

## Study programme description

**Name of the higher education institution:** Comenius University Bratislava

**Address of the higher education institution:** Šafárikovo námestie 6, 814 99 Bratislava

**Identification number of the higher education institution:** 00397865

**Name of the faculty:** Faculty of Pharmacy

**Address of the faculty:** Odbojárov 10, 832 32 Bratislava

University body for the approval of the study programme: Accreditation board of the Faculty of Pharmacy, Comenius University Bratislava and Accreditation Board of the Comenius University Bratislava.

Date of Approval of the study programme or adjustment of the study programme: 9.8.2017

The date of last change in the study programme description: 6/2022

Reference to the results of the last periodic assessment of the study programme by the university: [Zápis z 11. zasadnutia AR UK 24. 6. 2022](#)

Reference to assessment report to the application for accreditation of the study programme under section 30 of the law No 269/2018 Coll:  
The internal assessment report of the study programme is part of the application - as an annex to the application

### 1. Study programme basic data

- a) *Title of the study programme and the number according to the register of the study programmes:*  
**Pharmacology, code 106095**
- b) *The degree of the university studies and ISCED-F code of the education*  
Graduate study, ISCED-F code 864
- c) *Place/s of realisation of the study programme:*  
The seat of the Faculty of Pharmacy, Comenius University Bratislava and its parts, including the retail pharmacy store "University pharmacy (Univerzitná lekáreň)", retail pharmacy store "Pharmacy of the faculty (Fakultná lekáreň)" and the Medicinal plants garden.
- d) *Name and number of the field of study in which higher education is obtained by completing the study programme, or a combination of two fields of study in which higher education is obtained by completing the study programme, ISCED-F codes of the field/fields:*  
10 Pharmacy, ISCED-FoET code of the field of the study: 0916 Pharmacy
- e) *Type of the study programme: academically oriented, professionally oriented; translation, translation combination study programme (listing the specialisations); teaching, teaching combination study programme (listing the specialisations); artistic, engineering, doctoral, preparation for the regulated profession, joint study programme, interdisciplinary studies:*  
Academically oriented, preparation for the performance of regulated profession
- f) *Awarded academic degree*  
doctor ("Philosophiae Doctor", in short, "PhD. ")
- g) *Form of study:*  
full-time (internal)
- h) *In joint study programmes, cooperating institutions and the range of study obligations the student fulfils at each of the given institutions (§ 54a of the Act on Higher Education Institutions).*  
A study programme is not a joint study programme
- i) *The language in which the programme is organised*  
English
- j) *The standard length of study in academic years*  
four years
- k) *Capacity of the study programme (planned number of students), the actual number of applicants and students.*  
Planned number of students admitted to the 1st year is 5  
Number of students studying in the field of study: <https://uniba.sk/studium/statistiky-uk>

Number of applicants and accepted students in individual academic years

Year	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22
Applicants	0	0	0	0	0	0	0	0	0	0
Female	0	0	0	0	0	0	0	0	0	0
Accepted	0	0	0	0	0	0	0	0	0	0
Female	0	0	0	0	0	0	0	0	0	0

### 2. Graduate profile and learning objectives

- a) *The institution defines the study programme's learning objectives, such as students' abilities when completing the programme and the primary learning outcomes.*

Graduate of the study program Pharmacology - 3rd degree (PhD) shall master the scientific methods of research in study program Pharmacology focusing on research and development of new biologically active molecules, new mechanisms of action of known biologically active molecules and identification of new pharmacological targets. The focus covers one or more of the following areas of pharmacology: pharmacodynamics, pharmacokinetics, pharmacogenomics, drug toxicology, pharmacogenetics, dosology, drug interactions, adverse drug reactions, molecular pharmacology, and therapeutic use of drugs.

During their doctoral study, the students in the study program Pharmacology (3.degree of university education) shall obtain knowledge from the area of pharmacology, with focus on the topics of drug actions on the molecular and cellular levels, as well as on

the level of the whole organism. The focus is pertinent to one or more of the following areas of pharmacology: pharmacodynamics, pharmacokinetics, pharmacogenomics, toxicology of drugs, pharmacogenetics, posology, drug interactions, adverse effects, molecular pharmacology and therapeutic use of drugs. The graduate of the doctoral study shall be able to identify and formulate scientific problems, carry out experiments, obtain experimental data, and to process the obtained data and to interpret them taking into account the current state of knowledge, to formulate conclusions and publish them in the scientific and expert literature. In addition, the graduate shall be capable of performing active teaching activities. During their study, the students shall learn to master scientific methods of research and development in the study program pharmacology and related study programs, i.e. to self-sufficiently formulate the scientific problem, to formulate scientific hypothesis, to prepare and realize a scientific experiment. The main purpose of these activities is the theoretical as well as practical mastering of methods used in pharmacological research of biologically active substances. The abilities of the graduate of the study program shall stem from the framework of the following topics: pharmacodynamic and pharmacokinetic properties of synthetic and natural drugs and biologically active molecules, receptor and target structures for drugs and biologically active molecules, study of effects of drugs and biologically active molecules on biochemical, molecular-biology-related, genetic or pathological processes of cells, tissues, organ systems and living organisms, study of translational potential and development of in silico methods for verification of pharmacodynamic and pharmacokinetic properties of drugs, study of aspects of bioavailability of drugs and biologically active molecules in relation to disease treatment, study of interactions of biologically active substances with lipids, proteins and DNA extracted from biological sources, evaluation of biological activity of biologically active compounds on various levels, evaluation of pharmacologic and toxicologic effects of drugs and biologically active compounds in model organisms in relation to their effect on the human body and environment, identification of novel pharmacological targets for the development of innovative drugs, pre-clinical and clinical research of innovative drugs with focus on the areas of pharmacokinetics, toxicokinetics, primary, secondary and safety pharmacodynamics. To obtain experimental results during their study, the students are required not only to obtain theoretical knowledge, but also to obtain practical skills in the area of modern experimental physiologic, molecular biology-related, biochemical and clinic-diagnostic methods used by pharmacology and related disciplines.

Graduates of the study program Pharmacology shall master the principles and methodology of scientific work and shall be qualified to carry out expert and scientific activities in the areas of pharmacy and pharmaceutical research with emphasis on pharmacological aspects. The graduates of the study program Pharmacology shall demonstrably have broad theoretical knowledge that shall, together with practical skills, enable them to: perform scientific research and bring novel knowledge as well as their own solutions of problems in the area of pharmacology that can be used at the theoretical level and pharmacotherapeutic practice, possibly for the development of other related programs.

Theoretical knowledge and practical skills obtained during the study shall enable the graduates also to perform the profession of a researcher in related medicinal, pharmaceutical and life-science scientific disciplines and study programs, such as clinical pharmacology, clinical pharmacy, toxicology, molecular biology, normal and pathological physiology. The graduates of the study program Pharmacology shall have the ability to work as self-sufficient scientists and to bring their own solutions in the listed scientific disciplines and study programs. The graduates of the program Pharmacology shall have demonstrably mastered the principles of scientific work, fundamentals of scientific formulation of problems, mastered the legal aspects of experimental and clinical research, ethical and social aspects of scientific work, presentation of results to the expert public at conferences and scientific events and in the form of publishing articles in expert, particularly scientific journals.

- b) *The institution indicates the professions for which the graduate is prepared at the time of completion and the study programme's potential from the graduate's employability point of view.*

The doctoral study focuses on deeper specialisation and strengthening of theoretical and scientific knowledge in the professional preparation of an expert and scientific worker in pharmacology. Graduates from the study programme find employment at all universities where pharmacology, clinical pharmacology, pharmacotherapy, clinical pharmacy, toxicology, molecular biology, normal and pathological physiology, applied biochemistry, etc. are taught, either as university teachers or scientific and research workers. Thanks to familiarising with a large spectrum of knowledge and practical skills, the graduates find employment at workplaces of the healthcare system, in particular, the graduate is competent to carry out advanced activities in the field of regulation of medicines and assessment of medicines and medical procedures (State institute for drug control, Ministry of Health of the Slovak Republic, health insurance companies, pharmaceutical industry and so on.) and in research laboratories of the Slovak Academy of Sciences. A graduate may also find an employment as researchers, developmental, and professional workers in the private sector's pharmaceutical industry which are associated in *Asociácia inovatívneho farmaceutického priemyslu* or in *Asociácia pre generické a biosimilárne lieky GENAS*, especially in the implementation of a wide range of activities in preclinical and clinical drug development.

- c) *Relevant external stakeholders who have provided the statement or a favourable opinion on the acquired qualification's compliance with the profession's sector-specific requirements.*

As pharmacy is a study programme whose content definition is related to the preparation of experts for regulated occupations with coordination of education in Appendix No. 2 MSVVS SR no 16/2016 No 16/2016 Coll. and results from study branches assigned to regulated professions according to the Government Regulation No.296/2010 Coll., on 29 March 2021 we asked the Ministry of Healthcare SR for approval of the concord of acquired qualification with sectoral specific requirements for the performance of the occupation.

### **3. 3. Employability**

- a) *Evaluation of the study programme graduates employability.*

- b) Graduates of the doctoral study can find their job in the resort of education, as university teachers or scientific researchers at universities or institutes of the Slovak Academy of Sciences with focus on pharmacy, medicine, medical sciences and life sciences. The graduates are at present demanded also in the health sector, such as the State Institute for Drug Control that ensures the supervision on quality, efficacy, safety of drugs and medical devices. The graduates of the study program are also able to work in pharmaceutical companies devoted to research and development of drugs and medicinal products and ensuring the availability of medicinal products for the system of healthcare provision, as well as in companies that realize on-demand evaluation of pharmacological and toxicological properties of drugs and medicinal products.<sup>7</sup>

Graduates of the study program Pharmacology at the Faculty of Pharmacy of the Comenius University Bratislava shall master the principles and methodology of scientific work and shall be eligible to carry out expert and scientific work in the area of pharmacology, pharmacy and pharmaceutical research. Theoretical knowledge and practical skills obtained during their study shall enable them to perform the profession of a scientific worker in related medicinal, pharmaceutical and life science scientific disciplines and study programs, such as molecular biology, applied biochemistry, normal and pathologic physiology, veterinary pharmacology, toxicology,

pharmaceutical technology, biotechnology, clinical pharmacology and clinical pharmacy. Graduates of the study program shall be able of self-sufficient scientific work, to bring their own solution and thus contribute to the development of scientific knowledge in the listed scientific disciplines and study programs.

They shall have the prerequisites for their successful employment in the leadership of teams in a wide spectrum of scientific and research institutions focused on pharmaceutical, medical sciences or health sciences, they shall be professionally prepared for creative work at scientific institutes of the Slovak Academy of Sciences, at various levels of research. They shall equally be prepared to work in the regulatory area as expert assessors in higher expert activities of the assessment of preclinical and clinical research of drugs, medicinal products and therapeutic procedures, they shall be prepared to work at work positions with a high level of competence and responsibility in companies realizing clinical research of drugs, medicinal products and therapeutic procedures as well as at work positions with a high level of competence and responsibility in companies ensuring the placement of medicinal products to the market, companies ensuring the availability of medicinal products and medical devices and in healthcare facilities ensuring provision of healthcare.

c) *If applicable, indicate the successful graduates of the study programme*

Number of graduates of the study programme in last 10 years:

Year	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22
Graduates	0	0	0	0	0	0	0	0	0	0
Female	0	0	0	0	0	0	0	0	0	0

d) *Evaluation of the study programme quality by employers (feedback).*

To assess the quality of the submitted study programme, a request was sent to selected employers to express their opinion on the need for the doctoral study programme in Pharmacology. Delivered responses are available at the Office of Science and Research and Foreign Relations of the Faculty of Pharmacy, Comenius University Bratislava. Relevant external stakeholders and employers' associations, resp. who have provided the statement or a favourable opinion on the acquired qualification's compliance with the profession's sector-specific requirements are from:

*Asociácia inovatívneho farmaceutického priemyslu* (associating 26 pharmaceutical companies), State Institute for Drug Control, *GENAS Asociácia pre generické a biosimilárne lieky* (associating 15 pharmaceutical companies).

**4. Structure and content of the study programme**

a) *The institution describes the rules for the design of study plans within the study programme.*

The study programme considers the mission and aims set forth by the Faculty of Pharmacy, Comenius University Bratislava in the document "Long-term objectives of the Faculty of Pharmacy, Comenius University Bratislava" in research and education. The study programme was created or innovated in terms of trends of development of similar programmes in Europe and worldwide with the consideration of attractiveness for graduates in the joint grade first and second grade of the study programme Pharmacy and also for graduates from the second grade of the study focussed on healthcare or biologically oriented disciplines graduated from universities with medical or scientific dedication. The study programme was created in concord with the needs of the praxis. Therefore, one of its main viewpoints at outlining the subjects is the applicability of the acquired knowledge and competencies in the actual praxis. The study programme and its study plan are designed so that students interested in this study programme might undergo part of the study also abroad. The faculty has rich experience and a wide network of partner universities with related study programmes to the submitted study programme.

In compliance with the Dublin descriptors and at the same time in the sense of the national qualification frame, the graduates of the study programme will acquire the 8<sup>th</sup> level of qualification.

The study programme's profile subjects are compulsory or compulsory elective subjects) defined to provide the knowledge and skills necessary for completing the study programme. The profile subjects represent theoretical and methodological base in the given field of education. They form a substantial part of the thematic group of state examinations. Together with other educational activities offered to a student in the form of elective subjects, the profile subjects offer the knowledge and skills necessary to achieve educational outcomes in the student's personal and professional development.

Reasons for the accreditation of the study programme Pharmacology:

The study branch Pharmacology, the doctoral university study, is a standard study branch at many significant universities with pharmaceutical faculties, including universities in the European Union countries. The study of pharmacology at these faculties or universities forms one of the priority subjects of the education, allowing to understand the enabling the acquisition of knowledge and skills in the field of pharmacodynamics, pharmacokinetics, toxicology, clinical pharmacology, clinical pharmacy, applied biochemistry, molecular biology, pharmacogenetics, dosology, etc.

