

DOCTORAL TRAINING IN THE FACULTY OF SCIENCE AND ENGINEERING

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1. Overview

This document regulates and describes the scientific postgraduate education (called doctoral training in this document) offered in the Faculty of Science and Engineering at the University of Turku. The contents of this document apply to all students pursuing postgraduate degrees in the faculty, regardless which doctoral programme they belong to at the University of Turku.

Decision making and preparatory work

Decisions regarding the postgraduate education of the faculty are prepared by Chief Academic Officer together with the Vice Dean and the Working Group for Educational Development. The working group is led by the Vice Dean and consists of professor, university lecturer/teacher, and doctoral student level representatives of the doctoral programmes representing the disciplines of the faculty as well as the coordinators of the doctoral programmes. Preparatory work is conducted in conjunction with the management teams of the faculty's departments and doctoral programmes.

Decisions regarding postgraduate education are made by deans and the Faculty Council. The Faculty Council grants the permission for the public defence of the thesis and grades both the doctoral and the licentiate theses.

Each doctoral programme has a manager and a management team in which there are professor, university lecturer/teacher, and doctoral student level representatives from the departments represented in the doctoral programme.

2. Degrees and fields of research

The Faculty of Science and Engineering at the University of Turku offers postgraduate degrees in natural sciences and technology. The postgraduate degrees in natural sciences are *Licentiate of Philosophy* and *Doctor of Philosophy*. The postgraduate degrees in technology are *Licentiate of Science (Technology)* and *Doctor of Science (Technology)*. Most postgraduate students complete a doctoral degree directly after their Master's degree. The licentiate degree is primarily intended for professional accreditation.

The faculty offers postgraduate degrees in the following disciplines and their focused research fields:

NATURAL SCIENCES

BIOSCIENCES

- Biochemistry (BKEJ)
- Biology (BIOJ)
- Molecular Biotechnology and Diagnostics (FOODJ)
- Food Chemistry (BTEJ)
- Molecular Plant Biology (KABJ)
- Environmental Science (YMPJ)

CHEMICAL AND PHYSICAL SCIENCES

- Physics (FFYS)
- Materials Science (MFYS)
- Theoretical Physics (TFYS)
- Astronomy (TÄHT)
- Chemistry (KEMI)

GEOSCIENCES

Geologia / Geology (GEOL)

- Geology and mineralogy (GMIN)
- Quaternary geology (GMAA)
- Applied geology (GSOV)

Geography (MAAN)

- Physical geography (LUMA)

- Human geography (HUMA)
- Regional geography (ALMA)
- Geoinformatics (GEMA)
- Economic geography (TAMA)

MATHEMATICAL SCIENCES AND STATISTICS

Mathematics (MATE)

- Analysis (AMAJ)
- Discrete Mathematics (DMAJ)
- Number Theory (LMAJ)
- Mathematical Modelling (MMAJ)
- Applied Mathematics (SMAJ)

Statistics (TILM)

COMPUTER SCIENCES

- Computer Science (TKO_)
- Bioinformatics (BIOI)

TECHNOLOGY

BIOTECHNOLOGY

- Biotechnology (DABI)
- Food Development (DEKE)

INFORMATION AND COMMUNICATION TECHNOLOGY

- Information and Communication Technology (DTEK)
- Electronics (DELT)
- Software Engineering (DOHT)
- Communication Engineering (DTIL)

HUMANITIES

COMMUNICATION SCIENCES

- Phonetics (FONE)

3. Admission to postgraduate studies

Eligibility for admission

Eligible for postgraduate studies are persons who have completed (Section 37 of the Universities Act 558/2009):

1. a relevant Master's degree awarded by a university;
2. a relevant Master's degree awarded by a university of applied sciences; or
3. a relevant applicable study programme abroad which in the awarding country gives eligibility for the corresponding level of higher education.

The university may require a student admitted to study for an academic or artistic licentiate or doctoral degree to complete the necessary supplementary studies in order to acquire the knowledge and skills needed for the study programme.

Applying

Admissions to postgraduate studies are conducted according to the rules of the graduate school in cooperation between faculties and doctoral programmes and during admission periods coordinated by the graduate school. A doctoral programme prepares a proposal regarding admission to the faculty.

