



# DOCTORAL TRAINING IN THE FACULTY OF SCIENCE

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## 1. Overview

This document regulates and describes the scientific postgraduate education offered in the Faculty of Science at the University of Turku. The contents of this document apply to all students pursuing postgraduate degrees in the faculty.

### Decision making and preparatory work

Decisions regarding the postgraduate education in 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 level, university lecturer/teacher level, and doctoral student level representatives of the doctoral programmes representing the disciplines of the faculty as well as the coordinators of these doctoral programmes. Preparatory work is conducted in conjunction with the faculty's departments and the steering committees of 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 director and a steering committee 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 at the University of Turku offers postgraduate degrees *Licentiate of Philosophy* and *Doctor of Philosophy* in natural sciences. 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

- Biology
- Environmental Science
- Biodiversity Research

#### CHEMICAL AND PHYSICAL SCIENCES

- Physics
- Materials Science
- Theoretical Physics
- Astronomy
- Chemistry



## GEOSCIENCES

- Geology
- Geography
  - Physical geography
  - Human geography
  - Geoinformatics
  - Economic geography

## MATHEMATICAL SCIENCES AND STATISTICS

- Mathematics
- Applied Mathematics
- Statistics

## GENERAL SCIENCE

- Learning Analytics

# 3. Admission

## 3.1. 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.

## 3.2. Admission criteria

Applicants are selected on the basis of the information provided in the application and its appendices. Postgraduate applicants are required to have completed the advanced studies in the Master's degree with the grade at least "Good" 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, doctoral researchers will be asked to supplement their knowledge and skills to achieve the required level. A research director nominated for the doctoral researcher will give a statement of possible required bridging studies in these exceptional cases.

Admission is also dependent on the proposed research topic fitting within the faculty's and its departments' fields of research and the faculty having the necessary resources for teaching and supervision available.

Doctoral researchers are required to have a good command of the English language, which has to be proven in certain cases, according to Rector's decision, with a language test.



### 3.3. Applying

Admissions to doctoral training are conducted according to the University of Turku Regulation on Studies during the application times defined by the graduate school.

The required appendices of the application form for a postgraduate study right are:

- A degree certificate and the relevant transcript of the studies which prove the eligibility of the applicant
- A research plan
- An account of the planned funding and schedule of the studies
- A supervision plan naming supervisor(s), research director and a possible thesis follow-up group for doctoral training

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 an electronic application and its attachments to the Faculty of Science. The application period is continuous. The appendices specified in the postgraduate studies application (see above) must be attached to the application as well as a motivation letter.

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

### 3.4. Decision

The doctoral programme makes a proposal for admitting doctoral degree study rights to the faculty. The decision on admission to postgraduate studies is made by the dean responsible for the faculty's postgraduate education after hearing the departments. The student admission decision in the faculty is prepared by Chief Academic Officer.

## 4. Supervision and Responsibilities of Different Parties

### 4.1. Supervisors of the postgraduate students

On admission to the faculty, postgraduate students are appointed a principal supervisor, who has an employment contract to the University of Turku, another supervisor and possible other supervisors. In an exceptional case, the principal supervisor can be a person who does not have an employment contract to the University of Turku. In this case, the principal supervisor has to be a docent of the University of Turku and there has to be another supervisor appointed who has an employment contract to the University of Turku. The principal supervisor should always be at least a docent and the other supervisors should hold a doctoral degree.

The faculty may change the appointed supervisor if requested by the student, supervisor or research director. The faculty appoints a doctoral researcher's supervisors 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;
- a principal supervisor has to give a statement on the activeness of a postgraduate student in connection with student's annual progress reporting;
- 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;
- to ensure that a thesis written in a second language undergoes a language check if needed;
- to be responsible for checking the originality of the thesis with the plagiarism detection system.

#### 4.2. 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 the proposal made by 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 and who represents the department or the unit of the research field. In an exceptional case, if there is no professor available, the associate professor can be nominated as a research director.

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.