Pharmacology is an essential subject of pharmaceutical study. It is a modern and permanently developing interdisciplinary scientific discipline and study program, which studies the methods of obtaining, preparing, and evaluating drugs. It studies pharmacological targets, investigates the efficacy and safety of biologically active molecules, pharmacodynamic and pharmacokinetic properties of substances, their influence on the physiology of organisms, at the molecular level, levels of organelles, cells, tissues, organs and organ systems and on the whole organism. Pharmacology is a multidisciplinary scientific discipline and study program that requires knowledge and skills from many areas of scientific research. From this perspective, our economy will be able to absorb adequate number of graduates from the study program Pharmacology. This study branch integrates graduates from the common platform of pharmaceutical, medical and natural science faculties. The development of this study program is closely related to the primary sphere of interest of scientific/technical development of the modern society, which includes sectors such as healthcare, pharmaceutical industry, drug research and development and assessment of medicines efficacy and safety.

b) *The institution compiles the recommended study plans for individual study paths:*

The study programme recommended study plan and standard length of the study are regulated by the Act on Higher Education. In accord with the faculty rules of study, the study programme follows the European transfer system and collection of credits and workload of a student during one academic year. It obeys the workload limits expressed in hours of contact tuition and all activities needed for preparation and completion of the subject. The credits for particular subjects were determined based on the subject's demands from the viewpoint of the curriculum and way of subject completion. The subjects recommended in the study plan allow achieving the required outcomes of the education. Compulsory and compulsory elective subjects do not exceed 75% of the number of credits needed to complete the doctoral study of Pharmacology.

c) *The study programme generally states:*

Outcomes of the education and related criteria and rules of their assessment defined to fulfil all educational aims of the study programme are stated in the subjects' Information Sheets.

Educational activities (lecture, seminar, exercise, state examination) suitable to achieve education outcomes are defined for each educational part of the study, plan/subject and are given in the subjects' information sheets.

*Methods by which the educational activity is delivered – in person, distant, combined, curriculum/syllabus of a student's subject and workload ('scope' for particular subjects and educational activities separately) follow the subjects' Course information sheets.*

#### Study section

##### Compulsory courses and exams

Subject title	Teacher	Semester	Number of credits
Completing Prescribed Doctoral Lectures and Seminars 1 <sup>a</sup>	provided by teachers referred to in point 7 and prominent researchers in the case of invited / habilitation / inauguration lectures	1	10
English Language and Foreign Language Exam <sup>b</sup>	Dr. Kližanová, Dr. Žufková	1	10
Completing Prescribed Doctoral Lectures and Seminars 2 <sup>a</sup>	provided by teachers referred to in point 7 and prominent researchers in the case of invited / habilitation / inauguration lectures	2	10

<sup>a</sup>In the conservative trajectory of study, the courses *Completing Prescribed Doctoral Lectures and Seminars 1* and *Completing Prescribed Doctoral Lectures and Seminars 2* represent compulsory elective courses and can be considered completed if the student has completed courses *Passing Prescribed Doctoral Lectures and Seminars* or *Passing the Dissertation Exam*.

<sup>b</sup>In the conservative trajectory of study, the course *English Language and Foreign Language Exam* can be considered completed if the student has completed the course *Foreign Language Exam*.

##### Compulsory elective courses

Subject title	Teacher	Semester	Number of credits
Introduction to Scientific Research	guarantor and vice-dean responsible for postgraduate studies	1	4
Introduction to Scientific Writing in English Language	Dr. Žufková	2	4
Completing Selected Doctoral Lectures and Seminars	provided by teachers referred to in point 7 and prominent researchers in the case of invited / habilitation / inauguration lectures	3	10
Completing Other Subject of the Offer of Other University Faculties	provided by the dissertation supervisor / guarantor	1-4	according to the specific credit evaluation of the subject at the faculty

##### Offer of compulsory subjects and compulsory elective subjects within subjects:

- Completing Prescribed Doctoral Lectures and Seminars 1
- Completing Prescribed Doctoral Lectures and Seminars 2
- Passing selected doctoral lecture and seminars
- Passing the Dissertation Exam

##### Compulsory subject

Subject title	Teachers
Pharmacology	prof. Duriš Adameová, doc. Křenek, doc. Mátuš, prof. Klimas, doc. Paul Hrabovská, Dr. Dóka, Dr. Vavrínek, Dr. Vavřincová

##### Compulsory elective subjects

Subject title	Teacher
Biochemistry	doc. Obložinský, doc. Bilková, Dr. Pašková, Dr. Bilka
Physiology	prof. Duriš Adameová, doc. Křenek, prof. Klimas, doc. Paul Hrabovská, Dr. Rajtík, Dr. Kráľová
Pathological Physiology	prof. Klimas, Dr. Rajtík, Dr. Kráľová, Dr. Kosírová,
Molecular Biology	doc. Obložinský, doc. Bilková, Dr. Pašková, Dr. Bilka, Dr. Sprušanský
Pharmaceutical Technology	Dr. Mikušová, Dr. Piešťanský, doc. Šuplíková
Technology of Biological Drugs	doc. Obložinský, doc. Bilková, Dr. Pašková, Dr. Bilka
Immunology	doc. Bilková, doc. Hřčka Dubničková,
Clinical Pharmacology and Pharmacotherapy	prof. Klimas, prof. Kuželová, doc. Paul Hrabovská, Dr. Dóka, Dr. Kosírová,
Toxicology	doc. Mátuš, doc. Paul Hrabovská, Dr. Vavrínek, Dr. Vavřincová, Dr. Sprušanský

*Compulsory choice of at least two compulsory elective subjects depending on the flexibility of the learning trajectories and the achievement of learning outcomes.*

#### Research section

##### Compulsory research activities

Subject title	Teacher	Semester	Number
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			of credits
Elaboration of a Manuscript of a Scientific Publication in a Foreign Language as the first Author <sup>c</sup>	provided by the dissertation supervisor / guarantor	5-6	10
Active Participation in the Scientific Events 1 <sup>d</sup>	provided by the dissertation supervisor / guarantor	1-8	4
Active Participation in the Scientific Events 2 <sup>e</sup>	provided by the dissertation supervisor / guarantor	1-8	4
Completion of a Defined Stage of the PhD Scientific Program	provided by the dissertation supervisor / guarantor	7-8	5

<sup>c</sup>In a conservative study trajectory, the course *Elaboration of a Manuscript of a Scientific Publication in a Foreign Language as the first Author* is a compulsory elective course and can be considered completed if the student has completed the courses *The Original Publication in a Peer-reviewed International Journals* or *The Original Publication in a Peer-reviewed Domestic Journal* or *The Original Publication in a non Current Contents International Journals or Conference Proceedings* or *The Original Publication in a non Current Contents Domestic Journals or Conference Proceedings*.

<sup>d</sup>In the conservative trajectory of study, the course *Active Participation in the Scientific Events 1* is a compulsory elective course and can be considered completed if the student has completed the courses *Active Participation at the International Scientific Events* or *Active Participation at the Domestic Scientific Events*.

<sup>e</sup>In the conservative trajectory of study, the course *Active Participation in the Scientific Events 2* is a compulsory elective course and can be considered completed if the student has completed the courses *Active Participation at the International Scientific Events* or *Active Participation at the Domestic Scientific Events*.

#### Compulsory elective research activities and selected research activities

Subject title	Teacher	Semester	Number of credits
The Original Publication in Current Contents Journal – First Author* <sup>f</sup>	provided by the dissertation supervisor / guarantor	1-8	40
The Original Publication in Current Contents Journal* <sup>f</sup>	provided by the dissertation supervisor / guarantor	1-8	35
The Original Publication in non-Current Contents Journal with IF (Impact Factor) - First Author* <sup>f</sup>	provided by the dissertation supervisor / guarantor	1-8	30
The Original Publication in non-Current Contents Journal with IF (Impact Factor)* <sup>f</sup>	provided by the dissertation supervisor / guarantor	1-8	25
The Original Publication in non-Current Contents International or Domestic Journal Indexed in the SCOPUS Database (European Pharmaceutical Journal is Recommended)	provided by the dissertation supervisor / guarantor	1-8	10
The Original Scientific Publication in non-Current Contents and non-Indexed International or Domestic Journal or Conference Proceeding	provided by the dissertation supervisor / guarantor	1-8	7
Professional Publications in International or Domestic Journal	provided by the dissertation supervisor / guarantor	1-8	4
Published Abstract in English from a Scientific Event	provided by the dissertation supervisor / guarantor	1-8	3
Reviewing the Manuscript of an Article Submitted to an Indexed Scientific Journal (Scopus, Wos)	provided by the dissertation supervisor / guarantor	1-8	5
Active Participation in the Scientific Events 3	provided by the dissertation supervisor / guarantor	1-8	4
Active Participation in the Scientific Events 4	provided by the dissertation supervisor / guarantor	1-8	4
Individual Study of the Scientific Literature	provided by the dissertation supervisor / guarantor	1-8	2
Obtaining the „University Grant for Young Researchers“ (Principal Investigator)	provided by the dissertation supervisor / guarantor	1-8	20
Obtaining the „University Grant for Young Researchers“ (Co-investigator of Grant)	provided by the dissertation supervisor / guarantor	1-8	10
Obtaining the „Grant FaF UK for Young Scientists“ (Principal Investigator)	provided by the dissertation supervisor / guarantor	1-8	15
Obtaining the „Grant FaF UK for Young Scientists“ (Co-investigator of Grant)	provided by the dissertation supervisor / guarantor	1-8	10
Participation in the Implementation of Another Research Project	provided by the dissertation supervisor / guarantor	1-8	3
Other Activities (eg. a Member of the Organizing Committee of the Conference)	provided by the dissertation supervisor / guarantor	1-8	3
Citation SCI, SSCI	provided by the dissertation supervisor / guarantor	1-8	5
Citation Other	provided by the dissertation supervisor / guarantor	1-8	3
Presentation at the Conference of Young Scientists	provided by the dissertation supervisor / guarantor	1-8	5

\*During the study, the doctoral student must be the author / co-author of two publications with an impact factor

<sup>f</sup>In a conservative study trajectory, the courses *The Original Publication in Current Contents Journal – First Author* or *The Original Publication in Current Contents Journal* or *The Original Publication in non-Current Contents Journal with IF (Impact Factor) - First Author* or *The Original Publication in non-Current Contents Journal with IF (Impact Factor)* are compulsory elective courses and can be considered completed if the student has completed the courses *The Original Publication in a Peer-reviewed International Journals* or *The Original Publication in a Peer-reviewed Domestic Journal* or *The Original Publication in a non Current Contents*

*International Journals or Conference Proceedings or The Original Publication in a non Current Contents Domestic Journals or Conference Proceedings only if the publication is published in a journal with IF (impact factor).*

#### Other activities

##### Teaching Activities

Subject title	Teacher	Semester	Number of credits
Authorship of Teaching Aids and Texts	provided by the dissertation supervisor / guarantor	1-8	20
Co-authorship of Teaching Aids and Texts	provided by the dissertation supervisor / guarantor	1-8	10
Participation in the Management of the Thesis in Master's Degree	provided by the dissertation supervisor / guarantor	1-8	7
Management of Student Scientific Activities (SCA)	provided by the dissertation supervisor / guarantor	1-8	5
Pedagogical Activities - Exercises	provided by the dissertation supervisor / guarantor	1-8	5
Pedagogical Activities - Seminars	provided by the dissertation supervisor / guarantor	1-8	7
Supervision of the Final Bachelor's Thesis	provided by the dissertation supervisor / guarantor	1-8	5
Reviewing a Bachelor Thesis	provided by the dissertation supervisor / guarantor	1-8	5

#### State exams

##### Dissertation exam and dissertation thesis

Subject title	Teacher	Number of credits
Passing the Dissertation Exam*	dissertation supervisor / opponent / guarantor / members of members of the examination board	20
Dissertation Thesis and its Defence*	dissertation supervisor / opponent / guarantor / members of members of the examination board	30

\*The doctoral student may submit an application for a state examination permit after fulfilling all the requirements specified in the Study regulation of the Faculty of Pharmacy Comenius University Bratislava (The internal regulation No. 1/2020, [https://www.fpharm.uniba.sk/fileadmin/faf/Legislativa\\_a\\_dokumenty/Studijny\\_poriadok\\_FaF\\_UK/VP\\_2020\\_1\\_FaFUK\\_StudijnyPoriadok\\_SPRilohami\\_schvalenyASUK.pdf](https://www.fpharm.uniba.sk/fileadmin/faf/Legislativa_a_dokumenty/Studijny_poriadok_FaF_UK/VP_2020_1_FaFUK_StudijnyPoriadok_SPRilohami_schvalenyASUK.pdf)).

- d) *The institution states the number of credits, the achievement of which is a condition for proper completion of studies and other requirements that the student must meet within the study programme and for its proper completion, including the requirements for state examinations, rules for re-study and rules for the extension, interruption of study.*

The minimum sum of credits for the whole doctoral study, which a student must acquire for its successful completion, is 240 credits as defined by the Act No 131/2002 Coll. on Higher Education and Changes and Supplements to Some Laws, § 54 Postgraduate (PhD.) study programme. The precise allocation of credits is issued in the part 4c.

