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:*
Pharmaceutical chemistry, code 106093

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.
During the PhD. study, the student acquires knowledge in the field of Pharmaceutical Chemistry in this study program. The main goal is focused on the design, synthesis, analysis, and evaluation of biologically active compounds. In the study, the students learn to form a scientific problem independently, to form a scientific hypothesis, prepare and realise a scientific experiment. These activities' main aim are theoretical and practical mastering methods for chemical studies of biologically active compounds. The students' abilities after completion of the study will result from frame topics which are: design of novel biologically active compounds, total synthesis of biological active compounds, chemical modification of natural compounds with goal to increased their biological activities, structure determination of prepared compounds, analytical evaluation of reaction mixtures as well as isolated products, drugs and biologically

active compounds, study of physicochemical properties of prepared compounds, study of interactions between biologically active compounds and lipids, proteins and DNA extracted from biological sources, evaluation of biological activities of biologically active compounds at different levels (in silico, in vitro, in vivo), evaluation of the toxicological effect of drugs and biologically active compounds on model organisms in relation to their impact on the human body and the environment. To achieve necessary research results during the study, it is required that students not only acquire theoretical knowledge, but also gain skills in the field of modern synthetic methods, preparative and analytical instrumental methods, used in pharmaceutical chemistry.

Graduates from the PhD. study programme Pharmaceutical Chemistry, doctoral university study, will master scientific work principles and methodology. They will be able to perform professional and scientific activities in pharmacy, chemistry, and pharmaceutical research. The academic knowledge and practical skills they acquired during the study will allow them to work as researchers in related medical, pharmaceutical, and natural science branches, such as e. g., inorganic chemistry, organic chemistry, analytical chemistry, biochemistry, physical chemistry, nuclear chemistry, and medical chemistry. Knowledge and skills will also be used in solving multidisciplinary problems with connection to pharmaceutical technology, pharmacology, etc. The graduates can work independently in science and bring their solutions to the branches mentioned above.

The requirement for completion of the study programme is the knowledge and further development of methods of research and development of new synthetic drugs including design, synthesis, analysis, and evaluation of bioactive compounds. A successful graduate of the doctoral studies must prove that he has not only required theoretical knowledge in the field, but also practical research skills in the field of pharmaceutical chemistry and is able to work independently. At the same time, he must be able to present results of his own research to the professional community at conferences and scientific events and publish articles in 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 in pharmaceutical chemistry. Graduates from the study programme find employment at all universities where pharmaceutical chemistry, bioinorganic chemistry, bioorganic chemistry, biophysics, chemical and instrumental analysis of biologically active compounds 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 (State institute for drug control, 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.

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.*

Graduates from the PhD. studies may find employment in the framework of higher education as university teachers or scientific research workers at universities focused on pharmacy, medicine, healthcare science, and chemistry, and in the institutes of Slovak Academy of Sciences. At present, the graduates are required mainly at workplaces in healthcare, such as the State Institute for the Drug Control, which provides supervision over the quality, effectiveness, safety of drugs and medical devices. Graduates of the study program are also employed in pharmaceutical companies that are engaged in the synthesis and analysis of drugs and medicines, control laboratories (clinical analysis, quality control of drugs and medicines), as well as in companies that perform custom synthesis of drugs and biologically active compounds.

Graduates from the study programme Pharmaceutical Chemistry at the Faculty of Pharmacy Comenius University Bratislava will master scientific work principles and methodology. They will perform professional and scientific activities in pharmaceutical chemistry, pharmacy, and pharmaceutical research. The academic knowledge and practical skills they acquired during the study will allow them to work as scientific workers in related medical, pharmaceutical, and chemical branches as, e.g., analytical chemistry, inorganic chemistry, nuclear chemistry, organic chemistry, biochemistry, physical chemistry, medical chemistry, pharmacology, toxicology, pharmacognosy, and pharmaceutical technology. The graduates will have the ability to work independently in science, provide their solutions, and contribute to developing the scientific knowledge in the stated branches. They will be qualified enough for successful employment as the team leaders in the broader spectrum of scientific and research institutions focused on pharmaceutical, medical, or chemical sciences. They will be professionally prepared to work creatively in scientific institutes of the Slovak Academy of Science at various research positions.

b) *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

c) *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 Pharmaceutical Chemistry. 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 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 chemistry graduated from universities with scientific or technological 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 similar 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 8th 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 acreditation of the study programme Pharmaceutical Chemistry:

The study branch Pharmaceutical Chemistry, 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 pharmaceutical chemistry 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 design, synthesis and analysis of biologically active compounds, as well as the evaluation of the quality of drugs and their properties.

