



## GENERAL SYLLABUS FOR THIRD-CYCLE PROGRAMMES IN ENVIRONMENTAL SCIENCE

This syllabus applies to programmes leading to a Doctor of Philosophy and to programmes leading to a Licentiate degree. This document is subordinate to the Swedish Higher Education Ordinance and Södertörn University's local *Regulations for Third-Cycle Education at Södertörn University* (reg. no. 134/3.1.1/2014).

### 1. Description

Environmental Science is an interdisciplinary subject with great scholarly breadth, in which knowledge of basic processes and social functions, as well as the understanding of environmental problems and their practical solution, involves knowledge of both the natural and social sciences. Environmental Science covers the study of natural processes that affect the earth's physical environment to varying extents, as well as the changes and environmental problems that are caused by anthropogenic influence.

Research in Environmental Science at Södertörn University is conducted in a multidisciplinary environment. The focus is on three intertwined themes: *Environmental Change and Ecological Processes*, which studies ecological, biological and geoscientific processes and forces linked to environmental problems; *Development and the Environment*, which studies the conditions for sustainable development; and *Environmental Governance*, which includes the study of how stakeholders at different levels identify and manage complex and uncertain risks in the environment.

Environmental Science research at Södertörn University comprises both open-ended knowledge building and more applied perspectives. The starting point is that both are equally important when it comes to the long-term increase in our knowledge of the conditions for sustainable development.

### 2. Qualitative targets

Third-cycle studies shall provide proven knowledge and practical experience through the student's research in Environmental Science and aim to educate autonomous and critical researchers with the ability to contribute to the development of knowledge in the area. A Doctor of Philosophy in Environmental Science from Södertörn University shall provide the prerequisites for continued high quality research and competent professional work within higher education, business and the public sector.

The qualitative targets of the programme, in accordance with the Qualifications Ordinance, annex 2 of the Higher Education Ordinance (1993:100), are as follows:

#### Licentiate degree

For a Licentiate the doctoral student shall

##### *Knowledge and understanding*

- demonstrate knowledge and understanding in the research field including current specialist knowledge in his or her field as well as specialised knowledge of research methodology in general and the methods of the specific field of research in particular.

##### *Competence and skills*

- demonstrate the ability to identify and formulate issues in the research field with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake a research project and other qualified relevant tasks within predetermined time frames in order to contribute to the formation of knowledge as well as to evaluate this work,

- demonstrate the ability in both national and international contexts to present and discuss research and research findings in speech and writing and in dialogue with the academic community and society in general, and
- demonstrate the skills required to participate autonomously in research and development work and to work autonomously in some other qualified capacity.

*Judgement and approach*

- demonstrate the ability to make assessments of ethical aspects of his or her own research,
- demonstrate insight into the possibilities and limitations of science, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her academic development within the field of research.

*Thesis*

- For a Licentiate degree the doctoral student shall have been awarded a pass grade for an academic paper in Environmental Science (Licentiate thesis) of at least 60 credits.

**Doctoral degree**

For the degree of Doctor of Philosophy the doctoral student shall

*Knowledge and understanding*

- show broad knowledge and systematic understanding of the research field, as well as advanced and up-to-date specialised knowledge in a limited area of this field, and
- demonstrate familiarity with research methodology in general and the methods of the research field in particular.

*Competence and skills*

- demonstrate the capacity for scientific analysis and synthesis as well to review and assess new and complex phenomena, issues and situations autonomously and critically in the research field,
- with scholarly precision critically, autonomously and creatively demonstrate the ability to identify and formulate research questions within the research field, and to be able to plan and use appropriate methods to undertake research and other qualified tasks within predetermined time frames, and to review and evaluate such work,
- demonstrate through a documented research project the ability to make a significant contribution to the formation of knowledge in the research field through his or her own research,
- demonstrate the ability in both national and international contexts to present and discuss research and research findings authoritatively in speech and writing and in dialogue with the academic community and society in general, and
- demonstrate the ability to identify the need for further knowledge in the research field,
- demonstrate the capacity to contribute to social development and support the learning of others both through research and education and in some other qualified professional capacity,

*Judgement and approach*

- demonstrate intellectual autonomy, integrity and disciplinary rectitude as well as the ability to make assessments of research ethics, and
- demonstrate specialised insight into the possibilities and limitations of science, its role in society and the responsibility of the individual for how it is used.

*Thesis*

- For a doctoral degree, the doctoral student must have been awarded a pass grade for a documented research thesis (doctoral thesis) of at least 120 credits.