Applicants for the faculty's postgraduate studies must fill in an application form and deliver it to the faculty. The required appendices are:

- A degree certificate and the relevant transcript of studies which prove the eligibility of the applicant
- a research plan
- an account of the planned funding and schedule of the studies
- postgraduate studies supervisor(s), research director and a possible thesis advisory committee
- preliminary postgraduate study plan

Doctoral programmes may also require other items to be included in their applications. Additional information about applying to doctoral studies can be found on the websites of the doctoral programmes as well as in application announcements, which are published before the application periods.

The right to study for a licentiate degree is applied for by submitting a paper application to the Faculty of Science and Engineering. The application period is continuous. The appendices specified in the postgraduate studies application (see above) must be attached to the application.

The University of Turku checks the validity of those degrees based on which a right to postgraduate studies is applied for.

Admission criteria

Applicants are selected on the basis of the information presented in the application and its appendices. Postgraduate applicants are required to have completed the advanced studies in the Master's degree with a "Good" grade or equivalent (Grade 3 in the [Finnish grading system](#)). If this is not the case, or if the subject of the Master's degree differs from the field of research of the intended postgraduate studies, candidates will be asked to supplement their knowledge and skills to achieve the required level. Admission is also dependent on the proposed research topic fitting within the faculty's and its departments' fields of research and the faculty possessing the necessary resources for teaching and supervision.

The decision on admission to postgraduate studies is made by the dean responsible for the faculty's postgraduate education. The student admission decision in the faculty is prepared by Chief Academic Officer.

4. Supervisors of the postgraduate studies

On admission to the faculty, postgraduate students are appointed a principal supervisor and one to two other supervisors if needed. The principal supervisor should be at least an Adjunct Professor (docent) and the other supervisors should hold a doctoral degree. The faculty may change the appointed supervisor upon request by the student, supervisor or the research director. The faculty appoints supervisors of a doctoral student based on a proposal made by the doctoral programme in question. In licentiate studies, the proposal is made by the department whose field of research the degree belongs in.

The duties of the supervisor are, among others:

- to direct the student in planning and completing the postgraduate studies;
- to direct the student in planning and completing the research and completing the thesis;
- to follow the progress of research and postgraduate studies in accordance with the supervision plan;
- to assist the student in making contact with other researchers in the field and with the users of the research;
- to assist the student in applying for funding by providing information on available options;
- to assist in career planning by having an annual discussion on the subject.

5. Research director of the postgraduate studies

On admission to the faculty, postgraduate students are appointed a research director. Faculty appoints the research director based on proposal of the department which is responsible for the research field in question. A person eligible for research director is an employee of the faculty whose title is:

- Professor;
- Associate Professor; or
- Research director

Assistant Professors are not eligible. A professor may continue as a research director after he/she has retired. However, a Professor Emeritus/-ita cannot be appointed as research director.

The research director may also be one of the supervisors. If this is the case, the student must also have at least one other supervisor or a thesis advisory committee.

The duties of the research director are:

- to monitor the progress of the research work and postgraduate studies annually in collaboration with the supervisor;
- to assume responsibility for the scientific level of the degree;
- to ensure that the necessary conditions for the studies are maintained;
- to ensure that the thesis as a whole meets the requirements regarding the extent of theses;
- to make a proposal regarding the establishment of a possible thesis advisory committee;
- to make a proposal regarding the examiners of the licentiate thesis or the reviewers, opponent and chairperson (custos) of the doctoral thesis;
- to ensure that a foreign language dissertation or licentiate thesis undergoes a language check if necessary
- to provide the faculty with a statement approved by the supervisor, research director and student indicating the author's contribution to the research if the thesis contains joint publications. The statement must also tell whether a part of the thesis has earlier been used in another thesis or if such use is being planned;
- to ensure that the intended final version of the licentiate or doctoral thesis is delivered to the examiners and to the faculty (as a pdf file to sci-docstudies@utu.fi) by the student, supervisor or research director immediately after the examiners have been appointed;
- to ensure that the doctoral thesis is delivered to the opponent by the student, supervisor or research director immediately after the opponent has been appointed;
- to assume responsibility for an electronic originality check of the thesis using a plagiarism detection system approved by the University.