Pharmaceutical Chemistry is an essential subject of pharmaceutical study. It is a modern and permanently developing interdisciplinary branch, which studies the methods of obtaining, preparing, and evaluating drugs. It studies the physicochemical and chemical properties of biologically active compounds and examines the relationship between their chemical structure and action on the organism, it also deals with the development of analytical methods for quality control of drugs and changes in properties occurring during their storage, but also by studying the biodegradation of drugs and their action in the biological system. Pharmaceutical chemistry is a multidisciplinary discipline that requires knowledge and skills from many areas of scientific research. It applies knowledge from drug design, which uses molecular modelling and computational chemistry. Preparation of biologically active compounds requires the knowledge and experience in the synthesis of inorganic and organic compounds and bioinorganic (complex) substances and supramolecular structures. In pharmaceutical chemistry, it is important not only to prepare compounds, but to learn their properties, whether physical or chemical. The study of the biological activities of compounds at the subcellular, cellular or organ level is also related to the field of pharmaceutical chemistry. At the same time, the fate of the compounds in the human body as well as their metabolism is important from the point of view of introduction and use of potential drugs in the human and veterinary medicine. The methods of pharmaceutical analysis and bioanalysis are used for this purpose, which apply the latest knowledge from instrumental analytical chemistry. Last but not least, the study of the relationship between the structure and biological activities of the synthesized compounds is also an important subject of interest in pharmaceutical chemistry. Pharmaceutical chemistry as a multidisciplinary field of science also deals with the structure and structure-selectivity relationship of supramolecular systems, nanosystems, etc. as drug carriers, thus linking pharmaceutical chemistry with pharmaceutical technology. Pharmaceutical chemistry is a rapidly evolving field of chemistry today, and its future lies in the discovery of new and modern drugs. From this perspective, our economy will be able to absorb numerous graduates from the study program Pharmaceutical Chemistry. This study branch integrates graduates from the common platform of pharmaceutical, medical, natural science faculties, and technically orientated faculties. The development of this branch 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, development and analysis of medications.

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 Pharmaceutic chemistry.

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[a]	provided by teachers referred to in point 7 and prominent researchers in the case of invited / habilitation / inauguration	1	10

	lectures		
English Language and Foreign Language Exam[b]	Dr. Kližanová, Dr. Žufková	1	10
Completing Prescribed Doctoral Lectures and Seminars 2[a]	provided by teachers referred to in point 7 and prominent researchers in the case of invited / habilitation / inauguration lectures	2	10

[a]**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*.**
[b]**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
- Completing Selected Doctoral lecture and seminars
- Passing the Dissertation exam

Compulsory subject

Subject title	Teachers
Pharmaceutical Chemistry	prof. Mikuš, prof. Frecer, assoc. prof. Malík, assoc. prof. Andriamainty, prof. Čižmárik, assoc. prof. Sýkorová, Dr. Garaj

Compulsory elective subjects

Subject title	Teacher
Analytical Chemistry	prof. Mikuš, prof. Havránek, Dr. Maráková, Dr. Piešťanský,
Analytical Monitoring of Drug Level in Practice	prof. Mikuš, Dr. Piešťanský
Inorganic Chemistry	assoc. prof. Pisárčik, Ing. Habala
Biochemistry	assoc. prof. Obložinský, assoc. prof. Bilková, Dr. Bilka, assoc. prof. Hrčka Dubničková, Dr. Pašková
Pharmacology	prof. Duriš Adameová, prof. Klimas, assoc. prof. Paul Hrabovská, Dr. Dóka, Dr. Vavrinec, Dr. Vavrincová, assoc prof. Křenek, assoc. prof. Máťuš
Physical Chemistry	prof. Frecer, prof. Uhríková, assoc. prof. Gallová, Dr. Búcsi, Dr. Kučerka, Dr. Klacsová
Organic Chemistry	prof. Devínsky, assoc. prof. Lukáč, assoc. prof. Valentová
Pharmaceutical Technology	Dr. Mikušová, Dr. Piešťanský, assoc. prof. Šupolíková