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 accept the first personal study plan of a postgraduate student, possible update of the plan and the application for the final grade of the postgraduate studies module. The research director ensures that the required learning outcomes of postgraduate studies are achieved with the completed postgraduate studies and thesis work.
- to ensure that the thesis as a whole meets the requirements regarding the extent of a doctoral thesis;
- to make a proposal for the examiners of a licentiate thesis or the pre-examiners, opponent and chairperson (custos) of a doctoral thesis;
- 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 faculty at the same time as the proposal for pre-examiners;



- to ensure that the intended final version of the licentiate or doctoral thesis is delivered to the examiners by the student, supervisor or research director immediately after their appointment
- 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 help solve possible cases of disagreement in supervision

#### 4.3. 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 schedule;
- 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 their 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 and the research director (+ possible follow-up group) of all changes that considerably affect working conditions, progress of the thesis project or keeping with the agreed schedule;
- The doctoral researcher hands in an annual follow-up report of the doctoral programme. The licentiate student hands in an annual follow-up report according to the instructions of the faculty.

Postgraduate students must register with the university each academic year. Registration is dependent on the faculty granting the student the right to pursue postgraduate studies. All postgraduate students of the faculty must register regardless of the institution or organisation in which they pursue their studies. Only postgraduate students who have registered with the university as an attending student can complete postgraduate studies and advance completing their degree.

## 5. Supervision Plan

The student, the supervisor and the research director 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 follow-up group who is acquainted with the subject matter. The thesis follow-up group convenes at least once a year on the student's initiative. The student must prepare well for the thesis follow-up group committee meetings to be able to present his or her research and its progress to the group.

The supervision plan is made when a person applies for the postgraduate study right in the faculty. The plan will be updated if a supervisor(s), research director or a member of the follow-up group needs to be changed. The supervision plan expires if a student is moved to the passive register.

The supervision plan is signed by the postgraduate student, all supervisors and the research director. If the research director is changed then the opinion of the head of department is asked. The director of the doctoral programme will consider the supervision plans of doctoral researchers. The supervision plan is accepted by the Dean responsible for postgraduate education.



### 5.1. Changing the major subject of the degree

The doctoral researcher may apply for changing their major within the doctoral programme from the Faculty. Accepting the application requires the approval of all supervisors, the research director, and the doctoral programme. If upon changing majors, there should also be changes to supervisors, the supervision plan and if necessary, the research plan, must also be updated. Changing majors may also require changing research director. The Faculty may ask the research director to state on a possible need for bridging studies. The Faculty decides the change of the major subject.

If changing majors requires changing doctoral programme, the doctoral researcher has to apply for a study right in that doctoral programme during the regular application period.

## 6. Postgraduate Studies

Postgraduate degrees in the faculty include 40 credits of postgraduate studies. The credits must form a coherent whole 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 specialist tasks. The structure of the studies is defined in the curriculum of the faculty and the doctoral programmes (study guide).

The doctoral researcher draws up a personal study plan not later than six months after beginning doctoral training. The doctoral programme coordinator reviews the plan and it will be accepted by the research director.

It is possible for the doctoral researcher to update the plan annually. The updated plan is reviewed by the doctoral programme coordinators and the updated plan is accepted by the research director. Postgraduate students who have begun their training before August 1 2018 are able to complete postgraduate studies in accordance with the old study requirements of the faculty (60 ECTS) until 31 July 2024. After that, all postgraduate degrees follow the degree requirements of 40 credits, which have been valid since 1 August 2018. However, a postgraduate student may complete the degree in accordance with the degree requirements approved in 2018-2020 or thereafter, so that the postgraduate students can't comply with the degree requirements that were in effect before they obtained the right to complete the degree.

Research ethics is a mandatory requirement for postgraduate students who have started their training on or after 1 August 2016 and also for all those completing their studies in accordance with the requirements of 40 credits.

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

### 6.1 Completing courses at other Finnish Universities



Postgraduate students may complete such courses at other Finnish universities which are relevant to their field of research if corresponding courses are not available at the University of Turku. Completing a course requires applying for a flexible study right. Accepting the application requires that the course in question is included in the postgraduate student's accepted personal study plan the size of which is the minimum acceptable number of ECTS. The prerequisite for the inclusion of a course in a personal study plan does not apply to studies at Åbo Akademi University which, however, also require a flexible study right.