6. Responsibilities of postgraduate students

The postgraduate student has the primary responsibility for the progress of his/her studies. The responsibilities of the postgraduate student are defined as follows:

- the student carefully prepares for the meetings and follows the agreed timetables;
- the student completes postgraduate studies independently with the supervisor's support;
- the student annually participates in the agreed number of postgraduate courses and ensures that they are appropriately registered;
- the student is responsible for the progress of his/her research work and for informing the supervisor and the doctoral programme on the progress made according to the agreed reporting schedule and in the agreed manner;
- the student informs the supervisor (thesis advisory committee) of all the changes that considerably affect the working conditions, the progress of the thesis project or keeping the agreed schedule;
- the student hands in an annual follow-up report of the doctoral programme.

7. Pursuing a Doctor of Philosophy or a Doctor of Science (Technology) degree

To achieve a PhD or DSc (Tech) degree, students must:

1) Complete a total of 40 credits of studies specified in the postgraduate study plan.

The credits must form an acceptable entity supporting studies and research work in the field of research and should prepare the student for carrying out the work of a researcher and other demanding expert tasks. The structure of the studies is defined in the curriculum of the faculty and the doctoral programmes.

Research ethics is compulsory for those who have started their doctoral studies on 1 August 2016 or later.

Postgraduate studies may not include studies already contained in the Master's degree; this applies to those who have completed their Master's degree after 1 August 2009.

2) Complete and publish a doctoral thesis accepted by the faculty after a public examination. The thesis may be in the form of either a monograph or a compilation of several scientific publications including a summary of the publications (detailing the objectives, methods and outcomes of the research as well as a review of them). The thesis may also contain manuscripts intended for publication, provided that a considerable number of them have been approved for publication in peer-reviewed publication series. If the thesis consists of joint publications, the student's independent contribution to the shared article is detailed in a separate clarification.

Before proposing reviewers, the research director must ensure that the thesis is of the required extent and that the manuscript delivered for pre-examination fulfils the formal requirements for a doctoral thesis.

The aim is that the doctoral degree can be completed in four years of full-time study after having accomplished the Master's degree.

8. Pursuing a Licentiate of Philosophy or a Licentiate of Science (Technology) degree

To achieve a LicPhil or LicSci (Tech) degree, students must:

1) Fulfil the requirements given in section 1 above for doctoral degrees.

2) Complete a licentiate thesis accepted by the Faculty Council.

The thesis may be a compilation of several scientific publications including a summary of the publications (detailing the objectives, methods and outcomes of the research as well as a review of them). The publications may be collaborative, in which case the student's independent contribution is detailed in a separate clarification. The licentiate thesis may also contain manuscripts intended for publication.

The aim is that it can be possible to complete the licentiate degree in two and a half years' full-time study pace after having accomplished a Master's degree.

9. Supervision plan

The student and the supervisor make a supervision plan on the application form, determining the responsibilities and duties of each party, and their commitment to the cooperation.

Doctoral students can have a thesis advisory committee which is acquainted with the subject matter. The thesis advisory committee convenes at least once a year on the student's initiative. The student must prepare well for the thesis advisory committee meetings in order to present his or her research and its progress to the group.

10. Examination of the doctoral and licentiate thesis and printing licence

The dean appoints at least two pre-examiners for the doctoral thesis, as well as one or more opponents and a custos for the public examination on the proposal of the research director. Thesis pre-examiners and opponent(s) (hereafter: examiners) should be appointed from outside the student's own university. The examiners should be Adjunct Professors or have equivalent scientific merits. In addition, the examiners should represent different organisations. The examiners must be external in relation to the thesis, and they must not have written joint publications with the author of the thesis.

The Faculty Council grants the permission for the defence of the thesis at a public examination on the basis of the examiners' statements. Getting the permission for the defence requires that the student has completed all studies required in a doctoral degree and that he or she has delivered an application for the postgraduate degree certificate to the faculty.

The dean appoints a custos for the public examination on the basis of the research director's proposal. The custos is an esteemed scientist responsible for the appropriate procedure of the public examination. Suitable persons for custos are primarily professors of the faculty. Should there not be one available, an associate/assistant professor or an adjunct professor can be appointed if adequately justified. The custos must be an employee of the faculty (or Professor Emeritus/-ita). The custos reports to the faculty as to whether the correct procedure was followed at the public examination. The custos does not take part in the grading of the doctoral thesis.

The dean appoints at least two examiners for the licentiate thesis on the proposal of the research director. One of the examiners must represent the department in which the field of research belongs. The other examiner should come from outside of the home university. The examiners should be Adjunct Professors or have equivalent scientific merits.

