



**LUND**  
UNIVERSITY

School of Economics and Management

## **NEKH82, Economics: Option Theory, 7.5 credits**

*Nationalekonomi: Optionsteori, 7,5 högskolepoäng*

First Cycle / Grundnivå

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### **Details of approval**

The syllabus was approved by The Board of the Department of Economics on 2011-06-07 and was last revised on 2015-11-04. The revised syllabus applies from 2015-11-04, autumn semester 2016.

### **General Information**

This is a single subject intermediate course in economics belonging to the 'Financial Economics' specialisation. The course is optional within a number of undergraduate programmes at Lund University.

*Language of instruction:* Swedish

Teaching is in Swedish. (In some semesters the course can be taught in English, see the appropriate application catalogue).

*Main field of studies*

Economics

*Depth of study relative to the degree requirements*

G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

### **Learning outcomes**

#### 1. Knowledge and understanding

Students shall be able to:

- understand the basic functions of forward and option contracts,
- understand the theoretical pricing of forwards and options using the binomial model and the Black–Scholes model,
- understand the difference between the assumptions needed to price forward contracts and option contracts,
- explain how underlying variables affect the price of forwards and options,
- explain how Monte Carlo simulation can be used to price option contracts,

- generalise the knowledge to types of options that are not treated in the course.

## 2. Skills and abilities

Students shall have demonstrated an ability to independently:

- use forward and option contracts for risk management purposes,
- apply different price setting methods,
- evaluate the assumptions of various price setting methods,
- analyse the price sensitivity of an option portfolio to the variables that determine option prices,
- carry out a Monte Carlo simulation to determine option prices,
- discuss option theory.

## 3. Applying knowledge and making judgements

Students shall have developed the ability to pursue further studies in the subject and should be able to search for and evaluate information with a high degree of independence. Students shall also have developed the ability to individually write an empirically orientated essay.

## Course content

The course deals with the theoretical valuation of European and American call and put options. Under the assumption of an arbitrage free market, the course identifies the boundaries within which option prices must be during the duration of the option. Using additional assumptions regarding the development of the underlying asset over time (its stochastic process), the exact price of the option is derived, using either the binomial model or the Black-Scholes model. The main aim of the course is to establish an understanding of standardised option contracts.

## Course design

1. Teaching: Tuition consists of lectures, exercises and a computer exercise.

## Assessment

1. Examination: Written exams take place at the end of the course. There will be further opportunities for examination close to this date. The computer exercises will be graded, and the marks carried forward to examinations taken the same term.
2. Limitations on the number of examination opportunities: –

The University views plagiarism and other academic dishonesty very seriously, and will take disciplinary action against students for any kind of attempted malpractice in connection with examinations and assessments. Plagiarism is considered to be a very

serious academic offence. The penalty that may be imposed for this, and other unfair practices in examinations or assessments, includes suspension from the University for a specified period.

*Subcourses that are part of this course can be found in an appendix at the end of this document.*

## **Grades**

Marking scale: Fail, E, D, C, B, A.

1. Grading: The official grading scale is A, B, C, D, E and Fail.
2. Weighting grades from different parts of the course: –
3. Grading scales for different parts of the course: –

## **Entry requirements**

At least 20 ECTS-credits from the introductory course in economics, of which at least 7.5 ECTS-credits in microeconomics are needed for admission till all intermediate courses in economics. To be admitted to this particular course students must also have passed a course in econometrics or quantitative methods (e.g. NEKB23) or 15 ECTS-credits in statistics or equivalent courses.

## **Further information**

1. Transitional regulations: This course replaces NEKK12 "Option Theory".
2. Limitations in the period of validity: –
3. Limitations: This course may not be included in the same degree as NEK624 "Option Theory" or NEKK12 "Option Theory".
4. Similar courses: –
5. Limitations in renewed examination: –

## Subcourses in NEKH82, Economics: Option Theory

Applies from H11

1101 Option Theory, 7,5 hp  
Grading scale: Fail, E, D, C, B, A