

Foundations of Economics

Root Number: 441667 – HS2024

Semester: Fall semester - HS 2024

ECTS: 11 ECTS

Lecturers: David Baumann (Mathematics & Statistics), Kirti Jhunjhunwala (Microeconomics) & Octavio Fernández-Amador (Macroeconomics and Econometrics)

Dates: Please see details on pages 11, 12, 13 and 14

Audience:

- Master of Advanced Studies of International Law and Economics (MILE) Students – Compulsory
- Joint LL.M. / Diploma of Advanced Studies Trade and Investment Law (TRAIL+) Students - World Trade Institute / Faculty of Law, Unibe - Compulsory
- This course is not open to MILE a la Carte

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COURSE DESCRIPTION

This is an introductory course to Microeconomics and Macroeconomics for International Economics. Before the beginning of the course there will be an introductory course on Mathematics and Statistics. Students will gain a basic understanding of the most important economic theories on micro-economics, specifically the basic concepts of demand and supply, consumer- and producer theory, and market structures. Students will also be introduced to the foundations of macroeconomic analysis, in particular to concepts like the goods and financial markets, the functioning of macroeconomic policies, balance of payments and the exchange rates. This course will provide the students with a solid foundation for the course on international trade theory in the second semester. During the final part of the course the students will be introduced to the basics of applied econometrics in combination with the use of the statistical software STATA.

Detailed description by subject

Math and Statistics

The course revises topics on mathematics and descriptive statistics that are relevant to understand the economic analysis studied in the modules of the Master of International Law and Economics with focus on economic topics.

Microeconomics

The goal of the course is to gain a basic understanding of the most important economic theories on micro-economics. This will provide students with a foundation of microeconomic concepts and will enable them to understand the basic economics also relied on in the international trade literature. For this, some introductory topics in economics will be discussed such as demand and supply, consumer theory, and market structures. After the course, students should be able to explain the main concepts and theories on microeconomics and be able to follow the course on international trade.

The course comprises 7 lectures of 2-3 hours each (16 hours in total) plus 3 hours for the final exam. The module is structured as follows: The first session will be devoted to a short revision of the basics of supply and demand and to study consumer behavior. The second session will focus on individual and market demand, and the third session will focus on production. In sessions four and five the discussion will focus on the cost of production and the profit maximizing behavior of firms. In session six all the concepts discussed so far will be applied to do an analysis of competitive markets. The final session will be devoted to discuss the concept of market power, with a special focus on monopolistic competitive markets.

The main reference is the textbook by Pindyck and Rubinfeld on Microeconomics. Students are expected to work through the book chapters indicated in this syllabus before class in order to facilitate their comprehension of the material to be discussed. In class, the material is discussed together thoroughly.

Macroeconomics

This is an introductory course to the core field of macroeconomics and international macroeconomics. Students will be introduced to the foundations of macroeconomics. They will learn the functioning of goods and financial markets, the basic analysis of monetary and fiscal policies, as well as concepts like the balance of payments, the exchange rate, currency markets, international capital mobility, purchasing power parity, and interest rate parity. This will enable them to better understand and interpret recent macroeconomic developments and the implications for government policies and markets. We shall address the economic policy options available to governments in the present era of economic globalization.

The main reference is the textbook by Blanchard (BLA, hereafter). In some lessons, we will supplement the textbook with other readings from sources such as academic journals, institutional reports, outlooks, and specialized news.

The course is organised to provide the theoretical underpinnings and some recent examples during the lectures. It is required from the students to read the main readings for each lecture to facilitate their understanding of the material to be discussed. In class, the material is discussed together thoroughly. It is expected from students their participation in class and their preparation of the material and exercises required.

