



Latvia University of Life Sciences and Technologies Doctoral School

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Doctoral Study Programme

AGRICULTURE

General information about the programme

Education Classification Code of the Republic of Latvia - 51621
Accredited until December 15, 2028
Director of the Doctoral Study Programme (sub-disciplines “**Animal Husbandry**” and “**Field-Crop Cultivation**”): Associate Professor, Dr. agr. **Diāna Ruska**
Contact information: e-mail: diana.ruska@lbtu.lv, phone +371 63005629
Duration of studies: full-time - 3 years
Qualification: Doctoral degree Doctor of Science (Ph.D.) in Agriculture, Forestry and Veterinary Sciences

The Annotation of the Programme

The implementation of the Doctoral Study Programme is ensured by the Faculty of Agriculture and Food technology of the Latvia University of Life Sciences and Technologies (LBTU) in close cooperation with the scientific institutes of LBTU, the Latvia Academy of Agricultural and Forestry Sciences and the Latvian Council of Science. It is the only programme in the Republic of Latvia, awarding the Doctor’s degree of Agriculture in the sub-disciplines “**Field-Crop Cultivation**” and “**Animal Husbandry**”.

The applicants for the doctoral studies in the sub-disciplines “**Field-Crop Cultivation**” and “**Animal Husbandry**” may be the graduates of Master’s Study Programmes and the graduates with the qualification equated to the Master’s degree. The matriculation takes place after the evaluation of an applicant’s qualification, the topicality of the planned Doctoral Thesis and the possibilities of the respective structural unit.

The full-time studies at the Doctoral Study Programme are planned for 3 years. The volume of the programme is **180 CP/180 ECTS**. The main part constitutes of research in one of the sub-disciplines of agricultural science and the publishing of research results **138 CP/138 ECTS** (1 CP = 1 ECTS). Parallel to the scientific research, the programme envisages the theoretical studies in the amount of **42 CP/42 ECTS**. The acquisition of theoretical competence and knowledge is assessed by means of several compulsory exams in the respective scientific sub-discipline. The plan of doctoral studies and the corresponding programmes for the implementation of studies are being developed for each doctoral student.

The doctoral students are offered studies abroad for different periods of time. The Latvia University of Life Sciences and Technologies develops collaboration with foreign higher education institutions and thus obtains additional qualifications of different levels. The study courses of the corresponding level and amount that had been acquired abroad could be equated to and included into the Doctoral Study Programme implemented at the Latvia University of Life Sciences and Technologies.

The obtained Doctor’s degree ensures the corresponding competence in order the graduate could start his/her independent scientific and pedagogical activities.

The Aim of the Programme

The aim of the Doctoral Study Programme “Agriculture” is to educate the new generation of scientists for dealing with the scientific problems of agriculture, obtaining more profound theoretical knowledge and acquiring the research methods.

The Objectives of the Programme

- To facilitate qualitative research and drawing of new scientific conclusions in crop production, fruit growing, market gardening, ornamental horticulture, grassland management, plant breeding, biotechnology, phytopatology, agricultural entomology, plant protection, soil science, agrochemistry, field-crop cultivation, rearing and breeding of animals, animal feeding, technologies for producing animal husbandry products.
- To ensure the publicity of research results and the development of Doctoral Thesis.
- To acquire the principles of and skills for the organization of scientific and pedagogical activities.
- To facilitate the integration of doctoral students into the international academic environment.

General Regulations

The programme is a regulatory document for the doctoral studies of agriculture at the Faculty of Agriculture and Food technology of the Latvia University of Life Sciences and Technologies; this document provides for the procedure, content, methodological, scientific level and final results. The provisions, norms and requirements defined in the programme are binding to the doctoral students of the Faculty of Agriculture and Food technology, to their scientific supervisors and to the academic staff involved in the implementation of the Doctoral Study Programme.

The Requirements Regarding the Preliminary Education

The Doctoral Study Programme may be acquired in the state financed full-time studies, as well as in the physical and legal entities financed full-time studies.

