

PhD Programme in Territory Innovation and Sustainability
PhD Programme in Industrial and Civil Engineering

Fundamentals of Cost-Benefit Analysis (CBA)

July and September 2024
in presence (room V, basement of old building) and online

1. Objectives

How to measure the economic value of an investment that is related to an infrastructure, a service or an industrial plant? The course aims to answer this question, and provide the toolbox useful to formulate a judgement on the feasibility of a project or policy in the civil, management and industrial engineering sectors. Depending on the stakeholders that are impacted, the evaluation perspective includes the one of the firm in charge of the realisation and management, the one of the users of the infrastructure or service, the one of the government, the one of society at large.

2. Schedule

The course totals 15 hours (20 lectures of 45 minutes each, 5 days, 4 lectures per day).

Thursday 18 July, 2:00-6:00 pm

Lectures 1 and 2. Difference between economic and financial cost-benefit analysis. Application context examples.

Lectures 3 and 4. Financial mathematics. Discrete and continuous compounding, Napier number.

Friday 19 July, 2:00-6:00 pm

Lecture 5. Net present value. Internal rate of return.

Lectures 6 and 7. Investment and management costs (shadow prices), revenues, salvage value.

Lecture 8. The micro-economic foundation of welfare change measurement.

Monday 22 July, 2:00-6:00 pm

Lectures 9, 10, 11 and 12. Welfare change measurement: divisible and discrete goods. The value of time in transport CBA.

Tuesday 23 July, 2:00-6:00 pm

Lectures 13 and 14. Economic valuation of externalities. Morbidity and mortality. The value of green-house gas emissions.

Lecture 15. Social discount rate in the economic CBA.

Lecture 16. Treatment of transfers from\to government.

Wednesday 24 July, 2:00-6:00 pm

Lecture 17. Uncertainty and risk, switching values.

Lecture 18. Guidelines at European Union and Italian levels.

Lectures 19 and 20. Application examples: industrial plant, infrastructure in the transport sector.

Friday 6 September, 3:00-6:00 pm

Final examination. Each participant will present, in 15 minutes, one application of CBA from scientific/grey literature in the sector of her/his specialisation.

3. ECTS

Participants who will be positively evaluated in the final examination will be awarded 3 ECTS. This will be recorded in the 'diploma supplement', together with the other education activities attended during the PhD programme.

4. Instructor

Paolo Delle Site, Full Professor, Niccolò Cusano University.

5. Language

English.

6. Requisites

Basic calculus.

7. Registration

Please send an email to confirm participation to paolo.dellesite@unicusano.it by Friday 12 July. The link for online participation will be communicated to participants after registration only. In presence participation is strongly recommended.