

## PROGRAMME OF THE MUG FIRST DOCTORAL SCHOOL

Study cycle: **2019/20 to 2022/23**

### **I. COMPULSORY COURSES MODULE – ALL DISCIPLINES**

**YEAR: I - 2019/20**

Course	Semester	Total No. of hours	Course form			Course crediting form	Educational outcomes: P8S_
			L	S	PT		
Methodology of the Teaching Process and Psychology of Learning	I	15	-	15	-	credit test	WG, UK, UO ++ WK, UW, UU, KK, KO, KR +
Statistical Methods in Scientific Research	I	15	-	10	5	exam	WG, UW, UK +
Ethics in Science	I	5	-	5	-	credit test	KR +++ WK ++ UK, UO, KO +
Bibliographic Aspects of Scientific Publications	I	3	-	-	3	credit test	WG, UW, UK, KR +
Methodology of Conducting Research, Scientific Discourse	I - II	20	5	15	-	credit test	WG, UW, UK, UO +++ KK ++ WK, , UU, KR +
Methodology of Presentation and Dissemination of the Research Results	II	10	-	10	-	graded credit test	UK +++ WG +
Methodology of Compiling Applications for Financing the Research	II	15	-	15	-	credit test	UW, UO, UU, KK +
Stylistics of Scholarly Publications in the English Language	II	10	-	-	10	credit test	UK +++ WG, UW +
Doctoral seminar in individual disciplines of science	II	5	-	5	-	credit test	UK, KK +++ WG, UW ++ WK, KR +
<b>Total</b>		<b>98</b>					

Practical vocational training	Total No. of hours	Course crediting form	Educational outcomes: P8S_
Teaching students – co-participation in teaching	60	credit test	UU +++ WG, UW, UK, UO, KK, KO, KR +

### **Additional requirements pursuant to the Law of Higher Education and Science Act and the Regulations of the Doctoral School:**

- Appointment of the supervisor – within 3 months after the commencement of studies.
- Submission of the individual research plan – within 12 months after the commencement of studies.

**YEAR: II - 2020/21**

Course	Semester	Total No. of hours	Course form			Course crediting form	Educational outcomes: P8S_
			L	S	PT		
Law in Science	I	5	-	5	-	credit test	WK +++ UW ++ WG, KO, KR +
Philosophy of Science	I	10	10	-	-	credit test	WK ++ WG, UK, UO, KR +
History of Medicine and Pharmacy	I	10	10	-	-	credit test	WK, KR +
Methodology of Conducting Research, Scientific Discourse	I-II	15	-	15	-	credit test	WG, UW, UK, UO +++ KK ++ WK, , UU, KR +
Advanced Statistical Methods in Research	II	15	-	5	10	exam	WG, UW, UK +
Interdisciplinary Doctoral Seminar	II	15	-	15	-	credit test	UK, KK +++ WG, UW ++ WK, KR +
<b>Total</b>		<b>70</b>					

Practical vocational training	Total No. of hours	Course crediting form	Educational outcomes: P8S_
Teaching students	60	credit test	UU +++ WG, UW, UK, UO, KK, KO, KR +

**Additional requirements pursuant to the Law of Higher Education and Science Act and the Regulations of the Doctoral School:**

- Doctoral student's mid-term assessment

**YEAR: III - 2021/22**

Course	Semester	Total No. of hours	Course form			Course crediting form	Educational outcomes: P8S_
			L	S	PT		
Intellectual Property Protection	I	5	-	5	-	credit test	WG, KR +++ WK, UW, UO, UU +
Commercialisation of Research Results	I-II	20	-	20	-	credit test	KO +++ WK ++ UW, KK +
Methodology of Conducting Research, Scientific Discourse	I-II	15	-	15	-	credit test	WG, UW, UK, UO +++ KK ++ WK, , UU, KR +
Doctoral Seminar in Individual Disciplines of Science	II	5	-	5	-	credit test	UK, KK +++ WG, UW ++ WK, KR +
<b>Total</b>		<b>45</b>					

