

HUNGARIAN UNIVERSITY OF AGRICULTURE AND  
LIFE SCIENCES

DOCTORAL SCHOOL OF HORTICULTURAL  
SCIENCE

Excerpt from the  
**Rules of Procedure**

BUDAPEST  
2021

## **DATA OF THE DOCTORAL SCHOOL**

Name: Doctoral School of Horticultural Science

Abbreviation: DSHS

Nr.: 231

Address: 1118 Budapest, Villányi str. 29–43.

website:

## **LEADERSHIP AND FUNCTIONS IN THE DOCTORAL SCHOOL (DS)**

### President

Professor of the University, elected by the Doctoral Council of the University

### Parent members

According to the Government Regulation they are at least 7 people, (4 professors and additional teachers or researchers) who represent the highest quality of the education.

### Scientific secretary

PhD, helping to the president in arranging scientific affairs and documentation.

### Board of the DS

Scientists (employed at the University and/or outside persons) deciding on most important issues of the DS having session sin each quarter of year. Elected by the Parent members. Their terms of reference are regulated centrally.

### Supervisor

Governing the work of the PhD student, approved by the Board of the DS. Must have at least 5 years research and teaching experience after getting PhD degree. If students have outside supervisors, there must be also another one who is employed at the SZIU.

### Teachers

Delivering lectures for PhD students. Approved by the Board of DS. List of them is available at the central website: [www.doktori.hu](http://www.doktori.hu)

The Doctoral School has also a Committee for the habilitation procedures and a Committee for the entrance exam.

The DS is working in 7 research topic groups, list of them is in **App. 1**.

**Administration** is going on in the Doctoral Secretariat of the Buda Campus.

## ADMISSION

Each year there are two admission periods, with deadlines in January and May. The actual deadlines and requirements are announced at the homepage of the doctoral school.

Main admission criteria for *regular education and degree procedure*: MSc degree in the corresponding scientific programs related to horticulture; proofs for previous experience in research activity and publications or related scientific achievements; research plan discussed and agreed with the candidate supervisor.

The Admission Committee evaluates the student according to the University Doctoral Regulations (hereinafter: DR) 11.§. Final decision about admission, about the supervisor and about the research topic is made by the Board of DS. Any change in these needs the approval of the Board, too.

For scientists with longer research experience and high quality publications, an *individual education and degree process* is also possible. Rules for it are summarized in the DR16.§(4) and 17.§.

## PHD EDUCATION

Education lasts 8 semesters. In the first 4 semesters both study and research must be carried out. In the second 4 semesters the main activity is research and publication. Altogether the students must fulfill 240 credits, at least 20 credits in each semester. The Credit Regulation of the DS is based on the Credit Regulation of the University Doctoral Council (**App. 2.**).

The credits are divided into educational courses and research activity under supervision. The actual list of compulsory and free choice *courses* is available from the website or from the PhD educational office. These courses are graded and evaluated by the course leader. The *research activity* consists of all the time spent with the experimental work either in open field or in lab, professional seminars, conferences, study trips or practical education connected to the research topic and approved by the supervisor. These activities must be evaluated and credits certified by the supervisor.

With the guidance of the supervisor, the students have to prepare a *Research plan* of appr. 5 pages according to the guideline in **App. 4.** It must be approved by the President. Format also downloadable from the website.

Any internship or study trip during the education period has to be agreed by the supervisor. Additionally, for students holding the *Stipendium Hungaricum* or other scholarship, the Regulations of those Agreement must be taken into account. Any trip to abroad must be administered according to the general regulations of the University.

A break in the study is also possible. However, it must be noted in advance before the start of the actual semester. The break can be repeated but continuously it is not allowed to be longer than one year. It is possible only after successful finishing at least of the first semester.

After finishing the 8 semesters and obtaining the 240 credits, the student status is terminated and the student gets a *Pre-degree certificate (absolutorium)*. It is still not a PhD degree it is the proof of fulfilling the requirements of the education period.

The student status is also terminated if the duties of education and research are not fulfilled during the 8 semesters and in the case if the student does not perform a successful Complex exam.

## COMPLEX EXAM

After the fourth semester the student must do the *Complex exam*. The students have to report on scientific topics connected with their research and on the status of their research activity. The exam has to be completed after the first four semesters. The complex exam consists of two parts: in one part, the theoretical knowledge of the candidate is measured (theoretical part of the exam) and the second part describes the candidate's scientific progress ("dissertation part")

The requirement for registering to the complex exam are announced in detail at the website. They include: documented completion of 120 credits, including the acquisition of all subject (at least 40 credits) indicated in the individual training plan and a language certificate.

For registering to the exam, at first the "*Application for Complex Exam*" form must be submitted until the deadline given in each year (downloadable from the website). On this form also the supervisor must evaluate the achievements of the PhD student. The examination committee is approved by the Doctoral Council of the University for each exam period. The purpose of the exam is to judge the state of the research and the realistic chance that the student will successfully complete the PhD degree requirements and submit her/his dissertation after the remaining 2 years. PhD schools are organizing the date and negotiate it with the committee members.

