Agent-based Modelling in the Social Sciences

Single subject and programme course

7.5 credits

Agent-based Modelling in the Social Sciences

771A01

Valid from: 2016 Spring semester

Determined by
The Quality Board at the Faculty of Arts and Sciences

Date determined
2016-01-29

Main field of study
Sociology

Course level
Second cycle

Advancement level
A1X

Entry requirements
Applicants must hold a bachelor's degree/kandidatexamen of at least 180 ECTS credits, including a 15 ECTS credit degree paper, or equivalent, within humanities, behavioral or social sciences, natural sciences, mathematics, statistics, economics, or computer science.

Documented knowledge of English equivalent to Engelska B/Engelska 6.

Intended learning outcomes
After completing the course the student should at an advanced level be able to

- describe key applications of agent-based simulation modeling (ABM) in the social sciences
- explain the logic behind and the explanatory role of agent-based modeling
- design and program different types of agent-based models
- run agent-based computational experiments
- evaluate the results of agent-based simulations through various forms of statistical sensitivity analyses

Course content
Agent-based modeling is an important methodology for analyzing how groups of interacting individuals or other types of agents bring about various macro outcomes.

This course provides a detailed introduction to the agent-based model (ABM) technique. The course covers all the steps in the process of developing an ABM, from theoretical design to model implementation and model evaluation. In the course, an ABM is implemented using object-oriented programing, where the treatment of different types of variables, commands, and procedures are included. The course includes practical work with various types of computer-based experiments, as well as methods for evaluating the robustness of simulation results using various statistical sensitivity analyses.

Teaching and working methods

The course is organized around class discussions, computer-intensive laboratory sessions, and supervised independent work. In addition, students should do independent reading on their own.

Language of instruction: English and/or Swedish

Examination

The examination consists of individual programming assignments and a final project, to be determined by the teacher of the course.Detailed information about the examination can be found in the course's study guide.

Grades

ECTS, EC

Other information

Planning and implementation of a course must take its starting point in the wording of the syllabus. The course evaluation included in each course must therefore take up the question how well the course agrees with the syllabus.

The course is carried out in such a way that both men´s and women´s experience and knowledge is made visible and developed.

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Department

Institutionen för ekonomisk och industriell utveckling