

**The training plan, sample curriculum and complex examination requirements of the
Doctoral School of Theoretical Medicine at the University of Szeged**

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ACADEMIC REQUIREMENTS

General rules:

- A minimum of 20 and a maximum of 45 credits can be earned per semester.
- A minimum of 90 credits must be earned in semesters I-IV. After earning a minimum of 90 credits, students are eligible to take the comprehensive exam.
- A minimum of 240 credits must be earned in 8 semesters (2+2 years).
- 8 credits may be awarded per semester for teaching, for a total of 48 credits.
- Work report: 3 credits may be awarded per occasion, for a minimum of 1 and a maximum of 4 occasions, for a total of 12 credits.

The training plan consists of 4 parts (modules): Modules I–IV

I) Module I: TRAINING/COURSES (a minimum of 38 credits)

I/A: Core subjects (20 credits)

Core subjects													
Name of subjects	Department/person in charge	Number of hours	Requirements	Number of credits in specific semesters								Total credits	Form of report
				1.	2.	3.	4.	5.	6.	7.	8.		
Computer-assisted research methodology	Prof. Dr. Ferenc Peták DSc Department of Medical Physics and Informatics	28	O	-	6	-	-	-	-	-	-	6	B5
Scientific communication and publication. Methods, rules, ethics	Prof. Dr. Ernő Duda Dsc Department of Medical Biology	14	O	-	3	-	-	-	-	-	-	3	B5
Biostatistics lecture	Prof. Dr. Krisztina Boda Department of Medical Physics and Informatics	28	O	6	-	(6)	-	-	-	-	-	6	B5
Biostatistics practice	Prof. Dr. Krisztina Boda Department of Medical Physics and Informatics	28	O	2	-	(2)	-	-	-	-	-	2	B3
Biomedical ethics	Dr. habil. Oguz Kelemen PhD Department of Behavioral Sciences	14	O	-	3	-	-	-	-	-	-	3	B5
Total credit of Basic Modul 1-st				8	12	(8)	-	-	-	-	-	20	

1 O (Obligatory subject)

2 E (Elective subject)

3 CE (Compulsory elective subject)

I/B. Compulsory subjects linked to the doctoral school's PhD subprogram (specialization) (minimum 18 credits per PhD subprogram (specialization), to be completed during semesters I-IV).

The complex exam must be taken at the end of the second year (semester IV).

Total compulsory training credits (foundation subjects and compulsory subjects per subprogram (specialization): 20+18=38 credits

Compulsory subjects of the 4 subprograms of the Doctoral School of Theoretical Medicine at the University of Szeged, of which a minimum of 18 credits must be earned per subprogram during semesters I-IV:

1. "Neuroendocrinology" PhD subprogram

Program director: Dr. habil. Zsolt Bagosi, associate professor

Neuroendocrinology I: The role of neuropeptides in the central nervous system
(Responsible instructor: Dr. habil. Zsolt Bagosi) 28 hours, 6 credits, colloquium, 1st semester)

Neuroendocrinology II: Functioning of neuroendocrine systems under normal and pathological conditions (Responsible Instructor: Dr. habil. Zsolt Bagosi, Department of Pathophysiology, 28 hours, 6 credits, colloquium 2nd semester)

Chemistry of Biopolymers (Responsible Instructor: Prof. Dr. Gábor Tóth, 28 hours, 6 credits, colloquium, 2nd semester)

2. "Neuroscience" PhD subprogram

Program director: Prof. Dr. Gábor Jancsó, university professor, professor emeritus

Neurophysiology I. (Responsible Instructor: Dr. Péter Sántha, Department of Physiology, 28 hours, 6 credits, 1st semester)

Neurophysiology II. (Responsible Instructor: Dr. Péter Sántha, Department of Physiology, 28 hours, 6 credits, 2nd semester)

Neuroanatomy (Responsible Instructor: Prof. Dr. Antal Nógrádi, Department of Anatomy, Histology and Embryology, 28 hours, 6 credits, 1st or 3rd semester)