**3. Admission**

**3.1 General**

Admissions are to third-cycle studies that are conducted as four years of full-time study and conclude with a doctoral degree. Admissions may, in exceptional circumstances, be for only two years of full-time study that conclude with a Licentiate degree. Admissions to third-cycle studies concluding with a Licentiate degree shall be regarded as an exception to normal procedure. A doctoral student who has been admitted to a Licentiate programme and who

applies to continue on a doctoral programme must be considered in competition with other applicants.

The announcement of doctoral positions takes place nationally and internationally, preferably on fixed dates during the year and is dealt with by the Faculty Board. All announcements of doctoral positions for Environmental Studies must be approved by the steering group for third-cycle education. For BEEGS or where necessary, a representative from CBEES is included. Admissions to doctoral positions are prepared by the research area of Environmental Studies who rank the applicants based on the selection criteria stated in the general syllabus. In cases whether the place is funded via BEEGS, a representative from CBEES is included in the evaluation process. The Faculty Board decides on admission or rejection based on the overall assessment of the application by the steering group of the research area of Environmental Studies.

### **3.2 Entry requirements**

For admission to a third-cycle programme in Environmental Science, the applicant must fulfil both the basic (Section 39, Higher Education Ordinance) and specific entry requirements and thus have the necessary ability to assimilate the third-cycle programme.

General entry requirements

General entry requirements for third-cycle education are met if a person has

1. been awarded a second-cycle qualification,
2. has satisfied the requirements for courses comprising at least 240 credits of which at least 60 credits were awarded in the second-cycle, or
3. has acquired substantially equivalent knowledge in some other way in Sweden or abroad.

If there are special grounds, the University may permit an exemption from the general entry requirements for an individual applicant (SFS 2010:1064).

Interim regulation: Applicants who fulfilled the general entry requirements for third-cycle studies before 1 July 2007 shall continue to be considered eligible for third-cycle studies, but only until the end of June 2015.

#### Specific entry requirements

The specific entry requirements are fulfilled by a student who has passed courses worth at least 90 credits, including a degree project worth at least 15 credits at second-cycle level, within Environmental Science or a related subject that is of central importance to the research area.

### **3.3 Selection**

The basis for selection among eligible applicants for third-cycle programmes is the level of ability to assimilate such a degree programme. A Curriculum Vitae shall be appended to the application, as well as the texts and other documents that the applicant wishes to refer to and, where relevant, a research plan for the proposed thesis. The application is assessed on the basis of the following subject specific criteria:

1. the applicant's merits and expertise,
2. the quality of the research project,
3. the suitability and feasibility of the research project as a doctoral project,
4. the funding plan,
5. whether issues of research ethics have been considered, and
6. whether sufficient collected supervisory capacity exists to provide good and professional guidance and relevant expertise.

The application will also be assessed on the following subject-specific criteria:

- autonomy and originality in the formulation of problems, analysis and presentation of previous work,
- theoretical and methodological stringency in previous work and, where relevant, in the research plan or equivalent,
- research experience or relevant professional activity in the field of Environmental Science

- good skills in the English language and any other languages that are of importance in work on the thesis,
- a multidisciplinary or interdisciplinary background in Environmental Science
- communication and cooperation skills,
- In association with admission to BEEGS, the research plan will be assessed according to its basis in the graduate school's specific geographic area; its orientation to the Baltic states or Eastern Europe.

Priority may be given to the underrepresented gender in cases where applicants have equivalent merits. The most suitable applicants will be interviewed by representatives of the research area of Environmental Studies before a decision is taken.

The transfer of credits from previous studies may not take place during the admissions process, in order that this does not influence selection. Any credit transfer must always be initiated by the student and considered individually for each separate course in relation to the degree requirements for third-cycle programmes. Cases on credit transfers for previous courses are administered and decided upon by the steering group for third-cycle education.

### **3.4 Supervision**

Supervision at Södertörn University shall be characterised by high quality and aim to provide the doctoral student with a good education. Supervision may include discussions about work and the manuscript, reading and discussion of working texts, text reviews, discussions about experiments, and planning seminars and public defences. Supervision also includes drawing up and reviewing an individual study plan. Supervision shall be provided continually and be needs-based. The supervisor and doctoral student must meet to review and plan studies at least once per semester.

The doctoral student normally has his/her workplace at Södertörn University. A principal supervisor and assistant supervisor are appointed by the prefect, on the proposal of the research area of Environmental Studies, as soon as employment starts. The interdisciplinary nature of Environmental Science may mean that the student benefits from having additional assistant supervisors. The principal supervisor must be a professor or a researcher with associate professor-level competence. The assistant supervisor(s) must be researchers with a doctoral degree. The principal supervisor and assistant supervisor(s) must have completed a course in third-cycle supervision or be assessed as having the equivalent competence; at least one of the supervisors should be employed at Södertörn University. Supervisors at another school at the university than the one at which the doctoral student is employed must be offered access to supervisory colleagues and the equivalent bodies.

