Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

SLUkurs

Master's Programme in Sustainable Development

Version 2. Is valid between autumn 2009 and spring 2010

Programme code:
NM011

Scope:
120 ECTS

Level affiliation:
2 - Second cycle

Degree
Degree of Master of Science

Responsibe faculty:
Faculty of Natural Resources and Agricultural Sciences

Appendices

- Appendix for students admitted in the autumn 2009

1. Decision

The Board of the Swedish University of Agricultural Sciences (SLU) decided on 12-13 June 2006 to establish Sustainable Development – Master's programme.

The programme syllabus was approved by the Faculty Board at the Faculty of Natural Resources and Agricultural Sciences in 3 May 2007, to be valid from the 2007/2008 academic year. Subsequently, the syllabus has been revised on 24 September, 22 October, 17 December 2007, 24 March 2009.
The latest change from 31 May 2011 is valid from 2009/2010 academic year.

Students who have fulfilled all the requirements for a degree on the Sustainable Development – Master's programme, corresponding to 120 credits, will be awarded a Master of Science (120 credits) with a major in Environmental Science. The programme has the following programme code: NM0011.

The master's programme Sustainable Development is carried out in collaboration with Uppsala University.

2. Prior knowledge and other requirements

2.1 Previous studies
Admission to the Sustainable Development – Master's programme requires a first-cycle qualification comprising 180 credits and specialised studies comprising 90 credits within one of the following subjects/disciplinary domains:

- natural science
- social science
- technology

Applicants with the corresponding qualifications obtained by means of a degree from another country, or with the corresponding knowledge obtained in some other way, may also be regarded as fulfilling the specific entry requirements.

The applicant must further have a level of English equivalent to upper secondary school English B An applicant with a first-cycle qualification from SLU comprising 180 credits automatically fulfils this requirement. Special rules apply for applicants with qualifications from one of the Nordic countries and some English-speaking countries.

Specific requirements apply for admission to the various individual courses included in the programme.

3. Intended learning outcomes

3.1 General learning outcomes
According to the Swedish Higher Education Act, Chapter 1, Section 9 (Högskolelagen 1 kap, 9 §)
"Second-cycle courses and study programmes shall be based fundamentally on the knowledge acquired by students during first-cycle courses and study programmes, or its equivalent.

Second-cycle courses and study programmes shall involve the acquisition of specialist knowledge, competence and skills in relation to first-cycle courses and study programmes, and in addition to the requirements for first-cycle courses and study programmes shall:

- further develop the ability of students to integrate and make autonomous use of their knowledge
- develop the students´ ability to deal with complex phenomena, issues and situations, and
- develop the students´ potential for professional activities that demand considerable autonomy, or for research and development work. Ordinance (2006:173)."

3.2 Specific learning outcomes for a Master of Science (120 credits)
The student must achieve the following learning outcomes, in accordance with the supplement to the Ordinance for Swedish University of Agricultural Sciences (SLU):

Knowledge and understanding
For a Master of Science (120 credits) students must
- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge of certain areas of the field, as well as deeper insight into current research and development work; and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills
For a Master of Science (120 credits) students must
- demonstrate an ability to critically and systematically integrate knowledge and to analyse, assess and deal with complex phenomena, issues and situations, even when limited information is available;
- demonstrate an ability to critically, independently and creatively identify and formulate issues and to plan and, using appropriate methods, carry out advanced tasks within specified time limits, so as to contribute to the development of knowledge, and to evaluate this work;
- demonstrate an ability to clearly present and discuss their conclusions and the knowledge and arguments behind them, in dialogue with different groups, orally and in writing, in both national and international contexts; and
- demonstrate the skills required to participate in research and development work or to work independently in other advanced contexts.

Judgement and approach
For a Master of Science (120 credits) students must
- demonstrate an ability to make assessments in their main field of study, taking into account relevant scientific, social and ethical aspects, and demonstrate an awareness of ethical aspects of research and development work;
- - demonstrate insight into the potential and limitations of science, its role in society and people's responsibility for how it is used; and
- - demonstrate an ability to identify their need of further knowledge and to take responsibility for developing their knowledge.

3.3 Detailed learning outcomes for Sustainable Development – master's programme
Within the general objectives of a Master of Science (120 hp), SLU has specified the following learning outcomes for Sustainable Development – Master's programme

Knowledge and understanding
For a Master of Science (120 credits) degree students must
- demonstrate knowledge about natural and social prerequisites and limitations for sustainable development,
- demonstrate knowledge about the potential labour market,
- demonstrate a well-developed overall view of sustainable development,
- demonstrate knowledge about relevant and current research within sustainable development that provides opportunities for successfully carrying out studies at research level,
- demonstrate in-depth knowledge within an area of central importance to sustainable development.

