

# Environmental Systems and Societies

## The subject:

ESS is firmly grounded in both the scientific exploration of environmental systems and in the exploration of cultural, economic, ethical, political, and social interactions of societies with the environment. Students will become equipped with the ability to recognize and evaluate the impact of our complex system of societies on the natural world.

The course requires a systems approach to environmental understanding and problem solving, and promotes holistic thinking about environmental issues. It is recognized that to understand the environmental issues of the 21st century and suggest suitable management solutions, both the human and environmental aspects must be understood.

Through the exploration of cause and effect, the course investigates how values interact with choices and actions, resulting in a range of environmental impacts. Students develop an understanding that the connections between environmental systems and societies are diverse, varied and dynamic.

## The teachers



Dorte Overgaard (DO)



Marie-Louise Søndberg (MLS)

## ESS and Theory of Knowledge

The interdisciplinary nature of the ESS course provides rich opportunity for students to reflect on the methodologies of both scientific and human sciences.

It is now widely accepted that researchers utilize not only scientific methods, but also a variety of approaches, in order to enhance understanding of the interaction between environmental systems and societies. Scientific disciplines share a common focus on utilizing inductive and deductive reasoning, on the importance of evidence, and so on; but in the ESS course, students are also required to use other methods traditionally associated with the human sciences.

Throughout the course students will be encouraged to raise Theory of Knowledge questions themselves as will their attention be drawn to Theory of Knowledge questions such as:

- What are the similarities and differences in the methods of gaining knowledge in the natural sciences and in the human sciences?
- How does emotion affect our perception and understanding of environmental issues?

## ESS and international-mindedness

The ESS course leads students to an appreciation of the nature of the international dimension since the resolution of the major environmental issues rests heavily upon international relationships and agreements. Throughout the course students will be encouraged to access websites and databank of international organizations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO); the United Nations Environment Programme (UNEP); and the World Meteorological Organization (WMO) in order to enhance their appreciation of this international dimension. It is widely accepted that many environmental problems are international in nature and this has led to a global approach to research in many areas such as climate change, biodiversity and population dynamics.

Skills and toolkit (ATL)	Topics	Assessments objectives
<ul style="list-style-type: none"><li>• Thinking skills</li><li>• Communication skills</li><li>• Social skills</li><li>• Self-management skills</li><li>• Research skills</li></ul>	<ul style="list-style-type: none"><li>• Earth</li><li>• Water</li><li>• Atmosphere</li><li>• Populations</li><li>• Human impact</li><li>• Energy</li><li>• Systems approach</li></ul>	<ul style="list-style-type: none"><li>• Knowledge and understanding</li><li>• Apply this knowledge and understanding in the analysis</li><li>• Evaluate, justify and synthesize,</li><li>• Engage with investigations of environmental and societal issues</li></ul>

## Examples of concepts and conceptual understanding in ESS:

- **Sustainability:** the use and management of resources that allows for full replacements of the natural resources exploited and the full recovery of the ecosystems affected by their extraction and use.
- **Equilibrium:** Equilibrium is the tendency of a system to return to an original state following a disturbance; at equilibrium a state of balance exists among the components of that system.
- **Biodiversity:** Biodiversity is a broad concept encompassing total diversity of species, genetic diversity and habitat diversity.
- **EVSs:** An environmental value system (EVS) is a worldview or paradigm that shapes the way an individual, or group of people, perceives and evaluates environmental issues.

### Link to IBO subject brief

<https://www.ibo.org/contentassets/5895a05412144fe890312bad52b17044/envyr-systems-2016-english-final-web.pdf>