

Third-cycle courses and study
Programmes

This is a translation of a Swedish
document. In event of a

In the event of a discrepancy, the Swedish-
Language version shall prevail.

Research and thesis planning in science and technology, 7.5 credits

Forskning och avhandlingsplanering i naturvetenskap och teknik, 7,5 hp

Course Code/Codes	50FAN36
Subject Area	Part of the research study programmes in chemistry, biology, computer science and mechanical engineering
School/equivalent	School of Science and Technology
Valid from	2020-04-27
Approved	2014-04-23
Revised	2020-07-10
Approved by	Head of School, School of Science and Technology
Translation to English, date and signature	2014-06-17 CHK

1 Course content

The course provides an introduction to research and research studies as well as exercises in designing a thesis plan. The thesis plan should contain a problem statement; a specification of the research question, clearly outlining how it is linked to the research field of choice; a specification of methods to be used as well as outcomes; time plan and milestones, including a specification of the publications intended to make up the thesis.

Questions and topics discussed on the course include: What is research? Research and research study programmes – how do they relate? How are they related to the individual PhD projects? Supervision, follow up, coaching and mentoring – what is the role of the doctoral student? What is the role of the supervisor? Project planning and project management. Planning and documentation of experiments and studies. Scientific writing. Research ethics and good research practice. Research and its role in society, its possibilities, and limitations. Gender equality issues in research and education.

The course will also provide an introduction to the individual study plan.

2 Outcomes

2.1 The course in relation to the doctoral programme

The course shall primarily refer to the following intended learning outcomes for third-cycle courses and study programmes as described in the Higher Education Ordinance, i.e. the doctoral student shall demonstrate:

Knowledge and understanding

- familiarity with research methodology in general (part of outcome 2)

Competence and skills

- the capacity for scholarly analysis and synthesis (part of outcome 3)
- the capacity to review and assess new and complex phenomena, issues and situations autonomously and critically (part of outcome 3)
- the ability to identify and formulate issues with scholarly precision critically, autonomously and creatively (part of outcome 4)
- the ability to plan and use appropriate methods to undertake research and other qualified tasks within predetermined time frames (part of outcome 4)
- the ability to review and evaluate research and other qualified tasks (part of outcome 4)
- through a dissertation the ability to make a significant contribution to the formation of knowledge through his or her own rese (outcome 5)
- the ability to identify the need for further knowledge (outcome 7)

Judgement and approach

- intellectual autonomy and disciplinary rectitude (part of outcome 9)
- the ability to make assessments of research ethics (part of outcome 9)
- specialised insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used (outcome 10)

The intended learning outcomes are listed in the same order as in the general syllabus for the programme.

2.2 Intended course learning outcomes

To obtain a passing grade, the doctoral student shall demonstrate:

On completion of the course, the research student shall demonstrate the ability to:

- identify and summarize the criteria for a doctoral/licentiate thesis and use these to evaluate his/her own work,
- search for literature and identify the need for further knowledge within the field of choice,
- formulate a thesis project and specify the various stages as well as a time plan for this,
- evaluate and discuss different research methods and their applicability for the proposed project,
- identify a theoretical basis on which to build his/her project,
- evaluate and argue for the relevance of the project in relation to current research issues,
- analyze, present, review and discuss scientific material,
- organize a scientific text,
- plan an experiment,
- evaluate research-ethical implications of the proposed thesis project,
- reflect on and discuss research education and the relationship between supervisor and doctoral student, and
- reflect on and discuss gender equality issues in academia.

3 Reading list and other teaching material

The following course readings and teaching material will be used on the course:

Lecture notes and presentation material.

Doctoral theses and papers covering applicable aspects of the field.

Other research students' "one-pagers" and "research posters" describing their research projects and presentations.

Swedish Council for Higher Education (Universitets- och högskolerådet) (2009)

Doktorandhandboken <http://www.doktorandhandboken.nu/>

Swedish Research Council (VR), *Good Research Practice (God forskningssed)*, Vetenskapsrådets rapportserie 1:2011.

<http://www.vr.se/download/18.3a36c20d133af0c12958000491/1321864357049/God+forskningsse+d+2011.1.pdf>

Björklund, Maria and Paulsson, Ulf, *Academic papers and theses*. Studentlitteratur, Lund, most recent edition.

4 Teaching formats

Teaching on the course takes the following format:

Lectures

Seminars

Individual studies

5 Examination

The course is assessed through an examination consisting of the components listed below. The individual components are not graded separately but together they provide the basis for assessment and grading.

Seminars with individual oral and written presentations as well as analysis and discussion of the work of fellow students.

Individual hand-in assignments:

- A literature review to provide the basis of the student's research question.
- Plans for the research project presented in the form of a "one-pager".
- A Gantt chart illustrating the project until the award of the licentiate degree or the mid-way review.
- A "research poster" describing the research project
- A reflection on a research article
- A reflection on research education and supervision
- A reflection on a text about gender equality in research and/or education.

To obtain the grade Pass, the student is required to actively contribute to the seminars. In addition, the hand-in assignments must overall be considered as contributing to a passing grade.

6 Grades

Examinations on third-cycle courses and study programmes are to be assessed according to a twograde scale with either of the grades 'fail' or 'pass' (local regulations).

The grade shall be determined by a teacher specifically nominated by the higher education institution (the examiner) (Higher Education Ordinance).

To obtain a passing grade on examinations included in the course, the doctoral student is required to demonstrate that he/she attains the intended course learning outcomes as described in section 2.2. Alternatively, if the course consists of multiple examinations generating credit, the doctoral student is required to demonstrate that he/she attains the outcomes that the examination in question refers to in accordance with section 5.

A student who has failed an examination is entitled to a retake.

If an examination consists of several examination components, and a student fails an examination component, the examiner may, as an alternative to a retake, set a make-up assignment with regard to the examination component in question.

A doctoral student who has failed an examination twice for a specific course or course element is entitled, upon his/her request, to have another examiner appointed to determine the grade.

7 Admission to the course

7.1 Admission requirements

To gain access to the course and complete the examinations included in the course, the applicant must be admitted to a doctoral programme at Örebro University.

In addition, the applicant must be admitted to any of the doctoral programmes at the School of Science and Technology.

7.2 Selection

Selection between applicants who have been admitted to doctoral programmes at Örebro University and who otherwise meet the admission requirements as listed above is made according to the following order of precedence:

If no other selection criteria are specified in this section, priority shall be given to applicants with a lower number of course credits left before the award of their degree over applicants with a higher number of remaining course credits. Should two or more students have equal number of credits, selection will be done through the drawing of lots. This also applies within any selection groups listed unless otherwise stated.

7.3 Other applicants than doctoral students admitted at Örebro University

Other applicants than doctoral students admitted at Örebro University may be given access to the course on the grounds of provisions for and/or agreements regarding contracted courses, joint degrees, national graduate schools or cooperation in other respects with other universities.

Any decisions on what such other applicants may be given access to the course are made separately and on the basis of the provisions and/or agreements that occasion the student to apply for the course.

8 Transfer of credits for courses, study programmes and other experience

Provisions on the transfer of credits can be found in the Higher Education Ordinance and on the university's webpage.

9 Other information

If required, the language of tuition will be English.

Transitional provisions