



# Rennes Exchange Program in Economics

**2018**

## **COURSE DESCRIPTION**

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## MODALITIES

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Each module gives 10 ECTS (European Credit Transfer System) credits. You have to choose at least two modules per semester.

- *Economic courses are taught by lecturers of the Faculty of Economics. They take place there as well as English language courses.*
- *FLE courses are taught by CIREFE, a French learning center dedicated to international students. Those courses take place on the University Rennes 2 Campus (directly accessible by metro from the Faculty of Economics).*



*You will also get the opportunity to learn and use the Bloomberg database and take the Bloomberg certificate (BMC).*

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## Module 1: Microeconomics

**Semester:** Fall semester

**Lectures:** 24 hours

**Tutorials:** 12 hours

## COURSE DESCRIPTION

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Game theory analysis decision making in a context of strategic interdependency. Strategic interdependency is when a decision maker is aware that her / his actions affect the decisions of other decision makers and in turn her / his own decisions are impacted by other decision makers. Such a context is frequent in the case of business decisions. In the last 30 years, game theory has become the core of economics, both macro and micro.

The formal, analytical tools from economics and mathematics that largely fallen under the heading of game theory allow us to understand the rational approach to decisions that have discrete choices and clear paths. The course introduces the main concepts and tools of game theory.

You will learn how to represent an economic situation as a game and how to analyze it using different equilibrium concepts proposed in the literature. Ideas such as dominance, backward induction and Nash equilibrium, are discussed and applied to examples drawn from economics, politics... Finally, you will play several games such as ultimatum game, investment game, public goods game, etc. in a room dedicated to laboratory experiments, and you will confront your decisions made in the game with the standard predictions of game theory.

## PREREQUISITES

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You must be comfortable with mathematical thinking and rigorous arguments. Relatively little specific math is required.

## READINGS

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- ✓ Binmore (1992): Fun and Games, A Text on Game Theory, Houghton Mifflin
- ✓ Camerer (2003): Behavioral Game Theory: Experiments on Strategic Interaction
- ✓ Eichberger, J. (1993). Game Theory for Economists, Academic Press, San Diego
- ✓ Fudenberg, D., Tirole, J. (1991). Game Theory, MIT Press, Cambridge, Massachusetts
- ✓ Mas-Colell, A., Whinston, M. D., Green, J. R. (1995). Microeconomic Theory, Oxford University Press, New York, Oxford. (Chapters 13, 14)

## COURSE OUTLINE

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Chapter 1. Introduction

Chapter 2. Properties and representations of a game

Chapter 3. Static games

Chapter 4. Dynamics games and repeated games

## Module 1: Microeconomics

**Semester:** Fall semester

**Lectures:** 24 hours

## COURSE DESCRIPTION

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This course provides a graduate level introduction to Industrial Organization. It deals with the study of the interactions between firms and their competitors, suppliers, and customers when imperfect competition is characterized.

The aim of the course is to provide an understanding of concepts and tools in the theory of Industrial Organization, and to explore recent developments in the field by exposing students to a wide variety of techniques.

## PREREQUISITES

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Principles of Microeconomics and Basic Optimization and Mathematical Programming.

## READINGS

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- ✓ Industrial Organization: Contemporary Theory and Empirical Applications, by L. Peppall, D. Richards and G. Norman, Blackwell Publishing, 2008 (called PRN)

## COURSE OUTLINE

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- 1) Introduction: From Industrial economics to strategic behavior of firms
  - 1.1 Strategic behavior/Industrial Organization: what, why and how? (PRN Chapter 1)
  - 1.2 Basic conditions, market structure and market power (PRN 3 and 4)
- 2) Oligopoly and strategic interaction: how do firms compete strategically?
  - 2.1 Game theory (PRN 9)
  - 2.2 Cournot competition (PRN 9)
  - 2.3 Bertrand competition (PR10))
  - 2.4 Dynamic competition (PR11)
- 3) Non price competition: How do firm differentiate their products?
  - 3.1 Differentiation (PRN 10)
  - 3.2 Advertising (PRN 20, 21)
- 4) Anticompetitive strategies: how do firms relax competition?
  - 4.1 Price Fixing and collusion (PRN 14 and 15)
  - 4.2 Entry deterrence, predatory conduct and monopolization (PRN 12, 13)
  - 4.3 Mergers (PR 16)
- 5) Vertical relationships: how do firms interact with their suppliers and customers?
  - 5.1 Vertical price constraints (PRN 18)
  - 5.2 Non price vertical restraints (PRN 19)
  - 5.3 Vertical mergers (PRN 17)

