

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
COLLEGE OF ENGINEERING
DEPARTMENT OF TRANSPORT ENGINEERING AND LOGISTICS
ABET COURSE SYLLABI

ICT3103 TRANSPORT ECONOMICS

Credits and contact hours: 10 UC credits / 10 hours (3 h. Lectures; 1,5 h. Assistantship; 5,5 h. Independent learning experiences)

Instructor's name: Marco Batarce

Course coordinator's name Patricia Galilea

Textbook:

- JARA-DÍAZ, S. (2007), Transport Economic Theory, Elsevier, Oxford.
- MOHRING, H. (1976), Transportation Economics, Ballinger, Cambridge.
- SMALL, K. A., & VERHOEF, E. T. (2007). The economics of urban transportation. Routledge.

Course Catalog Description:

Transport plays a key role at the national level in terms of public investment and subsidies, number of jobs in the sector, and accidents that occur each year. But transport is also important on a personal level, when you look at monthly household expenditure and spent time in transportation.

Transportation markets present failures, such as externalities, monopoly power, or public goods, which make very complex the analysis. Thus, it is necessary to study the transport sector with a deep microeconomic view. This view will allow us to discuss transport policies, public investment, inequality and asymmetric information with real examples.

Prerequisite Courses: ICS2523 Microeconomics

Co-requisite Courses: None

Status in the Curriculum: Required Crr2009 and Selected Elective Crr2013

Course Learning Outcomes:

1. Understand the economic characteristics of production and consumption of transport services.
2. Use microeconomic tools necessary for evaluation and regulation of services and transport systems, formulating or adapting models for economic analysis.
3. Promote the development of critical thinking through analysis and evaluation of approaches and models used in both practice and scientific literature of transportation and economy.
4. Communicate effectively rigorous analysis on the transport by means of writing essays and articles.

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Relation of Course to ABET Criteria:

- b. Design and conduct experiments: analyze and interpret data
- c. Design a system, component, or process
- e. Identify, formulate, and solve engineering problems
- f. Professional and ethical responsibility
- g. Effective communication
- h. Broad education necessary for global, economic, environmental and societal context
- j. Knowledge of contemporary issues

Topics covered:

- 1. Introduction
- 2. Transport as a product
 - 2.1 Review of production theory
 - 2.2 Economies of scale for the multiproduct case
 - 2.3 Simple cyclical system
 - 2.4 Backhaul cyclical system
- 3. Demand for transportation and value of time
 - 3.1 Characteristics of transportation demand
 - 3.2 Aggregate demand for transport services
 - 3.3 Review of consumer theory
 - 3.4 Models for estimating the subjective value of time
 - 3.5 Subjective value of time versus social value of time
 - 3.6 Valuation of user's benefits of transport system
- 4. Optimal pricing and investment policies
 - 4.1 Congestion: spontaneous equilibrium vs social optimum
 - 4.2 Optimal Pricing
 - 4.3 Characterization cost of roads
 - 4.4 Returns to scale vs pricing
 - 4.5 Second-best pricing