Econometrics

The objective of the econometrics part of the course is two-fold: First, enabling students to interpret output tables from econometric analysis in academic research papers and to work with their own datasets. The lessons learned from the econometrics module can be used in subsequent economics courses in the MILE program and by students when working on take-home essays or their specific thesis projects. Second, beyond the confines of the MILE program, students will acquire skills in using the statistical software STATA, which is in high demand among employers both in the private and public sector. These considerations resonate well with the feedback from former MILE cohorts: The students who enrolled in the previous econometrics modules indicated that they see quantitative approaches to international trade as a stepping stone for their thesis projects or potential future employment. Throughout the course, emphasis will be placed on the intuition behind econometric analysis. The main goal will be to communicate to the students the merits of using a certain model as well as the main procedures through which results are obtained.

The course comprises seven lectures of 2 hours each (14 hours in total) plus a final examination. The module is structured as follows: The first session will be devoted to the basics of data analysis. Students will learn how to feed data into the statistical software STATA, to calculate descriptive statistics and to plot graphics of interest. Students are required to practice the use of the learned commands and apply them in practical exercises. The introductory lecture will be followed by lectures on the most simple linear

regression models and the procedure of statistical inference. Throughout the course, emphasis will be placed on the intuition behind econometric analysis. The course is intensive and students are required to revise the material at home.

Note: Due to the strong focus on hands-on learning, students must make sure that STATA is properly installed in their laptops before the beginning of Econometrics classes. The software will be provided by the WTI.

Lecturers

David Baumann

David is a PhD candidate in economics at the World Trade Institute (WTI). His research addresses the nexus between international trade and climate change, with a special focus on emissions pricing regimes, the theory and empirics of trade wars, and the impacts of natural disasters and extreme weather events on trade flows and global value chains. David holds an MSc in Applied Economic Analysis with a special qualification in Trade and International Development from the University of Bern. Prior to joining the WTI, David worked as a research assistant for a large longitudinal social structure study, as an assistant in energy and climate economics at an economics consultancy working for the Swiss government, and as an academic intern in the section for market regulation at the Swiss Federal Office of Energy. He is passionate about international trade, climate and energy economics, political economy, as well as data analytics and visualization.

Kirti Jhunjhunwala

Kirti Jhunjhunwala, is a PhD candidate at the World Trade Institute. She is working on an SNF project with Joseph Francois on the impact of uncertainties in global value chains on services trade. Prior to this, she was working with the World Trade Organisation's Economic Research and Statistics Division. She worked with their quantitative modelling team to develop and analyse results from the WTO'S Global Trade model in the domain of climate change, gender and subsidies.

She has completed her Masters in International Economics from IHEID, Geneva. She also holds a Masters in Business Administration degree from India and has worked as a consultant with the Boston Consulting Group. She is interested in international trade, behavioral economics and climate change. She is also passionate about learning and discovering new fields and bringing them together to make her research more holistic.

Octavio Fernández-Amador

Octavio Fernández-Amador is a senior researcher at World Trade Institute. He holds a PhD in Economics from the University of Innsbruck (Austria) and a degree in Economics from University of Sevilla (Spain). He has previously worked as a Postdoc Assistant Professor at Johannes Kepler University Linz (Austria). Octavio has collaborated in projects with different institutions. His field of research is applied econometrics and macro-econometrics. He has worked on international macroeconomics, monetary economics, applied econometrics, time series analysis, and the quantitative analysis of climate change. Octavio has published in various international scientific journals.

LEARNING OBJECTIVES

Math and Statistics

- Revising basic mathematical and statistical concepts;
- Understanding the use of those concepts in economics.

Microeconomics

- Understanding the basics of micro-economics as a foundation to economics;
- Understanding how, given technology, a firm minimizes its costs
- Learning how profit maximizing firms act on competitive and non-competitive markets

Macroeconomics

- Understanding the most important concepts and tools for analysis of macroeconomics and international macroeconomics
- Being able to better understand and interpret recent macroeconomic developments in an international context
- Addressing the economic policies available to governments in the present era of economic globalization

Econometrics

- Understand the basics of econometrics in combination with the STATA software.
- To be able to understand and utilize the empirical (econometric) approaches to the study of international trade.