State examinations of the doctoral study consist of Dissertation Examination (20 credits), divided into Debate on the written thesis to the dissertation examination and the examination subjects, which do not have assigned separate credits. The doctoral student is assigned 30 credits for the Dissertation Thesis and its Defence. The subjects of the state examinations make part of the study programme. Detailed conditions for regular completion of the study and other conditions which the student must fulfil within the study programme and for its regular completion are given in the Study Regulations of the Faculty of Pharmacy Comenius University Bratislava (Internal Regulation No. 1/2020), which contains the following parts:

- Article 27 Individual Study Plan and the Evaluation of the Study Results
- Article 28 Yearly Evaluation of the Doctoral Study
- Article 29 Dissertation Examination
- Article 30 Request for permission to defend the dissertation thesis
- Article 31 Defence of the Dissertation Thesis Requirements:
- Article 32 Preparation of Defence of the Dissertation Thesis
- Article 33 Opponents of the Dissertation Thesis and their Opinions
- Article 34 Defence of the Dissertation Thesis
- Article 35 Discontinuance of the Doctoral Study

Basic requirements for the final thesis, way of its submission, check of originality, archiving, and thesis accessibility are regulated by the Internal Regulation No. 12/2013 Guideline of Rector of CU on essential requirements of the final thesis, rigorous thesis and habilitation thesis, control of their originality, archiving and accessibility at CU as amended.

##### Conditions for regular completion of the doctoral study at the Faculty of Pharmacy CU Bratislava

- 1 Successful passing the examination from English language,
- 2 Successful completion of dissertation examination,
- 3 A doctoral student in the full-time and external form must be an author of a minimum of 2 scientific works in the journal with the impact factor. In the frame of FPHARM CU, the only credible IF value we consider just the date, which comes from the Journal Citation Reports (JCR), which as the only one the database Web of Science recognises.
- 4 Only those papers that have already been published in scientific journals are taken into account. In justified cases, it is possible to recognize one publication on the basis of the publisher's acceptance letter, or a publication that is already listed in the PubMed or Scopus databases with the designation "Epub ahead of print" and is assigned a Digital Object Identifier (DOI).
- 5 The full-time and external doctoral student must have an active participation in at least two scientific conferences.
- 6 The doctoral student has received at least 210 credits.
- 7 Successful defence of the dissertation thesis 30 credits.

e) *For individual study plans, the institution states the requirements for completing the individual parts of the study programme and the student's progress within the study programme in the given structure:*

- the number of credits for compulsory courses needed for proper completion of the study are: credits for *English Language and Foreign Language Exam* (10 credits), *Completing Prescribed Doctoral Lectures and Seminars 1* (10 credits), *Completing Prescribed Doctoral Lectures and Seminars 2* (10 credits), 20 credits for *Passing the Dissertation Exam* and 30 credits for *Dissertation Thesis and its Defence*, in the conservative trajectory of study, the courses *Completing Prescribed Doctoral Lectures and Seminars 1* and *Completing Prescribed Doctoral Lectures and Seminars 2* represent compulsory elective courses and can be considered completed if the student has completed courses *Passing Prescribed Doctoral Lectures and Seminars* or *Passing the Dissertation Exam*, in the conservative trajectory of study, the course *English Language and Foreign Language Exam* can be considered completed if the student has completed the course *Foreign Language Exam*.
- The doctoral students can obtain credits for courses *Passing Selected Doctoral Lectures and Seminars* (10 credits), *Introduction to Scientific Research* (4 credits), *Introduction to Scientific Writing in English Language* (4 credits), *Completing Other Subject of the Offer of Other University Faculties* (according to the specific credit evaluation of the subject at the faculty).
- The doctoral student might also gain credits for teaching activity, i.e., the direct tuition or other professional activity related to teaching activity in the scope of maximum 4 hours weekly for the academic year in which the tuition runs.
- The doctoral students get credits for: publication of scientific articles prepared during the scientific part of the doctoral study, writing textbooks, for submitting or obtaining the Grant of Comenius University Bratislava (intended just for the PhD. students in the daily form), the Grant of Faculty of Pharmacy Comenius University Bratislava, for participation in research grants, for lectures at congresses or at their workplace, and so on. The detailed list of credits, which the doctoral students may gain is given in the part 4c.
- Each year, the doctoral student with his/her supervisor submits a yearly assessment of the student's work, which will be checked by the Vice-dean for the doctoral study at the time of enrolment to next year of study. The doctoral student in the daily form is advised to gain 60 credits, in the external form 48 credits per academic year.
- The doctoral student who wants to undergo the dissertation examination must have passed the examination in the English language and must have obtained at least 60 credits.
- The doctoral student in the full-time form of the doctoral study registers for the dissertation examination no later than 18 months from the beginning of the study, the doctoral student in the external form no later than 24 months from the beginning of the study.
- To advance to the next year of doctoral studies, it is necessary that the doctoral student in the given academic year obtains at least 40 credits in the given academic year and at least 30 credits in external study (Internal regulation of FPHARM CU Bratislava).

f) *The institution describes the rules for verification of learning outcomes, students' assessment and the possibilities of appealing against the assessment:*

All types of assessment of study results are designed to unambiguously define the required conditions for completing the subject. The student is informed early enough about regular and resit test possibilities of continual assessment and regular and resit terms of examinations. Each student has the right to be informed of all parts of continuous assessment and examination. The student has the right not to accept the exam evaluation and take part in a resit examination. If the student was evaluated at the regular term of the examination by the mark Fx, or he/she did not register for any of the regular examination terms, he/she has the right to two resit terms. The student has the right to ask for the last resit examination in the form of a board examination. The Dean, on the suggestion of a person bearing the primary responsibility for performance, development, and provision of the study programme quality, will assign at minimum a three-member examination committee. The chairman of the committee is usually a teacher of the given subject. The board examination may also be performed without the student's application, if the subject teacher applies for it. The Study Regulations of the faculty define the details of the board examination.

The student can submit a written request for reviewing the decision on his expelling from the study. The Dean might comply with the request. Otherwise, the entire application shall be passed within 15 days from the day of the delivery to the Rector of CU together with the attached file and written standpoint to the applicant's statements and objections. Based on a written student's request, the Dean may grant an exception from the terms of the faculty schedule of the study, control Stages of Study, the maximum length of the study interruption in case the student has not fulfilled conditions of the control stages of study or to excuse the missed term. The Study Regulations of the Faculty give the details.

g) *Conditions for recognition of studies or a part of studies.*

The study programmes are designed in accord with the rules of ECTS transfers and recognition of credits. The priority is given to the fact that graduates of the study programmes acquire knowledge and new skills via mobilities at domestic and foreign institutions. Specific requirements for completion of mobilities are defined in the individual study plan of a PhD. student. Mobilities are organised within the broad offer of publicly available schemes (Erasmus+, SAIA).

The recognition of the subject's completion is the granting of the evaluation and subsequent assignment of appropriate number of credit points for the subject, based on the part of the study completed in the past. The student who in the past studied at a university and his/her study was not regularly completed, a student applying for transfer, or a student applying for the change of the study programme within the study branch Pharmacy may ask for recognition of completed subjects, provided he/she fulfils the conditions given in the Study Regulations of the FPHARM CU. The student may apply in writing for recognition of a subject completion before the beginning of the teaching part of the semester of the academic year in which the subject is taught. The Dean decides on recognising the completed subjects after consulting the teachers' opinion of the subjects, recognising of which the student requested. The transfer of credit points is the process of inclusion of credits gained during the study at another university either in the Slovak Republic or at an university abroad into the number of counted credit points of the doctoral student according to Art. 4, Sec. 3 of the Decree on the Credit System of the Study. Academic mobility is formally conditioned by the learning agreement between the student, CU, and the receiving university. The study's agreement contains a suggested study plan at the receiving university and recognition of corresponding study subjects at the sending university. The subjects that should be completed by the student at the receiving university based on the learning agreement will become a valid part of the student's study plan. The subjects completed at the receiving university within the framework of academic mobility will be recognized by the sending faculty of CU based on the record of the study results, which the receiving university issues at the end of the mobility. The record of study results will become part of the student's study documentation administered by the faculty. The details on the recognition of academic mobility subjects are stated in the Study Regulations of the FPHARM CU.

h) *The institution states the topics of the study programme's final theses (or a link to the list).*  
Topics of open final defence theses of doctoral study are regularly updated and published on the faculty website (<https://www.fpharm.uniba.sk/en/education/phd-study/phd-topics/>) as well as in the Academic Information System AIS2.

i) *The institution describes or refers to:*

- The rules for assignment, elaboration, reviewing, defence and assessment of the final theses in the study programme are stated in the Study Regulations of the Faculty of Pharmacy, Comenius University Bratislava (Internal Regulation No. 1/2020) and are freely available on the website address:  
[https://www.fpharm.uniba.sk/fileadmin/faf/Legislativa\\_a\\_dokumenty/Studijny\\_poriadok\\_FaF\\_UK/VP\\_2020\\_1\\_FaFUK\\_Studijny\\_Poriadok\\_SPrilohami\\_schvalenyASUK.pdf](https://www.fpharm.uniba.sk/fileadmin/faf/Legislativa_a_dokumenty/Studijny_poriadok_FaF_UK/VP_2020_1_FaFUK_Studijny_Poriadok_SPrilohami_schvalenyASUK.pdf)
- Possibilities and procedures of participation in student mobilities are published on the faculty's website in the part international relationships on the address: <https://www.fpharm.uniba.sk/en/relations/>
- Rules of complying with the academic ethic and consequences of breach are regulated by the Disciplinary Board of the Faculty of Pharmacy, Ethical Codex and Ethical Board, more detailed information is freely available on the websites:  
Disciplinary Regulations of CU in Bratislava for students (the Internal Regulation No. 13/2018)  
[https://uniba.sk/fileadmin/ruk/legislativa/2018/Vp\\_2018\\_13.pdf](https://uniba.sk/fileadmin/ruk/legislativa/2018/Vp_2018_13.pdf)  
The Disciplinary Board of CU - Disciplinary Regulations of CU in Bratislava for students (the Internal Regulation No. 14/2018)  
[https://uniba.sk/fileadmin/ruk/legislativa/2018/Vp\\_2018\\_14.pdf](https://uniba.sk/fileadmin/ruk/legislativa/2018/Vp_2018_14.pdf)  
The Disciplinary Committee for Students  
<https://www.fpharm.uniba.sk/en/about-the-faculty/disciplinary-commission/>  
Ethical Codex of Comenius University Bratislava (the Internal Regulation No. 23/2021, part No. 8)  
[https://uniba.sk/fileadmin/ruk/legislativa/2021/Vp\\_2021\\_23.pdf](https://uniba.sk/fileadmin/ruk/legislativa/2021/Vp_2021_23.pdf)  
Ethical Board of CU  
<https://uniba.sk/o-univerzite/organy-uk/eticka-rada-uk/>  
The Rules of Procedures of the Ethical Board of CU (the Internal Regulation No. 24/2016)  
[https://uniba.sk/fileadmin/ruk/legislativa/2016/Vp\\_2016\\_24.pdf](https://uniba.sk/fileadmin/ruk/legislativa/2016/Vp_2016_24.pdf)
- Procedures applied to students with specific needs:  
The Centre for Support for Students with Specific Needs acts at the Comenius University Bratislava. The centre provides information, advice, supportive services and educational activities for applicants and students with specific needs, teachers and the wider public. A coordinator of the support for students with specific needs acts at the faculty level and assesses the possibilities/restrictions/risks of studying a particular study programme for students with specific needs. He/she suggests concrete, adequate adjustments and supportive services determined for a student with specific needs and performs advisory and mediator activities. He/she contributes to creating a specific hybrid education system and support for students with specific needs.  
Support Centre for Students with Specific Needs  
<https://uniba.sk/o-univerzite/rektorat-uk/oddelenie-socialnych-sluzieb-a-poradenstva-osspp/centrum-podpory-studentov-so-specifikymi-potrebami-cps/>  
The present coordinator for students with specific needs at the Faculty of Pharmacy of CU Bratislava is:  
doc. PharmDr. Szilvia Czige, PhD. from the Department Farmacognosy and Botany FPHARM CU  
tel. number: +421 2 501 17 209, e-mail: [czigle@fpharm.uniba.sk](mailto:czigle@fpharm.uniba.sk)
- Procedures of submission of incitements and appeals from the side of students are defined in the Study Regulations of the Faculty Pharmacy, Comenius University Bratislava (the Internal Regulation No. 10/2020), which is freely available at the address:  
[https://www.fpharm.uniba.sk/fileadmin/faf/Legislativa\\_a\\_dokumenty/Studijny\\_poriadok\\_FaF\\_UK/VP\\_2020\\_1\\_FaFUK\\_Studijny\\_Poriadok\\_SPrilohami\\_schvalenyASUK.pdf](https://www.fpharm.uniba.sk/fileadmin/faf/Legislativa_a_dokumenty/Studijny_poriadok_FaF_UK/VP_2020_1_FaFUK_Studijny_Poriadok_SPrilohami_schvalenyASUK.pdf)

## 5. Course information sheets of the study programme

*In the structure according to Decree no. 614/2002 Coll.*

The information sheets of subjects of the study programme are freely available at the address:

<https://www.fpharm.uniba.sk/studium/doktorandske-studium/>

## 6. Current academic year plan and current schedule (or hyperlink)

The schedule of the current academic year is available on the website of the faculty:

<https://www.fpharm.uniba.sk/en/education/phd-study/>

## 7. Persons responsible for the study programme

- a) *A person responsible for the delivery, development, and quality of the study programme (indicating the position and contact details).*  
**prof. PharmDr. Adriana Duriš Adameová, PhD.**, university teacher – professor, in the function of professor. Contact: Department Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava, Odbojarov 10, 832 32 Bratislava, Slovakia, Phone: +421 2 501 17 366, e-mail: [adriana.duris.adameova@uniba.sk](mailto:adriana.duris.adameova@uniba.sk)
- b) *List of persons responsible for the study programme's profile courses with the assignment to the course and link to the central register of university staff and contact details (they may also be listed in the study plan).*

