, geopolitics, culture, values, and ecology)
- → The know-how of the Oceans (namely the Atlantic, Indian, and Pacific oceans) as differentiating factors in world history, part and parcel of humankind's most distinguished accomplishments as much of the most devastating ecological disasters.
- → To know and understand how naval empires (Western and Asian) exploited the oceans and marine resources, damaging the environment.

Week 4 – **March 9 and 10**
Topic: Ocean, Biodiversity and Biotechnology
Professor: Ana Gomes, Escola Superior de Biotecnologia

- → Marine biodiversity: microorganisms, biomaterials, and bioactive
- → Oceans and human health: nutrition, pharmaceutical, biomedical, and dermo-cosmetic applications
- → Contribution of biotechnology to Ocean sustainability: key trends

Objectives

- → To know and understand the wide Ocean diversity as an untapped source of unique microorganisms' promoters of different activities and products, of efficient biomaterials for biomedical applications, and of multifunctional bioactive compounds.
- → To know and understand the bridges between the Ocean and human health via the application of its different resources in the promotion of health and well-being.

→ To understand the role of biotechnology in using and protecting marine biomass more efficiently as well as marine biorefinery in support of societal challenges.
→ To identify promising opportunities and challenges for sustainable innovation and development.

Week 5 – **March 23 and 24**
Topic: The Blue Economy – Blue entrepreneurship and partnerships for the Ocean
Professor: Raquel Campos, Católica Porto Business School
Professor: Filipa Lancastre, Católica Lisbon School of Business and Economics

The Ocean as a source of resources and livelihoods
→ The urgency of the Blue Entrepreneurship
→ Partnerships for Ocean protection and appreciation
→ The specific problem of plastics

Objectives
→ To understand the relevance of the Ocean as a source of resources and livelihoods
→ To understand the importance of Blue Entrepreneurship in accelerating Ocean protection and appreciation
→ To understand the relevance and challenges of cross-sector partnerships for Ocean protection and appreciation
→ To understand the specific problem of plastics through a case study perspective

Week 6 – **April 13 and 14**
Topic: Water as a vital resource
Professor: Carlos Lobo, Escola das Artes

Water covers 70 per cent of the earth's surface. "It's always the same and it's never the same," says Finnish artist Elina Brotherus. How does our present way of living affect the environment through the exploitation of one of the planet's most important resources.

Documentary and the impact of modern society on the environment
- Water and society
- Water in cinema & visual arts

Objectives
→ To understand how images and the documentary form can foster a discussion on the climate crisis

→ To understand how contemporary cinema uses the water as expressions of the contemporary world

Week 7 – **April 20 and 21**
Topic: The Legal Protection of the Marine Environment
Professor: Maria Pena Ermida, Católica Global School of Law

→ The context of marine environmental legal regulation
→ The sources of marine environmental pollution and their legal regulation
→ The regulation of marine biological diversity

Objectives

→ To understand the challenges to the protection and preservation of the marine environment through legal means
→ To understand the rationale of the legal instruments aimed at targeting marinepollution
→ To understand the rationale of the legal instruments aimed at preserving marinebiological diversity

Week 8 – **April 27 and 28**
Topic: Navigating Sustainable Seas - Challenges in Maritime Tourism to Meet SDG 14
Professor: Carla Pinto Rebelo, Faculdade de Filosofia e Ciências Sociais

→ Introduction to Sustainable Development Goal 14: Understanding Life Below Water
→ The Role of Maritime Tourism: Exploring Opportunities and Impacts
→ Challenges Facing Sustainable Maritime Tourism: Pollution, Overfishing, and Habitat Destruction
→ Innovative Solutions: Conservation Efforts and Community Engagement
→ Promoting Responsible Tourism Practices: Education, Policy, and Industry Initiatives

Objectives

→ To introduce students to the significance of Sustainable Development Goal 14 and its relevance to maritime tourism.
→ To explore the various dimensions of maritime tourism and its impact on marine ecosystems.
→ To identify key challenges facing sustainable maritime tourism, including pollution, overfishing, and habitat destruction.
→ To discuss innovative solutions and best practices for promoting sustainable maritime tourism, including conservation efforts and community engagement.

Week 9 – **May 4 and 5**
Topic: Session with external entities
Professor: Invited guests

→ External organizations focusing their work on the challenges of SDG 14 will beinvited to share their experiences and inspire students to action.

Week 10 – **May 11 and 12**
Topic: Final Evaluation
Professor: All

→ May 11 – Oral Evaluation (online)
→ May 12 – Final Exam (in-person in Lisbon or Porto or online if the student is abroad in an exchange)

Methodology

→ Interactive lectures with student participation
→ Group and individual research work
→ Participation of external guests
→ Case discussions
→ Video watching

Grading

The individual assessment has three distinct components:

1. **Group work (30%)**

The main objective of the group project is to develop students' ability to propose concrete and well-founded solutions to challenges associated with SDG 14 – Life Below Water. Working in teams of four to five members, students must select a relevant topic directly linked to a specific target of SDG 14, identifying a concrete problem related to that target.

Based on the content explored throughout the course, each group must propose public or private policy solutions that contribute to achieving the selected target, demonstrating critical thinking, innovative spirit, and an awareness of the feasibility of their proposals. The goal is for each group to present a concrete solution to an identified problem.

The written report (portfolio) must be submitted by May 4 at 11:59 PM (Lisbon time) via the Moodle platform.

All groups are required to attend at least one mandatory mentoring session with their assigned mentor, a faculty member from the course unit, to receive guidance on defining their topic, approach, and project structure.

