



Course syllabus

Faculty of Social Sciences

Department of Social Studies

4SO435 Modelling och social simulering, 7,5 högskolepoäng
4SO435 Modelling and social simulation, 7.5 credits

Main field of study

Sociology

Subject Group

Sociology

Level of classification

Second Level

Progression

A1N

Date of Ratification

Approved 2015-12-09

Revised 2018-05-23 by Faculty of Social Sciences. Adjustment of examination form.
The course syllabus is valid from autumn semester 2018

Prerequisites

General entry requirements for second-cycle studies and specific entry requirements:

- a minimum of 90 credits in a Social Science, Psychology or Economics main area; students with different curricula can be accepted on an individual basis;
- English B/6 or equivalent.

Objectives

The goal of the course is to introduce modelling and simulation techniques to study human societies. The student has the opportunity to learn the logic of modelling and the use of agent-based models to better understand social phenomena and as an instrument to support policy-making.

After completing the course the students will be able to:

- correctly apply the logic of modelling
- critically discuss the results of research based on the main modelling methods;
- situate modelling and social simulation studies within the larger framework of the social sciences;
- develop agent-based models based on the NetLogo platform

Content

The course will primarily focus on agent-based simulation, with a brief introduction to other approaches to model human behaviour and societal dynamics. A significant part of the course will be devoted to the tools and concept needed to develop agent-based models (ABMs) in practice. These include:

- the logic and methodological aspects of the modelling process
- how to translate a research question into a running model
- developing models using the NetLogo platform
- informing models with empirical data
- calibration, validation and sensitivity analysis
- documenting and sharing of models

Type of Instruction

The course includes lectures, practical seminars and assignments.

Examination

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

Grade A is the highest grade and all other grades follow a falling scale in which grade E is the lowest grade to pass the course. A grade F means that the student has failed the course. Fx is not a grade and is only used when a student is allowed to complement her/his examination.

The course examination is based on the individual development and analysis of different aspects an agent-based model.

Course Evaluation

A course evaluation will be carried out at the end of the course in accordance with the guidelines of Linnaeus University. The compilation is delivered to the programme council, as well as to the teacher of the course. The next time the course is given the students are informed of the results of the previous course evaluation and any changes that have been made in the course. The course evaluation is conducted anonymously.

Other

Criteria for the grading scale are communicated to the student through a special document by the start of the course at the latest.

Required Reading and Additional Study Material

Bonacich, P. and Lu, P. (2012). *Introduction to Mathematical Sociology*. Princeton: Princeton University Press. Chap.: 1-4, 7-8, 15-18. (121 pages) ISBN: 9780691145495

Gilbert, N. and Troitzsch, K. G. (2005), *Simulation for the Social Scientist (second edition)*. New York: Open University Press/McGraw-Hill. (255 pages) ISBN: 978-0335216000, 0335216005

Railsback, Steven F. and Grimm, Volker (2012), *Agent-Based and Individual-Based Modeling: A Practical Introduction*. Princeton: Princeton University Press, (316 pages). ISBN: 978-0691136745, 0691136742