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 of credits
Elaboration of a Manuscript of a Scientific Publication in a Foreign Language as the First Author[c]	provided by the dissertation supervisor / guarantor	6	10
Active Participation in the Scientific Events 1[d]	provided by the dissertation supervisor / guarantor	1-8	4
Active Participation in the Scientific Events 2[e]	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

[c]**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*.**

[d]**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*.**

[e]**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*[f]	provided by the dissertation supervisor / guarantor	1-8	40
The Original Publication in Current Contents Journal*[f]	provided by the dissertation supervisor / guarantor	1-8	35
The Original Publication in non-Current Contents Journal with IF (Impact Factor) - First Author*[f]	provided by the dissertation supervisor / guarantor	1-8	30
The Original Publication in non-Current Contents Journal with IF (Impact Factor)*[f]	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**

[f]**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
Supervison 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).

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
- 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

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

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

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

- 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-ossp/centrum-podpory-studentov-so-specifickymi-potrebami-cps/

  The present coordinator for students with specific needs at the Faculty of Pharmacy of CU Bratislava is:
  doc. PharmDr. Szilvia Czigle, PhD. from the Department Farmacognosy and Botany FPHARM CU
  tel. number: +421 2 501 17 209, e-mail: 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

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. RNDr. Peter Mikuš, PhD., a university teacher – professor, in the function of professor. Contact: Department of Pharmaceutical Analysis and Nuclear Pharmacy, Faculty of Pharmacy, Comenius University Bratislava, Odbojarov 10, 832 32 Bratislava, Slovakia, tel.: +421 2 501 17 243 , e-mail: mikus@fpharm.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. RNDr. Peter Mikuš, PhD. The Department of Pharmaceutical Analysis and Nuclear Pharmacy of the Faculty of Pharmacy, Comenius University Bratislava, mikus@fpharm.uniba.sk; +421 2 501 17 243	www.portalvs.sk/regzam/detail/3749	1 Pharmaceutical Chemistry 2 Analytical Chemistry
prof. Ing. Vladimír Frecer, DrSc. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy, Comenius University Bratislava, frecer@fpharm.uniba.sk; +421 2 501 17 281	www.portalvs.sk/regzam/detail/5749	1 Pharmaceutical Chemistry 2 Physical Chemistry
doc. PharmDr. Ivan Malík, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy, Comenius University Bratislava, malik2@uniba.sk; +421 2 501 17 227	www.portalvs.sk/regzam/detail/3745	1 Pharmaceutical Chemistry

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:*

The teacher of the obligatory and compulsory elective subject/ Contact (workplace, email, telephone number)	**Reference to the Register of the University Employees**	**Course ID:**
prof. RNDr. Peter Mikuš, PhD. The Department of Pharmaceutical Analysis and Nuclear Pharmacy of the Faculty of Pharmacy Comenius University Bratislava, mikus@fpharm.uniba.sk; +421 2 501 17 243	www.portalvs.sk/regzam/detail/3749	Analytical Chemistry Analytical Monitoring of Drug Level in Practice Pharmaceutical Chemistry Introduction to Scientific Research Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. Mgr. Fils. Andriamainty, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy Comenius University Bratislava, andriamainty@fpharm.uniba.sk; +421 2 501 17 229	www.portalvs.sk/regzam/detail/3687	Pharmaceutical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
RNDr. František Bilka, PhD. The Department of Cellular and Molecular Biology of Drugs of the Faculty of Pharmacy Comenius University Bratislava bilka@fpharm.uniba.sk; +421 2 501 17 316	www.portalvs.sk/regzam/detail/3693	Biochemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. Mgr. Andrea Bilková, PhD. The Department of Cellular and Molecular Biology of Drugs of the Faculty of Pharmacy Comenius University Bratislava bilková@fpharm.uniba.sk; +421 2 501 17 316	www.portalvs.sk/regzam/detail/3694	Biochemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
RNDr. Alexander Búcsi, PhD. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius University Bratislava, bucsi@fpharm.uniba.sk; +421 2 501 17 283	www.portalvs.sk/regzam/detail/15986	Physical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
Dr.h.c. prof. RNDr. Jozef Čižmárik, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy Comenius University Bratislava, čižmárik1@uniba.sk	www.portalvs.sk/regzam/detail/3697	Pharmaceutical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
prof. PharmDr. Adriana Duriš Adameová, PhD. The Department of Pharmacology and Toxicology of the Faculty of Pharmacy Comenius University Bratislava, adriana.duris.adameova@uniba.sk; +421 2 501 17 366	www.portalvs.sk/regzam/detail/3686	Pharmacology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
Dr.h.c. prof. Ing. Ferdinand Devínsky, DrSc. Dean's office of the Faculty of Pharmacy Comenius University Bratislava devinsky@fpharm.uniba.sk	www.portalvs.sk/regzam/detail/3701	Organic Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
Mgr. Gabriel Dóka, PhD. The Department of Pharmacology and	www.portalvs.sk/regzam/detail/23053	Pharmacology Completing Prescribed Doctoral

