

International Baccalaureate Diploma Programme Subject Brief

Interdisciplinary course:

Environmental systems and societies—standard level

First assessments 2017—last assessments 2023

The IB Diploma Programme (DP) is a rigorous, academically challenging and balanced programme of education designed to prepare students aged 16 to 19 for success at university and life beyond. The DP aims to encourage students to be knowledgeable, inquiring, caring and compassionate, and to develop intercultural understanding, open-mindedness and the attitudes necessary to respect and evaluate a range of viewpoints. Approaches to teaching and learning (ATL) are deliberate strategies, skills and attitudes that permeate the teaching and learning environment. In the DP, students develop skills from five ATL categories: thinking, research, social, self-management and communication.

To ensure both breadth and depth of knowledge and understanding, students must choose six courses from six distinct groups: 1) studies in language and literature; 2) language acquisition; 3) individuals and societies; 4) sciences; 5) mathematics; 6) the arts. Students may choose to replace the arts course with a second course from one of the other five groups. At least three, and not more than four, subjects are taken at higher level (240 recommended teaching hours), while the remaining are taken at standard level (150 recommended teaching hours). In addition, three core elements—the extended essay, theory of knowledge and creativity, activity, service—are compulsory and central to the philosophy of the programme.

These DP subject briefs illustrate four key course components.

I. Course description and aims
II. Curriculum model overview



III. Assessment model
IV. Sample questions

I. Course description and aims

Environmental systems and societies (ESS) is an interdisciplinary course offered only at standard level (SL). This course can fulfill either the individuals and societies or the sciences requirement. Alternatively, this course enables students to satisfy the requirements of both subjects groups simultaneously while studying one course.

ESS is firmly grounded in both a scientific exploration of environmental systems in their structure and function, and in the exploration of cultural, economic, ethical, political and social interactions of societies with the environment. As a result of studying this course, students will become equipped with the ability to recognize and evaluate the impact of our complex system of societies on the natural world.

The interdisciplinary nature of the DP course requires a broad skill set from students, including the ability to perform research and investigations, participation in philosophical discussion and problem-solving. The course requires a systems approach to environmental understanding and promotes holistic thinking about environmental issues. Teachers explicitly teach thinking and research skills such as comprehension, text analysis, knowledge transfer and use of primary sources. They encourage students to develop solutions at the personal, community and global levels.

The aims of the DP **environmental systems and societies** course are to enable students to:

- acquire the knowledge and understandings of environmental systems and issues at a variety of scales
- apply the knowledge, methodologies and skills to analyse environmental systems and issues at a variety of scales
- appreciate the dynamic interconnectedness between environmental systems and societies
- value the combination of personal, local and global perspectives in making informed decisions and taking responsible actions on environmental issues
- be critically aware that resources are finite, that these could be inequitably distributed and exploited, and that management of these inequities is the key to sustainability
- develop awareness of the diversity of environmental value systems
- develop critical awareness that environmental problems are caused and solved by decisions made by individuals and societies that are based on different areas of knowledge
- engage with the controversies that surround a variety of environmental issues
- create innovative solutions to environmental issues by engaging actively in local and global contexts.

II. Curriculum model overview

| Component | Recommended teaching hours |
|---|----------------------------|
| Core content | 120 |
| 1. Foundations of environmental systems and societies | 16 |
| 2. Ecosystems and ecology | 25 |
| 3. Biodiversity and conservation | 13 |
| 4. Water and aquatic food production systems and societies | 15 |
| 5. Soil systems and terrestrial food production systems and societies | 12 |
| 6. Atmospheric systems and societies | 10 |
| 7. Climate change and energy production | 13 |
| 8. Human systems and resource use | 16 |
| Practical scheme of work | 30 |
| Practical activities | 20 |
| Individual investigation | 10 |

The group 4 project

ESS students have the option to participate in the group 4 project. For those who participate, 10 hours of practical activities will be replaced with 10 hours of work on the group 4 project.

The group 4 project is a collaborative activity where students from different group 4 subjects, within or between schools, work together. It allows for concepts and perceptions from across disciplines to be shared while appreciating the environmental, social and ethical implications of science and technology. It can be practically or theoretically based and aims to develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge. The emphasis is on interdisciplinary cooperation and the scientific processes.

III. Assessment model

There are four assessment objectives for the DP environmental systems and societies course. Having followed the course at SL, students will be expected to do the following.

Assessment objective 1

Demonstrate knowledge and understanding of relevant:

- facts and concepts
- methodologies and techniques
- values and attitudes.

Assessment objective 2

Apply this knowledge and understanding in the analysis of:

- explanations, concepts and theories
- data and models
- case studies in unfamiliar contexts
- arguments and value systems.

Assessment objective 3

Evaluate, justify and synthesize, as appropriate:

- explanations, theories and models
- arguments and proposed solutions
- methods of fieldwork and investigation
- cultural viewpoints and value systems.

Assessment objective 4

Engage with investigations of environmental and societal issues at the local and global level through:

- evaluating the political, economic and social contexts of issues
- selecting and applying the appropriate research and practical skills necessary to carry out investigations
- suggesting collaborative and innovative solutions that demonstrate awareness and respect for the cultural differences and value systems of others.

Assessment at a glance

| Type of assessment | Format of assessment | Time (hours) | Weighting of final grade (%) |
|--------------------------|--|--------------|------------------------------|
| External | | 3 | 75 |
| Paper 1 | Case study | 1 | 25 |
| Paper 2 | Short answers and structured essays | 2 | 50 |
| Internal | | | |
| Individual investigation | Written report of a research question designed and implemented by the student. | 10 | 25 |

IV. Sample questions

Paper 1

- With reference to source material, outline two possible reasons why the snow leopard has received special attention from conservationists. [8]
- With reference to figures 6, 7 and 9 [in the resource booklet] explain how desertification and water resource shortage have led to the formation of smog in Ulan Bator. [3]

Paper 2

- Outline how the reasons for food wastage may differ between human societies. [4]
- Explain how the choice of food production systems may influence the ecological footprint of a named human society. [7]
- Discuss how different environmental value systems influence responses to the human population growth rate. [9]

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Complete subject guides can be accessed through the IB online curriculum centre (OCC) or purchased through the IB store: <http://store.ibo.org>.

For more on how the DP prepares students for success at university, visit: www.ibo.org/en/university-admission or email: recognition@ibo.org.