The doctoral student is entitled to supervision on the prescribed programme of 240 credits. At Södertörn University, supervision is normally compensated with a maximum of 480 clock hours for the entire period of study, which is divided between the principal supervisor and the assistant supervisor(s). More detailed terms for supervision and each supervisor's tasks shall be stated in the doctoral student's individual study plan. A request to change supervisor shall be sent to the Head of School by the doctoral student.

## **4. Programme organisation**

### **4.1 General**

The doctoral programme covers four years of full-time study, a total of 240 credits. It has one course-based section worth 60 credits and thesis work that is worth 180 credits. The doctoral student is also entitled to the award of a Licentiate degree (120 credits, of which 30 credits are from courses and 90 credits are for a thesis) as part of the third-cycle programme. In cases where a Licentiate degree is not awarded, the doctoral student must hold a seminar to mark the half-way point of his/her studies. Before the doctoral student's third-cycle programme concludes with a public defence of the thesis, a seminar is held at which the supervisory collegiate are able to review the thesis. Where admission is to a Licentiate programme, a Licentiate degree is awarded.

The normal case is that studies are conducted on a full-time basis. However, the doctoral student may participate in the work of the academic school to a maximum of 20% of the total

period of study; this is then compensated for with an equivalent extension to the period of study. In exceptional cases (e.g. projects with external parties) studies may be conducted on a part-time basis that is at least 50% of full-time. The period of study may be extended in exceptional circumstances; these may include sick leave, military service, positions of trust with union organisations and parental leave.

#### **4.2 Individual study plan and funding plan**

An individual study plan that states how the programme is organised shall be drawn up at the start of the programme. It shall be approved by the steering group of research education in Environmental Studies no more than five months after the start of employment. The Faculty Board is sent the written decision for information purposes. The individual study plan is drawn up in consultation between the doctoral student and his/her principal supervisor; it shall clarify all the parties' obligations, both specific aims for the doctoral student and the scope of the supervision.

A funding plan must be appended to the individual study plan to clarify the financial responsibility for the doctoral student's entire period of study. The Head of School must ensure that a funding plan that covers the entire period of study is drawn up before a decision is taken about admission. The funding plan describes the financing for third-cycle studies, both variable and fixed resources, semester by semester. In general, for students with alternative financing to Södertörn University, an agreement must be signed with the party providing the financing (company, public authority, other higher education institution, etc.). In cases where financing is to be done through the framework of employment with another employer, the manager of the organisation must approve the entire study plan and thus certify that third-cycle studies can take place as described.

The individual study plan shall be reviewed annually; the doctoral student shall submit a signed statement for the previous years and a detailed plan for his/her continuing third-cycle studies. The steering group for third-cycle education approved the statement of follow-up and revisions. The Faculty Board is informed in the form of a memorandum. After the revision of the individual study plan, the doctoral student and principal supervisor must confirm in writing that they have received any changes made, by signing the new version. In the intervening semester, the supervisor and doctoral student update the individual study plan and report to the steering group for third-cycle education if there are considerable deviations or problems. The steering group for third-cycle education sends this in writing to the Faculty Board and the relevant Head of School for information purposes.

Validated, reviewed and revised individual study plans are kept in the university's central archive. This is handled by the responsible administrative function at the school at which the steering group is located. The first individual study plan that is drawn up shall be registered (a unique registration number for each doctoral student) and shall follow all the reviews and revisions to the study plan.

Significant deviations from the individual study plan may entail the doctoral student being expelled from access to university resources. The principal supervisor must, in association with the Faculty Board's review of the individual study plan, assess whether the doctoral student is following the individual study plan. Written notice is given of any deviations and these shall be investigated without delay. If the deviation is significant and continues during the subsequent semester, it shall be reported in writing to the Head of School and Director of Studies. The Head of School must give the doctoral student the opportunity to make a written statement regarding the supervisor's report, after which a decision shall be taken regarding whether the proposal for the withdrawal of resources shall be submitted to the Faculty Board. The supervisor's report and the doctoral student's statement shall be appended to the proposal to withdraw resources, which shall be motivated. The Vice-Chancellor is obliged to decide on the withdrawal of resources and to provide the doctoral student with instructions as to how he/she can appeal the decision to the Higher Education Appeals Board. An application to regain the right to supervision and other resources shall be submitted to the Head of School, who transfers the case and his/her own statement to the Vice-Chancellor for a decision.