3. "Gastroenterology" PhD subprogram

Program director: Prof. Dr. László Czakó, university professor

Endocrinology of the gastrointestinal system (Responsible Instructor: Dr. János Gardi, Department of Medicine I, 28 hours, 6 credits, 2nd or 4th semester)

Molecular Physiology and Pathology of the Gastrointestinal System (Responsible Instructor: Dr. Viktória Venglovecz, Department of Pharmacology and Pharmacotherapy, 28 hours, 6 credits, 2nd or 4th semester)

Modern Diagnostic and Therapeutic Endoscopy (Responsible Instructor: Prof. Dr. László Czákó, Department of Medicine I, 28 hours, 6 credits, 2nd or 4th semester)

4. "Regulation, Measurement and Analysis of Life Processes" PhD Subprogram

Program Director: Prof. Dr. Ferenc Bari, University Professor

Modern Information Technology in Medicine (Responsible Instructor: Prof. Dr. Ferenc Peták, Department of Medical Physics and Medical Informatics, 6 credits, 2nd or 4th semester)

Measurement of Vital Signs (Responsible Instructor: Prof. Dr. Ferenc Bari, Department of Medical Physics and Medical Informatics, 28 hours, 6 credits, 1st semester)

Processing of measurement data (Responsible Instructor: Dr. Péter Makra, Department of Medical Physics and Medical Informatics, 28 hours, 6 credits, 2nd semester)

I/C. Elective courses of the doctoral school:

Compulsory courses announced by other Theoretical ODI subprograms and other SZAOK doctoral schools (KODI, MULTI), but also courses that can be taken by Theoretical ODI PhD students. In addition:

- 1. Molecular Neurobiology** (Responsible instructor: Prof. Dr. Károly Gulya, Department of Cell Biology and Molecular Medicine 28 hours, 6 credits, 2nd or 4th semester)
- 2. Modern Information Technology in Medicine** (Responsible instructor: Prof. Dr. Ferenc Peták, Department of Medical Physics and Medical Informatics, 28 hours, 6 credits, 2nd or 4th semester)
- 3. Current topics in life sciences** (Responsible instructor: Prof. Dr. Mária Deli, Institute of Biophysics, SZBK 14 hours, 3 credits, 1st, 2nd, 3rd, 4th semester)
- 4. Theory and practice of animal experiments - Level (theory)** (Responsible instructor: Prof. Dr. Mihály Boros, Department of Experimental Surgery, 28 hours, 6 credits, 1st or 3rd semester)
- 5. Regeneration and transplantation following central nervous system injury** (Responsible instructor : Prof. Dr. Antal Nógrádi, Department of Anatomy, Histology and Embryology 28 hours, 6 credits, 2nd and 4th semesters)
- 6. Biostatistical models in life sciences** (Responsible instructor: Dr. Krisztina Boda, Department of Medical Physics and Medical Informatics, 28 hours, 6 credits, 1st or 3rd semester)*
- 7. Chapters on the regulation of blood supply to the brain** (Responsible instructor: Dr. habil. Eszter Farkas, Department of Medical Physics and Medical Informatics, 28 hours, 2 credits, 1st semester)

- 8. Exciting trends in Molecular Biology** (Responsible instructor: Prof. Dr. Sándor Benyhe and Ildikó Karczagi, Institute of Biochemistry, SZBK 28 hours, 6 credits, spring semester)
- 9. Hospital Informatics** (Responsible instructor: Prof. Dr. Ferenc Peták, Department of Medical Physics and Medical Informatics 28 hours, 6 credits, 2nd or 4th semester)
- 10. Organic chemical synthesis methods** (Responsible instructor: Dr. Lajos Kovács, Department of Medical Chemistry, 28 hours, 6 credits, 2nd or 4th semester)
- 11. Synthesis and applications of nucleic acids 1.** (Responsible instructor: Dr. Zoltán Kupihár, Department of Medical Chemistry, 28 hours, 6 credits, 1st or 3rd semester)
- 12. Synthesis and applications of nucleic acids 2.** (Responsible instructor: Dr. Zoltán Kupihár, Department of Medical Chemistry 28 hours, 6 credits, 2nd or 4th semester)

*Prerequisite for enrollment in this course is completion of the introductory courses Biostatistics Theory and Biostatistics Practice, except for those who have been exempted from these courses based on their previous studies or studies completed elsewhere.