RECOMMENDED LITERATURE

- Rosser, M. and P. Lis (2016): Basic Mathematics for Economists. 3rd edition. Routledge.
- Triola, M.F. Essentials of Statistics. 6th edition. Pearson.
- Pindyck, R., Rubinfeld, D. (2018): Microeconomics. 9th edition. Pearson.
- Blanchard (2016): Macroeconomics. 7th Global edition, Boston: Pearson Education.
- Wooldridge, J. (2016): Introductory Econometrics: A Modern Approach. 6th Edition. Cengage.

Note: We will deliver additional readings in advance to help understand basic concepts related to the lectures and to supplement the compulsory readings either during the class or for the exercises proposed. The readings delivered will be considered part of the material to prepare the exam, unless the instructor excludes them from being part of the content of the exam.

EXAMS AND GRADES

Important: A positive evaluation of each of the FOUR sub-modules of Foundations of Economics is necessary to complete the whole course with a positive grade!

Math and Statistics

- The grade will be based on an online final exam
- The grade on Math and Statistics counts for **15%** of the final course grade

Microeconomics

- The grade will be based on an online final exam
- The grade on Microeconomics counts for **20%** of the final course grade

Macroeconomics

- The grade will be based on an online final exam
- The grade on Macroeconomics counts for **20%** of the final course grade

Econometrics

- 10% of the grade will be based on participation, 45% on a final exam, and 45% on the course project (replication exercise as explained in class)
- The grade on Econometrics counts for **45%** of the final course grade.

COURSE OVERVIEW

| Lesson | Date | Weekday | Subject | Hours | Time | Lecturer | Topic | Reading |
|----------|----------|---------|----------------------------------|-------|-------------|---------------------|---|--|
| | 09.17.24 | Tue | Maths and Statistics | 1 | 9:00-10:00 | D. Baumann | Placement exam discussion | |
| 1.S1 | 09.18.24 | Wed | Maths and Statistics | 2 | 14:00-16:00 | D. Baumann | Elementary Algebra, Functions, Equations, Growth Rates, | Rosser, M. "Basic Mathematics for Economists" |
| 2.S2 | 09.20.24 | Fri | Maths and Statistics | 2 | 14:00-16:00 | D. Baumann | Differential Calculus; Statistics terminology, Frequency distributions, | Rosser, M. "Basic Mathematics for Economists" Triola, M.F. "Essentials of Statistics" |
| 3.S3 | 09.25.24 | Wed | Maths and Statistics | 2 | 14:00-16:00 | D. Baumann | Measures of Central Tendency and Location, Measures of dispersion and dependence, Index numbers | Triola, M.F. "Essentials of Statistics" |
| 4.S4 | 09.27.24 | Fri | Maths and Statistics | 3 | 14:00-17:00 | D. Baumann | Exercises | |
| SE | 10.02.24 | Wed | Maths and Statistics Exam | 2 | 14:00-16:00 | D. Baumann | Exam | |
| 5.Mi1 | 10.04.24 | Fri | Microeconomics | 2 | 14:00-16:00 | TBD | Very short revision: Supply and Demand; Consumer Behavior | Pindyck and Rubinfeld, Ch. 1-3 |
| 6.Mi2 | 10.09.24 | Wed | Microeconomics | 3 | 14:00-17:00 | TBD | Individual and Market Demand | Pindyck and Rubinfeld, Ch. 4 |
| 7.Mi3 | 10.11.24 | Fri | Microeconomics | 2 | 14:00-16:00 | TBD | Production | Pindyck and Rubinfeld, Ch. 6 |
| 8.Econ 1 | 10.14.24 | Mon | Econometrics | 2 | 09:30-11:30 | O. Fernández-Amador | The STATA environment | Rodriguez, G. STATA Tutorial |
| 9.Mi4 | 10.16.24 | Wed | Microeconomics | 3 | 14:00-17:00 | TBD | Cost of Production | Pindyck/ Rubinfeld, Ch. 7 |