Toxicology of the Faculty of Pharmacy Comenius University Bratislava, doka@fpharm.uniba.sk; +421 2 501 17 387		Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
prof. Ing. Vladimír Frecer, DrSc. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius University Bratislava, frecer@fpharm.uniba.sk; +421 2 501 17 281	www.portalvs.sk/regzam/detail/5749	Pharmaceutical Chemistry Physical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
Ing. Bc. Jaroslav Galba, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy, Comenius University Bratislava, galba@fpharm.uniba.sk	www.portalvs.sk/regzam/detail/29053	Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. RNDr. Jana Gallová, CSc. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius University Bratislava, gallova@fpharm.uniba.sk; +421 2 501 17 291	www.portalvs.sk/regzam/detail/3709	Physical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
PharmDr. Vladimír Garaj, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy Comenius University Bratislava, garaj1@uniba.sk; +421 2 501 17 223	www.portalvs.sk/regzam/detail/3711	Pharmaceutical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
Ing. Ladislav Habala, PhD. The Department of Chemical Theory of Drugs of the Faculty of Pharmacy Comenius University Bratislava habala@fpharm.uniba.sk +421 2 501 17 325	www.portalvs.sk/regzam/detail/5825	Inorganic Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
prof. RNDr. Emil Havránek, CSc. The Department of Pharmaceutical Analysis and Nuclear Pharmacy of the Faculty of Pharmacy Comenius University Bratislava, havranek@fpharm.uniba.sk; +421 2 501 17 245	www.portalvs.sk/regzam/detail/3714	Analytical chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. PharmDr. Anna Paul Hrabovská, PhD. The Department of Pharmacology and Toxicology of the Faculty of Pharmacy Comenius University Bratislava, anna.paul.hrabovska@uniba.sk; +421 2 501 17 377	www.portalvs.sk/regzam/detail/3719	Pharmacology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. Mgr. Martina Hrčka Dubničková, PhD. The Department of Cellular and Molecular Biology of Drugs of the Faculty of Pharmacy Comenius University Bratislava dubnickova@fpharm.uniba.sk, martina.hrcka.dubnickova@uniba.sk; +421 2 501 17 312	www.portalvs.sk/regzam/detail/3703	Biochemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
Mgr. Mária Klacsová, PhD. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius University Bratislava, klacsova@fpharm.uniba.sk; +421 2 501 17 289	www.portalvs.sk/regzam/detail/3732	Physical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
prof. PharmDr. Ján Klimas, PhD., MPH. The Department of Pharmacology and Toxicology of the Faculty of Pharmacy Comenius University Bratislava, klimas@fpharm.uniba.sk;	www.portalvs.sk/regzam/detail/3726	Pharmacology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2