The doctoral studies at the LBTU are based on the normative documents of the Republic of Latvia, the Senate’s decision on the Admission Regulations and the Regulations of Doctoral Studies of the Latvia University of Life Sciences and Technologies (https://www.lbtu.lv/sites/default/files/2022-05/Promocijas_nolikums_2020_en_gb.pdf)

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The citizens of the Republic of Latvia and the persons who have the non-citizen passport of the Republic of Latvia, as well as the persons who have been granted the permanent residence permits, and who have a Master’s degree or an academic degree equated to the Master’s degree, in conformity with the procedure of an open competition, are admitted to study at the full-time

study programme financed by state. There may be admitted persons, who have obtained education corresponding to the Master's degree. The foreign applicants shall have education equated to the Master's degree awarded in the Republic of Latvia. The conformity of a diploma is determined by the Academic Information Centre. The persons, who have graduated a Master's Study Programme and obtained a Master's degree of Agriculture, are entitled to participate in the competition for the doctoral studies at the Faculty of Agriculture and Food technology of the Latvia University of Life Sciences and Technologies (LBTU). The procedure of competition for the state financed study places at a Doctoral Study Programme at LBTU is provided by the decision No. 3.2.-12.2/17, made by the Science Council on October 25, 2023.

The director of the respective program may determine an entrance examination in the chosen scientific discipline for the applicants, who have obtained a Master's Academic or Professional degrees in another scientific discipline. The applicants for the doctoral studies shall indicate in their applications the scientific sub-discipline of the Doctoral Study Programme "**Agriculture**", the theme of the planned Doctoral Thesis and the scientific supervisor, as well as they shall receive the approval from the director of institute and the scientific supervisor to supervise the studies, and the approval from the director of the Doctoral Study Programme. The applicant signs the agreement on studies and is matriculated for the doctoral studies by the rector's order, on the basis of the decision of the admissions committee.

The process for the admission for doctoral studies is monitored by the vice-rector of science and Doctoral School of the Latvia University of Life Sciences and Technologies.

The Sub-disciplines of Doctoral Study Programme

- Field-crop cultivation;
- Animal husbandry.

Volume and Duration of Doctoral Studies

The duration of full-time studies at the Doctoral Study Programme is 3 years or 144 weeks. The duration of one study year of full-time studies is 52 weeks, out of which 4 weeks are the leave. If a student uses his/her academic leave, the full-time studies may last up to 5 years. The volume of studies corresponds to **180 CP/180 ECTS**. A doctoral student may take a break in his/her studies for a period of time due to justifying circumstances and then again to continue his/her studies. The break in studies shall be taken on the basis of the rector's order.

The Content of the Doctoral Study Programme

The total volume of the study program is **180 CP/180 ECTS**, out of which **42 CP ECTS** shall be obtained as a result of theoretical studies and **138 CP** as a result of research activities.

The compulsory theoretical studies in the amount of 42 CP/ECTS:

- The course of scientific sub-discipline or the specialization course of the trend of sub-discipline **15 CP**;
- Research methodology in agronomy **9 CP**;
- Theoretical course in research trend **12 CP**;
- Specialization course of a foreign language for professional purposes **6 CP**.

The optional study courses, chosen according to the theme of Doctoral Thesis, the doctoral student submits for the approval to his/her scientific supervisor and includes into the total number of CP to be obtained as a result scientific research activities.

The optional courses may be different international courses, the study courses acquired at the Latvia University of Life Sciences and Technologies or at other higher education institutions in Latvia and those in foreign countries during the fieldwork; the evaluation of such courses in CP is given by the supervisor of Doctoral Thesis after having acquainted with the programs of courses and certificates.

Scientific research activities performed during studies constitute 138 CP/138 ECTS; they may include are theoretical courses:

1. Doctoral Study Course “Multivariate Data Analysis I” – 3 CP;
2. Doctoral Study Course “Multivariate Data Analysis II” – 3 CP;
3. **Research - 80 CP/80 ECTS:**
 - Development of a doctoral thesis, incl. learning data processing methodology – 60 CP,
 - review of literature (20-25 sources – 2 CP) – 10 CP,
 - preparation and presentation of the doctoral thesis - 10 CP.
4. Publication of research results, including the study course “Preparation of Scientific Papers” - 32 CP,
5. Presentation of research results at scientific conferences – 20 CP.

The CP structure of the scientific research activities performed during studies comprises:

- identifying, studying and analyzing special literature;
- selection of research methodology according to the topic of the work and its justification;
- arranging and carrying out experiments;
- creation and processing of the experimental database;
- elective courses subordinate to the topic of the thesis.

Publication of research results - 32 CP/ECTS:

- publication is indexed in scientific journals Web of Science Core Collection and/or Scopus Q1-Q2 – 10-12 CP;
- publication is indexed in scientific journals Web of Science Core Collection and/or Scopus Q3-Q4 – 6-8 CP;
- publication is indexed in the international conference collections Web of Science Core Collection, Conference Proceedings Citation Index and/or Scopus – 4-5 CP;
- approved patent application in Latvia/foreign countries – 3-5 KP.