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| 10.Mi5 | 10.18.2 4 | Fri | Microeconomics | 2 | 14:00- 16:00 | TBD | Profit maximization | Pindyck and Rubinfeld, Ch. 8.1-8.8 |
| 11.Eco n2 | 10.21.2 | Mon | Econometrics | 2 | 09:30- 11:30 | O. Fernández- Amador | Simple linear regression model | Wooldridge Ch1 & 2 |
| 12.Mi6 | 10.23.2 4 | Wed | Microeconomics | 3 | 14:00- 17:00 | TBD | Competitive markets | Pindyck and Rubinfeld, Ch. 9.1-9.4 + 9.6 |
| 13.Mi7 | 10.25.2 4 | Fri | Microeconomics | 2 | 14:00 – 16:00 | TBD | Market power and monopolistic competition | Pindyck and Rubinfeld, Ch. 10.1-10.4 and Ch. 12.1 |
| 14.Eco n3 | 10.28.2 | Mon | Econometrics | 2 | 09:30- 11:30 | O. Fernández- Amador | Multiple linear regression model | Wooldridge Ch 3 |
| 15.Ma 1 | 10.30.2 4 | Wed | Macroeconomics | 2 | 13:00 – 15:00 | O. Fernández- Amador | The short run (I): The goods market; the short run (II): Financial markets. | BLA 3 & 4 |
| 16.Ma 2 | 11.01.2 4 | Fri | Macroeconomics | 3 | 10:00 – 13:00 | O. Fernández- Amador | The short run (II): Financial markets; the short run (III): Goods and financial markets: The IS-LM model. | BLA 4 & 5 |
| 17.Eco n4 | 11.04.2 | Mon | Econometrics | 2 | 09:30- 11:30 | O. Fernández- Amador | Statistical Inference | Wooldridge Ch 4 |
| 18.Ma 3 | 11.06.2 4 | Wed | Macroeconomics | 2 | 13:00 – 15:00 | O. Fernández- Amador | The short run (III): Goods and financial markets: The IS-LM model; the short run (IV): The extended IS-LM model: financial markets revisited. | BLA 5 & 6 |
| 19.Ma 4 | 11.08.2 4 | Fri | Macroeconomics | 3 | 10:00 – 13:00 | O. Fernández- Amador | The short run (IV): The extended IS-LM model: financial markets revisited; | BLA 6 & 7 |

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| | | | | | | | the medium run (I): The labor market. | |
| 20.Econ5 | 11.11.2 | Mon | Econometrics | 2 | 09:30-11:30 | O. Fernández-Amador | Non-Linearities & Interaction Effect | Wooldridge Ch 6 |
| 21.Ma5 | 11.13.24 | Wed | Macroeconomics | 2 | 13:00 – 15:00 | O. Fernández-Amador | The medium run (I): The labor market; the medium run (II): The Phillips curve. | BLA 7 & 8 |
| 22.Ma6 | 11.15.24 | Fri | Macroeconomics | 3 | 10:00 – 13:00 | O. Fernández-Amador | The medium run (II): The Phillips curve; the medium run (III) The IS-LM-PC model. | BLA 8 & 9 |
| 23.Econ6 | 11.18.2 | Mon | Econometrics | 2 | 09:30-11:30 | O. Fernández-Amador | Heteroscedasticity & Panel data | Wooldridge Ch 8 & 13 |
| 24.Ma7 | 11.20.24 | Wed | Macroeconomics | 2 | 13:00 – 15:00 | O. Fernández-Amador | The open economy (I): Openness in goods and financial markets; the open economy (II): The goods market. | BLA 17 & 18 |
| 25.Ma8 | 11.22.24 | Fri | Macroeconomics | 3 | 10:00 – 13:00 | O. Fernández-Amador | The open economy (II): The goods market; the open economy (III): The Mundell-Fleming model. | BLA 18 & 19 |
| 26.Econ7 | 11.25.2 | Mon | Econometrics | 2 | 09:30-11:30 | O. Fernández-Amador | Panel data and endogeneity | Wooldridge Ch 14 & 15 |
| ECON | 12.02.24 | Mon | Econometrics | 2 | 09:30-11:30 | O. Fernández-Amador | Exam | |
| MIE | 12.04.24 | Wed | Microeconomics | 2 | 14:00 – 16:00 | TBD | Tutorial Questions & Answers | All chapters included in the exam |
| MIE | 12.09.24 | Mon | Microeconomics | 2 | 09:30-11:30 | TBD | Exam | |

