

Guidelines, intended learning outcomes and grading concerning degree projects in environmental science at the Department of Environmental Science and Analytical Chemistry (ACES)

1. General provisions

The degree project in environmental science at ACES is intended to provide experience and knowledge of the scientific method and scientific work in applied environmental science, such as the planning, implementation and reporting of a scientific study. Furthermore, the student will receive training in how to find relevant literature, write a scientific report and orally present his or her research results. The degree project should primarily constitute an external or internal research project, but literary studies may be accepted at the bachelor's level, provided that they are based on a scientific problem. Investigative work may also be accepted if it contains problem-oriented elements. Degree projects at the master's level should always contain some form of hypothesis test or scientific problem.

2. Intended learning outcomes

According to the adopted syllabus (*Applied Environmental Science, Degree Project, 2006-07-06*), upon completion of the course, students are expected to be able to:

- plan, carry out and document an experimental and/or theoretical project using an accurate scientific approach;
- use any necessary theory to carry out the work;
- carry out an object-based search for scientific literature;
- read and understand primary scientific literature;
- evaluate, analyse and draw accurate conclusions from the obtained results;
- compile and write a scientific report;
- orally report and present the work and its results.

3. Scientific Method, 1.5 credits (bachelor's level only)

Scientific Method is a mandatory component of all bachelor's level degree projects at the Faculty of Science, Stockholm University. It should be considered a part of a general academic training, and is not related to a specific subject or thesis. The course unit comprises three seminars on scientific method from different perspectives, as well as a final examination. Feel free to study this course unit one semester before you complete your degree project. More information and an application link can be found at <http://www.science.su.se/utbildning/kurser>.

4. Work plan

The work plan should be written by yourself in consultation with the supervisor. It is a part of the degree project, and it is important that you write it yourself, both so that you understand your task before you start, and so that you practise formulating a scientific problem. The work plan should be signed by you and your supervisor and then submitted to the coordinator for degree projects in environmental science for approval. Any mandatory course elements should be specified in the work plan. Once the work plan has been approved, it should be submitted to the Director of Studies at ACES in order to be filed together with the application form and the study certificate. The latter proves that you are eligible. The study administrator will register you on the course.

The work plan should contain the following:

- project title (does not have to be identical to the final title of the report);
- number of credits;
- name and address of the workplace;
- name, title, telephone number and e-mail address of supervisor;
- your own personal identity number, telephone number, e-mail address and home address;
- background, research question and hypothesis;
- how the research question will be investigated, and the methods to be used.

In addition, the work plan should include a timetable indicating:

- the date on which the work will commence;
- the number of days/weeks dedicated to practical work, reading the literature and writing the report;
- when you expect to submit the report to your supervisor;
- a proposed date for the oral presentation.

5. Grading

The degree project will be graded by an examining committee consisting of an examiner and the coordinator for degree projects in environmental science. The examiner is an appointed researcher whose field of research is best suited to assess the work. In order to ensure fair assessments, the coordinator for degree projects in environmental science is a permanent member of all examining committees. The supervisor's comments, particularly with regard to practical elements and the level of independence during the work process, should be obtained by the examining committee. However, the supervisor will not be present when the decision is made. In case of disagreement within the examining committee, other researchers/teachers at the Department with expertise in the field should be asked.

6. Assessment criteria and their relative weight

Grades will be determined based on nine items that have been adopted by the Faculty Board. Each item should be graded according to the seven-point scale (see section 7 below), after which the grades should be weighted to form a final grade on the entire project. The relative weight to be used in the grading process is specified in brackets for each item below. However, in order for the degree project to receive a passing grade, the written report (item 6.8) must receive a grade higher than F_x.

The weighted average is calculated using the following formula:

$$\text{final grade} = \frac{\text{sum (weight} \times \text{grade)}}{\text{sum weight (=30)}}.$$

6.1 *Understanding of the given task (3)*

6.2 *Completion of the experiments/field work/modelling/theoretical task (4)*

6.3 *Knowledge of the theoretical background (3)*

6.4 *Interpretation and analysis of results (5)*

6.5 *Independence (5)*

6.6 *Ability to keep to the established timetable (2)*

6.7 *Oral presentation (3)*: The presentation should be adapted to the target audience in order to create interest in the research question. The presenter should have good contact with the audience. The presentation should have a clear structure, the content should be accurate, and the images should be legible and adapted to the presentation. The time frame should not be exceeded. The presenter should be able to answer questions and discuss the results.

6.8 *Written presentation (5)*: The written report's scientific approach should include a research question relating to environmental science, which should be tested experimentally or theoretically. The introduction should place the research question in a wider context. The presentation of the background, research question and results should be clear and logical, and the statistical treatment (where applicable) should be relevant. The conclusions drawn should be well informed and deducible from the results. The discussion section should place the results in a wider context and evaluate any weaknesses in the study. Relevant literature should be cited properly in the text, and the references in the reference list should be listed correctly. Figures and tables should be clear and possible to understand without any other information besides the associated text. The title should be appropriate, and the summary should be understandable even to those who have not read the entire report. The text should be relatively easy to read and engaging, and the language should be clear.

6.9 *Other aspects*

7. Grading scale

All 8 (9) items should be graded according to the following scale:

- A = (7) = Excellent
- B = (6) = Very Good
- C = (5) = Good
- D = (4) = Satisfactory
- E = (3) = Adequate
- Fx = (2) = Inadequate
- F = (1) = Totally Inadequate