



ÖREBRO UNIVERSITY

SWEDISH BUSINESS SCHOOL  
AT ÖREBRO UNIVERSITY

## Programme Syllabus<sup>1</sup>

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# ECONOMICS AND ECONOMETRICS, 120 HIGHER EDUCATION CREDITS

## *Nationalekonomi och ekonometri, 120 högskolepoäng*

The study programme was instituted on 4 October 2005, by the Faculty Board of Humanities and Social Sciences. The programme syllabus was last amended on 8 October 2009 by the Faculty Board of Economics, Management and Innovation.

### **1 GENERAL**

The master programme for Economics and Econometrics comprises 120 higher education credits and leads to a Degree of Master (Two Years) with in-depth studies in the main field of study, economics.

There is a wide international and national job market for policy officers and analysts with advanced knowledge in economic theory, economic models and statistical methods, both in the public sector and in private trade and industry. Within national ministries and authorities as well as in international bodies, where investigations and analyses previously were made by people with a background in law, political sciences or other social sciences, people with economic schooling are increasingly in demand. This is evident, among others, in the following areas: competition policy and anti-trust, regulation of network industries (electronic communication, electricity, transport), environment and natural resource policy, labour market policy, consumer policy, review of financial markets, and evaluation of public affairs. These fields complement traditional fields for national economists such as bank and finance, business analysis, tax, finance and monetary policy. In the private sector, such work is found in banks, trade associations, research institutes and so on.

Extensive knowledge of economic theory and economic models is often required for advanced analysis work. In addition, the ability to carry out quantitative empirical analyses is usually required, which demands training in statistical theories and methods. The development of information technology has facilitated

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<sup>1</sup> The English translation of the programme syllabus was last amended on 23 November 2010.

the gathering, compiling, storing and processing of data, for example answers from customer and patient questionnaires or financial time series. At the same time, the econometric method arsenal for analysing economic problems with this kind of data has grown. The programme aims at providing students with the advanced knowledge in economics and econometrics required in order for them to work as policy officers and analysts, in combination with practice of independent and critical analysis on a scientific basis.

The programme is mainly intended as a vocational programme but is also intended for students hoping to pursue doctoral studies.

## **2 AIMS AND OBJECTIVES**

### **2.1 General aims for second level education**

Second level education shall essentially build on the knowledge that students acquire in first level education or corresponding knowledge.

Second level education shall involve a deepening of knowledge, skills and abilities relative to first level education and, in addition to what applies to first level education, shall

- further develop the students' ability to independently integrate and use knowledge;
- develop the students' ability to deal with complex phenomena, issues and situations; and
- develop the students' potential for professional activities that demand considerable independence or for research and development work.

(Chapter 1, Section 9, Higher Education Act)

### **2.2 Objectives for the programme in Economics and Econometrics**

Objectives (in addition to the general aims stated in Chapter 1, Section 9 of the Higher Education Act)

#### *Knowledge and understanding*

For a Degree of Master (Two Years) students must

- demonstrate knowledge and understanding in their main field of study, including both broad knowledge in the field and substantially deeper knowledge of certain parts of the field, together with deeper insight into current research and development work; and
- demonstrate deeper methodological knowledge in their main field of study.

#### *Skills and ability*

For a Degree of Master (Two Years) students must

- demonstrate an ability to critically and systematically integrate knowledge and to analyse, assess and deal with complex phenomena, issues and situations, even when limited information is available;
- demonstrate an ability to critically, independently and creatively identify and formulate issues and to plan and, using appropriate methods, carry out

advanced tasks within specified time limits, so as to contribute to the development of knowledge and to evaluate this work;

- demonstrate an ability to clearly present and discuss their conclusions and the knowledge and arguments behind them, in dialogue with different groups, orally and in writing, in national and international contexts; and
- demonstrate the skill required to participate in research and development work or to work independently in other advanced contexts.

### *Judgement and approach*

For a Degree of Master (Two Years) students must

- demonstrate an ability to make assessments in their main field of study, taking into account relevant scientific, social and ethical aspects, and demonstrate an awareness of ethical aspects of research and development work;
- demonstrate insight into the potential and limitations of science, its role in society and people's responsibility for how it is used; and
- demonstrate an ability to identify their need of further knowledge and to take responsibility for developing their knowledge.

(Appendix 2, Higher Education Ordinance)

*In addition to the above, Örebro University has the objective that students on completion of the study programme shall:*

- have an *understanding* of microeconomic and macroeconomic theory on such an advanced level that the student is able to
  - o independently conduct professional reports and analyses of economic-political problems;
  - o read and understand current research literature;
  - o independently conduct research on the replication (or adaptation) level, or as participant in a research team with senior researchers.
- have adequate *knowledge* of statistic and econometric methods in order to
  - o independently conduct professional empirical investigations and analyses of economic-political problems;
  - o independently conduct research on the replication (or adaptation) level or in cooperation with senior researchers contribute to a joint research project.
- be *familiar* with the theory and method used in some of the fields of application for economic and econometric analysis in the job market, such as environmental economics, financial economy, public economics, development economics and microeconometrics.
- be *familiar* with and gain an *understanding* of the current economic-political discussion and analysis within selected fields; the *ability* to formulate relevant problems as a starting point for analysis; and the *ability* to structure, plan and conduct such an analysis.

