



## Course syllabus

School of Business and Economics

Department of Economics and Statistics

1NA016 Fördjupad nationalekonomi I, 30 högskolepoäng

1NA016 Intermediate Economics I, 30 credits

### **Main field of study**

Economics

### **Subject Group**

Economics

### **Level of classification**

First Level

### **Progression**

G1F

### **Date of Ratification**

Approved 2014-10-01

Revised 2023-06-12 by School of Business and Economics. Literature and standard texts.

The course syllabus is valid from autumn semester 2023

### **Prerequisites**

Economics 30 credits, including credits in basic micro- and macroeconomics, and Statistics 15 credits or course credits in time series analysis and regression analysis, and English 6, or the equivalent.

## Objectives

### **Module 1: Mathematical Economics II, 7.5 credits**

After completing this module the student should be able to:

- interpret economic information which is modelled with linear and non-linear functions and equations, and solve equation systems
- apply derivative rules to analyse economic phenomena such as profit maximisation, cost minimisation, and utility maximisation
- solve optimisation problems for continuous functions with one and several dimensions, with and without constraints
- solve integrals and use integral calculus to determine economic areas
- determine whether a function is convex or concave
- determine the degree of homogeneity of a function
- conduct simple analyses within linear algebra

## **Module 2: Econometrics, 7.5 credits**

After completing this module the student should be able to:

- explain and describe regression models (simple and multiple), their properties and inference
- identify, explain and solve for problems such as heteroscedasticity, autocorrelation and multicollinearity
- explain and interpret time series models such as AR and ARCH models
- explain and identify Granger-causality, (non-)stationarity and co-integration
- apply regression models to estimate and analyze economic relationships
- explain the possibilities and limitations associated with different data when using regression analysis
- explain and understand the intuition of the most common statistical methods to isolate causal effects
- interpret results in written and oral form from a regression analysis
- use statistical software to perform data processing and estimation

## **Module 3: Intermediate Microeconomics, 7.5 credits**

After completing this module the student should be able to:

- verbally, graphically and mathematically analyse and explain consumers' and producers' decisions
- apply demand and supply models in order to analytically and graphically derive the market equilibrium and analyse how taxes affect the equilibrium
- identify and describe kinds of market failure and explain how policy interventions can correct them
- apply basic game theory to explain economic decision making in different strategic situations (oligopoly, public goods, contests)
- define and analyse different market forms with the help of mathematical models and game theory (perfect competition, oligopoly, monopoly)

## **Module 4: Intermediate Macroeconomics, 7.5 credits**

After completing this module the student should be able to:

- explain and apply basic models for optimal decision for consumption and investment in the long-run.
- derive and apply models for economic growth.
- verbally, graphically and mathematically derive and explain economic models for both a closed and an open economy in the short-run

## **Content**

### **Module 1: Mathematical Economics II, 7.5 credits**

The module contains:

- linear and non-linear functions and equations
- exponential and logarithmic functions
- elasticity
- homogeneity
- derivative rules
- rules of integration (including areas and integration by parts)
- convexity, concavity, and second-order conditions
- formulation and solving of economic optimisation problems with one or two variables (with and without constraints)

- Lagrange method
- linear algebra

### **Module 2: Econometrics, 7.5 credits**

The purpose of the module is to go through fundamental regression analysis which is frequently used in economics.

The module contains:

- Ordinary Least Squares
- model specification and diagnostics testing
- dynamic econometrics models
- causality and instrumental variables
- identification, estimation, diagnostic testing and prediction of ARIMA models

### **Module 3: Intermediate Microeconomics, 7.5 credits**

The module is a continuation of basic micro economics.

The module contains:

- consumer theory
- producer theory
- market equilibrium and taxes
- analysis of different market forms (perfect competition, oligopoly, monopoly)
- price discrimination
- externalities and public goods
- non-cooperative game theory (Nash equilibrium in pure and mixed strategies)
- applications of game theory (oligopoly, public goods, contests)
- uncertainty and asymmetric information (moral hazard, adverse selection)

### **Module 4: Intermediate Macroeconomics, 7.5 credits**

The module aims to provide enhanced knowledge in macroeconomic theory.