The thesis supervisor evaluates the importance of the publication in creditpoints (CP) and, if necessary, can ask by LZP accepted experts in agriculture to evaluate the publication.

Presentation of research results 20 CP/20 ECTS:

- presentation of the results at international scientific conference/seminar/congress/symposium – 4-5 CP;
- presentation of the results at scientific and practical conference (oral presentation or stand report) – 2-3 CP.

The thesis supervisor assesses the importance of the presentation in creditpoints.

Doctoral Study Programme “Agriculture”

Study courses	Volume, (CP=ECTS)	Type of studies	Type of control
1. Compulsory theoretical studies¹	42		
The course of scientific sub-discipline or the specialization course of the trend of sub-discipline	15	Individual studies	Promotion Exam
Special Course of Research Direction including:	12	Individual studies	Promotion Exam
<ul style="list-style-type: none"> • Summarizing of scientific literature concerning the research trend and the presentation of the results in front of the audience⁴ 	6	Individual studies	Exam
<ul style="list-style-type: none"> • Individual theoretical course (determined by the supervisor of Doctoral Thesis) with one – two study courses³ 	6	Individual studies	Exam or test
Specialization course of a foreign language for professional purposes ⁵	6		Exam
Research methodology in agronomy	9		Exam
2. Scientific research directions of studies	138		
Study course “Multivariate Data Analysis I”	3		
Study course “Multivariate Data Analysis II”	3		
Research: - development of a doctoral thesis; - view of literature; - preparation and design of the thesis.	80 60 10 10	Individual studies	The analyzed scientific literature and performed experimental research shall be indicated, doctoral thesis submission
Publishing of research results, including the study course “Preparation of Scientific Papers”	32 4		The copies of reports shall be submitted
Presentation of research results	20		The copies of programme shall besubmitted
Total (1+2)	180		

¹. The plan of doctoral studies is approved for each doctoral student individually at least one month after he/she begins studies.

². The doctorate exam in the research direction is organized as a public seminar before the submission of Doctoral Thesis; the content of the exam – the review of literature on the theme of Doctoral Thesis.

³. The individual theoretical courses acquired abroad may be equated to the study courses of doctoral studies, if they have been acquired according to a particular program with the identified number of hours and there has been a certifying document issued. The equation of the courses acquired abroad is performed by the respective Promotion Council.

4. The doctoral student submits the printed out summary of literature to the respective institute for consideration and reviewing before the organization of a seminar-discussion. The doctoral student submits minutes on the reviewing of literature review to the director of the Doctoral Study Programme. The seminar-discussion is organized by the student. The doctoral student has an opportunity to present the report in English or German (and to write the summary on the literature review in a foreign language), and thus also to take the exam in a foreign language for scientific purposes. The process of seminar is evaluated by an examination commission consisting of three members with a Doctor's degree. If the seminar is organized in a foreign language, the examination commission should include also a representative from the Department of Languages.

5. The exam in a foreign language for professional purposes may be taken in a combination with the seminar-discussion in the research trend or by presenting (in English) the research results at a scientific conference.

The Plan for the Implementation of Full-Time Doctoral Study Programme

Annual volume of studies:

- Full-time studies - 60 CP/60 ECTS

1st year of doctoral studies

Theoretical studies, 15 CP/15 ECTS		
Research methodology in agronomy	9	Exam
Specialization course of foreign language for professional purposes	6	Promotion Exam
Scientific research directions of studies, 45 CP/45 ECTS		
Study course "Multivariate Data Analysis I"	3	
Study course "Multivariate Data Analysis II"	3	
Defining of hypothesis and choosing of research methodology according to the theme of Doctoral Thesis	11	Test or exam
Identifying, studying and analyzing of special literature	6	The analyzed scientific literature shall be indicated
Establishment of experiments, observation and obtaining of data	22	The performed experimental research shall be indicated

2nd year of doctoral studies

Theoretical studies, 15 CP/15 ECTS		
The specialization course of the trend of scientific sub-discipline – doctorate exam	15	Promotion exam
Scientific research directions of studies, 45 CP/45 ECTS		
Special literature studies, studying and analyzing (20-25 sources - 2 CP)	4	List and summary of the analyzed scientific literature
Development of data base and data processing. The analysis of the experimental data of previous year	3	The performed experimental research shall be indicated

Studies and analysis of obtained scientific information in the research direction	3	The analyzed scientific literature and the performed experimental research shall be indicated
Establishment of experiments, observation and obtaining of data	9	The performed experimental research shall be indicated
Preparation and publishing of research results, including scientific reports	16	Submission of the copies of reports
Presentation of research results	10	Submission of the copies of programs, certificate