## 7. Pursuing a Doctor of Philosophy Degree

To attain a PhD degree, doctoral researchers must:

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

To attain a LicPhil degree, students must:

- 1) Complete a total of 40 credits of studies specified in the postgraduate study plan.
- 2) Complete a licentiate thesis which is accepted by the Faculty Council.

The thesis may be 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 discussion). 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 the licentiate degree can be completed in two and a half years of full-time studying after having completed a Master's degree.





## 9. Examination of the Doctoral Thesis and Permission to Defend a Dissertation

### 9.1. Permission to submit the manuscript of the doctoral thesis to pre-examination

The Dean authorizes the doctoral researcher to submit the manuscript of the dissertation to pre-examination, while appointing the pre-examiners for the thesis. To obtain this permission, the doctoral researcher must submit the manuscript of the dissertation to the faculty. The thesis must be checked with a plagiarism detection programme. In the case of a compilation thesis or a monograph based on articles, the following attachments must be submitted together with the manuscript:

- Contribution statement. A statement approved and signed by all supervisors, the research director and the doctoral researcher indicating the author's contribution to the research if the thesis contains joint publications. The statement is required if the dissertation manuscript includes publications with more than one author.
- Should the thesis contain an unpublished manuscript, the doctoral researcher needs to acquire a permission to use it in the thesis from every author.
- If an article in the compilation thesis has been or is going to be used in another thesis, then a clarification of both doctoral researchers' contribution to the article is needed. The clarification is signed by both doctoral researchers and their principal supervisors. The clarification exists for two purposes: It is an agreement between the doctoral researchers that they can both use the article. Also, the contribution of both doctoral researchers is clarified in it.

If necessary, the Dean may ask the opinion of the steering committee members (who have a doctoral degree) of the doctoral programme whether the manuscript of the dissertation is ready for pre-examination.

### 9.2. Pre-examiners, opponent and custos

The Dean appoints at least two pre-examiners and an opponent ('examiners' onwards) for the doctoral thesis based on the proposal made by the research director. The examiners should be docents or have equivalent scientific merits. They should be external in relation to the doctoral thesis work, they must not have co-authored publications together with the author of the doctoral thesis, they must come from outside the University of Turku and they must not have close and recent (as a main rule, in the past three years) scientific collaboration with the supervisor(s). Collaboration with a supervisor that occurred more than three years ago may also cause a conflict of interests and prevent a proposed examiner from acting as examiner if said collaboration can be considered to have been long-lasting and established by nature. For a justified reason, one of the examiners may be a docent of the University of Turku, if their regular post is elsewhere. In addition, the examiners should represent different organisations. An examiner must not be associated with the author of the thesis as described in Section 28 of the Administrative Procedure Act (434/2003), nor must they be in such dispute or other relationship, which compromises their impartiality.

Neither the supervisor, the research director, the co-authors of any collaborative publications in the thesis, nor members of the thesis follow-up group may act as examiners.



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 a docent 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 protocol was followed during the public examination. The custos does not take part in the grading of the doctoral thesis.

Prior to the appointment of pre-examiners, opponent and custos, the doctoral researcher is reserved the right 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.

### 9.3. Permission for the defence of dissertation

The Faculty Council grants the permission for the defence of the thesis at a public examination on the basis of the pre-examiners' statements. The council can delegate the decision to the Dean. Getting the permission for the defence requires:

- The faculty has received the pre-examiners' reports both of which recommend granting the permission.
- If a pre-examiner has suggested corrections to the manuscript and if they have requested that either they or the supervisor verifies that the corrections are made, then this needs to happen in the manner chosen by the pre-examiner. In this case, a statement from the supervisor/research director is required which clarifies what corrections have been made to the manuscript.
- The doctoral researcher has emailed their comments on the statements or lack thereof to the faculty or at least 14 days have passed since the pre-examiners statements were delivered to the doctoral researcher.
- The doctoral researcher has completed all the studies to be included in the doctoral degree. The research director has accepted the doctoral researcher's doctoral studies module (40/60 ECTS).
- As per the Rector's decision, only dissertations which contain both a Finnish and an English abstract may be granted a permission for the defence in the faculty.