The teacher of the profile subject/ Contact (workplace, email, telephone number)	Reference to the Register of the University Employees	Title the profile subject
prof. PharmDr. Adriana Duriš Adameová, PhD. Department of Pharmacology and Toxicology,	<a href="https://www.portalvs.sk/regzam/detail/3686">https://www.portalvs.sk/regzam/detail/3686</a>	Pharmacology Physiology



Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:adriana.duris.adameova@uniba.sk">adriana.duris.adameova@uniba.sk</a> ; +421 2 501 17 366		
<b>doc. PharmDr. Peter Křenek, PhD.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:krenek@fpharm.uniba.sk">krenek@fpharm.uniba.sk</a> ; +421 2 501 17 392	<a href="https://www.portalvs.sk/regzam/detail/3734">https://www.portalvs.sk/regzam/detail/3734</a>	Pharmacology Physiology
<b>doc. PharmDr. Marek Máťuš, PhD.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:matus@fpharm.uniba.sk">matus@fpharm.uniba.sk</a> ; +421 2 501 17 374	<a href="https://www.portalvs.sk/regzam/detail/5581">https://www.portalvs.sk/regzam/detail/5581</a>	Pharmacology Toxicology

- c) *Reference to the research/art/teacher profiles of persons responsible for the study programme's profile courses.*  
The research/art/teacher profiles of persons responsible for the study programme's profile courses are in a separate attachment.
- d) *List of teachers in the study programme with the assignment to the subject and provided with a link to the central Register of University staff, with contact details:*

<b>The teacher of the obligatory and compulsory elective subject/ Contact (workplace, email, telephone number)</b>	<b>Reference to the Register of the University Employees</b>	<b>Course ID:</b>
<b>prof. PharmDr. Adriana Duriš Adameová, PhD.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:adriana.duris.adameova@uniba.sk">adriana.duris.adameova@uniba.sk</a> ; +421 2 501 17 366	<a href="https://www.portalvs.sk/regzam/detail/3686">https://www.portalvs.sk/regzam/detail/3686</a>	Pharmacology Physiology Introduction to Scientific Research Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>doc. PharmDr. Peter Křenek, PhD.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:krenek@fpharm.uniba.sk">krenek@fpharm.uniba.sk</a> ; +421 2 501 17 392	<a href="https://www.portalvs.sk/regzam/detail/3734">https://www.portalvs.sk/regzam/detail/3734</a>	Pharmacology Physiology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>doc. PharmDr. Marek Máťuš, PhD.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:matus@fpharm.uniba.sk">matus@fpharm.uniba.sk</a> ; +421 2 501 17 374	<a href="https://www.portalvs.sk/regzam/detail/5581">https://www.portalvs.sk/regzam/detail/5581</a>	Pharmacology Toxicology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>prof. PharmDr. Ján Klímas, PhD., MPH.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:klimas@fpharm.uniba.sk">klimas@fpharm.uniba.sk</a> ; +421 2 501 17 368	<a href="https://www.portalvs.sk/regzam/detail/3726">https://www.portalvs.sk/regzam/detail/3726</a>	Physiology Pathological Physiology Pharmacology Clinical Pharmacology and Pharmacotherapy Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2

		Completing Selected Doctoral Lectures and Seminars
<b>prof. RNDr. Magdaléna Kuželová, CSc.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:kuzelova@fpharm.uniba.sk">kuzelova@fpharm.uniba.sk</a> ; +421 2 501 17 367	<a href="https://www.portalvs.sk/regzam/detail/3737">https://www.portalvs.sk/regzam/detail/3737</a>	Clinical Pharmacology and Pharmacotherapy Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>doc. PharmDr. Anna Paul Hrabovská, PhD.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:anna.paul.hrabovska@uniba.sk">anna.paul.hrabovska@uniba.sk</a> ; +421 2 501 17 377	<a href="https://www.portalvs.sk/regzam/detail/3719">https://www.portalvs.sk/regzam/detail/3719</a>	Pharmacology Physiology Toxicology Clinical Pharmacology and Pharmacotherapy Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>Mgr. Peter Vavrínek, PhD.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:vavrínek@fpharm.uniba.sk">vavrínek@fpharm.uniba.sk</a> ; +421 2 501 17 379	<a href="https://www.portalvs.sk/regzam/detail/19202">https://www.portalvs.sk/regzam/detail/19202</a>	Pharmacology Toxicology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>Mgr. Diana Vavrincová, PhD.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:vavrincova@fpharm.uniba.sk">vavrincova@fpharm.uniba.sk</a> ; +421 2 501 17 379	<a href="https://www.portalvs.sk/regzam/detail/19082">https://www.portalvs.sk/regzam/detail/19082</a>	Pharmacology Toxicology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>Mgr. Gabriel Dóka, PhD.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:doka@fpharm.uniba.sk">doka@fpharm.uniba.sk</a> ; +421 2 501 17 387	<a href="https://www.portalvs.sk/regzam/detail/23053">https://www.portalvs.sk/regzam/detail/23053</a>	Pharmacology Clinical Pharmacology and Pharmacotherapy Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>Mgr. Ondrej Sprušanský, PhD.</b> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava <a href="mailto:sprusansky@fpharm.uniba.sk">sprusansky@fpharm.uniba.sk</a> ; +421 2 501 17 378	<a href="https://www.portalvs.sk/regzam/detail/5656">https://www.portalvs.sk/regzam/detail/5656</a>	Molecular Biology Toxicology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>PharmDr. Tomáš Rajtík, PhD.</b>	<a href="https://www.portalvs.sk/regzam/detail/24993">https://www.portalvs.sk/regzam/detail/24993</a>	Physiology

<p>Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava  <a href="mailto:rajtik@fpharm.uniba.sk">rajtik@fpharm.uniba.sk</a>;  +421 2 501 17 391</p>		<p>Pathological Physiology  Completing Prescribed Doctoral Lectures and Seminars 1  Completing Prescribed Doctoral Lectures and Seminars 2  Completing Selected Doctoral Lectures and Seminars</p>
<p><b>PharmDr. Stanislava Kosírová, PhD.</b>  Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava  <a href="mailto:stanislava.kosirova@uniba.sk">stanislava.kosirova@uniba.sk</a>;  +421 2 501 17 364</p>	<a href="https://www.portalvs.sk/regzam/detail/3721">https://www.portalvs.sk/regzam/detail/3721</a>	<p>Pathological Physiology  Clinical Pharmacology and Pharmacotherapy  Completing Prescribed Doctoral Lectures and Seminars 1  Completing Prescribed Doctoral Lectures and Seminars 2  Completing Selected Doctoral Lectures and Seminars</p>
<p><b>PharmDr. Eva Kráľová, PhD.</b>  Department of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University Bratislava  <a href="mailto:kralova@fpharm.uniba.sk">kralova@fpharm.uniba.sk</a>;  +421 2 501 17 363</p>	<a href="https://www.portalvs.sk/regzam/detail/3733">https://www.portalvs.sk/regzam/detail/3733</a>	<p>Physiology,  Pathological Physiology  Completing Prescribed Doctoral Lectures and Seminars 1  Completing Prescribed Doctoral Lectures and Seminars 2  Completing Selected Doctoral Lectures and Seminars</p>
<p><b>doc. Mgr. Andrea Bilková, PhD.</b>  Department of Cellular and Molecular Biology of Drugs, Faculty of Pharmacy Comenius University Bratislava  <a href="mailto:bilkova@fpharm.uniba.sk">bilkova@fpharm.uniba.sk</a>;  +421 2 501 17 316</p>	<a href="http://www.portalvs.sk/regzam/detail/3694">www.portalvs.sk/regzam/detail/3694</a>	<p>Molecular Biology, Biochemistry  Completing Prescribed Doctoral Lectures and Seminars 1  Completing Prescribed Doctoral Lectures and Seminars 2  Completing Selected Doctoral Lectures and Seminars</p>
<p><b>doc. PharmDr. Marek Obložinský, PhD.</b>  Department of Cellular and Molecular Biology of Drugs, Faculty of Pharmacy Comenius University Bratislava  OBLOZINSKY@fpharm.uniba.sk;  +421 2 501 17 314</p>	<a href="https://www.portalvs.sk/regzam/detail/3756">https://www.portalvs.sk/regzam/detail/3756</a>	<p>Molecular Biology, Biochemistry, Technology of Biological Drugs  Completing Prescribed Doctoral Lectures and Seminars 1  Completing Prescribed Doctoral Lectures and Seminars 2  Completing Selected Doctoral Lectures and Seminars</p>
<p><b>RNDr. František Bilka, PhD.</b>  Department of Cellular and Molecular Biology of Drugs, Faculty of Pharmacy Comenius University Bratislava  <a href="mailto:bilka@fpharm.uniba.sk">bilka@fpharm.uniba.sk</a>;  +421 2 501 17 316</p>	<a href="http://www.portalvs.sk/regzam/detail/3693">www.portalvs.sk/regzam/detail/3693</a>	<p>Molecular Biology, Biochemistry  Technology of Biological Drugs  Completing Prescribed Doctoral Lectures and Seminars 1  Completing Prescribed Doctoral Lectures and Seminars 2  Completing Selected</p>

		Doctoral Lectures and Seminars
<b>Ing. Ľudmila Pašková, PhD.</b> Department of Cellular and Molecular Biology of Drugs, Faculty of Pharmacy Comenius University Bratislava +421 2 501 17 305	<a href="https://www.portalvs.sk/regzam/detail/15992">https://www.portalvs.sk/regzam/detail/15992</a>	Molecular Biology, Biochemistry Technology of Biological Drugs Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>doc. Mgr. Martina Hrčka Dubničková, PhD.</b> Department of Cellular and Molecular Biology of Drugs, Faculty of Pharmacy Comenius University Bratislava <a href="mailto:dubnickova@fpharm.uniba.sk">dubnickova@fpharm.uniba.sk</a> ; +421 2 501 17 312	<a href="http://www.portalvs.sk/regzam/detail/3703">www.portalvs.sk/regzam/detail/3703</a>	Immunology, Biochemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>PharmDr. Veronika Mikušová, PhD.</b> Department of Galenic Pharmacy, Faculty of Pharmacy Comenius University Bratislava <a href="mailto:mikusova@fpharm.uniba.sk">mikusova@fpharm.uniba.sk</a> ; +421 2 501 17 265	<a href="http://www.portalvs.sk/regzam/detail/3722">www.portalvs.sk/regzam/detail/3722</a>	Pharmaceutical Technology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>PharmDr. Juraj Piešťanský, PhD.</b> Department of Galenic Pharmacy, Faculty of Pharmacy Comenius University Bratislava <a href="mailto:piestansky@fpharm.uniba.sk">piestansky@fpharm.uniba.sk</a> ; +421 2 501 17 250	<a href="https://www.portalvs.sk/regzam/detail/23111">https://www.portalvs.sk/regzam/detail/23111</a>	Pharmaceutical Technology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>doc. RNDr. Miroslava Šuplíková, PhD.</b> Department of Galenic Pharmacy, Faculty of Pharmacy Comenius University Bratislava <a href="mailto:miroslava.suplikova@uniba.sk">miroslava.suplikova@uniba.sk</a> ; +421 2 501 17 266	<a href="https://www.portalvs.sk/regzam/detail/4438">https://www.portalvs.sk/regzam/detail/4438</a>	Pharmaceutical Technology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
<b>PhDr. Darina Kližanová</b> Department of Languages, Faculty of Pharmacy, Comenius University Bratislava, <a href="mailto:klizanova@fpharm.uniba.sk">klizanova@fpharm.uniba.sk</a> ; +421 2 501 17 210	<a href="http://www.portalvs.sk/regzam/detail/3725">www.portalvs.sk/regzam/detail/3725</a>	English Language and Foreign Language Exam
<b>PhDr. Viera Žufková, PhD.</b> Department of Languages, Faculty of Pharmacy, Comenius University Bratislava, <a href="mailto:zufkova@fpharm.uniba.sk">zufkova@fpharm.uniba.sk</a> ; +421 2 501 17 210	<a href="http://www.portalvs.sk/regzam/detail/18138">www.portalvs.sk/regzam/detail/18138</a>	English language and Foreign Language Exam Introduction to Scientific Writing in English Language

e) List of the supervisors of final theses with the assignment to topics (indicating the contact details).