+421 2 501 17 368		Completing Selected Doctoral Lectures and Seminars
PhDr. Darina Kližanová The Department of Languages, Faculty of Pharmacy, Comenius University Bratislava, klizanova@fpharm.uniba.sk; +421 2 501 17 210	www.portalvs.sk/regzam/detail/3725	English Language and Foreign Language Exam
doc. PharmDr.Peter Křenek, PhD. The Department of Pharmacology and Toxicology of the Faculty of Pharmacy Comenius University Bratislava, krenek@fpharm.uniba.sk +421 2 501 17 392	www.portalvs.sk/regzam/detail/3734	Pharmacology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
Mgr. Norbert Kučerka, DrSc. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius University Bratislava, kucerka@fpharm.uniba.sk	www.portalvs.sk/regzam/detail/3736	Physical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. PharmDr. Miloš Lukáč, PhD. The Department of Chemical Theory of Drugs of the Faculty of Pharmacy Comenius University Bratislava lukac@fpharm.uniba.sk; +421 2 501 17 329	www.portalvs.sk/regzam/detail/3743	Organic Chemistry Introduction to Scientific Research Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
Doc. PharmDr. Ivan Malík, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy Comenius University Bratislava malik2@uniba.sk; +421 2 501 17 227	www.portalvs.sk/regzam/detail/3745	Pharmaceutical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
PharmDr. Katarína Maráková, PhD. The Department of Pharmaceutical Analysis and Nuclear Pharmacy of the Faculty of Pharmacy Comenius University Bratislava, marakova@fpharm.uniba.sk; +421 2 501 17 248	www.portalvs.sk/regzam/detail/5274	Analytical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. PharmDr. Marek Máťuš, PhD. The Department of Pharmacology and Toxicology of the Faculty of Pharmacy Comenius University Bratislava, máťuš@fpharm.uniba.sk +421 2 501 17 374	www.portalvs.sk/regzam/detail/5581	Pharmacology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
PharmDr. Veronika Mikušová, PhD. The Department of Galenic Pharmacy of the Faculty of Pharmacy Comenius University Bratislava mikusova@fpharm.uniba.sk; +421 2 501 17 265	www.portalvs.sk/regzam/detail/3722	Pharmaceutical Technology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
prof. Ing. Milan Nagy, CSc. The Department of pharmacognosy and Botany of the Faculty of Pharmacy Comenius University Bratislava nagy@fpharm.uniba.sk; +421 2 501 17 170 +421 2 501 17 201	www.portalvs.sk/regzam/detail/3755	Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. PharmDr. Marek Obložinský, PhD. The Department of Cellular and Molecular Biology of Drugs of the Faculty of Pharmacy Comenius University Bratislava obložinský@fpharm.uniba.sk; +421 2 501 17 314	www.portalvs.sk/regzam/detail/3756	Biochemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
Ing. Ľudmila Pašková, PhD. The Department of Cellular and Molecular	www.portalvs.sk/regzam/detail/15992	Biochemistry Completing Prescribed Doctoral

Biology of Drugs of the Faculty of Pharmacy Comenius University Bratislava paskova@fpharm.uniba.sk; +421 2 501 17 305		Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
PharmDr. Juraj Piešťanský, PhD. The Department of Pharmaceutical Analysis and Nuclear Pharmacy of the Faculty of Pharmacy Comenius University Bratislava, piestansky@fpharm.uniba.sk; +421 2 501 17 250	www.portalvs.sk/regzam/detail/23111	Analytical chemistry Analytical monitoring of drug level in practice Pharmaceutical Technology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. Ing. Martin Pisárčik, CSC. The Department of Chemical Theory of Drugs of the Faculty of Pharmacy Comenius University Bratislava pisarcik@fpharm.uniba.sk; +421 2 501 17 329	www.portalvs.sk/regzam/detail/3764	Inorganic Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. PharmDr. Miroslava Sýkorová, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy Comenius University Bratislava, sykorova1@uniba.sk; +421 2 501 17 222	www.portalvs.sk/regzam/detail/3779	Pharmaceutical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. RNDr. Miroslava Šupolíková, PhD. The Department of Galenic Pharmacy of the Faculty of Pharmacy Comenius University Bratislava miroslava.supolikova@uniba.sk ; +421 2 501 17 266	www.portalvs.sk/regzam/detail/4438	Pharmaceutical Technology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
prof. RNDr. Daniela Uhríková, CSc. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius University Bratislava uhrikova@fpharm.uniba.sk; +421 2 501 17 292	www.portalvs.sk/regzam/detail/3784	Physical Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
doc. PharmDr. Jindra Valentová, PhD. The Department of Chemical Theory of Drugs of the Faculty of Pharmacy Comenius University Bratislava valentova@fpharm.uniba.sk; +421 2 501 17 330	www.portalvs.sk/regzam/detail/3786	Organic Chemistry Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
Mgr. Peter Vavrinec, PhD. The Department of Pharmacology and Toxicology of the Faculty of Pharmacy Comenius University Bratislava, vavrinec@fpharm.uniba.sk; +421 2 501 17 379	www.portalvs.sk/regzam/detail/19202	Pharmacology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
Mgr. Diana Vavrincová, PhD. The Department of Pharmacology and Toxicology of the Faculty of Pharmacy Comenius University Bratislava, vavrincova@fpharm.uniba.sk; +421 2 501 17 379	www.portalvs.sk/regzam/detail/19082	Pharmacology Completing Prescribed Doctoral Lectures and Seminars 1 Completing Prescribed Doctoral Lectures and Seminars 2 Completing Selected Doctoral Lectures and Seminars
PeadDr. Viera Žufková, PhD. The Department of Languages, Faculty of Pharmacy, Comenius University Bratislava, zufkova@fpharm.uniba.sk; +421 2 501 17 210	www.portalvs.sk/regzam/detail/18138	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/ Contact (workplace, email, telephone	**Reference to the Register of the University Employees**	**Topics of the dissertation theses**

