

SYLLABUS

Natural resource economics 7.5 credits N7012N

Naturresursekonomi

Course syllabus admitted: Autumn 2023 Sp 1 - Present

DECISION DATE
2023-02-15

Natural resource economics 7.5 credits N7012N

Naturresursekonomi

Second cycle, N7012N

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	U G VG	Nationalekonomi	Economics

Entry requirements

Bachelor degree or completed courses of 180 credits, of which at least 90 credits should be in Economics, with progression, with the grade Pass. The following courses should be included: Introductory Microeconomics (N0008N) 7,5 credits, Microeconomic applications (N0040N) 7,5 credits, Microeconomics, I (N0004N) 7,5 credits and Applied mathematical economics (N0005N) 7,5 credits, or equivalent. Good knowledge in English, equivalent to English 6.

Selection

The selection is based on 30-285 credits

Course Aim

After completing the course students should be able to:

Knowledge and understanding

- Describe verbally, graphically and mathematically what is meant by optimal extraction of non-renewable natural resources over time.
- Provide a sophisticated explanation and discussion of resource scarcity, as it applies to non-renewable natural resources, from a physical as well as an economic perspective.
- Provide a sophisticated verbal and graphical explanation of key characteristics of markets for minerals, metals and energy minerals such as oil.
- Provide a sophisticated explanation and discussion of how tax policy, institutional arrangements and policies affect the mineral and metal industries.
- Describe verbally, graphically and mathematically what is meant by optimal extraction of renewable natural resources such as, e.g., marine and forest resources.
- Provide a sophisticated verbal and graphical explanation of key characteristics of the markets for forest and paper products.

Skills and abilities

- Analyze verbally, graphically and mathematically how the optimal extraction rate over time of a non-renewable natural resource is affected by changes in the discount rate, availability of the resource, technology, competition, market demand, and different policy variables.
- Verbally, graphically and mathematically use biological growth functions to analyze optimal extraction of renewable natural resources, including being able to derive, e.g., maximum sustainable yield, and optimal rotation times for renewable natural resources.
- Analyze verbally, graphically and mathematically how the optimal extraction rate over time of a renewable natural resource is affected by changes in the discount rate, availability of the resource, technology, competition, market demand, and different institutional conditions and policy variables.
- Identify key scientific works within the field.
- Analyze and solve various natural resource economic problems in groups.
- Present, motivate and discuss analyzes and solutions to various natural resource economic problems.

Judgement

- Evaluate and discuss central assumptions within natural resource economic models.
- Discuss and critically analyze approaches and arguments in scientific articles within the area in a sophisticated fashion.

Contents

The course consists of two different components:

Non-renewable natural resources:

- Extraction of non-renewable natural resources such as minerals, oil, etc.
- How markets for minerals and metals function.
- How economic policy instruments and other policy instruments, including instruments aimed at managing environmental problems, affect the functioning of these markets.

More specifically, the following concepts will be covered:

- Discounting.
- The Hotelling model for optimal extraction of non-renewable natural resources.
- Different resource concepts, physical as well as economic, and the concept of resource scarcity.
- Supply and demand factors in mineral and metal markets such as side and complementary products and recycling.
- Analysis of competition and costs.
- Demand in the short and long run (Intensity of use).
- Pricing in mineral markets.
- Tax policy and mineral policy.

Renewable natural resources:

- Extraction of renewable natural resources such as forests, marine resources, etc.
- How markets for these resources function.
- How economic policy instruments and other policy instruments, including instruments aimed at managing environmental problems, affect the functioning of these markets.

More specifically, the following concepts will be covered:

- Models for optimal extraction of renewable natural resources.
- Steady state models for growth of renewable natural resources. Models for single rotation and for optimal rotation time over infinite horizons in forestry.
- Supply and demand factors in forest and paper markets such as price formation, trade barriers, substitution effects, logging decisions, etc.
- Institutional arrangements and policies affecting the use of renewable natural resources.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

The teaching is carried out in the form of lectures and seminars. The course is given in English if necessary.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.

Written exam 4,5 ects, seminars 1,5 ects, written PM och oral presentation 1,5 ects.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term “unauthorized aids” refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Remarks

Students must register for the courses themselves, or contact ETKS educational administration, eduetks@ltu.se not later than three days after the quarter commences. Failure to do so can result in the place being lost. This rule also applies to students with a guaranteed place.

Course offered by

Department of Social Sciences, Technology and Arts

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Written exam	U G VG	4.5	Mandatory	A22	
0002	Seminars	U G#	1.5	Mandatory	A22	
0003	Written PM och oral presentation	U G#	1.5	Mandatory	A22	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Director of Undergraduate Studies Daniel Örtqvist, Department of Business Administration, Technology and Social Sciences 2023-02-15

Syllabus established

by Director of Undergraduate Studies Daniel Örtqvist, Department of Social Sciences, Technology and Arts 2022-02-11