The supervisor of final theses/	Reference to the Register of the University Employees	Topics of the
---------------------------------	---	---------------

Contact (workplace, email, telephone number)		dissertation theses
<p><b>prof. PharmDr. Adriana Duriš Adameová, PhD.</b> Katedra farmakológie a toxikológie Farmaceutickej fakulty UK v Bratislave <a href="mailto:adriana.duris.adameova@uniba.sk">adriana.duris.adameova@uniba.sk</a>; +421 2 501 17 366</p>	<p><a href="https://www.portalvs.sk/regzam/detail/3686">https://www.portalvs.sk/regzam/detail/3686</a></p>	<p>1. Multitarget strategies to mitigate cardiac damage: understanding fundamental mechanisms and pharmacotherapeutic potential with pleiotropic action 2. Necroptosis as an alternative form of cell death through necrosis and apoptosis: mechanisms of its initiation and pharmacological modulation</p>
<p><b>doc. PharmDr. Peter Křenek, PhD.</b> Katedra farmakológie a toxikológie Farmaceutickej fakulty UK v Bratislave <a href="mailto:krenek@fpharm.uniba.sk">krenek@fpharm.uniba.sk</a>; +421 2 501 17 392</p>	<p><a href="https://www.portalvs.sk/regzam/detail/3734">https://www.portalvs.sk/regzam/detail/3734</a></p>	<p>1. Interaction of growth factors and peripheral serotonergic system in experimental pulmonary hypertension and right ventricular failure 2. Possible new mechanisms of endothelin-1 regulation in pulmonary arterial hypertension and their pharmacological targeting</p>
<p><b>doc. PharmDr. Marek Máťuš, PhD.</b> Katedra farmakológie a toxikológie Farmaceutickej fakulty UK v Bratislave <a href="mailto:matus@fpharm.uniba.sk">matus@fpharm.uniba.sk</a>; +421 2 501 17 374</p>	<p><a href="https://www.portalvs.sk/regzam/detail/5581">https://www.portalvs.sk/regzam/detail/5581</a></p>	<p>1. TRP channels in human end-stage heart failure 2. Regulation of store-operated calcium entry in pathophysiology of myocardium</p>
<p><b>prof. PharmDr. Ján Klimas, PhD., MPH.</b> Katedra farmakológie a toxikológie Farmaceutickej fakulty UK v Bratislave <a href="mailto:klimas@fpharm.uniba.sk">klimas@fpharm.uniba.sk</a>; +421 2 501 17 368</p>	<p><a href="https://www.portalvs.sk/regzam/detail/3726">https://www.portalvs.sk/regzam/detail/3726</a></p>	<p>1. Pharmacological modulation of expression of genes regulating metabolism of glucose and lipids in metabolic syndrome 2. Role of HCN channels in development of diabetic cardiomyopathy and related changes of myocardial electrogenesis</p>
<p><b>doc. PharmDr. Anna Paul Hrabovská, PhD.</b> Katedra farmakológie a toxikológie Farmaceutickej fakulty UK v Bratislave <a href="mailto:anna.paul.hrabovska@uniba.sk">anna.paul.hrabovska@uniba.sk</a>; +421 2 501 17 377</p>	<p><a href="https://www.portalvs.sk/regzam/detail/3719">https://www.portalvs.sk/regzam/detail/3719</a></p>	<p>1. Participation of the cholinergic system in pathologies underlying metabolic syndrome 2. Non-neuronal cholinergic system</p>
<p><b>Mgr. Peter Vavrínek, PhD.</b> Katedra farmakológie a toxikológie Farmaceutickej fakulty UK v Bratislave <a href="mailto:vavrinek@fpharm.uniba.sk">vavrinek@fpharm.uniba.sk</a>;</p>	<p><a href="https://www.portalvs.sk/regzam/detail/19202">https://www.portalvs.sk/regzam/detail/19202</a></p>	<p>1. Cellular senescence as a target of pharmacological intervention</p>

+421 2 501 17 379		2. Role of cellular senescence in cardiovascular and renal diseases
<b>Mgr. Diana Vavrincová, PhD.</b> Katedra farmakológie a toxikológie Farmaceutickej fakulty UK v Bratislave <a href="mailto:vavrincova@fpharm.uniba.sk">vavrincova@fpharm.uniba.sk</a> ; +421 2 501 17 379	<a href="https://www.portalvs.sk/regzam/detail/19082">https://www.portalvs.sk/regzam/detail/19082</a>	1. New cardioprotective strategies in cardiovascular diseases and remodelling: involvement of TRP channels 2. Role of kynurenine signaling pathway in therapy of fibrotic diseases
<b>doc. Mgr. Andrea Bilková, PhD.</b> Katedra bunkovej a molekulárnej biológie liečiv Farmaceutickej fakulty UK v Bratislave <a href="mailto:BILKOVA@fpharm.uniba.sk">BILKOVA@fpharm.uniba.sk</a> ; +421 2 501 17 316	<a href="https://www.portalvs.sk/regzam/detail/3694">https://www.portalvs.sk/regzam/detail/3694</a>	1. Selection of potential therapeutically effective probiotic lactobacilli and a study of their interaction with eukaryotic cells 2. Effect of lactobacilli on the intestinal barrier model in vitro
<b>doc. PharmDr. Marek Obložinský, PhD.</b> Katedra bunkovej a molekulárnej biológie liečiv Farmaceutickej fakulty UK v Bratislave <a href="mailto:OBLOZINSKY@fpharm.uniba.sk">OBLOZINSKY@fpharm.uniba.sk</a> ; +421 2 501 17 314	<a href="https://www.portalvs.sk/regzam/detail/3756">https://www.portalvs.sk/regzam/detail/3756</a>	Cholinergic antiinflammatory pathway in regulation of the oxidative stress
<b>RNDr. František Bilka, PhD.</b> Katedra bunkovej a molekulárnej biológie liečiv, Farmaceutickej fakulty UK v Bratislave <a href="mailto:bilka@fpharm.uniba.sk">bilka@fpharm.uniba.sk</a> ; +421 2 501 17 316	<a href="http://www.portalvs.sk/regzam/detail/3693">www.portalvs.sk/regzam/detail/3693</a>	Possibilities of inflammation modulation in the model of intestinal barrier by potentially probiotic lactobacilli in vitro
<b>Ing. Ľudmila Pašková, PhD.</b> Katedra bunkovej a molekulárnej biológie liečiv Farmaceutickej fakulty UK v Bratislave <a href="mailto:paskova@fpharm.uniba.sk">paskova@fpharm.uniba.sk</a> ; +421 2 501 17 305	<a href="https://www.portalvs.sk/regzam/detail/15992">https://www.portalvs.sk/regzam/detail/15992</a>	1. The study of the lactobacilli influence on inflammation and lipid metabolism 2. Modulation of lipid metabolism by compounds of natural origin in inflammatory models
<b>doc. RNDr. Miroslava Šupolíková, PhD.</b> Katedra galenickej farmácie Farmaceutickej fakulty UK v Bratislave <a href="mailto:miroslava.supolikova@uniba.sk">miroslava.supolikova@uniba.sk</a> ; +421 2 501 17 266	<a href="https://www.portalvs.sk/regzam/detail/4438">https://www.portalvs.sk/regzam/detail/4438</a>	Study of the effects of oral suspension based on glycosaminoglycans and bacterial strains on cellular and humoral components of the immune response

- f) *Reference to scientific/artistic-pedagogical characteristics of the supervisor of final theses:*  
Scientific-pedagogical characteristics of supervisors are available at the faculty and in the academic information system AIS2.
- g) *Students' representatives who represent the interests of students of the study programme (name and contact):*  
Students' chamber of the Academic Senate of the Faculty of Pharmacy, Comenius University Bratislava (<https://www.fpharm.uniba.sk/en/about-the-faculty/academic-senate/senate-members/>). The chairman of the chamber is the doctoral student Mgr. Emil Babiak ([emil.babiak@uniba.sk](mailto:emil.babiak@uniba.sk); [skas@fpharm.uniba.sk](mailto:skas@fpharm.uniba.sk)).
- h) *Study advisor of the study programme (indicating contact details and information on the access to counselling and consultations schedule).*  
prof. PharmDr. Adriana Duriš Adameová, PhD: individually, by agreement via e-mail: [adriana.duris.adameova@uniba.sk](mailto:adriana.duris.adameova@uniba.sk)

- i) *Other supporting staff of the study programme – assigned study officer, career counsellor, administration, accommodation department, etc. (with contact details).*

**The Office of Science, Research and Foreign Relations** which acts as part of the Dean's Office of the Faculty of Pharmacy, Comenius University Bratislava, is responsible for the complex care for students in the doctoral study programmes. The office is adequately equipped and prepared personally, professionally and financially. The supportive professional staff at this office provides tutorial, advisory, administrative and other supportive services and related activities for students in the doctoral study programmes. It also provides administrative support for international mobilities of doctoral students. The contact of the employees of this office are on the websites: <https://www.fpharm.uniba.sk/en/about-the-faculty/deans-office-and-service-departments/> and on <https://www.fpharm.uniba.sk/en/education/phd-study/>.

At Comenius University Bratislava, the doctoral students in the full-time study can apply each year for **Grants of Comenius University** (CU grants) to support doctoral students' scientific and pedagogical projects at the faculties of CU. Details are given on the website: <https://uniba.sk/veda/vedecke-projekty-a-granty/granty-uk/>.

At Faculty of Pharmacy Comenius University Bratislava the doctoral students can apply each year for **Grants of Faculty of Pharmacy, Comenius University** (FPHARM CU grants) to support doctoral students' scientific projects at the FPHARM CU. Details are given on the website: <https://www.fpharm.uniba.sk/veda-a-vyskum/projekty-a-granty/granty-faf-uk/>.

At the Faculty of Pharmacy of Comenius University Bratislava, PhD. students and young researchers and pedagogical staff of FPHARM CU up to 35 years of age can apply for Grants of the Scientific Board of the Faculty of Pharmacy of Comenius University every 2 years. **Grants of Scientific Board of Faculty of Pharmacy Comenius University Bratislava** are aimed at supporting scientific projects of doctoral students and young researchers from several departments of FPHARM CU in order to support research activities of beginning researchers, motivate them to cooperate, prepare scientific projects and apply in national grant schemes. Details are available on the website: <https://www.fpharm.uniba.sk/veda-a-vyskum/projekty-a-granty/>

Career counselling is provided in cooperation of the Slovak Pharmacy Students' Association and the Faculty of Pharmacy, Comenius University Bratislava. The biggest career counselling activity is the **Week of Pharmaceutical Education and Career** (TyFaVKA; <https://sssf.sk/tyfavka>). It is the largest job fair of the pharmaceutical field in Slovakia. The event includes the **Career Days of Pharmacists** (KDF; <https://sssf.sk/kdf>). The aim of the project is to provide comprehensive information about the possibilities and to mediate direct contact between the employers and a potential future employees.

For the activities in the programme **Erasmus+**, department for European Programmes and Erasmus+ at the Office of the Rector of Comenius University Bratislava, manages all activities of the programme which fall into the area of the Vice-rector of CU for International Relations (contacts: <https://uniba.sk/o-univerzite/rektorat-uk/oddelenie-pre-europske-projekty-a-erasmus-cep/>). At the Faculty of Pharmacy of CU, Erasmus+ activities are covered by the Office for International Relations and Mobilities (contact on <https://www.fpharm.uniba.sk/en/about-the-faculty/deans-office-and-service-departments/>).

The students in the full-time doctoral study programmes utilise the **accommodation facilities of the Comenius University Bratislava** with the supportive administrative and technical personnel (<https://uniba.sk/studujnauk/byvajnauk/>).

## 8. Spatial, material, and technical provision of the study programme and support

- a) *List and characteristics of the study programme classrooms and their technical equipment with the assignment to learning outcomes and courses (laboratories, design and art studios, studios, workshops, interpreting booths, clinics, priest seminaries, science and technology parks, technology incubators, school enterprises, practice centres, training schools, classroom-training facilities, sports halls, swimming pools, sports grounds).*

The faculty equipment is sufficient for high quality of education of subjects within the study programme Pharmacology. With respect to the present number of students, the faculty has a sufficient number of reconstructed classrooms with quality technical infrastructure, including classrooms for interactive teaching. The study programme Pharmacology will be pursued mainly at the departments of Faculty of Pharmacy, Comenius University Bratislava. The place of tuition will depend on the individual dissertation thesis, the department where the doctoral student's supervisor works, as well as the year of study of the doctoral student.

The teaching bases for theoretical education present three departments and purpose-built facility (animal facility), which are located on the premises of FPHARM CU in the buildings on Odbojárov street 10, Kalinčiakova street 8, Ružinovská street 12A, Bratislava. Theoretical institutes are equipped with specialised classrooms, seminar rooms, computer rooms with the necessary audio-visual techniques and instrumental equipment for students, libraries with particular librarian collections for the staff and student needs, laboratories with contemporary technical equipment covering the needs of modern educational activities. Besides libraries and seminar rooms of particular departments, meeting room of the Scientific Board of FPHARM CU the doctoral students can utilise also common study space and auditories: the assembly hall with capacity of 292 students and area of 272 m<sup>2</sup> with direct stepped sitting, lecture room No. 102 with the capacity of 198 students and area of 142 m<sup>2</sup> with direct stepped sitting, lecture room No. 151 with the capacity of 99 students and area of 85 m<sup>2</sup> with direct stepped sitting and lecture room 418 with the capacity of 96 students and area of 87 m<sup>2</sup> with direct stepped sitting. Laboratories of Department of Pharmacology and Toxicology, Department of Cell and Molecular Biology of Drugs and Department of Galenic Pharmacy provide a teaching base for practical teaching.

The scientific part of the doctoral work in the study programme Pharmacology will be provided mainly at the Department of Pharmacology and Toxicology, Department of Cell and Molecular Biology of Drugs and Department of Galenic Pharmacy of the FPHARM CU. The existing workplace infrastructure corresponds with the requirements for well-functioning pharmacological environment and solving of scientific projects. The technical conditions also correspond with the methodological procedures needed for the realisation of the scientific part of the doctoral study programme.

The basic equipment of the laboratories of **Department of Pharmacology and Toxicology** includes various micropipettes (Gilson, Eppendorf, Biohit), analytical balances XA 60/220 (Radwag), fume hood, vortex mixers BenchMixer BV1000 (Benchmark), Vortex 1 (IKA), personal centrifuges #3722L (Fisher Scientific), MyFuge MINI (Benchmark), magnetic stirrers with heating uniSTIRRER 3 (LLG

Labware), pH meter FiveEasy Plus (Mettler Toledo), shaker 3D Sunflower Mini-Shaker (Biosan), dry thermostat Bio TDB-100 (Biosan), centrifuge with cooling Mikro 200R (Hettich), Direct-Q 3UV ultrapure water treatment plant (Millipore), ice flakes maker AF80AS (Scotsman). For storage of samples and material at reduced temperature, our workplace has several refrigerators, freezers, deep-freezing box MDF-U3286S (Sanyo) for storage at -80 °C and Dewar vessels for storage of biological material in liquid nitrogen BioCane 20 Storage system (ThermoFisher Scientific) and 34 XT Liquid nitrogen storage (Taylor-Wharton). In the laboratory, we have a Mini-PROTEAN Tetra Cell vertical polyacrylamide electrophoresis apparatus together with a blotting module (Biorad) for the analysis of protein expression by Western blotting. In addition to the basic instruments, such as the Vortex V-1 plus vortex mixers (Biosan) and the MyFuge MINI mini-centrifuges (Benchmark), the two PCR laboratories are equipped with the instrumentation needed for nucleic acid analysis - horizontal agarose gel electrophoresis apparatus Mupid™-One, Mupid™-ExU (Mupid), apparatus for detection and documentation of gels UV Transilluminator + Digimage System DI-01 (Major Science), microvolume UV-VIS spectrophotometer NanoDrop™ ND-1000 (NanoDrop), centrifuges for PCR plates PlateFuge (Benchmark), thermocyclers Biometra Personal Cycler (Biometra) and Veriti™ 60-well Thermal cycler (Applied Biosystems) and two real-time PCR systems StepOne Plus (Applied Biosystems) and QuantStudio 3 (Applied Biosystems). In terms of premises, the workplace has a basic laboratory for the preparation of solutions and sample processing, two PCR laboratories, a darkroom and a small laboratory for teaching biology, anatomy and physiology.