These objectives derive from demands set on the ability to conduct independent work as a policy officer or analyst.

## 3 PROGRAMME DETAILS

### 3.1 General organisation and content of the programme

The programme begins with a course in mathematics, *Mathematics for Statistical and Economic Analysis* (7.5 higher education credits). The mathematics course is required for the students to benefit from the programme's courses in economics and statistics. The course is therefore compulsory, except for students who have already acquired corresponding knowledge in first level education. These students are instead offered a choice between the first course in financial economy, *Finance: Portfolio Theory, Asset Prices and Derivates* (7.5 higher education credits) and the course *Public Finance II* (7.5 higher education credits). This is followed by two courses of 7.5 higher education credits each in statistics, *Statistical Theory I* and *Statistical Theory II*. The statistics courses can be said to provide the basis for the two courses in econometrics offered during the second semester. The semester concludes with a microeconomics course comprising 7.5 higher education credits.

The second semester contains two courses in economics and two courses in statistics. All of these are of 7.5 higher education credits. The two statistics courses mainly cover econometrics. The two economics courses are *Game Theory and Behavioural Economics* (7.5 higher education credits) and *Globalisation* (7.5 higher education credits). Both these courses can be replaced with other economics courses that are offered on the second level, at different times. Students who wish to complete their studies with a Degree of Master (One Year) may do so. Students who have acquired 30 higher education credits during the first semester of the master programme and have completed the course *Econometrics I* and another economics course at the second level can obtain a Degree of Master (One Year) (with a major in Economics) following an independent project (one-year master project) of 15 higher education credits.

The third semester starts with three parallel courses, each one comprising 7.5 higher education credits, and the student chooses one of these. The three courses are *Finance: Portfolio Theory, Asset Prices and Derivatives*; *Development Economics: Policymaking in Developing Countries*; and *Public Finance II*. The course *Finance: Portfolio Theory, Asset Prices and Derivatives* is available to students who took the mathematics course during the first semester. This is followed by the course *Macroeconomics*, 7.5 higher education credits. The semester concludes with courses of 15 higher education credits, giving the student the option to take two of the following courses: *Risk Management*, 7.5 higher education credits; *Microeconometrics*, 7.5 higher education credits; or *Environmental Economics*, 7.5 higher education credits, alternatively one of the three courses while starting on the independent project. The degree project comprises a total of 30 higher education credits, of which 7.5 higher education credits can be taken during the third semester.

The fourth and final semester is dominated by the course *Independent Project*. The independent degree project, which may have been started with 7.5 higher education credits during the third semester, continues with 30 alternatively 22.5 higher education credits during the fourth semester. Parallel to the degree project the student may take one of the following courses: *Financial and Macro*

*Economic Time Series Models or Industrial Organisation and Regulation, of 7.5 higher education credits each.*

### **3.2 Courses within the master programme**

#### **Semester 1**

*Statistics, second level, Mathematics for Statistical and Economic Analysis, 7.5 higher education credits*

This course in mathematics can be replaced by an economics course at the second level for students with a corresponding course in their first level education. The course covers, among other things, constrained optimisation, matrix algebra and differentiation.

*Economics, second level, Finance: Portfolio Theory, Asset Prices and Derivatives, 7.5 higher education credits*

This is an elective second-level economics course. The course includes linear and non-linear programming, inter-temporal optimisation under certainty, portfolio and arbitrage theory, bonds' portfolio immunisation, and portfolio evaluation.

*Statistics, second level, Statistical Theory I, Probability, 7.5 higher education credits*

*Statistics, second level, Statistical Theory II, Interference, 7.5 higher education credits*

These two courses are compulsory and study probability theory, independence and conditioning, Bayes' theorem, discrete distributions, variance, continuous distributions, functions of random variables, multivariate distributions, quadratic forms, sampling distributions, interference theory, point estimation, confidence intervals, asymptotic theory, modes of convergence, theory of point estimation, small sample properties, large sample properties, hypothesis testing, Neyman-Pearson, LR, LM (score) and Wald tests.

*Economics, second level, Microeconomic Theory, 7.5 higher education credits*

The course is compulsory and covers models for individual choice, consumption and conditions of extremum, production and profit, methods of optimisation and duality, convexity and conditions of extremum, consumption theory and demand functions, expenditure and cost functions, general equilibrium, game theory and welfare theory.