Competence and skills
For a Master of Science (120 credits) students must
- creatively handle qualitative and quantitative knowledge about the earth´s resources in order to manage these in various time and space scales,
- handle some specific tools for identifying, analysing and formulating complex problems, concretise these and suggest methods and solutions for the purpose of working towards sustainable development,
- demonstrate ability to evaluate his/her work,
- demonstrate ability to speak and write about sustainable development to various target groups,
- demonstrate ability to clearly account for and discuss his/her conclusions and the knowledge and arguments that these are based on,
- demonstrate such skills as are required to participate in research and development work or to work independently with other advanced activities.

Judgement and approach
For a Master of Science (120 credits) students must
- demonstrate ability to make assessments with consideration for relevant scientific, environmental, ethical and social aspects,
- demonstrate insight into the international and long-term dimension of sustainable development and be able to relate the sustainability problem complex to a local, regional and global scale,
- demonstrate ability to independently and reflectively relate to and value various sustainability discourses and their fundamental assumptions from the perspective of different actors,

- demonstrate insight into the opportunities and limitations of science, and its role in humankind´s sustainable use of biological natural resources,
- demonstrate insight into and express an attitude based on factual criticism, tolerance, realism, prudence and insight into people´s responsibility for how science is used,
- demonstrate ability to value his/her own competence in relation to the labour market and take responsibility for developing his/her competence.

4. Possibilities for further study

A student who has completed Sustainable Development – Master's programme with a Master of Science (120 credits) meets the special entry requirements for admission to further studies at the third-cycle level at SLU.

Which third-cycle subject areas are available at the Faculty of Natural Resources and Agricultural Sciences is specified in an appendix to the programme syllabus approved by the study programme board.

Master of Science (60 credits)
The programme also allows for the awarding of a Master of Science (60 credits) after one year of studies, including an independent project comprising 15 credits. A Master of Science (60 credits) corresponds to the general entry requirements for further studies at the third-cycle level at SLU.

5. Content and outline

5.1 Courses
Courses included in the Sustainable Development – Master's programme are approved by the study programmes board. They are presented in an appendix to the programme syllabus which also contains descriptions of the programme structure (framework timetable). The intended learning outcomes and course content are presented in the course syllabus for each course. For the independent project (degree project) there are special instructions, which are approved by the study programmes board.

5.2 Outline
The concept of "sustainable development" in the current context is based on a multi-disciplinary, holistic view of the economic, social, and environmental dimensions. Knowledge about fundamental biological and environmental contexts and how they facilitate and limit economic and social development, and knowledge and in-depth understanding of the impact of social and economic systems on our opportunities to use resources are central. It is self-evident that this is a broad

area, stretching across several disciplines.

In order to reach as many levels in society as possible, it is important that the representatives and knowledge-carriers about sustainable development of the future are represented by both technology/natural science and by social science. In the programme, the former is represented by Uppsala University (Faculty of Technology and Natural Science) and the latter by the University of Agricultural Sciences Faculty for Natural Resources and Agricultural Science.

Both students with a Degree of Bachelor in social sciences and students with degrees in technology/natural sciences are therefore welcome. As the students´ knowledge will be fairly disparate, not just between but also within each of these fields, everybody studies natural sciences and social sciences during the first year – naturally using problems relating to sustainable development as the starting point. In order as far as possible to avoid too much repetition, and in order to achieve a Master´s level of knowledge acquisition, the teaching is partly done on a modular basis. For example, each day or each morning may consist of various subject groups from which the students can select courses at the start of the first semester.

The subjects during the first semester deal with the distribution of natural resources across the earth, ecology and biological diversity, for example. All is done under one over-arching issue: how do these processes function in a possible sustainable system of use? How does humankind impact on, and how is humankind impacted on by the distribution of natural resources? How do laws and social systems function, and how to they relate to ecosystem services, for example? How vulnerable are the various democratic and economic systems? After this semester, the students will demonstrate both knowledge and understanding of scientific areas that are central to sustainable development. The students are also equipped with tools for managing sustainable development in the form of courses within system analysis and computer-based decision support systems.

The second semester is structured to lead to a Master of Science with in-depth studies of the main subject of sustainable development. Methodology from several disciplines is dealt with, and also decision-making processes and paths. The semester concludes with a case study, on which two to three students work together. The students shall have backgrounds in differing disciplines, and work in a multi-disciplinary way with a problem-solving approach.

In parallel with this there is a series of joint seminars during the first two semesters, with fruitful discussions bridging the traditional subject barriers on current issues. Issues relating to differing views on sustainable development, visions and global

issues are also brought up. In this way, the students with a background in natural sciences are schooled to place their knowledge into a social science perspective, and vice versa. The students will have demonstrated ability to gather together and pass on knowledge and opinions to various groups.