The Department of Pharmacology and Toxicology (laboratory K4 and K5) is equipped with basic laboratory equipment and scientific instruments including laboratory fridges and freezers (Whirlpool, LIEBHERR, LIEBHERR MED LINE, SNIJDERS LAB), laboratory and analytical scales (440-35N, 440-35A, KERN, PS 1000/C/2, RADWAG, LIBRA, IIAXIS Poland), laboratory shakers and vortex mixers (BENCH ROCKER 2D, ORBI BLOTTER, BenchMark, UNI STIRRER 3, LIG LABWARE, HULA MIXER, THERMO FISCHER SCIENTIFIC, ROLLER MIXER SRT9D BIOCOTE, TechnoKARTELL TK-23, KARTELL, VORTEX SCIENTIFICA), water baths and sonicators (MEMMERT, Water Bath EL-20R, BANDELIN SONOREX, BANDELIN), magnetic mixers (IKA-SCHUTTER MTS2, JANKE KUNKEL IKA – LABORTECHNIK, HOTPLATE STIRRER, SCIENTIFIC LTD), a dry thermo bath (THERMO FISCHER SCIENTIFIC), centrifuges (UNIVERSAL 320 R, MIKRO 200 R, HETTICH), a microcentrifuge (VWR MICROSTAR 12, VWR Made in KOREA), a vacuum concentrator (Concentrator plus EPPENDORF), a spectrophotometer (BIOTEK ELx800UV, BIOTEK), pH analysers (InoLAB Ph 7110, INOLAB, pH80 P.R.C., EU), a desiccator (WSL Poland) and a cryogenic storage vessel (Dewar). The workplace is also equipped with scientific instruments for ex vivo Langendorff perfusions including a heated water bath (Wisd Digital Fuzzy control system, LABORATORY INSTRUMENTS), analysers of hemodynamic function (LabChart POWERLAB 430, ADInstruments), a peristaltic pump (GILSON, INC. MIDDLETON), a computer set (SAMSUNG, ZALMAN) and a microscope (Leica A60, LEICA, Singapore). Additionally, for immunoblot analyses by SDS-PAGE/Western Blotting the workplace has a generator for electrophoresis (Nano PAC – 500, CLEAVER SCIENTIFIC LTD) and a chemiluminescent imager for the prepared blots (myECL imager, THERMO FISCHER SCIENTIFIC).

The workplace on the 3rd floor, Kalinčiakova has essential equipment technique as 2 x analytical scales Kern abs a 1 x Radwag AS 60/220lc/2, common lab scales Radwag WTB 2000, pH meter Metler Toledo fiveeasy plus, 2 x stirrer with heating LAVAT mm4, stirrer without heating Heidolph, orbital shaker Biosan PSU-20i, dry block thermostat biosan Bio TDB-100, centrifuge Hermle Z326K, ortex Biosan V-1 plus, ruler Stuart srtg, ice maker Brema, reverse osmosis system for lab water. Next microtome Leica RM2125, fluorescent microscope Optika B-510ID2, 2 x power supply for electrophoresis Bio-Rad PowerPack basic.

The laboratory of assoc. prof. Paul Hrabovská has the essential equipment for laboratory work, including weighing scales (Kern PCB 2500-2 and A&D EK-120A), analytical balance (Kern ABJ 220-4M), pH meter (Hanna Instruments HI2210), magnetic stirrer (IKA C-MAG HS 4), centrifuges (Hettich Rotina 380R and Mikro 200R) and minicentrifuge (VWR Galaxy Ministar), vortices (Biosan V-1 plus), water bath (N-BIOTEK NB-301), shaker and incubator (N-BIOTEK NB-205 QF), minishaker (Biosan Minishaker Multi Bio 3D), thermomixer (Eppendorff Thermomixer Comfort), benchtop autoclave (Tuttnauer 2840EL-D), microwave oven (Electrolux Heatwave Compact), refrigerators (Electrolux Energy Saver and Fresh Frostfree) and freezers (Whirlpool and Gorenje). In addition, the laboratory is fully equipped for a full range of molecular, immunoanalytical, and biochemical methodologies. A TissueLyser II (Qiagen) is used to prepare tissue homogenates and tissue extracts by high-speed shaking in plastic tubes with stainless steel, tungsten carbide or glass beads. Up to 48 or 192 samples can be processed simultaneously using the appropriate set of adapters. Alternatively, a set of grinding vessels can be used to process large samples. A range of beads, bead dispensers and microtubes and caps are also available. A thermocycler (Bio Rad T-100) is used for DNA sequencing, cloning, probe generation, DNA and RNA quantification, study of gene expression patterns, detection of sequentially labeled sites and many other techniques. There is a complete electrophoresis setup for casting and running agarose and polyacrylamide gels, including an automated blotting system (Bio Rad Trans Blot Transfer System Compact) for working with pre-casted gels (Bio Rad Mini protean TGX precast gels), and a system for fluorescent and chemiluminescent gel imaging (Syngene G box). For the ELISA method, the laboratory is equipped with a plate washer (Biotek ELx50) and a Synergy H4 Hybrid reader spectrophotometer. It allows monitoring of fluorescence intensity, time-resolved fluorescence, fluorescence polarization, AlphaScreen® / AlphaLISA, luminescence, UV-visible absorbance, FRET, TR-FRET, BRET, well area and spectral scanning. Nucleic acids can be quantified at low volume (µl) using a Take3™ plate with 2 µl microdots. An isothermal titration calorimeter (MicroCal ITC 200) is used to study a wide range of biomolecular interactions. This system provides direct measurements of binding affinity and thermodynamic parameters without labels and in solution in a single experiment.

The department also has an animal facility, where laboratory animals (rats and mice) can be kept and bred for scientific purposes. Conventional, wild type animals, as well as genetically modified animals (mice) can be kept and bred.

The department has two modern teaching laboratories, equipped with 23 Lenovo V13015IKB laptops. Audiovisual transmission for distance learning is provided by an Ausdom AW615 digital camera and a Jabra Speak 710 omnidirectional communicator (BenQ). The laboratory is also equipped with anatomical models and histological specimens, ECG, sphygmomanometers, a spirometer and peak-flow meters, a pulse oximeter, glucometers, and various kits used for examination of reflexes, senses, blood groups, urine analysis.

**The Department of Cell and Molecular Biology of Drugs** has essential equipment technique as scales and analytical scales (HZY P2003, HZY A2000, HZY A200, KERN), laboratory shakers BioSan MR-1 shaker, and Mini Rocker-Shaker MR-1, pH-meters (Cyber Scan, JENWAY, MERCK, BioSan, Toledo), water bath and shaker with water bath (MEMMERT, Water Bath EL-20R), magnetic stirrer (HANNA, MMS 300, MSH 300-BioSan), termoblock TS-100 W-OUT s cooling (BioSaN), orbital shaker on cell cultures (BioSan), centrifuges (MPW 341, BioSan LHC-3000, Sigma 3-30K, MLW-S70, MLW-K23 (Janetzki), HETTICH, microcentrifuges MPW 50/MPW 130, ALC 4214 (Jouan), Hettich 200 R, Hettich EBA 20, Benchmark fuge, Eppendorf, My Fuga Mini), apparatus for preparation of ultrapure water (Watrex, Water Quality), incubators (MEMMERT, BINDER, ICN 120), drying boxes MEMMERT, Beckman Coulter SC100 autosampler, autoclaves on decontamination and sterilisation of equipment (IcanClave, Witeg), desintegrator of biological materials SONIPRET 150 and cryogenic Dewar flask.

The department has also special equipment technique as microscopes for observation of cells (ZEISS, Primostar, Leica) and invert microscope (Bresser), instrumentation for photometric and spectrofluorimetric analysis (UV-VIS (Jenway 6305, 7305), SPEKOL 11 (Zeiss, Jena), SPEKOL 220 (Zeiss, Jena), SFM 25 (Perkin Elmer), spektrophotometer (Hitachi)). Ultracentrifuge (BECKMAN Avanti J301) is



also located at department, it enable fractionation of biological materials. Electroforetic apparatus (FE20-ATC Five Easy In.) for separations of DNA, RNA or proteins are deposited at department. Mastercycler X 50 (Eppendorf), ECT-UVC reader VILBER LOVRMAT, qPCR (RT-PCR system 7300 Applied Biosystem, BioRad, QuamtStudio 3 RT PCR system) is used for research of genetic materials coded in DNA or RNA. Using the Millicell ERS-2 Voltohmmeter, it is possible to measure membrane potential and epithelial cell resistance at the cell culture level in the workplace. For the area of immunochemical examinations, the department has the equipment of ELISA readers (DYNATECH MR 5000, EPOCH BioTek). The department has a UVITEC imager playing an important role in the evaluation of molecular biological techniques through innovative camera technology, optical solutions and hardware / software integration, which is key in Life Science research (high sensitivity and performance in imaging processes in the cell).

The department has two student laboratories (for 40 students) and one seminar room (for 25 students) for teaching compulsory subjects. The scientific and research background of the department consists of: 2 microbiological laboratories, 1 immunological laboratory, 2 molecular biology laboratories, 4 laboratories for biochemistry, 1 laboratory for work with plant cell cultures, 1 laboratory for work with cell cultures (GMO risk class 2), 1 laboratory for basic biological procedures, 1 decontamination room.

The **Department of Galenic Pharmacy** and its Nanotechnological laboratory uses a device for the preparation of nanoparticles NanoAssembl<sup>®</sup> Ignite<sup>™</sup>, multifunctional laboratory robot ERWEKA<sup>®</sup>, lyophilizator CHRIST<sup>®</sup>, rotation vacuum extractor IKA<sup>®</sup>, UV/VIS spectrophotometer SHIMADZU<sup>®</sup> UV-1900i, vacuum homogenization device for preparation of semi-solid cutaneous preparations STEPHAN<sup>®</sup>. Basic instrumentations are ultra-thermostat JULABO<sup>®</sup>, analytical balances SARTORIUS<sup>®</sup>, centrifuge, ultrasound bath Teson 1 TESLA<sup>®</sup>, magnetic stirrings. The Laboratory of analytical and instrumental methods uses devices as Texture analyzer Stable Micro Systems TA.TX.PLUS<sup>®</sup>, UV/VIS spectrophotometer GENESYS 10S<sup>®</sup>, UV/VIS spectrophotometer HELIOS Gamma 9423<sup>®</sup>, rheometer/rotation viscosimeter Rheolab QC ANTON PAAR<sup>®</sup>, pH-meter pHenomenal<sup>®</sup> VWR, circular polarimeter, analytical balances OHAUS<sup>®</sup>, UV lamp for TLC evaluation, penetrometer and Höppler's consistometer. The Laboratory for dissolution testing has dissolution device ERWEKA. Galenic laboratories are equipped with various systems of Franz cells/chambers for drug release and diffusion testing. There is also a device for evaluation of inhalers – Twin Impinger COPLEY<sup>®</sup>, laminar boxes EKOSTAR FLOW<sup>®</sup> ultrasound homogenizator SONOPULS<sup>®</sup>. For the preparation and evaluation of solid dosage forms there is a friabilator ERWEKA<sup>®</sup>, single punch tablet press KORSCH<sup>®</sup>, rotary tablet press KILIAN<sup>®</sup>, homogenization device TURBULA<sup>®</sup>, coating pan Pellegrini, conventional coating pan, device for sieve analysis HAVER & BOECKER<sup>®</sup> Haver EML 200 digital T, device for granulometric analysis, fluid coating machine. Other instrumentations are Soxhlet extractor, device for aromatic oils determination, manual capsule fillers, molding forms for suppositories and pessaries, microscope with integrated camera and tablet VisiScope<sup>®</sup>, magnetic stirrings, shaft stirrer IKA<sup>®</sup> and automatic micropipettes. There are four student laboratories at the department (including specialized laboratory for formulation of sterile dosage forms and laboratory for formulation of granules, tablets and coated tablets) for the teaching of subjects as Pharmaceutical technology, Cosmetics Formulation and Innovative dosage forms and biological medicines. There are also scientific laboratories: nanotechnological laboratory, laboratory of analytical and instrumental methods, laboratory for dissolution testing, and 4 other scientific laboratories.

b) *Characteristics of the study programme information management (access to study literature according to Course information sheets, access to information databases and other information sources, information technologies, etc.).*

Library services are provided by the **Central Library of the Faculty of Pharmacy, Comenius University Bratislava (CL FPHARM CU)**, which is an educational and information workplace and at the same time part of the scientific and research base of the faculty. Main activities of CL FPHARM CU are predominantly oriented at activities, the prevailing part of which, has a long-term or permanent character:

- Supplementing of library fund focused on the coverage of obligatory and obligatory elective subjects – purchase, with a donation, possibly in exchange,
- Name and factual processing of all types of documents in the comprehensive online catalogue of the CU in the library information system VTLS/Virtua,
- Revision of the librarian fund, elimination of outdated, worn off and multiplicity literature, physical protection of the librarian fund,
- In-person and on line borrowing of the literature,
- Inter librarian borrowing service: borrowing of literature from other libraries users, arrangement of request for borrowing from other libraries, acquiring of article copies from scientific journals,
- Consultation activity – professional help of users at searching for information,
- Provision of study rooms,
- Registration of publication activities and citations of the FPHARM CU staff, building a database of publishing activities in EviPub UK with maximum completeness, support of publishing using evaluation systems (use of quantitative and qualitative indicators such as journal indexation in scientometric and other international databases, monitoring of impact factor, quartile and journal validity, calculation of Hirsch index of the staff, notification of so-called predatory practices, etc.).
- Research service – overview of the literature on required themes (selective until the level of full texts), overviews of publication activities, citation recherche,
- Online access to electronic information sources – bibliographic, citation and full-text databases, e-print of journals,
- Information education of users – lectures and courses for the student focused on searching for information, creation of citations in writing school theses, work with electronic information sources, lectures within the University of the Third Age,
- ensuring the operation of the textbook store,
- Solving of own projects oriented to grant schemes especially of the Art Support Fund or of the Ministry of Education, Science and Research of the SR.