The faculty sends the examiners and the custos the information that they have been appointed, instructions, and the possible clarification on the joint publications.

Neither the supervisor, the research director, the co-authors of any collaborative publications in the thesis, nor members of the thesis advisory committee may act as examiners. A pre-examiner may not act as an opponent. The grounds for disqualification given in Section 28 of the Administrative Procedure Act (434/2003) must be taken into account in the appointment of examiners and in the examination and acceptance of theses.

Prior to the appointment of pre-examiners and opponents for a doctoral thesis and prior to the appointment of examiners for a licentiate thesis, the author of the thesis is allowed to make a statement on the matter.

In any deviation from these instructions, the research director must give written grounds for his or her proposal.

11. Examiners' statements and student's response

The examiners of a doctoral thesis and the examiners of a licentiate thesis must provide their statement on the thesis within one month of being appointed. The opponent(s) must provide their statement within one month of the public defence. The examiners must give separate statements. If the statement is delayed, the faculty will contact the examiners or opponents if needed.

Prior to granting a printing licence, the author of the doctoral thesis is given the opportunity to respond to the reviewers' statements. The author may also respond to the opponent's statement prior to the grading of the doctoral thesis.

Prior to grading the licentiate thesis, the author of the thesis is given the opportunity to respond to the examiners' statements.

12. Processing negative statements

Should a pre-examiner of a doctoral thesis propose rejecting the dissertation, the research director and the management group of the student's doctoral programme address the matter and prepare a proposal for further measures to the Faculty Council.

13. Grading of the doctoral and licentiate theses

The Faculty Council decides on accepting doctoral and licentiate theses. Doctoral theses are graded as "accepted with honours", "accepted" or "rejected". The grading of doctoral theses is performed on the basis of the statements from the official examiners. If all examiners estimate in their statements that the doctoral thesis is on the same level as the top 10 % of theses in its field internationally, the thesis can be accepted with honours.

Licentiate theses are graded as "accepted" or "rejected". The faculty will either accept or reject the licentiate thesis on the basis of the examiners' statements.

14. Grading criteria

At least the following items must be considered when grading a doctoral thesis and, where applicable, licentiate thesis:

- the significance, originality or novelty of the research setting in relation to other completed and ongoing research in the field in question;
- the justifiability of the chosen research methods, the originality of the methodology and the development of new methods;
- the quality, impact and theoretical or practical significance of the research results;

- proof of familiarity with the field of research in question and the candidate's ability to critically examine his or her own and other research;
- the coherence, clarity and other issues concerning the style of the presentation; and
- the ability of the author to defend the research in the public examination.

15. Rectification of grades

Candidates may make a request for the rectification/correction of their doctoral or licentiate thesis grade to the Faculty Council within 14 days of receiving the grade.

16. Degree Certificate

In order to receive the degree certificate, the candidate must fill in an application. The student marks on the transcript of studies the courses that he or she has completed as postgraduate studies and are meant to be included in the degree. The application for the postgraduate degree certificate must be delivered to the faculty before the printing licence can be granted. The degree certificate is issued immediately after the approval of the doctoral thesis.

The field of education, subject and grade of a licentiate thesis or doctoral thesis is mentioned in the certificate. When the degree is taken from some focused field of research that has been mentioned at the beginning of this document, the focused field will be mentioned in the certificate in addition to the discipline. Otherwise only the discipline is mentioned. The degree certificate is issued both in Finnish and in English.

17. Registering as a postgraduate student

Postgraduate students must register as present at the university each academic year. Registration is dependent on the faculty granting the student the right to pursue postgraduate studies. All postgraduate students in the faculty's doctoral training must register regardless of the institution or organisation in which they pursue their studies.

18. Validity

This code of conduct comes into effect on 1 January 2018 apart from the number of credits in the degree (applicable as of 1 August 2018), and it rescinds the instruction *Doctoral training at the faculty of Mathematics and natural sciences*, which came into effect on 28 February 2013. As for students who were admitted to study when the rescinded regulations were valid, the prior regulations can be followed when applicable.

Postgraduate students who have begun their studies prior to 1 Aug 2018 have a right to start following the requirements as detailed in this code of conduct. If a student wishes to move to the new degree system, he/she should prepare a new, personal postgraduate study plan in the *eHOPS* system. This plan requires the acceptance of the primary supervisor, research director, and the coordinator of the doctoral programme.