Module II: RESEARCH activity: credits to be earned: **min. 130 credits** / 8 semesters, (30 hours = 1 credit)

Total max.: 172 credits/8 semesters can be earned.

The module consists of two parts:

- experimental work (research work) max. 20 credits/semester
- work report + max. 3 credits/max. 4 times

1. For research work max.: 20 credits/semester can be awarded total: max: 160 credits

30 hours of research work = 1 credit, recommended number of research hours per semester: 600 hours/semester: 20 credits

- 150 hours/semester (~7-8 hours per week) - 5 credits
- 300 hours/semester (~15 hours per week) - 10 credits
- 450 hours/semester (~22-23 hours per week) - 15 credits
- 600 hours/semester (~30 hours per week) - 20 credits

Recommended credits for research work: 8 x 20 credits: 60 credits/8 semesters

Details of additional, freely selectable credits that can be earned through research work:

- participation in continuing education lectures max. 2 credit points/semester
- active conference participation
- Hungarian 3 credit points
- international 5 credit points

2. Work report: 3 credits/occasion total: max: 12 credits

A work report can be held a maximum of 4 times in 4 years (recommended: at the end of the II, IV, VI, and VIII semesters)

By completing the above, a maximum of 172 credits can be earned in the RESEARCH activity module.

Module III: EDUCATIONAL activities (optional): max. 8 credits/semester, total min. 0 credits, max: 48 credits/8 semesters

- 1 hour/week for 14 weeks 2 credits
- 2 hours/week for 14 weeks 4 credits
- 3 hours/week for 14 weeks 6 credits
- 4 hours per week/14 weeks 8 credits

Important: credits can only be awarded for participation in Hungarian-language teaching (teaching, grading papers, supervising demonstrations, examining).

No credits can be awarded for teaching in English or German, as PhD students participating in teaching receive an hourly fee for this.

Module IV: PUBLICATION activity: Training criteria requirement not tied to a semester

To be completed: min. 2 articles. Total: min. 65, max. 90 credits

Number of publications required to obtain a doctoral degree:

- at least 1 publication as first author,
- at least 2 original publications reporting new scientific results, of which at least 1 must be published in a journal with an impact factor, and the combined impact factor of the 2 articles must reach the IF value specified by the subprogram as follows: Impact factor values required for obtaining a doctoral degree by ELMDI subprogram:

1. Neuroendocrinology	4,0
2. Neuroscience	4,0
3. Gastroenterology	4,0
4. Regulation, Measurement and Analysis of Life Processes	4,0

- The corresponding author shall declare whether the candidate may use the paper in their PhD thesis.

Determination of credits for publication:

- Hungarian-language article, without IF: 5 credits
- Article in Hungarian with IF: 10 credits
- Article in English without IF: 20 credits
- Article in English with IF: 45 credits

Poster presentation at a Hungarian conference: 3 credits

Poster presentation at an international conference*: 5 credits

Presentation at a domestic conference: 3 credits

Presentation at an international conference*: 5 credits

* Including those held in Hungary

Total credits available for publication activities (publications, posters, presentations): min. 65 – max. 90 credits

NEW CLASSIFICATION SYSTEM EFFECTIVE FROM JANUARY 1, 2024:

- One D1 publication, and no others are required (but the article cannot be used by a co-author)
- One D1 publication, and if part of this publication is used by another student for their thesis, then you must have one more publication of any classification, but in English, which may also be co-authored.
- One Q1 publication, plus one publication of any classification, but in English, which may also be co-authored.
- If the candidate does not have a Q1 article, then 2 Q2 articles (one as first author and one as second author) are also acceptable.
- If the candidate has only one Q2 publication, then at least 2 publications of any classification, but in English, are also required, which may also be co-authored.
- If the candidate's first-author publication is classified as Q3, then three additional publications of any classification, but in English, are required, which may also be co-authored.

