



**Teacher:** Michelle Perry

**Course Duration:** February 2026 – May 2027

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## Welcome to IB Environmental Systems and Societies

IB ESS is an interdisciplinary course that integrates the sciences and humanities to explore the interactions between environmental and societal systems. This course fosters critical thinking, hands-on investigation, and the development of solutions to global and local environmental challenges.

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## Course Overview

ESS is divided into eight topics and includes hands-on laboratory work, fieldwork, and collaborative projects. Students will explore the complexities of environmental systems while developing practical skills.

### Year 1: Semester 2

#### 1. Topic 1: Foundations of ESS (16 hours)

- Perspectives on environmental issues
- Systems thinking and sustainability
- **Activities:**
  - TED Talks and Socratic seminars
  - Measuring abiotic factors in an aquarium

#### 2. Topic 2: Ecology (35 hours)

- Ecosystems, energy flows, and biogeochemical cycles
- Climate and biomes
- Succession and change in ecosystems
- **Activities:**
  - Predator-prey simulations and biomass pyramid analysis
  - Videos like *How Whales Change Climate*

#### 3. Topic 8: Human Populations and Urban Systems (15 hours)

- Population dynamics and urban systems

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- Urban planning and air pollution
  - **Activities:**
    - Case studies on population policies
    - Urban air pollution analysis
  - 4. **Practical Work (10 hours):**
    - Conduct experiments like measuring change in ecosystems.
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### Year 2: Semester 1

1. **Topic 6: Atmosphere and Climate Change (23 hours)**
  - Causes, impacts, and mitigation of climate change
  - Stratospheric ozone depletion
  - **Activities:**
    - Case studies on urban air pollution
    - Videos and simulations from NASA Ozone Watch
2. **Topic 7: Natural Resources (18 hours)**
  - Resource use and management
  - Energy resources and solid waste
  - **Activities:**
    - Modelling the albedo effect
    - Watching *Tapped (2009)* and TED Talks on sustainability
3. **Topic 5: Land (15 hours)**
  - Soil systems, agriculture, and food production
  - **Activities:**
    - Soil texture analysis and conservation activities
4. **HL Lenses (17 hours):**
  - Environmental law, economics, and ethics
  - **Activities:**

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- Case studies on biorights and doughnut economics
- Debates on speciesism and environmental responsibility

### **5. Practical Work (10 hours):**

- Experiments and collaborative science projects.
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## **Year 2: Semester 2**

### **1. Topic 4: Water (25 hours)**

- Water systems and aquatic food production
- Water pollution and access
- **Activities:**
  - Case studies on the Nile River
  - Water use analysis

### **2. Topic 3: Biodiversity and Conservation (26 hours)**

- Evolution, human impacts, and conservation strategies
- **Activities:**
  - Natural selection simulations
  - Videos on biodiversity loss and regeneration

### **3. Practical Work (10 hours):**

- Projects like biofuel efficiency testing and pollution analysis.

### **4. Collaborative Science Project (6 hours):**

- Address interdisciplinary environmental issues in groups.
- Example: Analyzing the impact of pollution on human health and ecosystems.

### **5. Internal Assessment (IA):**

- Students will propose, design, and conduct independent investigations.
  - **Final IA Submission:** May 2026.
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## Assessments

1. **Internal Assessment (IA):**
    - A research-based investigation into an environmental issue.
    - Includes proposal, data collection, analysis, and evaluation.
  2. **Formative Assessments:**
    - Quizzes, lab reports, and concept maps.
  3. **Summative Assessments:**
    - Tests at the end of each unit and semester exams.
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## Resources

- **Digital Tools:** ThinkIB, Kognity, iNaturalist, EcoMUVE.
  - **Videos:** TED Talks, YouTube content (e.g., *How Whales Change Climate*).
  - **Field Resources:**
    - Petitcodiac Watershed Alliance and Fundy Biosphere Region.
    - Data from Statistics Canada and New Brunswick Department of Environment.
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## Skill Development

- **Research Skills:** Investigating environmental phenomena and analyzing data.
  - **Critical Thinking:** Evaluating solutions to environmental challenges.
  - **Collaboration:** Working in teams to tackle global and local issues.
  - **International Mindedness:** Exploring diverse cultural and societal approaches to sustainability.
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## Why Study IB ESS?

This course empowers students to understand and address pressing environmental issues. Through a blend of science and humanities, students develop the skills and knowledge needed to create sustainable solutions and contribute to a more equitable future.