### 9.4. Informing about the appointments

Prior to the selection of the examiners, the doctoral researcher is given an opportunity to state his or her opinion on the matter.

The faculty shall send the examiners and the custos information on the appointment, instructions and a possible contribution statement, as well as a clarification if a publication included in the manuscript of the dissertation is used or is planned to be used in another dissertation.

### 9.5. Examiners' statements and doctoral researcher's response

The pre-examiners of a doctoral thesis must provide their statement on the thesis within one month of being appointed and notified. The opponent(s) must provide their statement within two weeks after 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 permission to defend the dissertation, the doctoral researcher is given the opportunity to respond to the reviewers' statements. The doctoral researcher may also respond to the opponent's statement prior to the grading of the doctoral thesis.



### 9.6. Processing negative statements

Should a pre-examiner of a doctoral thesis propose rejecting the dissertation, the research director and the steering committee of the doctoral programme address the matter and prepare a proposal for further measures to the Faculty Council. The doctoral researcher will be given an opportunity to write an appeal.

## 10. Examination of a Licentiate Thesis

The dean appoints at least two examiners for the licentiate thesis based on the proposal of the research director. One of the examiners must represent the department in which the field of research in question belongs. The other examiner should come from outside of the home university. The examiners should be docents or have equivalent scientific merits. Prior to the appointment of examiners for a licentiate thesis, the author of the thesis is allowed to make a statement on the matter.

The dean grants the licentiate student a permission to send the licentiate thesis to examination. An originality check is a prerequisite for getting the permission. If the licentiate thesis contains co-authored publications, attachments specified in section 9.1. must be delivered.

The faculty notifies the examiners of the appointment and sends instructions as well as a possible clarification on the co-authored publications.

The examiners must give separate statements within one month of being appointed. If a statement is delayed, the faculty will contact the examiner.

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

## 11. Grading of 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 is based on 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.

### 11.1. Grading criteria

At least the following aspects must be considered when grading a doctoral thesis and, where applicable, a 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 research field in question and the researcher'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 a public examination.

### 11.2. Rectification of grades

Doctoral researchers 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.

## 12. Degree Certificate

A degree certificate is issued immediately after the acceptance of the doctoral thesis or a licentiate thesis without having to especially apply for the degree certificate.

The field of education and major subject and the grade of a licentiate thesis or doctoral thesis are mentioned in the certificate. The degree certificate is issued both in Finnish and in English.

## 13. Monitoring Activeness and the Passive Register

The activeness of doctoral researchers is monitored annually as specified in the University of Turku Regulation on Studies. Doctoral programmes take care of the practical arrangements regarding annual progress monitoring. The faculty is responsible for the practical arrangements regarding annual progress monitoring of licentiate students.

The supervisor of a doctoral researcher states on the researcher's activeness.

If there is no progress in the doctoral researcher's studies and they does not actively further their research, the study right may be moved to the passive register. The supervision plan is considered void, if the doctoral researcher is moved to the passive register.

In order to be moved out from the passive register, the doctoral researcher must deliver an application for the re-activation of the study right along with updated supervision and research plans. As part of the supervision plan, the study plan is also updated. An updated supervision plan is drafted based on the contemporary degree requirements. In the research plan, the current phase of the thesis work, the schedule, and the required actions needed to complete the degree must be described.

In conjunction with the application for re-activation of study right, the supervision plan is processed as an update to a supervision plan.



**UNIVERSITY  
OF TURKU**

Faculty of Science

Translation of the code of conduct of postgraduate education at the Faculty of Science. The latest corrections accepted on 16 June 2022.

## 14. Validity

This code of conduct comes into effect on 1 January 2021 and it rescinds the instructions *Doctoral training at the faculty of Science and Engineering*, which came into effect on 26 March 2020. Updated Chapter 9.2 in the Council meeting on 17 June 2021, Chapter 2 in the Council meeting on 19 May 2022. Fixed terms and minor errors as well as Chapter 4.2 and Chapter 6 at the Council meeting on 16 June 2022.