## Module 2: Applied economics

**Semester:** Fall semester

**Lectures:** 24 hours

**Tutorials:** 18 hours

## COURSE DESCRIPTION

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This course covers applied statistical methods with emphasis on confidence intervals estimation and hypothesis testing. It is suitable for data analysis with a rather limited study of probability. The emphasis is on learning to apply statistical methods and probability rules to solve real problems in business and economics. This course is a prerequisite for a course in introductory econometrics.

## PREREQUISITES

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- ✓ Organizing and presenting collected data
- ✓ Measures of location and spread
- ✓ Basic probability concepts
- ✓ Random variables and probability distributions
- ✓ Discrete probability distributions (including Bernoulli, Binomial and Poisson) and continuous probability distributions (including normal and uniform).

## COURSE OUTLINE

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1. Sampling distributions
2. Confidence intervals calculus and interpretation: for a mean and a proportion and for the difference between two means and two proportions
3. Hypothesis testing of means, variances and proportions; Goodness of fit tests and contingency tables (independence)

## Module 2: Applied economics

**Semester:** Fall semester

**Lectures:** 18 hours

## COURSE DESCRIPTION

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The lectures provide an overview of public interventions from a microeconomic perspective. We insist on decision-making process, implementation of policies and their evaluation. Spatial and generational dimensions are also considered.

## PREREQUISITES

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Intermediate microeconomics

## READINGS

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- ✓ Pindyck Robert and Daniel Rubinfeld (2008), Microeconomics, Pearson
- ✓ Mueller Dennis (2003) Public Choice III, Cambridge University Press

## COURSE OUTLINE

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1. Why should we study public economics?
2. Public goods and externalities
3. Evaluation of public policies
4. The public choice perspective
5. The spatial dimension in public economics
6. Introducing time and generations

## Module 3: Macroeconomics and trade

**Semester:** Fall semester

**Lectures:** 24 hours

**Tutorials:** 12 hours

## COURSE DESCRIPTION

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While unemployment seems purely cyclical in the US, we observe an hysteresis effect in several European countries where the long run unemployment has steadily increased since the oil shocks in 70s. This course explores theoretical explanations of the unemployment issue through the Keynesian and classics opposition. The potential trade-off between inflation and unemployment (the Philips curve) is widely discussed referring to the modern macro developments. Different macroeconomic policies supposed to reduce the unemployment rate are analyzed into the AS/AD model with flexible prices. The discretion vs rules debate is investigated in the last chapter of the course.

## PREREQUISITES

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Macroeconomic equilibrium with IS/LM model.

## READINGS

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- ✓ Olivier Blanchard, Macroeconomics, Pearson, International Edition, Fifth Edition

## Module 3: Macroeconomics and trade

**Semester:** Fall semester

**Lectures:** 24 hours

## COURSE DESCRIPTION

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The course is devoted to trade questions. It presents the theoretical and historical insights that have traditionally formed the core of the subject and covers the most important recent developments in international economics.

## PREREQUISITES

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The course does not presuppose an extensive background in economics. Students who have had a course in economics principles, microeconomics and macroeconomics will find the course accessible.

## READINGS

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- ✓ International Economics, Robert C. Feenstra , Alan M. Taylor , Worth Publishers
- ✓ International Economics, Theory and Policy: Paul G. Krugman, Maurice Obstfeld, Pearson, Addison Wesley

## COURSE OUTLINE

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Chapter 1. Introduction – Trade in the Global Economy

Chapter 2. International Trade Theory: Ricardian Model, Specific Factors Model, Heckscher-Ohlin Model...

Chapter 3. International Trade Policy: Instruments, International Agreements...