number)		
prof. RNDr. Peter Mikuš, PhD. The Department of Pharmaceutical Analysis and Nuclear Pharmacy of the Faculty of Pharmacy Comenius University Bratislava, mikus@fpharm.uniba.sk; +421 2 501 17 243	www.portalvs.sk/regzam/detail/3749	**1. Analytical study of biologically active substances in pharmaceutical and biological systems in relation to toxicology and anti-doping.** **2. Innovative dosage forms: study of polymeric drug carriers.** **3. Innovative dosage forms: study of drug carriers based on chitosan nanoparticles.**
doc. Mgr. Fils. Andriamainty, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy Comenius University Bratislava, andriamainty@fpharm.uniba.sk; +421 2 501 17 229	www.portalvs.sk/regzam/detail/3687	**1.Study of the micellization properties of cationic surfactants in aqueous solution.** **2.Application of IMS method for separation and determination of chromatographic parameters of basic esters of phenylcarbamic acids**
RNDr. František Bilka, PhD. The Department of Cellular and Molecular Biology of Drugs of the Faculty of Pharmacy Comenius University Bratislava bilka@fpharm.uniba.sk; +421 2 501 17 316	www.portalvs.sk/regzam/detail/3693	*1. Influence of modified benzoylcholine structures on biological systems and differences in their tissue-specific elimination*
RNDr. Alexander Búcsi, PhD. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius University Bratislava, bucsi@fpharm.uniba.sk; +421 2 501 17 283	www.portalvs.sk/regzam/detail/15986	-
Dr.h.c. prof. Ing. Ferdinand Devínsky, DrSc. Dean's office of the Faculty of Pharmacy Comenius University Bratislava devinsky@fpharm.uniba.sk	www.portalvs.sk/regzam/detail/3701	1. Synthesis, study of physico-chemical properties and biological effects of no-vel amphiphilic compounds from the group of alkylphosphocholines
prof. Ing. Vladimír Frecer, DrSc. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius University Bratislava, frecer@fpharm.uniba.sk; +421 2 501 17 281	www.portalvs.sk/regzam/detail/5749	1. Modeling of drug-receptor molecular interactions by means of combination of quantum mechanical and empirical potential functions and computer-assisted design of new anticancer drugs (defended 2018)
Ing. Bc. Jaroslav Galba, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy, Comenius University Bratislava, galba@fpharm.uniba.sk	www.portalvs.sk/regzam/detail/29053	-
doc. RNDr. Jana Gallová, CSc. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius University Bratislava, gallova@fpharm.uniba.sk; +421 2 501 17 291	www.portalvs.sk/regzam/detail/3709	**1. The study of the structure and characteristics of lipid mesophases for drug delivery** **Interaction of model membranes with surfactants and antimicrobial peptides.**
PharmDr. Vladimír Garaj, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy Comenius University Bratislava, garaj1@uniba.sk; +421 2 501 17 223	www.portalvs.sk/regzam/detail/3711	**1. Carbonic anhydrase inhibitors design**
Ing. Ladislav Habala, PhD. The Department of Chemical Theory of Drugs of the Faculty of Pharmacy Comenius University Bratislava habala@fpharm.uniba.sk +421 2 501 17 325	www.portalvs.sk/regzam/detail/5825	**1. Synthesis, characterization and study of biological activities of metal complexes as potential metallopharmaceuticals**
doc. Mgr. Martina Hrčka Dubničková, PhD. The Department of Cellular and Molecular Biology of Drugs of the Faculty of Pharmacy Comenius University Bratislava dubnickova@fpharm.uniba.sk, martina.hrcka.dubnickova@uniba.sk; +421 2 501 17 312	www.portalvs.sk/regzam/detail/3703	1. Effect of modified structures of active substances on biological properties of immunocompetent cells (defended 2019)
Mgr. Mária Klacsová, PhD. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius	www.portalvs.sk/regzam/detail/3732	-