Recommended Sample Training Plan

Credit requirements per semester for a 2+2-year full-time program

Semester 1			Semester 2		
	Core subjects	6 + 6 + 2 credits		Core subjects	3 + 3 credits
	Mandatory subjects	6 credits		Mandatory subjects	6 credits
	Research activity	20 credits		Research activity	20 credits
				+ Work report	3 credits
	Teaching activity	4 credits		Teaching activity	4 credits
Total		44 credits	Total		39 credits

Semesters 1 and 2 combined may yield a total of 83 credits, provided that teaching activities are performed.

Semester 3			Semester 4		
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	Mandatory subjects	6 credits		Research activity	20 credits
	Research activity	20 credits		+ Work report	3 credits
	Teaching activity	4 credits		Teaching activity	4 credits
Total		30 credits	Total		27 credits

Semesters 3 and 4 combined may yield a total of 57 credits, provided that teaching activities are performed.

Comprehensive examination requirement:

To be eligible for the comprehensive examination, doctoral students must earn a **minimum of 90 credits**, which may be obtained during semesters 1 to 4.

- If the doctoral student **performs teaching activities** (2 hours per week), a total of **140 credits** may be earned during semesters 1 to 4.
- If the doctoral student **does not perform teaching activities**, the maximum attainable credits during semesters 1 to 4 is **124 credits** (i.e., 140 credits – 16 credits).

Semester 5			Semester 6		
	Research activity	20 credits		Research activity	20 credits
				+ Work report	3 credits
	Teaching activity	4 credits		Teaching activity	4 credits
Total		24 credits	Total		27 credits

Semesters 5 and 6 combined may yield a total of 51 credits, provided that teaching activities are performed.

Semester 7			Semester 8		
	Research activity	20 credits		Research activity	20 credits
				+ Work report	3 credits
	Teaching activity	4 credits		Teaching activity	4 credits
Total		24 credits	Total		27 credits

Semesters 7 and 8 combined may yield a total of 51 credits, provided that teaching activities are performed.

Summary: Number of credits that may be earned (compared to the minimum required)

Semesters 1–4				
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	If teaching: '+ teaching'		If not teaching: '– teaching'	If not teaching: '– teaching'
		140 credits > 90 credits		124 credits > 90 credits
Semesters 5–8				
	If teaching: '+ teaching'		If not teaching: '– teaching'	
		102 credits		102 – 16 = 86 credits
Total in semesters 1–8:		140 + 102 = 242 credits		124 + 86 = 210 credits

The above credit totals are supplemented by publication-related credits, which are independent of the semester and range from a *minimum of 65 credits* to a *maximum of 90 credits*.

V. OTHER REQUIREMENTS:

1. Preparation of an annual work report

At the end of each academic year, students are required to prepare an annual report of no more than one page on their work during that year. The formal requirements for the annual work report are set out in Appendix 1.

The report must include:

- the exact details of the student and the training subprogram (e.g., XY, second-year PhD student in full-time training, Neptun code, email address, XY subprogram, ZZ supervisor, RR institute)
- the courses taken and completed, with the results and credit points
- teaching activities, indicating the number of hours and credits (name and code of the subject taught)
- the most important results of the research work
- lectures given (event, venue, date, title of the lecture, proof: e.g., conference program booklet)
- published, accepted, or submitted papers.

The contents of the report signed by the student shall be certified by the signature of the supervisor. The report shall be accepted by the signature of the head of the doctoral school.

One copy of the report shall be submitted to the supervisor, the head of the doctoral school, and the PhD Secretariat by September 15 of the given year.

2. Knowledge of foreign languages

1. Applicants must present at least an intermediate level "C" (complex) state language exam certificate in English or an equivalent certificate. The equivalence of language exams is regulated by government decree. In cases not regulated by government decree, the expert opinion of the University's Foreign Language Center shall be accepted.
2. PhD students participating in the education of German-speaking medical and dental students may choose German instead of English to meet the intermediate language requirements.
3. In the case of foreign citizens whose native language is not Hungarian, their native language shall be accepted as fulfilling the foreign language requirement, provided that it meets the language requirements of the doctoral school in question. For them, Hungarian is also considered a foreign language.