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| MAE | 12.13.2 4 | Fri | Macro Exam | 2 | 10:00- 12:00 | O. Fernández- Amador | Exam | |
| ECON | 01.06.2 5 | Mon | Take Home Exam | | | O. Fernández- Amador | Home assignment (project) | |

Maths and Statistics (D. Baumann)**Topic:**

- Revising mathematics (5 hours):

Elementary algebra: notation, arithmetic operations, evaluating expressions; Equations: re-arranging terms, solving (linear) systems of equations; Functions: meaning and use, prominent types, plotting; Growth rates; Differential calculus: meaning and use, differentiation rules, elasticity.

- Revising descriptive statistics (4 hours):

Terminology and types of variables; Frequency distributions and histograms; Measures of central tendency, location, dispersion and dependence; Index numbers.

Optional Reading Materials:

The lessons will revise the topics mentioned above. Students who have covered these concepts in high school should be able to follow without special reading. Background readings to refresh the material are

- Rosser, M. & Lis, P. (2016): Basic Mathematics for Economists. 3rd ed., Taylor & Francis Ltd;
- Keedy M.L. (1978), Algebra One, Addison-Wesley Publishing Company
- Triola, M.F (2011): Essentials of Statistics. 4th ed., Pearson.

Microeconomics (Kirti Jhunjunwala)**Topics:**

- Very short revision of the basics of supply and demand:

(Note: Students are requested to have prepared this material before the beginning of the MILE/TRAIL+. The revision will be short and assume that students are familiar with the topic); The market mechanism; Elasticities and slopes; Supply and demand

- Consumer behavior:

Consumer preferences; Budget constraints; Consumer choice; Revealed Preference; Marginal utility and consumer choice

Compulsory Reading Materials:

- Pindyck, R., Rubinfeld, D. (2018): Microeconomics. 9th edition. Pearson. Chapters 1-3

Optional Reading Materials:

- Machlup F. (1958): Equilibrium and Disequilibrium: Misplaced Concreteness and Disguised Politics. The Economic Journal, 68(269), 1-24.

Microeconomics (Kirti Jhunjhunwala)

Topics:

- Individual and market demand:
Individual demand; Income and substitution effects; Market demand; Consumer surplus; Network externalities

Compulsory Reading Materials:

Pindyck, R., Rubinfeld, D. (2018): Microeconomics. 9th edition. Pearson. Chapter 4

Microeconomics (Kirti Jhunjunwala)**Topics:**

- Production:
Firms and their production decisions; Production with one variable input (labor); Production with two variable inputs; Returns to scale

Compulsory Reading Materials:

- Pindyck, R., Rubinfeld, D. (2018): Microeconomics. 9th edition. Pearson. Chapter 4

Topics:

- The STATA Environment
 - User surface and basic navigation
 - Dataset structures (cross-section, panel, bilateral data, time series)
 - Data import
 - Command syntax (saving commands, data manipulation, ...)
 - Graphs

Suggested Reading Materials:

- Rodriguez, G. STATA Tutorial, available at: <http://data.princeton.edu/stata/>

Microeconomics (Kirti Jhunjhunwala)**Topics:**

- The cost of production: Measuring cost; Cost in the short-run; Cost minimization in the long-run; Short- vs. long-run cost curves; (Dis-)economies of scale; The learning curve.

