

## Syllabus

**Course code:** 4ST14NAK34M

**Course name:** Advanced Quantitative Methods

**Number of credits:** 6 ECTS

**Course leader:** Dr. Sugár András

**Department:** Department of Statistics

**Aim of course:** Aims, objectives and description of the course:

This course introduces students to the main concepts, structure and methodology of economic and social statistics with special regard to boom indicators, national accounts, well-being indicators, household budget survey and balance of payment. The statistical methods used by most of OECD countries will be presented. This helps to understand the real economic content of the most frequently analysed and cited data, and also their reliability level will be highlighted. The main sources of data distortions will be discussed. The course also contains international comparisons of the most up-to-date statistical methods.

**Relation with other courses:** The knowledge of content and methodology behind the published data is necessary for all economists to be able to draw correct conclusions. Beyond interpreting the data, students will be acquainted with some opportunities of constructing models for economic analysis and forecasts based on the data published by statistical offices, national banks and other data providers.

**Number of contact hours:** 2 + 2

**Semester:** Spring

**Prerequisites:** Statistics, macroeconomics

**Course schedule:**

Introduction, role of quantitative methods in economic analysis, short-term economic indicators

Introduction. Economic and social statistics as special branches of statistics: similarities and differences, data sources and methodology. National accounts as the framework of quantifying macroeconomic phenomena: logical structure, basic principles and rules of the system. Official data supply in Hungary and in the European Union, its role in the European Union. Tools of business cycle analysis.

The essential macroeconomic aggregates, volume and price indices

Value indices, volume indices and price indices. GDP as the most important indicator of economic performance. Methodology of the GDP measurement, estimation of the quarterly GDP. Data revision policy. GDP at current and constant prices, chain-linking methods.

Concept of National Accounts and the statistics of the supply side

Statistics of the supply side. Outline and statistics of production, gross output, value added, classification of economic activities and products. Market and non-market production, characteristics of branches, boom indicators of the supply side.

National Accounts: statistics of the demand side

Statistics of the demand side: intermediate and final consumption. Structure of consumption, gross capital formation, exports and imports.

National Accounts: statistics of income, accounts of the household sector

Outline and statistics of incomes. Accounts of sectors. Accounts of the household sector. Primary and secondary allocation of income, transfers, taxes, property income, disposable income, final consumption expenditure, accumulation, marginal propensity to save, net savings.

## Accounts of the corporation sector

The accounts of corporations sector, tax return and other special statistics. Financial and non-financial corporations. Gross output, value added, indicators of productivity. Companies with foreign ownership, characteristics of industries. small, mid-size and large companies, top 100. Measurement and macroeconomic effects of the non-observed economy.

## Accounts of the government sector

The accounts of general government sector, subsectors, basic statistics. GFS vs. ESA'95 account. Content of the Excessive Deficit Procedure report. Indicators of equilibrium and indebtedness.

## Accounts of the rest of the world sector and balance of payments

Accounts of the rest of the world sector and balance of payments: current account, capital account, financial account. Role and effects of the FDI.

Well-being I: economic dimension of well-being, measurement of inequality and poverty, demography Internal characteristics of household incomes, micro-level statistics, household budget and life conditions survey, statistics on income and life conditions (EU-SILC). Indicators of income inequalities, analyses based on micro-level information. Measurement and indicators of poverty. Long-term population dynamics and structure. Sources of data, problems and modeling of aging.

## Well-being II: social dimension of well-being and environmental sustainability

Measurement of well-being, social dimension of sustainability. Indicators of social development (OECD better life index, world happiness index, etc.). Possible indicators of sustainable development, environmental indicators (ecological footprint, HDI, etc.). Life conditions of households, opportunities of analyses (dwelling, health care, public security).

## Analysis of the labor market, SUT integration and international comparison methods

Labor and wage statistics. Differences between institutional and labor force statistics. Database of wage tariffs, opportunities of analysis of the labor market.  
Supply and Use Tables, indicators for international comparisons: PPP and PPS calculations, indicators of the long-term convergence.

## Measurement of consumer prices

Inflation and monetary statistics: basic concepts and methodology, international comparison. Harmonized consumer price inflation, core inflation, statistics for monetary policy analysis.

## Case studies presentations

Consultation, preparation for the exam

## Learning outcomes:

### Competencies:

Students obtain competence in measuring of macroeconomic performance and of social characteristics based on international standards.

## Evaluation

Course assessment during the semester: An active participation is required during the classwork.

A student's presentation is required. The case studies are developed by students' teams

## Readings:

Compulsory readings:

1. E. Giovannini: Understanding Economic Statistics – an OECD Perspective. OECD, 2008.
2. Lequiller, F., D. Blades: Understanding National Accounts, second edition, OECD, 2014.
3. OECD: Quarterly National Accounts – Sources and Methods Used by OECD Member Countries.  
[www.oecd.org](http://www.oecd.org)

Recommended readings:

1. Cserháti, I., T. Keresztély, T. Takács: Examination of income inequalities of Hungarian households in 2012 using a microsimulation model. Statistical Review, Vol. 90, Special Number 16, pp. 3-17, 2012.