## PHASES OF THE DEGREE PROCEDURE

The student must apply for the degree procedure by fulfilling the form available on the website. It can also be requested from the Doctoral Secretariat.

Basic requirement is the documented individual research activity and new scientific results. The evaluation criteria of the performance are summarised in **App. 3**.

Besides, the knowledge of two foreign languages must be documented. One of them must be English documented by a language exam at least. The second language and/or mother tongue of the candidate may be accepted if it is documented by a certificate of secondary school or university degree level.

The candidate has to prepare a *Thesis* including the research results. The formal requirements and instructions are available from the website or can be obtained from the Doctoral Secretariat.

The thesis is evaluated by two pre-reviewer and a *Pre-defence* (home defence) is organised. It must be initiated by the student with the help of the supervisor and organised by the department where the student is working.

During the home defence the candidate is presenting his/her results and the most important new findings in the form of an oral presentation in maximum 20 minutes and answers to the questions of the home defence committee.

The session is documented in form of a minutes. The committee decides if the thesis is appropriate in the actual form for the final defence or it must be corrected and to what an extent or it is not acceptable at all.

After corrections the student may submit the final thesis to the Board of DS. It decides on the *Final defence* committee and the reviewers. The committee must be selected according to the DR 25.§ (2-4.). The final defence can only be organised if the two reviewers submit

their supporting opinion in written form. In case of a refusal, a third reviewer may be adjured. In case of two refusal a second trial and new thesis is allowed only after 1 year time.

The final defence is also documented in form of minutes. Based on the documents and the suggestion of the Board of the DS, the Doctoral Council of the University is justified to award the PhD degree.

Fees for education and degree procedure are summarized in the DR and announced on the central webpage.

**Research topic groups of the Doctoral School of Horticultural Sciences**

**1. Horticultural biology:**

Horticultural botany, plant anatomy, taxonomy, plant geography, ecology, coenology;  
Physiology, cytology, morphology, taxonomy and coenology of wild growing mushrooms;  
Physiology and stress behaviour of horticultural species, interaction of host/parasites/symbionts;  
Regulation of plant tissue cultures and physiology of micropropagation;  
Molecular bases of physiological processes – applied system-biology;  
Classical and molecular genetics and plant breeding – studies on gene expression;  
Population genetics, application of molecular markers in plant breeding.

**2. Ornamental plants and dendrology:**

in-vitro propagation in new ornamental plant cultures;  
macropropagation methods of woody plants, juvenility, histological and chemical studies;  
development of nursery technologies;  
examinations on water- and nutrient supply of ornamentals;  
gene-reservation, selection, breeding of ornamental- and stockplant cultivars;  
application of ornamental species, stress-tolerance, introduction;  
green-roofs, indoor and balcony plants, physiology, technology.

**3. Medicinal and Aromatic Plants:**

biosynthesis of active materials, accumulation, chemotaxonomy;  
ecological and production-biological studies;  
gene-reservation, introduction;  
genetical bases, breeding;  
development of agrotechnology, modelling of production chain;  
the role of medicinal and alternative plants in ecological production.

**4. Fruit bearing plants:**

biological bases: evaluation of varieties, floral- and fertilisation biology;  
gene-reservation, pomology and genetics, studies on of genetic resources;  
resistance breeding including determination of molecular genetical markers;  
health protection active materials of fruit species;  
propagation-physiological bases of nursery practices;  
ecological adaptation capacity and water transport of fruit species and varieties;  
agrotechnical systems, environment friendly cultivation and post harvest methods, development of mechanisation and special equipments.

**5. Viticulture:**

Biological bases, evaluation of varieties;  
Interactions of qualitative and quantitative parameters of the products;  
Weather-climate effects, role of year and habitat in the quality oriented wine production;  
Leaf surface and yield regulation, their physiological bases;  
Management and development of habitat register system;  
Analysis of chemical characteristics of soil, plant and wine;  
Chemistry, microbiology and technological development of oenology.

## **6. Vegetables and cultivated fungi:**

Soil mixtures, growth substances, nutrient demand, fertilisation, water supply, regulation;  
connection of nutrient supply and crop quality;

Development of growth technologies of edible fungi, introduction of exotic mushroom species;

Agrotechnical innovation of Hungarian species (especially forced sweet pepper);

Climatization of greenhouses, development of machinery and equipment system of vegetable growing;

Scientific problems of ecological vegetable cultivation;

Objective methods for crop quality checking.

## **7. Horticultural Plant Medicine:**

Pathology of infections and diseases caused by bacteria, viruses, phytoplasmas and fungi;

General and local defence systems;

Integrated plant protection methods; automatization of forecast of epidemics;

Population dynamics of phytophagous and zoophagous insects;

Entomological aspects of horticultural crops and their environments.

### **Credit requirements for students of DSHS**

(basics are included in the Credit regulation of MATE Doctoral Council)

#### **Basic terms:**

- 30 working ours are equal with 1 credit.
- It is the work load independent on the note of the performance.
- In study 15 weeks are each semester, for research 22 weeks
- In 8 semesters students must earn 240 credits to get the final certificate (absolutorium)
- If the student does not reach at least 20 credits in a semester he/she can be terminated from the education.