The module contains:

- production, interest rates and consumption
- capital accumulation and economic growth
- wage and price setting
- unemployment
- business cycles, monetary and fiscal policy
- the open economy

## Type of Instruction

### **Module 1: Mathematical Economics II, 7.5 credits**

The teaching consists of lectures and group exercises.

### **Module 2: Econometrics, 7.5 credits**

The teaching consists of lectures, laboratory sessions and tutorials.

### **Module 3: Intermediate Microeconomics, 7.5 credits**

The teaching consists of lectures and exercises.

### **Module 4: Intermediate Macroeconomics, 7.5 credits**

The teaching consists of lectures and exercises.

## Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

**Module 1: Mathematical Economics II, 7.5 credits**

The course is examined through a written examination 5.5 credits and an assignment 2 credits.

**Module 2: Econometrics, 7.5 credits**

The course is examined through a written examination 5.5 credits, a laboratory session 1 credit and a written assignment 1 credit.

**Module 3: Intermediate Microeconomics, 7.5 credits**

The course is examined through a written examination 5.5 credits and a written assignment 2 credits.

**Module 4: Intermediate Macroeconomics, 7.5 credits**

The module is examined through a written examination 5.5 credits and a written assignment 2 credits.

**The following applies to all modules:**

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail.

The grade of the course is a combined assessment from the grades of the various course modules. The combined assessment is based on the grades and the scope of the course (number of credits). The more extensive a module is, the greater impact it will have on the final grade. Module grades with the grading scale between G-U will not be considered into the combined assessment. However, a G is required for each of the modules in order to receive a final course grade.

Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University. An examiner can, in exceptional cases, decide that a student who is close to the level for a passing grade may carry out supplementary assignments in order to reach the passing grade.

If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customised exam or to have the student conduct the exam in an alternative way.

**Course Evaluation**

During the implementation of the course or in close conjunction with the course, a course evaluation is to be carried out. Results and analysis of the course evaluation are to be promptly presented as feedback to the students who have completed the course. Students who participate during the next course instance receive feedback at the start of the course. The course evaluation are in regular carried out anonymously.

**Credit Overlap**

The course cannot be included in a degree along with the following course/courses of which the content fully, or partly, corresponds to the content of this course: 1NA005 with 30 hp.

Module 1: 1NA005:1, 1NA010, 1NA002, 1NA004:1 and 1NA070 with 7.5 credits each.

Module 2: 1NA005:2, 2NA001, 2FE045:2, 1NA004:2, 1NA011 and 1NA071 with 7.5 credits each.

Module 3: 1NA005:3, 1NA012, 2NA003 and 1NA072 with 7.5 credits each.

Module 4: 1NA005:4, 1NA013, 2NA006 and 1NA073 with 7.5 credits each.

## Required Reading and Additional Study Material

### Required reading

#### **Module 1: Mathematical Economics II, 7.5 credits**

Sydsaeter, K. & Hammond, P. *Essential Mathematics for Economic Analysis* Prentice Hall. Latest edition. About 510 pages.

#### **Module 2: Econometrics, 7.5 credits**

Gujarati, D.N. *Basic Econometrics*. McGraw-Hill. Latest edition. 900 pages.

Scientific articles and statistics provided by the teacher. About 100 pages.

#### **Module 3: Intermediate Microeconomics, 7.5 credits**

Varian, H.R., *Intermediate Microeconomics*. Norton. Latest edition. About 700 pages.

Scientific articles. About 100 pages.

#### **Module 4: Intermediate Macroeconomics, 7.5 credits**

Jones, Charles I. *Macroeconomics*. Fifth edition, International student edition. New York, NY: W.W. Norton & Company. ISBN: 9780393417333. About 350 pages.

Scientific articles. About 200 pages.