

SLUkurs

Plant Biology - Master's Programme

Version 3. Is valid between autumn 2011 and spring 2012

Programme code:

NM008

Scope:

120 ECTS

Level affiliation:

2 - Second cycle

Degree

Degree of Master of Science

Responsible faculty:

Faculty of Natural Resources and Agricultural Sciences

Appendices

- Appendix for students admitted in 2011 autumn term

1. Decision

The Board of the Swedish University of Agricultural Sciences (SLU) decided on June 12-13 2006 to establish Plant Biology - Master's Programme.

The programme syllabus was approved by the Faculty Board at the Faculty of Natural Resources and Agricultural Sciences in May 3, 1977 to be valid from 2007/2008 academic year. The syllabus has thereafter been changed on 24 September 2007, 22 October 2007, 17 December 2007, 10 December 2008, 10 May 2010 and 14 October 2010 (Reg. no. SLU ua Fe.2010.3.0-3105). The latest change is valid from 2011/12 academic year.

Students who have fulfilled all the requirements for an degree within Plant Biology – Master's programme, corresponding to 120 credits will be awarded a Master of Science (120 credits). The programme has the following programme code: NM008.

2. Prior knowledge and other requirements

2.1 Previous studies

For admission to the Plant Biology - Master's Programme requires a degree at first level comprising 180 credits and specialised studies comprising 90 credits within

the main field:

- biology

The demands on specific entry requirements according to the above can be fulfilled by those who have equivalent knowledge through foreign degree or equivalent knowledge acquired in other ways.

The student must also have knowledge corresponding to English B from upper secondary school. This is fulfilled by the person who has an undergraduate degree from SLU comprising of 180 credits. For applicants with a degree from Nordic countries and some English-speaking countries, special rules apply.

For admission to the various courses included in the programme, the specific requirements defined for each individual course must be fulfilled.

3. Intended learning outcomes

3.1 General learning outcomes

According to “The Swedish Higher Education Act, Chapter 1 Sektion 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 shall comply with 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 their main field of study, including both a broad knowledge of the field and substantially deeper knowledge of certain parts of the field, together with deeper insight into current research and development work; and
- demonstrate deeper methodological knowledge in their 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 Detail learning outcomes for Plant Biology – Master's programme

Within the general objectives of a Master of Science (120 hp), SLU has specified the following learning outcomes for Plant Biology - Master's programme

Knowledge and understanding

For a Master of Science (120 credits) students must

- demonstrate such knowledge and understanding of plant biology as is required in order to work independently with related issues within agriculture and forestry, industry, biotechnology and the environment,
- demonstrate broad knowledge about plant structure, function and life processes

and the interaction of plants with other organisms and environmental factors,

- demonstrate significant in-depth knowledge within the specialisation chosen: plant production or experimental plant biology,
- demonstrate in-depth insight into current research and development work within plant biology,
- demonstrate in-depth methodology knowledge within plant biology and knowledge of how these methods are used.

Competence and skills

For a Master of Science (120 credits) students must

- demonstrate ability to critically and systematically integrate knowledge within plant biology,
- demonstrate ability to handle complex phenomena, questions and situations even with limited information,
- demonstrate ability to independently, critically and creatively identify and formulate questions relating to the life processes of plants and their interactions with the environment and other organisms,
- demonstrate ability to collect and critically interpret relevant data about the use of conventionally bred as well as genetically modified plants within agriculture, horticulture and forestry,
- demonstrate ability to evaluate his/her work,
- demonstrate ability to speak and write about plant biology and genetics in English, adapted to various target groups,
- demonstrate ability to 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,
- demonstrate knowledge about the potential labour market and be able to evaluate his/her own skills in relation to the requirements of the labour market.

Judgement and approach

For a Master of Science (120 credits) degree students must

- demonstrate ability to make overall assessments within the subject area of plant biology with consideration for relevant scientific, social, economic, environmental and ethical aspects,
- demonstrate ability to make assessments of how the use of genetically modified plants is evaluated,
- demonstrate insight into the opportunities and limitations of science, and its role in humankind's sustainable use of biological natural resources,
- demonstrate insight into humankind's responsibility for how science is used and thereby being able to contribute to the discussion relating to scientific quality and

the relevance of research to societal development,

- demonstrate in-depth insight into humankind's responsibility for how the results of research and development work within plant biology and molecular biology can impact on different parts of society,
- demonstrate ability to identify his/her need for further knowledge and to continuously develop his/her competence.

4. Possibilities for further study

The student who has completed Plant Biology – Master's programme with a Master of Science (120 credits) meets the special requirements needed for admission to further studies on third cycle level at SLU.

