



Department of Earth and Environmental Sciences

NGEN02, Physical Geography: Ecosystem Modeling, 15 credits

Naturgeografi: Ekosystemmodellering, 15 högskolepoäng
Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2007-03-01 (N 2007/266). The syllabus comes into effect 2007-07-01 and is valid from the autumn semester 2007.

General information

Language of instruction: English

Main field of study Specialisation

Physical Geography A1N, Second cycle, has only first-cycle course/s as entry requirements

Learning outcomes

On completion of the course, the student is expected to be able to:

Knowledge and understanding

- account for the general principles and methods to define, parameterize and evaluate an ecosystem model
- account for some of the various types of process-oriented models that are used within ecosystem - and environmental research and planning, their general properties and their advantages and limitations,
- design an ecosystem model in the form of a computer program
- account for how models and model results could be used in different applications connected to the environment.

Application and assessment

- analyse various types of problems related to the environment and develop methods to tackle these by means of existing models and appropriate input data and validation data,
- critically review, evaluate and interpret results of models
- design, parameterize, evaluate and apply a process-oriented mathematical model of an ecosystem or one of its components.

Communication skills

- present various types of studies both orally and in written format,
- lead and summarise discussions during seminars and group work
- summarise and visualise models and their results
- lead a group assignment to solve scientific or applied problems by means of models.

Study skills and information competence

The student should:

- had developed the ability to within the subject area seek relevant information in articles, reports and other scientific literature.

Course content

Simulation models are important tools within the environment sector, where they are used to produce basic foundations for environment political decision making and planning. In research context, modelling is used to describe complex systems and to increase the understanding of these. The course treats some of the various types of process-oriented models that are used within the ecosystem - and environmental research and relevant sectors. Further, principles, methods and tools to define, parameterize, evaluate and apply models and the visualisation and interpretation of their results with regard to underlying assumptions and uncertainties are treated. Connections are made to relevant issues and to current application fields within e.g. research, environmental management, agriculture and forestry industries. Exercise in the use of computer-based analysis and presentation tools, information retrieval and oral and written presentation technique are included as a part of certain learning activities.

Course design

The teaching consists of lectures, seminars, group work and project work. Oral presentation is included as a part of certain exercises and project work. Participation in seminars, group work and project work and thereby integrated other teaching is compulsory.

Assessment

The course has a written examination and grading is done on this examination and through grading of oral presentations, written assignments and project work. Students who have not passed the ordinary examination are offered a re-examinations shortly after.

Grades

Grading scale includes the grades: Fail, Pass, Pass with distinction

The grades in the course are pass with credit, passed and failed.

The final grade are decided through joining of the results that are included in the examination. Passed grade on the entire course assumes participation in all compulsory parts.

Entry requirements

For admission to the course, general entry requirements are required and 90 credits science studies.

Further information

The course may not be included in a higher education qualification tillsammans with NGE611 Ecosystem analysis 10 credit points.