Statistical indicators of the Central Library of the Faculty of Pharmacy, Comenius University Bratislava

The status of the librarian collection – 58 304 library units.

The number of registered users as of 31. December 2020 – 867, out of it there is 737 student members.

Approximated number of borrowings carried out in one year before the pandemic COVID-19 – 16 988 in 2019; 15 436 in 2020.

Since in 2018, the library processes bibliographic records on publications of pedagogical and scientific research staff and doctoral students of the full-time and external form of FPHARM CU directly in the database Central Registry of Publishing Activities (hereinafter CRPA) (<http://www.crepc.sk/>). The information value of the database is also increased by the record of citations of publications. Outputs from the CRPA database are one of the bases for the distribution of state subsidies to public universities.

#### Availability of electronic information sources of the Central Library of the Faculty of Pharmacy, Comenius University Bratislava

Central library of FPHARM CU in the frame of NIZPEZ projects (National Information System for Support of Science and Development) provides access to electronic information sources: EBSCOhost, Knovel Library, ProQuest Central, Science Direct, SCOPUS, SpringerLink, Wiley Online Library, Web of Science (Web of Science Core Collection, Current Contents Connect, Essential Science Indicators, Journal Citation Reports, MEDLINE). CL FPHARM CU ensures the acquisition and access to licensed specialized information resources in the field of pharmaceutical sciences: Lexicomp, European Pharmacopoeia online, The Merck Index, the American Chemical Society e-journal collection and selected book titles within platforms: ProQuest Ebook Central Academic Complete.

#### WWW website and propagation of the Central Library of the Faculty of Pharmacy

The library website (<https://www.fpharm.uniba.sk/en/divisions/central-library/>) is available in Slovak and English languages. It is regularly updated and allows for optimal services via Internet.

The Faculty of Pharmacy information systems form an inseparable part of information systems of the CU Bratislava. The systems aim to collect data, process, assess, store, and publish relevant information for the PhD. study programme needs. The unified authentication system has a unique role in the information systems of the faculty and university, which provides and significantly facilitates the access to critical information sources of the faculty and university from the academic environment, but also from home or from abroad in case of participation at international conferences or study stays. The Academic Information System (AIS2) is another central university system for the complete administration of the study agenda.

#### The hardware equipment of Faculty of Pharmacy, Comenius University Bratislava and connection to the Internet

Each teacher of the faculty has at disposal his/her personal computer with unlimited access to the Internet sources of information, which is available also for students. The domain environment of the faculty allows for each PhD. student to use any computer at the departments of the faculty. Access is possible after authentication with the unique domain user name (login). This feature of the IT environment of the faculty offers to teachers and PhD. students the possibility of constant availability of a functional computer also during a possible malfunction of their own computer.

The faculty has more than 550 computers, notebooks, and tablets connected to its pedagogical, scientific and research processes. They are placed in the departments of the FP. Out of the number of computers, 150 computers are available directly for students and doctoral students in the computer rooms and study rooms of the Central Library of the Faculty of Pharmacy. All desktop computers and mobile equipment can provide unlimited connection to the Internet with structured cabling of the LAN net or WiFi net of the faculty. The skeleton of the net is based on an optical cable net, allowing for the fitting of new technologies that acquire high-speed connection to Internet.

The high-speed Internet provided by the academic net SANET provides teachers and students with the possibility of access to various online information sources. The faculty's premises are covered with WiFi signal of the international net EDUROAM (EDUcation ROaming), which the university maintains. The net EDUROAM is supported by many other significant European and world universities and provides a possibility of trouble-free and instant connection to the Internet at the visit of such a university.

WiFi covers faculty premises and provides for students and PhD. students free connection to the Internet and access to the Internet information sources via their own IT equipment such as notebooks, tablets, and smartphones. At present, the faculty's WiFi covering provides 13 connection points placed in auditories, in the library, in the departments and free premises of the FP with high movement of students.

The faculty is equipped with eight computer rooms. There are 12 computers and a video projector in the computer room at the Department of Chemical Theory of Drugs. All PCs are equipped with the operating system Windows 8.1 in the Slovak language and able to switch to English language. There are 11 computers with the Windows 10 operating system in the computer room of the Department of Pharmaceutical Chemistry located in the TAC. There are 23 Lenovo V13015IKB laptops in two computer rooms at the Department of Pharmacology and Toxicology.

The Department of Organisation and Management of Pharmacy (DOMP) has three computer classrooms:

The first classroom of DOMP is equipped with 21 HP ProBook notebooks with an AMD Ryzen 5 microprocessors and Windows 10 Pro Education operating system installed, with an access to the Internet and the internal faculty computer network. They include MS Office 365 office application software and the latest version of Adobe Acrobat Reader. They allow to set up the Windows environment, as well as the mentioned applications in Slovak and English language for teaching foreign students in the English program. A BENQ data projector is connected to the teacher's computer, which projects the image onto a projection screen and a Canon LaserBase MF 5730 scanner printer. There is also an HP ProLiant ML 110 G6 file server located in this room, providing 400 GB of file storage for this classroom, as well as other computer classrooms and all computers within the department.

The second classroom of DOMP contains 20 ASUS 1stCOOL STEP Series desktop PCs with Intel Pentium Gold G6400 4GHz microprocessor and Windows 10 Home operating system, with access to Internet and internal faculty computer network. They contain the office application software MS Office 2016 and the latest version of Adobe Acrobat Reader. All computers in the DOMP can be set up the Windows environment, as well as the mentioned applications in Slovak and English language for teaching foreign students in the English program. A SONY data projector is connected to the teacher's computer, which projects the image onto a projection screen.

The third classroom of DOMP contains 21 pieces of desktop personal computers. Of which 19 pieces with Intel Pentium D 3.40GHz microprocessors, respectively Intel Pentium 4 3.20GHz and with Windows 7 Enterprise operating system installed. Two pieces with Intel Pentium G4400 3.30GHz microprocessors have Windows 10 Home operating system installed. All of them include MS Office 2007 application software and the latest version of Adobe Acrobat Reader. An Acer data projector is connected to the teacher's computer, which projects the image onto a projection screen. All computers in this classroom have the WinLSS pharmacy management system installed, so each of them works in virtual mode as a separate point of sale. Seven computers also have modern Dell S2240T touch screens with a diagonal of 21.5", thanks to which they perfectly simulate a work in real pharmacy conditions. A cash register with a cash register printer is installed for one of these computers.

Besides the stated, the faculty has at disposal five large auditoriums, fully equipped with the audio-visual technique consisting of a notebook, video projector, projection screen and PA equipment system. This equipment allows for presenting the materials containing the elements of the multimedia character.

In addition to the computer rooms and auditoriums, the education also runs at computers in libraries and practical rooms of departments of FP. The presentation technique is fixed in the majority of them and consists of a computer or a notebook, a video projector, and the presentation screen. In the rooms that do not have a fixed installed presentation technique, there is the possibility to use a mobile presentation technique at disposal in six sets at request.

Part of the computer equipment is connected to various special diagnostic and assessment equipment, microscope, and simulators. There is installed control software delivered with the device.

Possibilities of the hardware and software equipment of the faculty and its utilisation in education process of subjects of the study programme:

- the faculty operates own website as part of the CU university website, which allows publishing of relevant information concerning the study programmes on the address [www.fpharm.uniba.sk](http://www.fpharm.uniba.sk) in the Slovak and English versions,
- possibility to use the university Moodle environment ([moodle.uniba.sk](http://moodle.uniba.sk)) for E-learning is an innovative form of education and offers possibilities of utilising multimedia educational elements, and new information-communication means to upgrade the educational process attractiveness,
- computers and notebooks of the faculty are equipped with MS Windows 7 and 10,
- possibility to use the programmes of the package MS Office 2016 Professional (Word, Excel, PowerPoint, Outlook, Publisher, Access, InfoPath) according to requirements – for preparation of educational materials and in the process of education, for the administration of the study and study results,
- possibility to utilise licensed software,
- possibility to utilise freely available software.

The whole faculty computer network managed by the Department of the Integrated Information and Communication System of FP of CU, which administers the faculty server equipment, provides the basic computer network and other networking services. These essential services provided for the user include unlimited connectivity into the Internet secured by the firewall's administration, e-mail service with the address [@fpharm.uniba.sk](mailto:@fpharm.uniba.sk), presentation of the faculty in the form of the website and data warehouse with guaranteed backup and renewability in case of a breakdowns. Teachers and PhD. students can utilise free access to external paid online information sources, paid full-text journal articles and other library databases run by the Academic Library of CU from the faculty environment. The teachers and PhD. students have this service also available from the home environments via remote access thanks to the academic affiliation of CU. This service is part of the information system the university provides centrally and maintains for all its employees and students.

c) *Characteristics and extent of distance education applied in the study programme with the assignment to courses. Procedures for the transition from contact teaching to distance learning. Access, manuals of e-learning portals. Procedures at the transition from the in-person to distant education:*

Distant education is provided with the help of the MS Teams platform, to which all students and employees of CU Bratislava have free access, which allows presentation lectures, seminars, and selected exercises. All study materials are available for students also in the electronic form. MS Forms is used for testing. Alternatively, Moodle is used for remote teaching.

Thanks to the package MS Office 365, which is used by the whole university, sharing of large files is allowed, online teaching and testing can be done in a reliable regimen with fluent transfer of significant data volumes simultaneously. MS Teams and Forms make part of this package, which can be used in online teaching and online testing. In case of the necessity of faculty transition from in-person study to remote education, the Dean's board of the Faculty of Pharmacy Comenius University Bratislava informs all students via e-mail. In case of short-term transitions, the teacher responsible for the particular subject informs the students in advance.

The standard part of the educational process is the provision of study materials to students. Several approaches are used for this purpose. The basic information on the subject content is published in the subject information sheet which contains the list of relevant literature needed to master the subject. The faculty tries to provide the required study literature via the Academic Library of the CU. Another way is to publish the presentations on particular subjects and other study materials of individual departments on the faculty website in accordance with the copyright act. The newest more sophisticated approach is the publishing of the study materials via the system Moodle and other means of e-learning, which allow the students based on the personal access to university network to use the study material as presentations, videos, tests, and provide direct communication with the teachers and consultations on the subject.

The realisation of the scientific/practical part of the study programme Pharmacology in the doctoral studies exclusively via the remote teaching would be at most an exception. In practice, the most used education approach is the combined method, where part of in-person theoretical education is replaced with the remote method with an electronic support.

d) *Institution partners in providing educational activities for the study programme and the characteristics of their participation.*

The Faculty of Pharmacy Comenius University Bratislava, based on the signed contracts on practical teaching, cooperates with almost 500 public teaching pharmacies and hospital pharmacies. The pharmacies are located in all regions of Slovakia.

The education within doctoral studied at the Faculty of Pharmacy, Comenius University Bratislava is done in cooperation with several faculties of Comenius University Bratislava – the Faculty of Natural Sciences, Faculty of Medicine, Jessenius Faculty of Medicine, and partner institutions of the Slovak Academy of Sciences: Centre of Experimental Medicine (doc. Pecháňová ), Biomedical Research Centre (prof. Ježová ). The faculty also cooperates with the National Institute for Cardiovascular Diseases and university hospitals (eg Bratislava, Trnava, Nitra). Cooperation in providing doctoral studies is not limited to universities and research institutes located in Bratislava, in the seat of the Faculty of Pharmacy. Provision of education, especially the scientific part, also takes place in cooperation with workplaces outside of Bratislava: Department of Pharmacology, Faculty of Medicine, University of Pavol Jozef Šafárik in Košice (Prof. J. Mojžiš, Prof. Mirrossay).

The Faculty of Pharmacy, Comenius University Bratislava cooperates with many international universities and scientific-research institutions where our student can acquire knowledge and perform part of their research in specialised laboratories equipped with complementary modern equipment. The teaching in the doctoral programme Pharmacology, the FP of CU cooperates with the following international workplaces: Dept. of Physiology, Faculty of Medicine, University of Manitoba, Winnipeg, Canada (Prof. NS Dhalla), Faculty of Medicine and Dentistry, Bristol Heart Institute, United Kingdom (Prof. S.M. Suleiman), University of Nebraska Medical Center, Nebraska, USA (Prof. P.K. Mishra), Institute of Physiology, Czech Academy of Sciences, Prague, Czech Republic (Prof. Kolář, Dr. Neckář, Dr. Hlaváčková), Semmelweis University, Budapest, Hungary (Prof. Ferdinandy, Dr. Z.V. Varga), Institut für Pharmakologie und Toxikologie, Universitätsklinikum Münster, Germany (Prof. F.U. Müller, Priv.Do. U. Kirchhefer, Priv.Do. P. Boknik), Institute für Pharmakologie und Toxikologie, Martin-Luther Universität Halle-Wittenberg, Halle, Germany (Prof. J. Neumann, Priv.Do. U. Gergs).

e) *Characteristics of the possibilities for social, sports, cultural, spiritual and social activities.*

The premises of the Faculty of Pharmacy, Comenius University Bratislava (buildings in Odbojárov street and Kalinčiaková street), provide suitable environment for the work and relax in sitting areas in the corridors, buffet, Central Library where the students can meet in their free time, discuss or study. The faculty provides a connection to Internet for every student/staff member after entering personal identification data. In outdoor premises on the Kalinčiaková street, there is a **newly created park with banks**, where the students may relax. The Faculty of Pharmacy of Comenius University Bratislava runs a fitness centre in the building on Odbojárov Street, which can be used by students and faculty staff. Doctoral students also have at their disposal the Botanical Garden of Comenius University and the Garden of Medicinal Plants of the Faculty of Pharmacy of Comenius University. Especially in the summer months, they can prepare for the examinations or attend the events organised there.

