Environmental economics

Introduction to economic analysis applied to environmental issues: all the necessary basic concepts, including cost-benefit analysis, for environmental policy making and its instruments (examples: climate, waste, mobility). Introduction to financial calculation applied to project evaluation.

Content
Introduction to economic analysis: Actors, supply, demand / Markets and prices / Price and quantity regulation
Introduction to environmental policy: Externalities / Cost-benefit analysis, policy objectives
Environmental policy: Abatement costs / Instruments for environmental policy / Comparison of instruments
Introduction to financial calculation: Discounting / Net present value
Project evaluation: Investment, costs (Capex, Opex) / Amortization and depreciation / Financial comparison of projects / Multicriteria choice
Concepts are illustrated with examples from Swiss climate policy, waste management, energy retrofitting of buildings, vehicle choice, etc.

Keywords
environmental economics, environmental policy, cost-benefit analysis, project evaluation, financial calculus

Learning Prerequisites
Important concepts to start the course
Basic algebra and using a spreadsheet such as Excel.

Learning Outcomes
By the end of the course, the student must be able to:
- Explain price formation
- Compare environmental policy instruments
- Argue for an environmental policy
- Compute the profitability of engineering projects
- Solve small mathematical problems

Transversal skills
• Take account of the social and human dimensions of the engineering profession.
• Take responsibility for environmental impacts of her/his actions and decisions.
• Demonstrate the capacity for critical thinking

Teaching methods
Lectures in the first two periods, exercises in the third.

Expected student activities
Participate actively in class.

Assessment methods
Intermediate exam (1/2 of grade) and final exam (1/2 of grade).

Supervision
Office hours: No
Assistants: No
Forum: Yes

Resources
Notes/Handbook
Slides will be made available on a Moodle page

Moodle Link
• https://go.epfl.ch/ENV-471