Compulsory Reading Material:

- Pindyck and Rubinfeld, Chapter 7.1 – 7.4 and 7.6

Further Comments: *The students are expected to be especially familiar with the topics discussed in Pindyck and Rubinfeld, Chapter 7.1. Due to time constraints this section can be discussed only briefly in the lecture.*

Microeconomics (Kirti Jhunjhunwala)**Topics:**

- Profit maximization and competitive supply: The concepts of perfectly competitive markets and profit maximization; Marginal revenue, marginal cost, and profit maximization; Short- and long-run supply curves for firms and the market; Producer surplus; Output in the long-run; Effects of a tax on output.

Compulsory Reading Material:

- Pindyck and Rubinfeld, Chapter 8.1 – 8.8

Further Comments: *The students are expected to be especially familiar with the topics discussed in Pindyck and Rubinfeld, Chapter 8.1 and 8.2. Due to time constraints this section can be discussed only briefly in the lecture.*

Topics:

Simple Linear Regression Model

- Intuition
- Mechanism of estimation (OLS)
- Output interpretation
- Model quality (R^2)

Compulsory Reading Material:

Wooldridge, J.M. (2015), *Introductory Econometrics: A Modern Approach* (6th edition), Cengage Learning, Boston, USA. Chapters 1 and 2.

Microeconomics (Kirti Jhunjhunwala)**Topics:**

- The analysis of competitive markets: Gains and losses from government policies; Efficiency of competitive markets; Minimum prices; Price supports and production quotas.

Compulsory Reading Materials:

- *Pindyck and Rubinfeld, Chapter 9.1 – 9.4 and 9.6*

Microeconomics (Kirti Jhunjhunwala)**Topics:**

- Part I: Market power: The monopoly and monopoly power; Sources of monopoly power; The social costs of monopoly power.
- Part II: Monopolistic competition

Compulsory Reading Materials:

- Pindyck and Rubinfeld, Chapter 10.1 – 10.4
- *Pindyck and Rubinfeld, Chapter 12.1*

Topics:

- Multiple Linear Regression Model
 - Intuition
 - Mechanism of estimation (OLS)
 - Output interpretation
 - Model quality (R² and adjusted R²)
 - Omitted variable bias
 - Multicollinearity

Compulsory Reading Material:

- Wooldridge, J.M. (2015), *Introductory Econometrics: A Modern Approach* (6th edition), Cengage Learning, Boston, USA. Chapter 3

Macroeconomics (O. Fernández-Amador)**Topics:**

- The short run (I): The goods market.
The goods market equilibrium and the determination of output; the interaction among demand, production and income; effects of fiscal policy on output.
- The short run (II): Financial markets.
The equilibrium in financial markets and the determination of the interest rate in the short run; effects of monetary policy on the interest rate.

Suggested Reading Materials:

- BLA, chapters 3 and 4.

Macroeconomics (O. Fernández-Amador)**Topics:**

- The short run (II): Financial markets.
The equilibrium in financial markets and the determination of the interest rate in the short run; effects of monetary policy on the interest rate.
- The short run (III): Goods and financial markets: The IS-LM model.
The equilibrium in the goods market: The IS relation; the equilibrium in the financial markets: The LM relation; the IS-LM model and the effects of fiscal and monetary policy; dynamics and the short-run description of the economy.

Suggested Reading Materials:

- BLA, chapters 4 and 5.

Topics:

- Statistical Inference
 - Rationale for hypothesis testing
 - Mechanism of hypothesis testing

Compulsory Reading Material:

- Wooldridge, J.M. (2015), Introductory Econometrics: A Modern Approach (6th edition), Cengage Learning, Boston, USA. Chapter 4.

Macroeconomics (O. Fernández-Amador)**Topics:**

- The short run (III): Goods and financial markets: The IS-LM model.
The equilibrium in the goods market: The IS relation; the equilibrium in the financial markets: The LM relation; the IS-LM model and the effects of fiscal and monetary policy; dynamics and the short-run description of the economy.
- The short run (IV): The extended IS-LM model: financial markets revisited.
Nominal and real interest rates; risk and interest rates; financial intermediaries; the extended IS-LM model; the recent financial crisis.