Practical vocational training	Total No. of hours	Course crediting form	Educational outcomes: P8S_
Teaching students	60	credit test	UU +++ WG, UW, UK, UO, KK, KO, KR +

**YEAR: IV - 2022/2023**

Course	Semester	Total No. of hours	Course form			Course crediting form	Educational outcomes: P8S_
			L	S	PT		
Methodology of Conducting Research, Scientific Discourse	I-II	15	-	15	-	credit test	WG, UW, UK, UO +++ KK ++ WK, , UU, KR +
Interdisciplinary Doctoral Seminar	II	15	-	15	-	credit test	UK, KK +++ WG, UW ++ WK, KR +
<b>Total</b>		<b>30</b>					

Practical vocational training	Total No. of hours	Course crediting form	Educational outcomes: P8S_
Teaching students	60	credit test	UU +++ WG, UW, UK, UO, KK, KO, KR +

**Additional requirements pursuant to the Law of Higher Education and Science Act and the Regulations of the Doctoral School:**

- Submission of the doctoral dissertation, in accordance with the approved schedule.

**II. COMPULSORY COURSE MODULE – INDIVIDUAL DISCIPLINES:**

45 hours of compulsory courses specific for the discipline, spread over years I-III of studies.

**1) DISCIPLINE OF MEDICAL SCIENCES**

Course	Total No. of hours	Course form			Course crediting form	Educational outcomes: P8S_
		L	S	PT		
Foundations of Medicine *	15	-	15	-	credit test	WG +++ WK, UK ++ UW, KK, KR +
Rudiments of General Pathology *	15	-	15	-	credit test	WG +++ WK, UW, UK, KK +
Modern Therapies in Medicine **	15	-	15	-	credit test	WG, UW, KR ++ WK, UK, UO, UU, KK +
Translational Immunology **	15	-	15	-	credit test	WG, UW, KR ++ WK, UK, UO, UU, KK +
Rudiments of Biogerontology **	15	-	15	-	credit test	WG +++ WK ++
Modern Methods in Surgery **	15	-	15	-	credit test	WG ++ WK, UW, UK, UU, KK, KR +

\*Compulsory courses for non-physician doctoral students of medical sciences.

\*\*Compulsory courses to be selected by all doctoral students in the discipline of medical sciences.

## 2) DISCIPLINE OF PHARMACEUTICAL SCIENCES

Course	Total No. of hours	Course form			Course crediting form	Educational outcomes: P8S_
		L	S	PT		
Rudiments of Pharmacology *	15	-	15	-	credit test	UW ++ WG, UU, KK +
Tablets and Capsules – Preformulation Studies *	15	-	15	-	credit test	UW +++ WG, UU, KK, KO +
Chemometrics – Practical Application **	15	-	15	-	credit test	UW ++ WG, UU, KK, KO +
Validation of Analytical Methods **	15	-	15	-	credit test	UW ++ WG, UU, KK, KO +
Molecular Background of Diseases and Its Significance in Modern Therapy **	15	-	15	-	credit test	UW ++ WG, UU, KK +
Pharmacokinetics and Pharmacodynamics of Drugs – Modelling**	15	6	9	-	credit test	UW ++ WG, UU, KK +
Organic Chemistry of Biologically Active Compounds with Elements of Molecular Modelling**	15	-	15	-	credit test	UW ++ WG, UU, KK +
Overview of Scientific Papers **	15	-	15	-	credit test	WG, KK ++ WK, UW, UK, UO, UU +

\* Compulsory courses for non-pharmacist doctoral students of pharmaceutical sciences.

\*\* Compulsory courses to be selected by all doctoral students in the discipline of pharmaceutical sciences.

## 3) DISCIPLINE OF HEALTH SCIENCES

Course	Total No. of hours	Course form			Course crediting form	Educational outcomes: P8S_
		L	S	PT		
The English Language in Science *	15	-	-	15	credit test	UK +++
Statistics in Health Sciences *	15	-	-	15	credit test	WG, UW ++
Clinical Psychology *	15	-	15	-	credit test	WG, UU +
Economics in Medical Sciences *	15	-	15	-	credit test	UW, KO ++ WG, WK +

\* Compulsory courses to be selected by all doctoral students in the discipline of health sciences.