## Module 1: Macroeconomics, trade & European economics

**Semester:** Spring semester

**Lectures:** 24 hours

**Tutorials:** 12 hours

## COURSE DESCRIPTION

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The main objective of the class is to:

1. Isolate the main determinants of economic growth and inequality
2. Understand why some countries are richer than others, and to understand why some countries grow at a faster rate than others
3. Understand how the government can intervene to boost the economic growth of their countries.

## PREREQUISITES

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- ✓ Basic concepts in microeconomics: consumer theory, producer theory and welfare theory.
- ✓ Basic concept in macroeconomics: Production function properties, national accountability.

## READINGS

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- ✓ Barro R. J. and Xavier-Sala-i-Martin, X. (2003), Economic Growth, ed. MIT Press, Chapter 2
- ✓ Blanchard O., (2009), Macroeconomics, ed. Pearson, chapter 12
- ✓ Carlin W. and Soskice D., (2006), Macroeconomics, Oxford University Press, chapter 8
- ✓ Weil D., (2009), Economic Growth, ed. Pearson

## COURSE OUTLINE

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This course is devoted to the analysis of economic growth in the long run. First, we begin with a presentation of stylized facts about production. Then, theoretical and empirical approaches are used to shed light on the economic growth of modern economies. This is accomplished by presenting well-known models of economic growth: the Solow model, the Ramsey model and theories and endogenous growth.

## Module 1: Macroeconomics, trade & European economics

**Semester:** Spring semester

**Lectures:** 24 hours

## COURSE DESCRIPTION

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This course is devoted to the presentation and analysis of the key European economic issues.

It starts with a general overview of the process of European integration. Those building blocks are used to elaborate on the economic principles that underlie this process. For that, it uses both theoretical and applied economics.

The last part of the course is dedicated to the presentation of a selection of current topics. Those topics may then be subject to changes. A non-exhaustive list of these topics includes banking and financial integration, industrial policy, tax policy, innovation policy.

## PREREQUISITES

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You must be comfortable with mathematical thinking and rigorous economic discussion. Previous knowledge in open macroeconomics and international economics is not mandatory but may be helpful.

## READINGS

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Economics: European Edition, Michael Parkin, Melanie Powell and Kent Matthews, 10th ed, Pearson Ed, 2017

## COURSE OUTLINE

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Part I. European Economics: Historical and economic perspectives

Chapter 1. European integration: general overview and historical perspectives

Chapter 2. The Economics of European Integration

Part II. Selected topics in European Economics

Chapter 3. Banking & Financial integration

Chapter 4. Industrial policy

## Module 1: Macroeconomics, trade & European economics

**Semester:** Spring semester

**Lectures:** 16 hours

## COURSE DESCRIPTION

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International trade occurs mainly between northern countries that are similar in terms of factor endowments and productivity. This course aims at describing this phenomenon. More particularly we will examine the role of increasing returns to scale introduced by Paul Krugman at the end of the 70s. The localization choices of production units and some issues on new organizations of firms in the global economy will also be studied.

## PREREQUISITES

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Standard theories of international trade.

## READINGS

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International Economics, Theory and Policy: Paul G. Krugman, Maurice Obstfeld, Pearson, Addison Wesley

## COURSE OUTLINE

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1. External Economies of Scale and the International Location of Production
2. Firms in the Global Economy: Export Decisions, Outsourcing, and Multinational Enterprises
3. The Instruments of Trade Policy

## Module 2: Networks, markets & business decisions

**Semester:** Spring semester

**Lectures:** 24 hours

**Tutorials:** 12 hours

## COURSE DESCRIPTION

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The course is devoted to decisions taken in a context of risk and uncertainty. In the standard microeconomic theory there is no uncertainty about the consequences of individuals' decisions. On the contrary, under risk or uncertainty one decision can lead to various consequences, depending on the state of nature that occurs. This course presents various tools and theories aimed at electing the best strategy in such a context. The Expected Utility Theory of Von Neumann and Morgenstern forms the core of the course.

## PREREQUISITES

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Students should have completed Microeconomic Principles.