#### **Semester 2**

*Statistics, second level, Econometrics I, 7.5 higher education credits*

The course is compulsory and covers linear regression, endogeneity and instrumental variables estimation.

*Statistics, second level, Econometrics II, 7.5 higher education credits*

The course is compulsory for students aiming for a Degree of Master (Two Years). The course covers multivariate regression models, simultaneous equations, panel data models, generalised method of moments (GMM) and univariate and multivariate time series.

*Economics, second level, Globalisation, 7.5 higher education credits*

This is an elective second-level economics course. The course covers the theory of resource allocation in open economies, the driving forces for international trade and specialisation, the effects of international trade and international competition on prices, industrial structure and income distribution, relationships between internationalisation and economic growth, international factor movements and effects of economic integration.

*Economics, second level, Game Theory and Behavioural Economics, 7.5 higher education credits*

This is an elective second-level economics course. The course provides an in-depth understanding of questions relating to game theory and an outline of behavioural economics, which includes knowledge of people's behaviour when faced with a choice and the interaction between people.

*Independent project for the Degree of Master (One Year) – Degree Project, 15 higher education credits*

The course is compulsory for students who wish to complete their studies, obtaining a Degree of Master (One Year) (with a major in Economics). Students then replace two courses, one of which is *Econometrics II*, with the writing of a degree project of 15 higher education credits.

### **Semester 3**

*Economics, second level, Public Finance II, 7.5 higher education credits*

This is an elective second-level economics course. The course covers different problems within public finance, such as the management of public goods and externalities, collective action, allocation issues and fiscal federalism. The course also deals with political economics issues, such as the implications for economic results based on whether a country applies e.g. direct or representative democracy.

*Economics, second level, Finance: Portfolio Theory, Asset Prices and Derivatives, 7.5 higher education credits*

This course, which is also offered during the first semester (see above), is an elective second-level economics course. The course covers linear and non-linear programming, intertemporal optimisation under certainty, portfolio and arbitrage theory, bonds' portfolio immunisation, and portfolio evaluation.

*Economics, second level, Development Economics: Policymaking in Developing Countries, 7.5 higher education credits*

This is an elective second-level economics course. The course covers the formulation of policy on different areas in developing countries. It covers theoretical and applied aspects in public economics such as expenditure, tax policy (including environmental policy), trade policy and aid. The effects of political reforms on distribution and poverty are also discussed. The course focuses on applied models and contains assignments with such models.

*Economics, second level, Macroeconomics, 7.5 higher education credits*

The course is compulsory and covers mathematical methods for dynamic optimisation, growth and business cycles, consumption, investment, money and labour market.

*Statistics, second level, Microeconometrics, 7.5 higher education credits*

This is an elective course. The course covers models of binary dependent variables, models of discrete choice, truncated and censored regression models, selection bias models, and count data models.

*Economics, second level, Risk Management, 7.5 higher education credits*

This is an elective second-level economics course. The course covers financial instruments and markets, calculations of risk and uncertainty in portfolios of several instruments, determination of efficient portfolios, mathematical methods, index models, CAPM and APT, empirical studies of portfolio theory, market efficiency, models for market prices, forwards and futures, swaps, options, and option pricing models.

*Economics, second level, Environmental Economics, 7.5 higher education credits*

This is an elective second-level economics course. The course covers economic theories on sustainable development, market failure, incentive design, control instruments, cross-border pollution and global public goods, non-renewable and renewable natural resources, environmental valuation, risk and environment, as well as trade and environment.

*Economics, second level, Independent Project, 30 higher education credits*

The master programme contains a compulsory independent degree project, comprising 30 higher education credits. The independent project course may be started already during the five last weeks of the third semester and run over the majority of the fourth semester. In the independent degree project, the student is expected to conduct a theoretical or empirical analysis, demonstrating that he or she has acquired economic and statistical methods and is able to use these methods to analyse relevant problems. During the first part of the degree project, which corresponds to approximately 25 per cent of the total degree project, the students write a review of the research literature within the chosen field for the independent project. Before the end of this part, the students shall, in brief, during a seminar with compulsory attendance, present their review, report on the subject of the degree project, and account for the questions which will be addressed in the project.

#### **Semester 4**

*Economics, second level, Industrial Organisation and Regulation, 7.5 higher education credits*

This is an elective second-level economics course. The course outlines game and information economy aspects on strategic interaction between market agents and the prerequisites of public governance and funding of for-profit companies.

*Statistics, second level, Financial and Macro Economic Time Series Models, 7.5 higher education credits*

This is an elective course. The course reviews time-series modelling, financial time-series: ARCH/GARCH and stochastic volatility models; macro-economic time-series: structural VAR models, co-integration and equilibrium correction, dynamic stochastic general equilibrium (DSGE) models.