### 4.3 Thesis

Within the scope of the third-cycle programme, the student shall write a scholarly work that is published in the form of a doctoral or Licentiate thesis. This publication shall describe the doctoral student's ability to solve the described research task to a satisfactory scholarly level and in an autonomous manner. The doctoral/Licentiate thesis shall be of a quality that is equivalent to the requirements for publication in a recognised academic journal with a review process.

#### *Doctoral thesis*

The thesis is worth 180 credits. The thesis shall either be a unified piece of scholarly work (monograph thesis) or a compilation of academic works to which a summarising discussion has been added (compilation thesis). It is the scholarly quality and the doctoral student's autonomous contribution to knowledge development that is assessed, not the number of articles in the thesis. The articles may have been co-authored, but the doctoral student's individual efforts must then be clarified in the summarising chapter. The doctoral thesis should be written in Swedish, Norwegian, Danish or English. If the doctoral student intends to use a language in the thesis that deviates from these guidelines, an application for this must be submitted to the Faculty Board. A thesis that is not written in English should include a summary in English. An abstract in English is to be appended to the thesis. If a thesis has been written in a language other than Swedish, Norwegian or Danish, it should include a summary in Swedish.

#### *Licentiate thesis*

The thesis is worth 90 credits. The Licentiate thesis shall be a monograph or a summary of one to two scholarly articles. If the articles have been co-authored the student's individual contributions must be described in the summary.

### 4.4 Courses

The courses are provided by Södertörn University or other higher education institutions. There should be a written syllabus which states the intended course learning outcomes, content and credits. The Director of Studies for third-cycle education in Environmental Science decides the number of credits from courses at other higher education institutions that shall be transferred to the doctoral student. The courses are divided into obligatory and elective courses.

#### *Doctoral degree*

The doctoral degree has one course-based section that is worth 60 credits. Obligatory courses in Environmental Science are:

- Research design and methodology in environmental studies, 7.5 credits
- Thesis essay/proposal in environmental science, 7.5 credits
- Contemporary Research into the Baltic Sea Region and Eastern Europe, 7.5 credits (obligatory only for doctoral students at BEEGS)

For doctoral students who teach and who have not previously gained the equivalent educational skills, there is a basic educational course of no more than 7.5 credits.

Courses that are part of the doctoral student's programme shall be specified in the individual study plan.

#### *Licentiate degree*

Admission to third-cycle programmes for the purpose of earning a Licentiate degree shall be seen as an exception from the normal regulations and should therefore be considered with special care. Decisions regarding this are taken by the Faculty Board and may not be delegated. A doctoral student who has been admitted to a Licentiate programme and who applies to continue on a doctoral programme must be considered in competition with other applicants.

The Licentiate degree has one course-based section that is worth 30 credits. Obligatory courses in Environmental Science are:

- Research design and methodology in environmental studies, 7.5 credits
- Contemporary Research into the Baltic Sea Region and Eastern Europe, 7.5 credits (obligatory only for doctoral students at BEEGS)

Courses that are part of the Licentiate student's programme shall be specified in the individual study plan.

## **5. Examination**

In order to graduate, the doctoral student must receive a Pass grade on the courses and on the doctoral/Licentiate thesis. The Director of Studies for third-cycle education in Environmental Science checks and approves, with the help the supervisors, that all formal requirements for the award of a doctoral or Licentiate degree have been fulfilled.

### *Doctoral degree*

The doctoral thesis shall be presented and defended orally in public. The scholarly quality of the thesis is reviewed by an external examiner who is responsible for a thorough oral discussion, as well as by an examining committee. The external examiner shall be a person who is not active at Södertörn University, unless exceptional circumstances (primarily reasons of expertise) dictate otherwise.

The chairman of the public defence, external examiner and examining committee are appointed by the Faculty Board according to a proposal from the research area of Environmental Studies. The members of the examining committee are each asked to inform the university in writing, at least six weeks before the public defence, if the doctoral student is advised not to publically defend the thesis and, if so, the reasons for this. The doctoral student shall immediately be informed of such a decision.

A doctoral thesis is graded as either Pass or Fail, which is decided by the examining committee at the meeting immediately following the public defence; consideration is paid to both the content and the oral defence of the thesis.

### *Licentiate degree*

The Licentiate thesis is presented orally at a public seminar that is led by an examiner. The board for the research area of Environmental Studies appoints an examiner from the subject with docent-level competence, as well as a discussion panel consisting of an external seminar leader and two discussants from the subject. The task of the discussion panel is to review the presented Licentiate thesis and lead a constructive discussion during the seminar. The Licentiate thesis is graded as either Pass or Fail, which is decided by the examiner.