The project will be assessed as follows:

- 70% of the final grade will be based on an oral evaluation taking place on May 11th, during which groups will respond to questions posed by the faculty.
- 30% of the final grade will be based on the submitted written report.

All faculty members will participate in the evaluation of the projects. The group mentor will assign 40% of the oral evaluation grade, and the remaining 60% will be equally distributed among the other faculty members.

There will also be peer evaluation conducted in two rounds: at the end of the fifth week and after the final submission. In each round, students will distribute 100 points among their group members, evaluating individual contributions. This peer assessment may adjust the final individual grade by up to 3 points (positive or negative).

At the end of the course unit, the two best projects from each class will be invited to participate in a final intercampus session scheduled for the end of June. From these, two groups will be selected to present their proposals to a company or governmental entity and may also be invited to participate in a visit to the European Parliament in Brussels (to be confirmed).

2. **Individual response to quizzes during class (20%)**

At the end of the second class of the week, quizzes will be given on the subject taught. Answering these quizzes accounts for 20% of the final assessment. Failure to attend class will result in a score of zero on the quiz. The quiz can only be answered during the respective class. Students must be present during class to respond to the quiz.

3. **Individual Exam (50%)**

Students must complete a Final Exam on May 12, at 17h30, in person in Lisbon or Porto or online/with special support if abroad. The exam is equivalent to 50% of the final assessment. The Exam contains eight questions, from which the student can choose five to answer, and will be conducted with the possibility of consulting a double-sided A4 sheet with handwritten notes.

Passing the Course Unit requires a minimum score of 8 (out of 20) in all assessment components and a final average not lower than 10. Approval in the course units is granted with a minimum final grade of 10.

If the student does not achieve a passing grade in the Course Unit but has attended at least 80% of the classes and participated in the group work, a Final Exam will be available three weeks after the regular exam period. This exam will consist of eight questions (one per topic). Students are allowed to consult one A4 sheet (front and back) with handwritten notes during the exam. This exam can be used either to pass the course or to improve the student's final grade. In this case, continuous assessment is always considered, and the student will keep the higher of the two grades.

Academic Integrity

The academic conduct expected of students is aligned with the University's values of integrity and ethics, which should be clear throughout the course. Students are expected to conduct themselves in a manner that expresses respect for their peers and professors, integrity in the development of their work, and honesty in the preparation of their work.

Plagiarism is the misuse by any subject, as his or her own, of work, intellectual work, etc., produced by another (https://www.b-on.pt/boas-praticas/plagio/). Plagiarism can be direct, when it is the citation or part of an unmentioned work, or accidental, when it is a work of several authors not properly mentioned.

Failure to comply with the rules of the Curricular Unit on the topics of intellectual honesty and plagiarism implies failure in the Curricular Unit.

Bibliography

Balsom, E. (2018). An Oceanic Feeling: Cinema and the Sea. Govett-Brewster Art Gallery / Len Lye Centre.

Buchet, C., & Le Bouëdec, G. (eds.). (2017). The Sea in History - The Early Modern World.Boydell & Brewer. doi:10.1017/9781782049098.

Buchet, C., & Rodger, N. (eds.). (2017). The Sea in History - The Modern World. Boydell &Brewer. doi:10.1017/9781782049111.

Clarke, A. & Crane, A. (2018). Cross-Sector Partnerships for Systemic Change: Systematized Literature Review and Agenda for Further Research. *Journal of Business Ethics,* 150, 303–313.

Cohen, Margaret (ed.). (2021). A Cultural History of the Sea. 6 vols., Bloomsbury Academic.Lincoln, Paine. (2013). The Sea and Civilization. A Maritime History of the World. Knopf.

COM (2007) 575 final - An Integrated Maritime Policy for the European Union, COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THECOUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS, Brussels, 10.10.200 COM (2014) 254 final/2 - Innovation in the Blue Economy: realizing the potential ofour seas and oceans for jobs and growth, COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN

Dijkstra, H., Van Beukering, P., & R. Brouwer (2022). Marine plastic entrepreneurship; Exploring drivers, barriers and value creation in the blue economy. *Sustainable Technologyand Entrepreneurship*, 1(3).

ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS, Brussels, 13.5.2014

Freitas, A. C., Rodrigues, D., Pereira L., Duarte, A.C., Gomes, A.M.P. In press Seaweed bioactives: nutraceutical and potential functional food applications. In Seaweed Bioactives: Health Benefits and Potential Applications (Chapter 18), CRC Press, Taylor & Francis, ISBN 978-1-4987-9698-9

Freitas A. C., Rodrigues D, Carvalho AC, Panteleitchouk T, Pereira L, Gomes A. M., DuarteA C. (2015). Marine functional foods. In Springer Handbook of Marine Biotechnology. Trends and Industrial Applications (Chapter 42), Kim Se-Kwon (Ed). Springer. Hardback/Paper version: ISBN 978-3-642-53970-1.

MacDonald, S. (2015). Avant-Doc: Intersections of Documentary and Avant-garde Cinema. Oxford University Press.

Matias, N. (2005). O Mar: Um Oceano de oportunidades para Portugal, Ediçõesculturais da Marinha, Caderno Naval nº 13, Lisboa, 2005

Timmis, K. et al. (2017). The contribution of microbial biotechnology to sustainable development goals. *Microbial Biotechnology* (2017) 10(5), 984–987.

Rocha, A. (2022). "Ambiente Marinho." In C. Amado Gomes & H. Oliveira, Tratado de Direito do Ambiente. Lisboa: AAFDL, 2022.