Which postgraduate subjects at the NL-faculty as it is possible to be admitted to is presented in appendix to the programme syllabus which is approved by the study programmes board.

Master of Science (60 credits)

The student has a possibility to get a Master of Science (60 credits) after studies in one year, including an independent work comprising 15 credits. Master of Science (60 credits) satisfies the general eligibility requirements for admission to further studies on third cycle at SLU.

5. Content and outline

5.1 Courses

Courses included in Plant Biology – Master's programme are approved by the Study programmes board. They are presented in appendix to the programme syllabus which also contains description of programme structure (framework schedule). The learning outcomes and the content of the courses 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

Plant products are of fundamental importance as food, animal feed, building materials, fibres and medicine. Plant biology is a central area of biology and covers many different aspects of plant life and plant production. Knowledge of how plants function and their interaction with their surroundings is necessary to achieve sustainable plant production and thereby sustainable development. Plant Biology – Master's Programme provides both in-depth knowledge about plants as well as experience of applications.

Plant Biology – Master's Programme offers three different specialisations:

- Plant Production Biology
- Plant Pathology
- Genetic and Molecular Plant Science

The specialisation Plant Production Biology is offered at the Swedish University of Agricultural Sciences. This specialisation is more aimed at applied science. How we cultivate and produce foods is an important issue. Plant Production Biology provides in-depth knowledge about the biology of cultivated plants and their interaction with other organisms. The first year of the programme covers 60 credits, mainly within the area of plant biology. The second year includes an independent project worth at least 30 credits and additional elective courses worth at most 30 credits.

The specialisation Plant Pathology (NorPath) is offered in cooperation between the Swedish University of Agricultural Sciences, Copenhagen University, the University of Environmental and Bio Sciences (Norway), Helsinki University and the Icelandic University of Agricultural Sciences. This specialisation concentrates on plant pathology, which covers everything from the epidemiology and control of plant diseases to interactions between pathogens and host plants at organism and cell level. The first year covers 60 credits with courses related mainly to plant pathology. The second year includes an independent project worth at least 30 credits and additional elective courses worth at most 30 credits. Students are encouraged to join in activities at all participating universities. This can be in the form of courses or by having supervisors for the independent project from two or more universities.

The specialisation Genetic and Molecular Plant Science is offered in cooperation between the Swedish University of Agricultural Sciences, Stockholm University, Södertörn University and Uppsala University. This specialisation is more aimed at pure sciences, which includes regulation at molecular, cellular and organism level. During the first year, each seat of learning provides one course each worth 15 credits. The second year of the programme can be taken at any of the four universities and includes an independent project worth at least 30 credits and additional elective courses worth at most 30 credits.

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 plant biology.

6. Examination

Each course is examined through one or many tests. The terms U, 3, 4 or 5 are used for grading the courses, unless there is an exemption decision.

Grading criteria are shown in appendix to the syllabys.

Grades are determined by an examiner appointed by SLU. General rules and guidelines for assessment and grading are 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)".

7. Degree

7.1 Degree that are obtained after completion of the programme

A Master of Science (120 credits) within the main field Biology, as described in the programme syllabus for Plant Biology – Masters's programme, is obtained after completed course requirements (passed courses) of 120 credits according to the following:

- at least 30 credits in courses with specialised study in the main field plant biology (second cycle A1N, A1F, D)
- at least 30 credits independent project (degree project / second cycle A2E / E) in biology,
- maximum 15 credits may consist of passed courses on first cycle.

Course requirements shall at the same time comply with the following demands:

- 60 credits compulsory programme courses according to approved study plan,
- independent project within biology according to approved study plan and instructions for the programme.

In addition the student must have a Degree of Bachelor or professional qualification consisting of at least 180 credits.

A student that 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 obtained a Master of Science (120 credits) with a major in Biology.

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

7.2 Other possible degrees the student may be awarded after completion of the study programme

The courses included in Plant Biology – Master’s programme also makes it possible to get the following degrees on condition that SLU’s demands for general qualification are fulfilled:

- Master of Science (60 credits) with the main field biology
- Master of Science (120 credits) with the main biology

8. Miscellaneous

8.1 Credit transfer

Credits for courses from another institution, within or outside the country, can be transferred and be included in the degree. Deduction of points can be made if there is significant overlap between the courses that are approved at SLU and the external courses for which the student applies for to include in the degree. Credit transfer can not be done if there is a considerable difference between the courses. Determination of credit transfer takes place in the individual case. Following this examination may also equivalent knowledge and skills acquired professionally be recognized.