### III. ELECTIVE COURSE MODULE:

Students are obliged to take 60 hours of elective courses over the entire course of studies.

The elective classes to be selected by the doctoral students include:

- 1) elective courses offered in Module III
- 2) courses of Module II in any discipline of science other than the discipline studied by the doctoral student.

#### SUMMARY OF HOURS:

	Compulsory courses		Elective courses (module III)	Practical training	Total*
	shared (module I)	Discipline-specific (module II)			
Year I	98	45	60	60	ca. 188
Year II	70			60	ca. 160
Year III	45			60	ca. 135
Year IV	30	0		60	ca. 105
<b>Total</b>	<b>288</b>		<b>60</b>	<b>240</b>	<b>588</b>

\* To calculate the total number of hours in specific years, an even distribution of hours was assumed, as follows:

- 45 hours of compulsory courses for individual disciplines, i.e. 15 hours per year/ years I-III,
- 60 hours of elective courses, i.e. 15 hours per year/ years I-IV.

**Attainment of the educational outcomes in individual courses:**

<b>Module I</b>	P8S_WG	P8S_WK	P8S_UW	P8S_UK	P8S_UO	P8S_UU	P8S_KK	P8S_KO	P8S_KR
Bibliographic Aspects of Scientific Publications – year I	+		+	+					+
Ethics in Science – year I		++		+	+			+	+++
Philosophy of Science – year II	+	++		+	+				+
History of Medicine and Pharmacy – year II		+							+
Interdisciplinary Doctoral Seminar – years II and IV	++	+	++	+++			+++		+
Commercialisation of Research Results – year III		++	+				+	+++	
Methodology of Presentation and Dissemination of the Research Results – year I	+			+++					
Methodology of the Teaching Process and Psychology of Learning – year I	++	+	+	++	++	+	+	+	+
Methodology of Conducting Research, Scientific Discourse – years I-IV	+++	+	+++	+++	+++	+	++		+
Methodology of Compiling Applications for Financing the Research – year I			+		+	+	+		
Statistical Methods in Research – year I	+		+	+					
Intellectual Property Protection – year III	+++	+	+		+	+			+++
Law in Science – year II	+	+++	++					+	+
Doctoral Seminar in Individual Disciplines of Science – years I and III	++	+	++	+++			+++		+
Stylistics of Scholarly Publications in the English Language – year I	+		+	+++					
Advanced Statistical Methods in Research – year II	+		+	+					
Teaching students – years I-IV	+		+	+	+	+++	+	+	+

<b>Module II MEDICAL SCIENCES</b>	P8S_WG	P8S_WK	P8S_UW	P8S_UK	P8S_UO	P8S_UU	P8S_KK	P8S_KO	P8S_KR
Translational Immunology	++	+	++	+	+	+	+		++
Modern Methods in Surgery	++	+	+	+		+	+		+
Modern Therapies in Medicine	++	+	++	+	+	+	+		++
Rudiments of Biogerontology	+++	++							
Rudiments of General Pathology	+++	+	+	+			+		
Foundations of Medicine	+++	++	+	++			+		+

<b>Module II PHARMACEUTICAL SCIENCES</b>	P8S_WG	P8S_WK	P8S_UW	P8S_UK	P8S_UO	P8S_UU	P8S_KK	P8S_KO	P8S_KR
Organic Chemistry of Biologically Active Compounds with Elements of Molecular Modelling	+		++			+	+		
Chemometrics – Practical Application	+		++			+	+	+	
Pharmacokinetics and Pharmacodynamics of Drugs – Modelling	+		++			+	+		
Molecular Background of Diseases and Its Significance in Modern Therapy	+		++			+	+		
Rudiments of Pharmacology	+		++			+	+		
Overview of Scientific Papers	++	+	+	+	+	+	++		
Tablets and Capsules – Preformulation Studies	+		+++			+	+	+	
Validation of Analytical Methods	+		++			+	+	+	