## COURSE OUTLINE

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1. Decision under uncertainty
2. Decision under risk
3. The expected utility theory
4. Risk and risk aversion
5. Insurance Demand
6. Asymmetric Information

## Module 2: Networks, markets & business decisions

**Semester:** Spring semester

**Lectures:** 16 hours

## COURSE DESCRIPTION

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This course covers the economics of innovation and network industries, especially that of the so-called ICT (information and communication technology) industries. Network industries include the telephone, e-mail, Internet, computer hardware and software, banking services, airline services, and many more. Current developments one may observe in these industries result from strategic decision-making that IO (industrial organization) concepts and tools allow to understand and analyze. For instance they include economies of scope, component systems, product bundling and tying, network externalities and congestion, switching costs, and first- and second-mover advantages.

This course presents to what extent price and non-price strategies foster or limit business performance and social outcomes when the market is characterized by network features. Specific effort is held to illustrate the relationship between what does happen on such markets and how the IO theory aims at explaining such facts.

## PREREQUISITES

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Intermediate microeconomics and industrial organization are necessary backgrounds. It will also be helpful if students are familiar with basic concepts in game theory.

## READINGS

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- ✓ Comino, S. and Manenti, F.M. (2015). *Industrial Organisation of High-Technology Markets: The Internet and Information Technologies*. Edward Elgar Publishing Ltd.
- ✓ Shapiro, C. and Varian, H.R. (1999). *Information Rules: A Strategic Guide to the Network Economy*. Harvard Business School Press
- ✓ Shy, O. (2001). *The Economics of Network Industries*. Cambridge University Press
- ✓ Tirole, J. (1988). *The Theory of Industrial Organization*. MIT Press

## COURSE OUTLINE

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1. Introduction: An overview of network industries
2. Network externalities
3. Compatibility and incompatibility with systems and components
4. Compatibility and incompatibility with supporting-services (software)
5. Technology replacement and switching costs

## Module 2: Networks, markets & business decisions

**Semester:** Spring semester

**Lectures:** 6 game sessions (1/2 day each, 3 days); defense of business project (about 2 weeks after game sessions)

## COURSE DESCRIPTION

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During this course, you will join a student team. Each team is in charge of running a private company. You will need to design a business strategy and implement this strategy through proper decisions (distribution & marketing, production & supply chain, finance). At the end of a game session (typically ½ day), you will be informed about the commercial and financial performance of your business and you will need adjust your strategy accordingly. During a game session (or between two sessions), new events may also affect your business and the market environment.

Learning outcomes. During this course, you will learn how to ...

- ✓ Design and implement a business strategy
- ✓ Understand the linkages between marketing, production and finance decisions
- ✓ Read and gain insights from a company's bookkeeping data

## PREREQUISITES

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You must be comfortable with mathematical thinking using a spreadsheet software (e.g. Excel, Open Office). Relatively little specific math is required.

The course is not dedicated to accounting issues and the teacher will help you interpreting financial data. However, you need to know the basics of accounting (profit & loss account, balance sheet) before you attend to the course.

## READINGS

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Readings are not mandatory for this course but will help you prepare for the game session.

- ✓ Strategic Management: A Competitive Advantage Approach, Concepts and Cases, Fred R. David and Forest R. David, 16th Edition, Pearson Ed., 2017
- ✓ Part I and Part II of Principles of Managerial Finance, Lawrence J. Gitman, and Chad J. Zutter, Pearson Ed., 2015

## COURSE OUTLINE

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The game sessions last three whole days and you need to attend the six game sessions. Students may be asked to prepare additional work between two sessions. About two weeks after the game sessions, each group will have to prepare a written report and an oral defense of their business project. The final grade will be composed of the following items: a) written report; b) oral presentation; c) participation during game sessions; d) business performance.

## Module 3: Econometrics and applied economics

**Semester:** Spring semester

**Lectures:** 18 hours

**Tutorials:** 18 hours

## COURSE DESCRIPTION

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This course is an introduction to econometrics with focus on economic applications. This course emphasizes both the theoretical and the practical aspects of statistical analysis, focusing on techniques for estimating econometric models of various kinds and for conducting tests of hypotheses of interest to economists.

