Summary

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: Cost-benefit analysis, objectives / Instruments for environmental policy / Comparison of instruments
Applications: Swiss climate policy (CO2 Act) / Waste management / Mobility pricing
Introduction to financial calculation: Arbitrage, discounting / Net present value / Risk, diversification
Project evaluation: Investment, costs (Capex, Opex) / Amortization and depreciation / Financial comparison of projects
Applications: Energy retrofitting of buildings / Reparation vs replacement / Student personal projects

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
In-depth teaching and educational support.

Expected student activities
Participate actively in class, learn the basic financial concepts from a MOOC in French with English subtitles.

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