The **Slovak Pharmacy Students' Association** organizes and co-organizes several cultural, social and sports activities dedicated mainly to students of the Faculty of Pharmacy, Comenius University. These are activities such as: "Beáňa farmaceutov", Pharmacists' team building, Pharmacists' tablet, or futsal tournaments (<https://sssf.sk/projekty/kultura>).

The **Department of Physical Education and Sports (DPES)** workplace exists at the Faculty of Pharmacy, CU Bratislava. The department's primary mission is teaching of obligatory course on physical education for the faculty students. The department regularly organizes sports events (16 types of physical activities) and educational workshops focused on the implementation of a healthy lifestyle in the daily routine of students and faculty staff. Every year, it carries out winter and summer sports camps, which make part of the block form of teaching the subject Physical Education. It operates a large sports hall on Odbojárov Street, a small sports hall and a gym, which consists of four zones on Kalinčiaková Street, as well as a rowing club in Karlova Ves, which provides opportunities for physical activities and relaxation. The DPES provides the following sports activities for students of the master and doctoral studies, as well for the staff: tourism, ski trips, rowing on the Small Danube and March rivers. Within the university league, the faculty is involved in the women's and men's volleyball, men's floorball and men's futsal tournaments. The FP of CU also covers the physical education unit **TJ Slávia Farmaceut**, which has its own tourist club in addition to the orienteering club. It has a total of about 60 adult and 40 children members. During its existence, the club has educated several students, junior, academic and senior representatives who have successfully represented Slovakia at world and European championships, world cups, youth meetings and many other international events.

Within Comenius University, there is a concert ensemble and choir. The university and the faculty provide for workers and doctoral students the possibility to buy ticket for various cultural events at a reduced price.

**University Pastoral centre** of Jozef Freinademetz of Comenius University ([www.upc.uniba.sk](http://www.upc.uniba.sk)) provides possibilities for spiritual activities during the study.

f) *Possibilities and conditions for the study programme students' participation in mobilities and internships (indicating contact details), application instructions, and rules to recognise this education.*

The students can participate in the international **mobility programmes of the European Union** as CEEPUS and ERASMUS+, where the application and rules of this education follow the rules of relevant study programmes. The list of participating institutions is regularly updated. The instructions are published on the website of the Faculty of Pharmacy and university (Erasmus+ program) and the Slovak Academic Information Agency - SAIA - the headquarters of the CEEPUS National Office as part of a network of National Agencies located in each Member State of the Program. Within research on their projects, or possibly on the projects of their supervisors, students are sent to partner universities and research institutions in Europe and worldwide. For example, through the National Scholarship Program of the Slovak Republic, which is administratively covered by SAIA, as well as via other bilateral international mobility projects of the Ministry of Education, Science, Research and Sport of the Slovak Republic (e.g. the Austria-Slovakia Action, the Visegrad Fund and others).

Comenius University can send students abroad to study or for an internship in partner institutions (Utrecht Network, SYLFF, some bilateral agreements) to 63 international universities in almost 40 countries in Europe and worldwide.

New possibilities of mobilities in the extended programme Erasmus+ are offered by the university alliance ENLIGHT, in which the Comenius University Bratislava established cooperation in the year 2020 in the field of education with eight European universities: University in Bordeaux, University in Gent, University in Groningen, University in Göttingen, University in Uppsala, University in Tart, the Irish National University in Galway, and Basque University. The universities offered to the students various educational formats from short-time physical and virtual mobilities in the form of summer schools or so-called live laboratories, up to common study programmes, following the accredited SP in the particular countries and the recognition of mutually completed subjects.

The binding contractual partnerships allow the participation of interested parties and their representatives in the proposal, approval, performance and assessment of the study programmes. The agreements specify the conditions of the partner employees' participation in providing the study programme and conditions for the provision of space, material and information resources and ensuring quality of the study obtained at the partner institution, including preparation of final thesis.

However, during the present COVID-19 pandemic, prudence is needed when planning international mobility, especially considering the benefits versus risks, especially regarding the receiving country's epidemiological situation.

The coordinators of Erasmus+ acting at the faculty help the applicants to set up a precise study plan at the foreign university, which creates a precondition for the CU recognition of the study completed abroad. Detailed information on students' participation in the international mobilities for particular academic years is presented in the annual report of the faculty. Thanks to the **Office of Science and Research and Foreign Relations** and **Office for International Relations and Mobilities**, each employee or student obtains sufficient information on the possibilities of international mobility and has administrative support for mobility. The department of foreign relationships of FPHARM CU aims to improve the supply of information for students and staff and help to plan their studies and research abroad. The contact to the mentioned offices:

**Office for International Relations and Mobilities**

doc. Ing. Vladimír Frecer, DrSc. – Faculty Coordinator for Erasmus+ / [frecer@fpharm.uniba.sk](mailto:frecer@fpharm.uniba.sk) / +421 2 50 117 281

Mgr. Kristína Piatničková, PhD. – Faculty Administrator for Erasmus+ / [erasmus@fpharm.uniba.sk](mailto:erasmus@fpharm.uniba.sk) / +421 2 50 117 132

**Office of Science and Research and Foreign Relations**

Mgr. Adriana Lendvayová - [ov@fpharm.uniba.sk](mailto:ov@fpharm.uniba.sk) / [lendvayova@fpharm.uniba.sk](mailto:lendvayova@fpharm.uniba.sk) / +421 2 50 117 107

## 9. Required abilities and admission requirements for the study programme applicants

### a) Required abilities and necessary admission requirements.

Required abilities necessary for the admission of students to FPHARM CU follow the regularly updated conditions for doctoral study and are published on the website of the faculty. Annually, the admission conditions are discussed at the Scientific Board of the FPHARM CU and are approved by the Academic Senate of the Faculty of Pharmacy CU Bratislava. The conditions are published at least two months before the deadline for submitting the application forms. The published announcement contains basic conditions for applying and admission to the study programme, deadline for the application forms, terms and conditions of the entrance examination. Details are given on the website: <https://www.fpharm.uniba.sk/en/education/phd-study/>

The main subject of the entrance examination: Pharmacology

In addition to questions from the main subject of the study program the entrance examination shall also include:

- questions selected from two other subjects of the study programme, determined by the admission committee appointed by the Dean of the FP – the focus of the questions will be related to the topic of the dissertation selected by the applicant,
- English language skills.

Other subjects of the entrance examination cover: Physiology, Molecular Biology, Pathological Physiology, Biochemistry, Toxicology, Immunology, Clinical Pharmacology and Pharmacotherapy, Pharmaceutical Technology.

The condition for admission is a completed Master program of university studies (pharmacy or medicine or scientific biological study programs) and successful passing of the admission examination.

### b) Admission procedures

The study's admission procedures comply with the Admission Rules at the Comenius University Bratislava (the Internal Regulation No. 4/2021, approved according to Art. 27 Sect. 1(a) of Act No. 131/2002 Coll. on Higher Education and on changes and amendments of certain acts by the Scientific Board of the Comenius University). The Admission Rules of CU are freely available on the website [https://uniba.sk/fileadmin/ruk/legislativa/2021/Vp\\_2021\\_Q4.pdf](https://uniba.sk/fileadmin/ruk/legislativa/2021/Vp_2021_Q4.pdf).

At the Dean's suggestion, the Academic Senate of FPHARM CU Bratislava each year discusses and approves the document with the title: Admission procedure and conditions for admission for the PhD. study at the Faculty of Pharmacy CU Bratislava. It is a publicly available at least two months before the deadline for the study application on the website of the faculty: <https://www.fpharm.uniba.sk/en/education/phd-study/>. The cited document contains terms and conditions for submitting an application form, defines obligatory attachments to the application form, gives dates of entrance examinations, conditions for admitting and the mode of the admission procedure. The attachments usually include:

- Curriculum Vitae,
- certified copies of education certificate(s) (diplomas) and a citizenship certificate,
- a complete list of applicant's scientific publications or list of results of other professional activities, or reviews of these works and activities,
- a personal questionnaire (form available on request),
- academic letters of recommendation,
- other relevant certificate(s), if applicable, e.g., a marriage certificate to document a change of surname after graduation from university,
- applicants for study in the part-time form: a confirmation of an employer on the employment or service relationship at the time of study application,
- a copy of proof of payment of the application fee (e.g., money order, bank transfer record).

### c) Results of the admission process over the last period.

An overview of recent admission procedures:

Year	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22
Applicants	0	0	0	0	0	0	0	0	0	0
Female	0	0	0	0	0	0	0	0	0	0
Accepted	0	0	0	0	0	0	0	0	0	0
Female	0	0	0	0	0	0	0	0	0	0

The university archives the documentation of the admission procedure, enrolment for the study and enrolment into another part of the study, a record of study results, copies of documents on completion of the study, and other documentation for at least 25 years from the day of study completion.

## 10. Feedback on the quality of provided education

### a) Procedures for monitoring and evaluating students' opinions on the study programme quality.

Students can present their feedback in a student survey, which is available after the end of each semester. The survey provides an opportunity to constructively evaluate various aspects of the faculty and the quality of education provided. This data will serve both future students, who will be able to get an idea of individual subjects based on comments and evaluations, but also the lecturers and instructors themselves have the opportunity to find out what students think about the subjects. Last but not least, the survey is an incentive for the management of individual departments to improve the level of teaching or to adjust study programs. The Faculty has the organizational support, course and evaluation of the survey processed in the internal Directive of the Dean of FP UK (<https://www.fpharm.uniba.sk/o-fakulte/legislativa-a-dokumenty/vnutorne-predpisy-faf-uk/>). This ensures that feedback from students is actually used in the design and future maintenance of the quality of the study program. Among other things, the faculty management discusses the results of the surveys, and teachers are advised to respond directly to the evaluation and write comments on the evaluation, which deepens the feedback. In cooperation with the student chamber of the Academic Senate, the popularization of the survey among students is ensured so that the participation is as high as possible.

### b) Results of student feedback and related measures to improve the study programme quality:

The evaluation of the results of the FaF UK student survey is governed by the Internal Directive of the Dean of FaF UK (<https://www.fpharm.uniba.sk/o-fakulte/legislativa-a-dokumenty/vnutorne-predpisy-faf-uk/>). It defines, among other things, that

the dean, in cooperation with the Management of FaF UK, will prepare a written opinion on the results of the survey, on the comments of students and on the comments of evaluated employees, guarantors of study programs and heads of workplaces. The written opinion is published on the faculty's website in the form of a text document.

c) *Results of absolvent feedback and related measures to improve the study programme quality:*

The opinions and employment of faculty graduates are monitored mainly through communication between teachers (tutors) and their former students. Feedback from the employers of individual faculty graduates is provided mainly by communication between the guarantors of study programs and employers. This communication is natural, as many employers are also partners in the implementation of study programs.

**11. References to other relevant internal regulations and information concerning the study or the study programme student (e.g., study guide, accommodation regulations, fee directive, guidelines for student loans, etc.).**

**Students Accommodation**

<https://uniba.sk/sluzby/ubytovanie/>

<https://ubytovanie.uniba.sk/> - electronic accommodation system

**Guide for the accommodation process for students of Comenius University Bratislava**

[https://uniba.sk/fileadmin/ruk/as/2020/Ubytovanie/Sprievodca/Sprievodca\\_ubytovacim\\_procesom.pdf](https://uniba.sk/fileadmin/ruk/as/2020/Ubytovanie/Sprievodca/Sprievodca_ubytovacim_procesom.pdf)

**Slovak Pharmaceutical Students' Association**

<https://sssf.sk/>

**Accommodation Rules**

University town of Ľ. Štúr - Mlyny CU - <https://mlyny.uniba.sk/ubytovanie/internatny-poriadok/>

University Hostel Družba CU - [https://druzba.uniba.sk/fileadmin/mlyny/2022/Dokumenty/Internatny\\_poriadok\\_SD\\_Druzba\\_2022.pdf](https://druzba.uniba.sk/fileadmin/mlyny/2022/Dokumenty/Internatny_poriadok_SD_Druzba_2022.pdf)

**Current information on PhD. study**

<https://www.fpharm.uniba.sk/en/education/phd-study/>

**Guidelines for Students Loans**

[https://uniba.sk/detail-aktuality/browse/22/back\\_to\\_page/aktuality-1/article/pozicka-pre-pedagogov-a-studentov/](https://uniba.sk/detail-aktuality/browse/22/back_to_page/aktuality-1/article/pozicka-pre-pedagogov-a-studentov/)

**Psychological counselling for students**

<https://uniba.sk/sluzby/psychologicka-poradna/>

**Students Scientific Conference of the Faculty of Pharmacy CU**

<https://www.fpharm.uniba.sk/veda-a-vyskum/svc/svk/>

**Academic Information System AIS>guides and manuals for students**

<https://uniba.sk/o-univerzite/fakulty-a-dalsie-sucasti/cit/citps/ais/prirucky-a-navody/>

**University email and Office**

<https://uniba.sk/office365/>

**Comenius University Journal 'Naša univerzita'**

<https://uniba.sk/nu/>