During the third semester, the students can reconnect with their in-depth studies at Bachelor´s level, and have a large range of courses to choose from that both broaden and deepen their knowledge. In this way, students with, for example, a Degree of Bachelor in economics can meet up with old student colleagues again, who may have a Master of Science in economics as their goal. The students from the programme can then enrich their discussions with, for example, viewpoints from chemistry and geo-sciences. Courses can also be taken at other seats of learning, within or outside Sweden. The students will have demonstrated such knowledge and such independence that they will be ready for the requirements of the labour market.

The programme uses the very broad competence base of the universities within the various subjects on which the subject of sustainable development is based. Courses shared with other programmes may be taken. Sustainable development is a multi- and cross-disciplinary subject.

Independent project (degree project)
The studies conclude with an independent project (degree project), where the student can implement his/her knowledge, abilities and attitudes on a current issue within the subject area of the programme.

There is also the opportunity to leave with a Master of Science (60 credits). In this case, the second term concludes with a degree project worth 15 credits.

Plan for progression of knowledge and skills
A central element for the programme is that acquisition of knowledge occurs in parallel with training the ability to express oneself in writing and in speech. The progression within the Master´s programme for sustainable development is characterized by the later courses compared to the earlier courses having
- increased depth in the constituent subjects,
- increased complexity within the constituted subjects,
- greater emphasis on analysis and synthesis in courses at higher level,
- increased independence and increased responsibility for the own learning,
- increased responsibility for the development of the subject, and
- increased ability to communicate knowledge within the subject.

6. Examination

Courses at SLU
Each course includes one or several tests. The terms U, 3, 4 or 5 are used for grading the courses, unless there is an exemption decision. Grading criteria are described in an appendix to each syllabus.

Grades are determined by an examiner appointed by SLU. General rules and guidelines for assessment and grading can be found in the "Internal rules for grading and examination rights" and in "Regulations for education in first and second cycle at the Swedish University of Agricultural Sciences (SLU)".

Courses at Uppsala University are graded according to the rules and regulations valid at Uppsala University.

7. Degree

7.1 Degree awarded after completion of the programme (120 credits)
A Master of Science (120 credits) with environmental science as the main field, as described in the programme syllabus for Sustainable Development – Masters's programme, is awarded to students who complete the course requirements (pass courses) of 120 credits according to the following:

- at least 30 credits for courses with specialised study in environmental science (second cycle A1N, A1F)
- at least 30 credits for an independent project (degree project / second cycle A2E) in environmental science
- a maximum of 15 credits may be for courses passed during the first cycle

Course requirements further include:
- 60 credits for programme courses according to the approved study plan
- at least 30 credits for elective courses according to the approved study plan
- an independent project within environmental science according to the approved study plan and instructions for the programme

In addition the student must have a Degree of Bachelor or professional qualification of at least 180 credits or equivalent Degree from another country.

A student who fulfils the requirements for a Master of Science (120 credits) will, upon request, receive a degree certificate. The degree certificate will state that the student has been awarded a Master of Science (120 credits) with a major in Environmental Science.

The degree certificate will also state that the requirements have been fulfilled according to the programme syllabus for Sustainable Development – Master's programme. Detailed course requirements are shown in the study plan, which is approved by the study programme board and presented in an appendix to the programme syllabus.

A Master of Science (120 credits) within another main field of study is awarded to students who complete the course requirements (pass courses) of 120 credits according to the following:

- 60 credits for programme courses at advanced level according to the approved study plan for Sustainable development – Master's programme
- at least 30 credits for courses within an main field of study (A1F, A1N)
- at least 30 credits for independent project (master thesis/A2E) within a main field of study (same as in-depth courses) focusing on sustainable development

In addition the student must have a Degree of Bachelor or professional qualification of at least 180 credits or equivalent Degree from another country.

A student who fulfils the requirements for a Master of Science (120 credits) will, upon request, receive a degree certificate. The degree certificate will state that the student has been awarded a Master of Science (120 credits) with a major within specified main field of study.

The degree certificate will also state that the requirements have been fulfilled according to the programme syllabus for Sustainable Development – Master's programme. Detailed course requirements are shown in the study plan, which is approved by the study programme board and presented in an appendix to the programme syllabus.

7.2 Other degrees the student may be awarded after completing the study programme
The courses included in Sustainable Development – Master's programme also allow for the awarding of the following degrees on condition that SLU's demands for general qualifications are fulfilled:

- Master of Science (60 credits) with Environmental Science as the main field
- Master of Science (120 credits) with Environmental Science as the main field (not linked to the programme).

8. Miscellaneous

8.1 Credit transfer

Credits for courses from another higher education institution, in Sweden or abroad, may be transferred and recognised in the degree. Credits may be deducted if there is significant overlap between the courses passed at SLU and the external courses the student wishes to include in the degree. Credit transfer cannot be done if there is a considerable difference between the courses.

Credit transfer requests are considered on an individual basis. Once transfer has been approved, equivalent knowledge and skills acquired professionally may also be recognised.