#### **Credit calculation**

Credits must be documented at the end of each semester in the *Neptun system*.

#### **I. Courses:**

Study courses (lectures, seminars). They can be chosen from the List of courses of the DSHS. Three compulsory courses (6 credits), 1-2 topic specific courses (6 credits) and 4-6 free choice courses (4 credits) are to complete during the first 2 years. As free choice course any other university courses may be taken in agreement with the supervisor.

By this activity **at least 40 and maximum 60 credits** must be earned during the first 4 semesters.

They are certified by the course leader and evaluated by grades or signature.

*Credits* as in the list, compulsory courses 6 credits, free choice courses 4 credits

#### **II. Research activity under supervision:**

Individual research work according to the approved topic, helped and controlled by the supervisor. Results of this will be summarized in the thesis. Any work in field, laboratory and the connected literature search and/or participation at workshops, field trips, internship, participation in teaching of graduates, etc.

By this activity **at least 180 and maximum 200 credits** must be earned during the 8 semesters. They are not graded but justified by signature by the supervisor.

The study year consists of both an autumn and a spring semester. The active study period is usually 15-16 weeks long after which a 5 weeks examination period is coming. The actual dates are announced each year at the end of the previous semester.

For the complex exam no credits are adjusted.



## Sample for individual training plan

Type of activity	Details	Semester								Sum
		1.	2.	3.	4.	5.	6.	7.	8.	
I. Courses	Compulsory course: Productio biology of horticultural crops	6								
	Compulsory course: Results of plant molecular biology and application in horticulture		6							
	Compulsory course: Statistical methods			6						
	Compulsory course connected to thematic group....		6							
	Free choice course.....	4								
	Free choice course.....			4						
	Free choice course.....				4					
	Free choice course.....				4					
	<i>Sum</i>	<i>10</i>	<i>12</i>	<i>10</i>	<i>8</i>					<i>40</i>
II. Research activity under supervision	Individual research activity with the guidance of the supervisor, it is the basics of the PhD thesis. (experimental work in lab or field, evaluation of results). + Other education and practical activities connected to the research topic like seminars, conferences, study trips, etc.) + Preparation of scientific publications and presentations + Participation in teaching activity of the institute	20	20	20	20	30	30	30	30	200
Összesen		<b>30</b>	<b>32</b>	<b>30</b>	<b>28</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>240</b>

## **Requirements on scientific activities and publications for the degree procedure**

(to reach at latest till the nomination of the final defence committee)

### **1./ Basic requirement:**

- a./ Minimum 2 manuscripts appeared in IF journals.
- b./ Minimum 1 additional manuscript in another peer-reviewed journal

At least 2 of the above 3 articles must be written on the accepted research topic of the candidate and he/she must be the first author in at least one of the 2 IF articles.

Co-authors are allowed to provide the article only once among the basic requirements.

At least one of the two IF articles must appear in a Q1 or Q2 journal.

Altogether: 27 points

### **2./ Additional points may be acquired by the following publications and activities:**

IF journal article (over the minimum requirements)	10
Peer reviewed journal article (over the minimum requirements)	7
Other scientific publication	1
Conference proceeding = „ full paper” (min. 4pages)	3
Conference abstract	1
Book chapter, scientific (min. 5 pages)	4
Book editing, scientific	10
Citations (in Hungarian publication)	0,5
Citations (in international publication)	2
Registered plant variety	10
Patent	10
Research project leader (in Hungarian project)	5
Research project participant (in Hungarian project)	2
Research project leader (international project)	10
Research project participant (international project)	3
Supervision of student thesis	2

Documentation of the above is necessary.

Altogether: minimum 13 points.

1+2 altogether to reach: minimum 40 points.

Any other scientific and/or professional activities may be listed and mentioned in the application without points, as information.

**Doctoral school:**  
**President:**  
**Supervisor:**

## RESEARCH PLAN

**Name:**

**Title of the topic:**

**1. Scientific background**

- 1.1 Significance of the topic, previous findings
- 1.2 Literature review-short
- 1.3. Needs for research

**2. Goals of the research**

- 2.1. Theoretical, scientific problems to solve
- 2.2. Practical questions to answer

**3. Methods** (like in scientific articles, in a compact form)

- 3.1
- 3.2
- 3.3

**4. Results to anticipate** (exactly, summarizing)

- 4.1. New scientific results
- 4.2. New developments, practical results

**5. Schedules and phases of the work** (research activity, publications)

- 5.1 To reach at the end of year 2 /2 .
- 5.2 To reach at the end of year 2 /2
- 5.3 To reach at the end of year 2 /2
- 5.4. To reach at the end of year 2 /2 (till the end of study)

I propose the plan for acceptance.

Date: Budapest,

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supervisor  
**NAME**

.....

student  
**NAME**

on of Board of Doctoral School:.....  
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Budapest,

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President of Doctoral School