Degree structure and coursework

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Structure of the degree

The Doctor of Science (Tech) degree is 40 ECTS credits of theoretical studies and dissertation thesis which means four years of full-time studies.

The Licentiate of Science (Tech) degree is 40 ECTS credits of theoretical studies and licentiate thesis which means two years of full-time studies.

The extent of the licentiate and doctoral degrees consist of theoretical studies and research work. The emphasis is on research work. Doctoral studies are completed in the form of study modules.

The degrees of doctor of science and licentiate constitute of three entities which are thesis, general research -studies and research field studies. Total of coursework is 40 credits.

Sisu guidelines

You can view your degree structure and information on courses and study modules in Sisu (sisu.aalto.fi) once you have prepared the Sisu part of your doctoral personal study plan in Sisu (Instructions: SISU Credit Plan for doctoral students - Sisu HELP - Aalto University Wiki). Please remember to choose the right curriculum period in Sisu.

Your study plan automatically shows the study modules that are compulsory, i.e. those you are required to complete in order to graduate. For your other studies, you can find courses by using the search function either in Sisu's 'selection assistant' or on the Search page (click Search on the upper banner). You'll find advice for suitable courses below. If the Sisu part of your doctoral personal study plan (ie. the part including the content, scope and duration of studies with credits) follows the curriculum of your doctoral programme (please see below), you do not need it to have it approved until you start your pre-examination or wish to use your flexible study right and take JOOPAS or equivalent courses. It is of the utmost importance that you follow the guidelines given below.

Research field studies

The extent of module is 20-35 ECTS. Research field studies should support the writing of the thesis and prepare the doctoral candidates for research and other demanding work that requires expertise. Students select their research field from the list of postgraduate research fields.

Research field studies need to be post-graduate courses (advanced level) or other studies eligible for doctoral degree. No credits are given for doing research.

Post-graduate courses are marked letter D in the course name, with letter L in the course code or as "doctoral" in the course description. For example:
The module may include the following studies:

- Attending suitable courses in Aalto University or another university
- Completing and reporting practical assignments related to the research field
- Writing a literature review
- Oral or written examinations based on textbooks
- Studies in scientific summer and winter schools and courses organised by graduate schools
- Conference presentations
- Learning of university practices

The printed literature is chosen as far as possible in accordance with the personal study objectives of each student, taking into account an adequately broad coverage of the entire scientific field. Printed literature can be examined in several sections to be agreed with the supervisor individually. The professor determines the number of ECTS credits in accordance with the scope and difficulty of the literature. The number of pages of printed literature on which one is to be examined and the equivalent number of ECTS credits should be entered on the form for degree requirements.

Literature:

- A complicated, demanding scientific literature for experts (with substantial amount of mathematical equations): 70 pages yield 1 cr.
- A demanding scientific literature for experts: 100 pages yield 1 cr.
- Relatively easy scientific literature: 120 pages yield 1 cr.

From conference presentations based on student’s own research work, a maximum of 8 cr can be accomplished: 1 cr for poster, 1 cr for conference talk and 1 cr for conference paper.

Learning of university practices, such as tuition and research work guidance (1-3 cr), preparatory tasks for research projects and pedagogic studies:

- The amount of accomplished credits must be agreed with the supervisor individually.
- The doctoral student has the major responsibility for a course or a part of it or he/she is the official instructor of Bachelor's thesis or Master’s thesis, a maximum of 9 cr can be accomplished of several tasks.

Studies in the field of research need to be confirmed in the individual study plan for each doctoral candidate.

For more detailed course information, please see the MyCourses and SISU. You can search courses also in Aalto University course catalogue.

General research studies

The extent of module is 5 - 20 ECTS. The individual content of the module is confirmed to each doctoral candidate.

The aim of the general research studies (previously called scientific practices and principles studies) is to provide students with knowledge of the basic concepts of science, the key characteristics of scientific research and scientific knowledge and to familiarize them with the most important research methods of their research field and develop the transferable skills. In addition, students learn to apply the principles of good scientific practice to their research, apply the basic structure of a scientific publication in their research reports, know the key publication series of their fields and are able to draft an appropriate and suitable structure for their doctoral dissertation.

The study module may include studies in research methodology, research ethics and the history or philosophy of science and principles of scientific writing. Some or all of the module may also consist of pedagogical studies. Language studies in general cannot be included to the degree, except for the specified language and communication studies.

Learning of university practices, such as tuition and research work guidance (1-3 cr), preparatory tasks for research projects and pedagogic studies:

- The amount of accomplished credits must be agreed with the supervisor individually.
- The doctoral student has the major responsibility for a course or a part of it or he/she is the official instructor of Bachelor's thesis or Master’s thesis max 9 cr

The participation in pedagogic training (YOOP courses or Aalto University pedagogic education) grants a maximum of 15 cr.

Please, note that the following course is compulsory from 1 August 2022:

- Research Ethics for Doctoral Students D, LC-L1010

Examples of courses applicable to the General research studies module:

Advanced and postgraduate-level courses:

- ENG-LV A/ENG Research Lab
- MEC-E9010 Patents D
- History of Science
- Philosophy of Science
- Philosophy and Systems Thinking, varying content
- Law in Digital Society CSE-E4680 / CS-E5370

Transferable skills and competences courses:

- Aalto University Communication courses organized by the Aalto Language Center. Obs. Language courses cannot be included to the doctoral degree.
Nationally jointly developed courses (offered via findocnet.fi)
- Research Ethics for Doctoral Students D, LC-L1010 (1-2 ECTS)
- Open Science for Doctoral Students D, LC-L1011 (1 ECTS)
- Business Skills for Doctoral Students D, LC-L1012 (1 ECTS)
- Career Course for Doctoral Students D, LC-L1013 (1 ECTS)
- Interactive Leadership Skills for Doctoral Students D, LC-L1014 (1 ECTS)
- Project Management for Doctoral Students D, LC-L1015 (1 ECTS)
- Writing Research Grant Applications for Doctoral Students D, LC-L1016 (1 ECTS)

Pedagogical studies (max 15 ECTS)

For more information, please see the MyCourses and SISU.

Doctoral thesis

Doctoral candidates are required to complete a doctoral thesis, which is an individual research composed during the four years of study. The doctoral thesis is written on a topic related to the research field approved for the doctoral candidate. A doctoral thesis shall contribute to new scientific knowledge. Doctoral thesis includes a public defence after pre-examination process. Accepted forms of theses are article based theses and monographs.

A doctoral thesis is a public document and cannot be concealed. It is kept for public display at the university. Doctoral theses are evaluated on a scale of Pass/Fail.

Aalto University has more detailed instructions concerning the doctoral thesis and its requirements.

Licentiate thesis

The Licentiate thesis is written on a topic related to the research field approved for the doctoral candidate. In a Licentiate thesis, doctoral candidate shall demonstrate good conversance with the field of research and the capability of independently and critically applying scientific research methods.

An approved Licentiate thesis may also be a monograph or a number of scientific publications or manuscripts vetted for publication deemed sufficient by the university, which deal with the same set of problems and a paper summarising the findings, or some other work, which meets corresponding scientific criteria. The publications may include co-authored publications if the author's independent contribution to them can be demonstrated.

A licentiate thesis is a public document and cannot be concealed. It is kept for public display at the university. Licentiate theses are evaluated on a scale of Pass/Fail.

Read the detailed instructions for licentiate thesis.