3rd year of doctoral studies

Theoretical course in the research direction, 12 CP/ 12 ECTS		
Summary of literature in the research direction with the public presentation, seminar, discussion (it is possible to combine with the foreign language for professional purposes)	12	Seminar-discussion, promotion exam
Scientific research directions of studies, 48 CP/48 ECTS		
Establishment and performing of experiments, development of data base and data processing	12	The performed experimental research shall be indicated
Preparation and publishing of research results, including scientific reports	16	Submission of the copies of reports
Presentation of research results	10	Submission of the copies of programs, certificate
Development and designing of Doctoral Thesis	10	

Study Methods

The studies at the Doctoral Study Programme are implemented in a form of planned lectures and independent studies. The materials of lectures are available to doctoral students at the portal of the Latvia University of Life Sciences and Technologies or individually through e-mail. There are seminars organized related to the dealing with problems.

While studying independently, the doctoral students individually prepare the reviews on scientific literature and develop presentations on particular themes; the themes may be related to the topicalities of industry, a scientific problem, the process of the development of Doctoral Thesis.

There had been elements of e-studies introduced into the study process. The students use the electronic communication to consult with the academic staff concerning issues they do not understand. There had been started the development of study courses in the electronic environment.

Within the study process and particularly in relation to the development of their Doctoral Theses, the doctoral students use an opportunity to have individual consultations with the supervisors of their Doctoral Theses. In order to ensure the methodological quality of Doctoral Theses, the work plan, methodology and reports on the performed activities are considered at the meeting of the Institute.

The Evaluation of the Implementation of Programme

In order to complete the Doctoral Study Programme successfully, the doctoral student together with the scientific supervisor develop the individual plan for the whole study period and for each study-year separately. The theme of Doctoral Thesis and the doctoral student's individual plan is considered at the respective institute of the Faculty of Agriculture and Food technology. The certification of the doctoral student's work takes place once in six months at the meeting of the respective institute, and the doctoral student's achievements are being evaluated. The Doctoral Study Programme is oriented towards the doctoral students' individual studies in the chosen scientific direction; it is reflected in the distribution of volume between the theoretical part 42 CP/ECTS and scientific activities 138 CP/ECTS.

The study programs of theoretical courses in the sub-discipline are developed at the respective institute and approved by the Board of the Faculty of Agriculture.

Within the study period the doctoral student takes doctorate exams on the theoretical course of the program. Each doctoral student takes 4 exams (Sub-discipline of agricultural sciences – 15 CP/ECTS, Research Direction - 12 CP/ECTS, Research methodology in agronomy - 9 CP/ECTS and “Foreign Language for Doctoral Students for Professional Purposes” (English or German) 6 CP/ECTS).

The exams of courses are open and the examination is carried out by the Examination Commission consisting of 3 members with Doctor's degree and approved by the vice-rector of science of the Latvia University of Life Sciences and Technologies. The study courses acquired within the theoretical course are being evaluated with a grade according to the 10-point scale, where 10 - with distinction, 9 - excellent, 8 - very good, 7 - good, 6 - almost good, 5 - satisfactory, 4 - almost satisfactory, 3 - poor, 2 - very poor, 1 - unsatisfactory.

The criteria and procedure for the evaluation of knowledge are defined in the Regulations of Studies of the Latvia University of Life Sciences and Technologies: https://www.lbtu.lv/sites/default/files/2022-02/Doktora_studiju_nolikums_En.pdf.

In order to facilitate the quality of scientific work it is possible to attend additionally the study courses “Preparations of Scientific Papers”, “Multivariate Data Analysis I” and “Multivariate Data Analysis II”. The rest of the scientific work is being evaluated in credit points according to its correspondence to the annual plan and the general readiness of Doctoral Thesis. The most involved person in the evaluation of research paper is the supervisor of Doctoral Thesis, who is competent about the respective research direction and is able to provide qualitative evaluation.

The Doctoral Thesis is submitted to and considered by the Promotion Council of the branch “Agriculture and fisheries sciences, forestry” specialization “Agriculture” that is approved by the Latvian Council of Science and the rector of the Latvia University of Life Sciences and Technologies. The procedure for the evaluation and defending of Doctoral Thesis is in conformity with the provisions of the Regulations No.1001 “Procedure and Criteria for the Awarding (Promotion) of Doctor's Scientific Degree” adopted by the Cabinet of Ministers on December 27, 2005.