## PREREQUISITES

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Students should have completed the course Statistics.

## READINGS

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- ✓ Jeffrey M. Wooldridge, "Introductory Econometrics: A Modern Approach", 5th edition, South-Western College Pub

## COURSE OUTLINE

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1. Introduction
2. Simple Linear Regression
3. Multiple Linear Regression

# BUSINESS INTELLIGENCE USING THE BLOOMBERG DATABASE

Rennes  
Exchange  
Program  
in Economics

## Module 3: Econometrics and applied economics

Semester: Spring semester

Lectures: 18 hours



## COURSE DESCRIPTION

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Bloomberg L.P. is a private company specialized in financial and business information. Bloomberg's terminals are the most widely used in financial trading rooms worldwide. The Faculty provides 10 of them for students in its own trading room.

The purpose of this course is to train students to the use of Bloomberg terminals. To this end, this 18-hours course will be divided in two parts. Students will first attend an introduction course that will provide them a strong knowledge of Bloomberg main functions. This course will end with some exercises on terminals that will help them to practice. After the introduction course, students will have to work by groups on an economic or financial issue. They will have to prepare an oral defense of their project at the end of the semester in front of a jury of experts.

Simultaneously, students must complete the Bloomberg Market Concepts (BMC). This is an 8-hour e-learning module about economics, currency, fixed income and equity valuation. Completing the BMC offers them the possibility to add a Bloomberg skill in their resume.

## PREREQUISITES

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There are no prerequisites or readings required. However, students who attend this class should be comfortable with computer software (e.g. Microsoft Excel), should have a strong interest in economics and finance and be aware of current events in financial markets, monetary policy, and macroeconomics.

## COURSE OUTLINE

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Part 1: Introduction course

1. Bloomberg Terminal (keyboard, account, language, navigation ...)
2. Analyze data with Bloomberg (main functions, portfolio, tools, Launchpad...)
3. Import & Export data (API of Excel, Python or R...)
4. A case study (practical exercises)

Part 2: Answering an economic or financial issue with Bloomberg data and tools

After attending the introduction course, students must deal with an economic or financial issue on Bloomberg by groups.

Part 3: Bloomberg Market Concepts (BMC)

Students must also complete the 8-hour e-learning module to validate the course.

The final grade will be composed of multiple components such as the involvement in class, the project execution, the BMC's result...

## Module 3: Econometrics and applied economics

**Semester:** Spring semester

**Lectures:** 16 hours

## COURSE DESCRIPTION

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For a long time, economists have considered transport only as a private monetary cost of distance for households, workers or firms. Transport economics is precisely a field where the non monetary costs of distance have been considered, in order to define an Generalized Transport Cost (GTC): time travel costs and also environmental costs, like traffic congestion, air and noise pollution or GreenHouse Gases (GHG). But transport economics considers generally locations for firms or households to be given to focus on travel costs. Precisely, Spatial Economics, a field that merges Urban Economics and New Economic Geography, wants to explain the determinants of spatial location choices for firms and households, an important factor being a possible trade-off between agglomeration economies for economic agents and agglomeration costs, a specific one being the Generalized Transport Cost.

This course aims at making a clear relationship between these two fields, transport and spatial economics by presenting first the key concepts of transport economics: Value of Time (VoT), Traffic congestion, Users Traffic Equilibrium, transport policies. Second, the key ideas of spatial economics are presented: Agglomeration economies, urban sprawl, bid-rent approach, monocentric and polycentric cities.

## PREREQUISITES

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Basic Macroeconomics, Intermediate microeconomics, Introductory (non-cooperative) game theory are helpful.

## READINGS

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- ✓ Button K. (2010), Transport Economics, E. Elgar
- ✓ Fujita M., Thisse JF. (2002), Economics of Agglomeration – Cities, industrial location and regional growth, Cambridge
- ✓ Small, K. and Verhoef (2007), The Economics of Urban Transportation, Routledge

## COURSE OUTLINE

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Chapter 1. The Transportation Sector  
Chapter 2. Transport Costs  
Chapter 3. Spatial Economics  
Chapter 4. Transport Public Policies