<b>Module II HEALTH SCIENCES</b>	P8S_WG	P8S_WK	P8S_UW	P8S_UK	P8S_UO	P8S_UU	P8S_KK	P8S_KO	P8S_KR
Economics in Medical Sciences	+	+	++					++	
English Scientific Terminology				+++					
Clinical Psychology	+					+			
Statistics in Health Sciences	++		++						

Description of level two outcomes			
Category of the outcome description	Descriptive category Aspects of major significance	8 PRK	Outcome symbol
Knowledge: the student knows and understands	the scope, depth, and completeness of the cognitive perspective and interdependencies	<ul style="list-style-type: none"> <li>to the degree enabling revision of the existing paradigms; the global output including the theoretical foundations, as well as general issues and selected specific issues typical for the given discipline of science;</li> <li>major developmental trends in the studied scientific discipline</li> <li>methodology of research</li> <li>the rules of disseminating the results of research activities, public access included</li> </ul>	P8S_WG
	the context, determinants, effects	<ul style="list-style-type: none"> <li>the fundamental dilemmas of modern civilisation</li> <li>economic, legal, ethical, and other major determinants of research</li> <li>major principles of transferring knowledge to business and the society, and of commercialisation of the research results and the know-how related thereto</li> </ul>	P8S_WK
Skills: the student can	application of knowledge; the problems solved and tasks performed	<ul style="list-style-type: none"> <li>use knowledge of different fields of science to creatively identify, formulate, and solve complex problems in an innovative way or perform tasks of research nature, and in particular:               <ul style="list-style-type: none"> <li>define the goal and subject matter of research, formulating the research hypothesis</li> <li>develop the research methods, techniques, and tools and apply them creatively</li> <li>draw conclusions from the research results</li> </ul> </li> <li>perform critical analysis and assessment of the research results, expert reviews, and other works of creative nature, and of their contribution to the development of knowledge</li> <li>transfer the results of research to business and the society</li> </ul>	P8S_UW
	Communication; reception and creation of an utterance, dissemination of knowledge in the research circles, and use of a foreign language	<ul style="list-style-type: none"> <li>discuss specialist topics to a degree enabling active participation in the international research circles</li> <li>disseminate the results of research, also in popular forms</li> <li>initiate a debate</li> <li>participate in scientific discourses</li> <li>use a foreign language at the level corresponding with level B2 of the Common European Framework of Reference for Languages to a degree enabling participation in international research and professional life</li> </ul>	P8S_UK
	work organisation and planning, team work	<ul style="list-style-type: none"> <li>plan and carry out individual and team projects of research or creative nature, also in the international environment</li> </ul>	P8S_UO
	Learning; planning one's own and other people's development	<ul style="list-style-type: none"> <li>independently plan own development and act to achieve it, as well as inspire and arrange the development of others</li> <li>plan classes or class groups and hold them using modern methods and tools</li> </ul>	P8S_UU
Social skills: the student is prepared to	assessment critical approach	<ul style="list-style-type: none"> <li>carry out critical assessment of the output in a specific discipline of science</li> <li>carry out critical assessment of his/her own contribution to the development of the specific discipline of science</li> <li>recognise the significance of knowledge in solving cognitive and practical problems</li> </ul>	P8S_KK
	responsibility fulfillment of social obligations and taking actions in public interest	<ul style="list-style-type: none"> <li>fulfil social obligations of researchers and creators</li> <li>initiate actions in public interest</li> <li>think and act in an entrepreneurial way</li> </ul>	P8S_KO
	Professional role independence and development of the ethos	<ul style="list-style-type: none"> <li>maintain and develop the ethos of the research and creative circles, including:               <ul style="list-style-type: none"> <li>pursuing research independently</li> <li>respecting the rule of public ownership of the research results, taking into account the rules of intellectual property protection</li> </ul> </li> </ul>	P8S_KR