3. COMPLEX EXAM requirements for full-time 2+2 year programs

The complex exam committee: consists of at least 3 members, at least 1/3 of whom must be external members (external: not employed by the University of Szeged - SZTE)

1. Chair: SZTE university professor
2. Internal member: SZTE lecturer with academic degree
3. External member: non-SZTE lecturer with academic degree

The Doctoral School announces 1-2 exam dates. It is advisable that the complex exam(s) take place in the second half of May or the first half of June so that the complex exams are completed before the exams of new full-time applicants.

Part 2 of the comprehensive exam, repeatability:

a) theoretical part = professional exam (replaces the previous doctoral comprehensive exam)
If unsuccessful, it can be repeated once during the exam period

b) dissertation part: dissertation report on the first 2 years (to date) of research + research planned for the next 2 years.

Complex exam (at the end of the fourth semester): consists of two parts (50-50%):

a) Theoretical part = professional exam (replaces the previous doctoral comprehensive exam):

Based on the compulsory courses of the subprogram, the student can choose 2 subjects/topics from the designated exam subjects/topics to take the exam on.

b) dissertation part: dissertation report on the research conducted during the first 2 years (to date) + research planned for the next 2 years.

Examination organization considerations, recommendations:

Regulations concerning the minutes of the comprehensive examination:

Government Decree 87/2015 (IV. 9.) on the implementation of certain provisions of Act CCIV of 2011 on national higher education >>

(4)110 The doctoral comprehensive examination report and **the complex examination report shall contain:**

- a) the name and institutional identification number of the higher education institution,
- b) the name, student identification number, previous level of education and professional qualifications of the doctoral candidate or doctoral student,
- c) the name and teacher identification number of the supervisor,
- d) the field of science and discipline of the degree to be obtained,
- e) the questions asked during the comprehensive examination and the evaluation of the answers,
- f) the grade of the comprehensive examination or complex examination,
- g) the name, teacher identification number, and signature of the chair and members of the comprehensive examination committee or complex examination committee.

V. FORMAL REQUIREMENTS FOR THE DOCTORAL THESIS:

The thesis must be written in English. The length of the thesis, including figures, tables, graphs, and the bibliography, must not exceed 50 pages. The thesis must be submitted in printed form (Time 12 font size, 1.5 line spacing, 16 x 23 cm mirror size, or equivalent format), bound.

The cover should include the title of the dissertation, the author's name, the designation "university doctoral dissertation," and the year of completion.

The inside cover page of the dissertation must include the author, the title of the dissertation, the supervisor/advisor (if applicable), the place of preparation, the doctoral school, the date of preparation, and the name of the institute where the dissertation was prepared. The inside cover page must also include the name of the institute where the dissertation was prepared. The following page should list the scientific publications related to the subject of the dissertation, marked with Roman numerals. The dissertation should meet the requirements for scientific papers in terms of form and format. The individual parts of the thesis (Introduction, Materials and Methods, Results, Discussion, Summary, Acknowledgements, Bibliography) should be proportionate to the nature of the research topic. The list of publications cited in the thesis should follow the usual citation practice in the field.

A summary of the dissertation must also be prepared in English and Hungarian.

Copies of all publications related to the published or accepted topic must be attached to the dissertation as an appendix, bound together with it.

Five copies of the dissertation and 10-15 pages of the dissertation abstracts must be submitted in English and Hungarian, in at least 15 copies each. The dissertation and theses must also be submitted in pdf format.

The doctoral student shall ensure that the dissertation and theses are uploaded to the Doctoral Repository operated by the SZTE Klebelsberg Library immediately after the printed copies have been submitted. The review process can only begin after this has been done.

At the same time as the defense is announced, the relevant faculty, PhD Secretariat, or doctoral school shall upload the composition of the defense committee to the Doctoral Repository. The composition of the defense committee must be indicated on the invitations to the public debate.