Suggested Reading Materials:

- BLA, chapters 5 and 6.

Macroeconomics (O. Fernández-Amador)**Topics:**

- The short run (IV): The extended IS-LM model: financial markets revisited.
Nominal and real interest rates; risk and interest rates; financial intermediaries; the extended IS-LM model; the recent financial crisis.
- The medium run (I): The labor market.
Equilibrium in the labor market; wage and price determination; the natural rate of unemployment.

Suggested Reading Materials:

- BLA, chapters 6 and 7.

Topics:

- Non-Linearities & Interaction Effects
 - Functional form
 - Scaling and beta coefficients
 - Dummy variables
 - Interaction effects: One and two regressors

Compulsory Reading Material:

- Wooldridge, J.M. (2015), *Introductory Econometrics: A Modern Approach* (6th edition), Cengage Learning, Boston, USA. Chapter 6.

Macroeconomics (O. Fernández-Amador)**Topics:**

- The medium run (I): The labor market.
Equilibrium in the labor market; wage and price determination; the natural rate of unemployment.
- The medium run (II): The Phillips curve.
The relationship between inflation, expected inflation, and unemployment; the Phillips curve and the natural rate of unemployment; the relation between unemployment and inflation cross-country and over time.

Suggested Reading Materials:

- BLA, chapters 7 and 8.

Macroeconomics (O. Fernández-Amador)**Topics:**

- The medium run (II): The Phillips curve.
The relationship between inflation, expected inflation, and unemployment; the Phillips curve and the natural rate of unemployment; the relation between unemployment and inflation cross-country and over time.
- The medium run (III): The IS-LM-PC model.
The IS-LM-PC model; the dynamics of adjustment of output and inflation; two examples: The dynamic effects of fiscal consolidation and of oil price shocks.

Suggested Reading Materials:

- BLA, chapters 8 and 9.

Topics:

- Recap and short introduction to further concepts

(Note: depending on time, one or more of the following topics may be discussed)

- Heteroscedasticity
- Fixed effects

Reading Material:

- Wooldridge, J.M. (2015), *Introductory Econometrics: A Modern Approach* (6th edition), Cengage Learning, Boston, USA.
 - Heteroscedasticity: Chapter 8
 - Fixed effects: Chapter 13

Macroeconomics (O. Fernández-Amador)**Topics:**

- The open economy (I): Openness in goods and financial markets.
Implications of openness in goods and financial markets; the nominal exchange rate; the real exchange rate; the balance of payments of a country; the interest rate parity condition.
- The open economy (II): The goods market.
The equilibrium in the goods market for an open economy and the trade balance; effects of domestic and foreign shocks; the effects of a real depreciation; the connection among savings, investment and the trade balance.

Suggested Reading Materials:

- BLA, chapters 17 and 18.

Macroeconomics (O. Fernández-Amador)**Topics:**

- The open economy (II): The goods market.
The equilibrium in the goods market for an open economy and the trade balance; effects of domestic and foreign shocks; the effects of a real depreciation; the connection among savings, investment and the trade balance.
- The open economy (III): The Mundell-Fleming model.
Equilibrium in the goods and financial markets when including the foreign exchange market; the determination of output, interest rate and exchange rates; policy under flexible and fixed exchange rates.

Suggested Reading Materials:

- BLA, chapters 18 and 19.

Topics:

- Recap and short introduction to further concepts

(Note: depending on time, one or more of the following topics may be discussed)

-
- Fixed effects
- Endogeneity

Reading Material:

- Wooldridge, J.M. (2015), Introductory Econometrics: A Modern Approach (6th edition), Cengage Learning, Boston, USA.
 -
 - Fixed effects: Chapter 14
 - Endogeneity: Chapter 15