The developed research paper is initially approved at the departments of the institutes of the Faculty of Agriculture and Food technology of the Latvia University of Life Sciences and Technologies (LBTU), then - at the enlarged meeting organized at the respective institute with the participation of the experts of Promotion Council; the meeting accepts the paper for the further advancement to the Promotion Council.

After the successful defense of Doctoral Thesis and, on the basis of decision taken by the Promotion Council on the awarding of a scientific degree, the rector of the Latvia University of Life Sciences and Technologies passes a decree on the issuance of the state acknowledged Doctor's University diploma. The diploma is signed by the rector of LBTU and the chairperson of the respective Promotion Council.

Planned and Attainable Results

The students, studying in the programme, acquire knowledge, skills and competences, corresponding to the 8th level of the European Qualifications Framework (EQF).

As a result of theoretical studies and the performance of scientific activities, there are prepared scientists and highly qualified specialists, who have acquired **more profound knowledge** of agricultural sciences (plant and animal science) and scientific methodology.

Doctoral students **acquire the skill** to perform independently and to lead the scientific research, to develop project applications; they acquire the skills of team management; they are able to become a member of the groups of researchers working on scientific projects in Latvia and in other countries; they are able to present the research results at the international and national scientific conferences. They acquire the skill to prepare the internationally recognized scientific publications.

They **are competent** to deal with the scientific agricultural problems independently, to define the basic research problems and to advance the hypotheses, to discuss these issues at the national and international level, to work at scientific or higher education institutions, and to take academic or administrative positions in public administration and agricultural production. They are able to create new knowledge in agricultural industry and to provide their original contribution for its development. They are competent to perform pedagogical duties for the education of prospective scientists.

The theoretical acquisition of the study programme and the development of Doctoral Thesis ensure the attainment of the above-mentioned study results.

The Scientific Degree to be Obtained

Doctoral degree Doctor of Science (Ph.D.) in Agriculture, Forestry and Veterinary Sciences.

The Evaluation of the Programme

The Faculty of Agriculture and Food technology of the Latvia University of Life Sciences and Technologies is the only one in Latvia offering the doctoral studies in the sub-disciplines **“Field-Crop Cultivation”** and **“Animal Husbandry”** of the agricultural sciences. The research in these sub-disciplines has good traditions in Latvia; these studies facilitate the development of science, education, agricultural production, environmental protection, as well as the introduction of new technologies.

Both the structural units of the Latvia University of Life Sciences and Technologies and the cooperation projects with the scientific institutions in Latvia and abroad serve as the base for studies, used by the Faculty of Agriculture and Food technology of the Latvia University of Life Sciences and Technologies for the implementation of Doctoral Study Programme.

The cooperation with the higher education institutions in Latvia is limited, because no higher education institution offers agricultural study programs. However, there had been successful cooperation developed with the Faculty of Biology of the University of Latvia.

The Doctoral Study Programme, implemented at the Faculty of Agriculture and Food technology of the Latvia University of Life Sciences and Technologies, has close cooperation with the universities of Sweden, Germany, Norway, Poland, University of Michigan in the USA, universities of Denmark, Australia, Estonia, Lithuania and other countries. The collaboration enables to improve the study programme, to improve the qualification of the supervisors of doctoral students, to supplement the stock of specialization literature, to ensure the acquisition of latest research methods and methodologies by doctoral students. It enables the doctoral students to widen their professional horizon, consolidate their knowledge of foreign languages, facilitates the acquisition of new information and the establishment of contacts.

The implementation of the programme facilitates the integration of studies and research at the University, facilitates the improvement of academic life.

Information on the Academic Staff

The academic staff from different Faculties of the Latvia University of Life Sciences and Technologies is involved in the implementation of the study process; however, it is basically the academic staff of the Faculty of Agriculture and Food technology. The supervisors of doctoral students, involved in the implementation of the Doctoral Study Programme “Agriculture”, have high-level scientific qualification. The doctoral students are supervised by the State Professors, Associated Professors, Assistant Professors and senior researchers.

The supervisors of Doctoral Theses are the leaders or executors of the experts and grants of the Latvian Council of Science. A part of the scientific supervisors take part in the execution of international scientific projects.

Associate Professor, Dr. agr. Diāna Ruska, director of the Doctoral Study Programme (sub-discipline “**Animal Husbandry**” and “**Field-Crop Cultivation**”).

Approved at the meeting of the Board of the Faculty of Agriculture and Food technology of the Latvia University of Life Sciences and Technologies.