*Economics, second level, Independent Project, 30 higher education credits (cont.)*

The degree project, which may have been started during the third semester (see above) continues. The degree project will be defended at a seminar with a student discussant. The course also requires acting as a discussant to another student's degree project, as well as seminar attendance.

### **3.3 Teaching methods**

Teaching is conducted mainly in the form of lectures, however with a large number of hand-ins and laboratory reports, as well as written assignments and seminars. The master's degree project (for both the one and two year programme) concludes with a seminar. The study programme is designed to stimulate critical reflection, the ability to seek out and evaluate information, the ability to independently follow the development of knowledge, and the ability to communicate orally and in writing. For further information, see individual syllabuses.

## **4 INTERNATIONAL STUDENT EXCHANGE**

The programme is open to international student exchange.

## **5 GRADES AND EXAMINATION**

Unless otherwise prescribed in the course syllabus, a grade is to be awarded on completion of a course. The grade is to be determined by a teacher specifically appointed by the higher education institution (an examiner) (Chapter 6, Section 18, Higher Education Ordinance).

Unless the higher education institution prescribes another grading system, one of the following grades is to be used: fail, pass or pass with distinction (Chapter 6, Section 19, Higher Education Ordinance).

The Vice-Chancellor has decided that all schools hosting foreign exchange students shall report grades using both the Swedish grading scale and the ECTS grading scale (Vice-Chancellor Decision no. 26/2002, reg. no. 42-2002).

In case the Vice-Chancellor allows departure from the three-step grading scale this is clear from the syllabus.

Some parts of the programme are compulsory, such as written exams, assignments and seminar attendance. For details regarding compulsory parts and their scope, see individual syllabuses.

For further information, see local examination regulations.

## **6 QUALIFICATIONS**

### ***Degree of Master (One Year) (with a major in Economics)***

A Degree of Master (One Year) (with a major in Economics) is obtained after the student, in addition to having obtained a first level qualification, has completed course requirements of 60 higher education credits, including

- at least 45 higher education credits on the second level, including
- at least 30 higher education credits with in-depth studies within a main field of study;
- an independent project (degree project) of at least 15 higher education credits within the main field of study.

### ***Degree of Master (Two Years) (with a major in Economics)***

A Degree of Master (Two Years) (with a major in Economics) is obtained after the student, in addition to having obtained a first level qualification, has completed course requirements of 120 higher education credits, including

- at least 90 higher education credits on the second level, including
- at least 60 higher education credits with in-depth studies within a main field of study;
- an independent project (degree project) of at least 30 higher education credits within the main field of study.

Objectives, see section 2.2.

For further information, see local qualifications regulations.

## **7 ELIGIBILITY REQUIREMENTS**

### **7.1 Eligibility requirements on admission to the programme**

To be eligible for the programme applicants must have

1. a completed bachelor degree comprising at least 180 higher education credits, with at least 90 higher education credits in economics with increasingly in-depth studies, and 30 higher education credits in statistics, or a corresponding qualification;
2. “English Course B” from the Swedish Upper Secondary School.  
Applicants with foreign qualifications, whose first language is not English, must have their knowledge of English documented by an internationally recognised proficiency test, such as TOEFL, and enclose the test result in their application.

For further information, see local admission regulations.

### **7.2 Eligibility requirements on admission to courses within the programme**

In order to gain admission to courses within the programme, students must meet the prescribed special eligibility requirements. The special eligibility requirements are stated in the individual course syllabuses.

## **8 SELECTION AND GUARANTEED PLACES**

The selection of qualified applicants to the programme is based on their grades received in economics courses.

## **9 TRANSFER OF CREDITS FROM PREVIOUS STUDIES**

Decisions regarding transfer of credits for a course in a general qualification are, if the evaluation is made in connection with a request for a degree certificate and if the evaluation is regarded as a routine matter, made by the Head of Student Services (see delegations in education matters).

Decisions regarding transfer of credits in all other cases are made by the Head of School in question (see delegations in education matters).

For further information, see local credit transfer regulations.

## **10 MISCELLANEOUS**

The language of instruction for all courses within the programme is English.

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## **11 ENTRY INTO FORCE AND TRANSITIONAL PROVISIONS (CHAPTER 6, SECTION 17, HIGHER EDUCATION ORDINANCE)**

This programme syllabus shall be in effect from the autumn semester 2010.

Students who commenced the programme in the autumn semester of 2007 have the right to complete their studies in accordance with the programme syllabus established on 12 June 2007 until the end of the spring semester of 2010.

Students who commenced the programme in the autumn semester of 2008 have the right to complete their studies in accordance with the programme syllabus established on 12 June 2007 until the end of the spring semester of 2011.

Students who commenced the programme in the autumn semester of 2009 have the right to complete their studies in accordance with the programme syllabus established on 12 June 2007 until the end of the spring semester of 2012.