University Bratislava, klacsova@fpharm.uniba.sk; +421 2 501 17 289		
Mgr. Norbert Kučerka, DrSc. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius University Bratislava, kucerka@fpharm.uniba.sk	www.portalvs.sk/regzam/detail/3736	*1. Structural changes to the model membranes correlating with the prerequisites of Alzheimer's Disease.* *2. Pathological conditions of biomembranes resulting from their interactions with cholesterol and melatonin.*
doc. PharmDr. Miloš Lukáč, PhD. The Department of Chemical Theory of Drugs of the Faculty of Pharmacy Comenius University Bratislava lukac@fpharm.uniba.sk; +421 2 501 17 329	www.portalvs.sk/regzam/detail/3743	**1. Synthesis of novel biologically active phosphanium salts derived from natural compounds** **2. Chemical modification of triterpene saponins, study of their physicochemical properties and biological activities**
Doc. PharmDr. Ivan Malík, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy Comenius University Bratislava malik2@uniba.sk; +421 2 501 17 227	www.portalvs.sk/regzam/detail/3745	**1. Synthesis, evaluation of physicochemical properties and biological effects of hybrid compounds containing an arylcarbamoyloxy and 4-aryl-/4-acylpiperazin-1-yl fragment**
PharmDr. Katarína Maráková, PhD. The Department of Pharmaceutical Analysis and Nuclear Pharmacy of the Faculty of Pharmacy Comenius University Bratislava, marakova@fpharm.uniba.sk; +421 2 501 17 248	www.portalvs.sk/regzam/detail/5274	**1. Advanced Analytical Methods in the Analysis of Peptides and Proteins as Prospective Biomarkers** **2. New Analytical Approaches in the Pretreatment of Biological Samples for Proteomic Analysis**
prof. Ing. Milan Nagy, CSc. The Department of pharmacognosy and Botany of the Faculty of Pharmacy Comenius University Bratislava nagy@fpharm.uniba.sk; +421 2 501 17 170 +421 2 501 17 201	www.portalvs.sk/regzam/detail/3755	-
PharmDr. Juraj Piešťanský, PhD. The Department of Pharmaceutical Analysis and Nuclear Pharmacy of the Faculty of Pharmacy Comenius University Bratislava, piestansky@fpharm.uniba.sk; +421 2 501 17 250	www.portalvs.sk/regzam/detail/23111	**1. Analysis of putative biomarkers of inflammation diseases by modern separation methods** **2. Capillary electrophoresis in therapeutic drug monitoring** **3. Advanced analytical methods in monitoring of putative oncomarkers** **4. Analysis of peptide and protein therapeutics by modern analytical methods** **5. Advanced analytical methods for prohibited substances control**
doc. Ing. Martin Pisárčik, CSC. The Department of Chemical Theory of Drugs of the Faculty of Pharmacy Comenius University Bratislava pisarcik@fpharm.uniba.sk; +421 2 501 17 329	www.portalvs.sk/regzam/detail/3764	**1. Conventional and green synthesis of metal nanoparticles. Preparation, stability, structural analysis, physicochemical properties, biological activity**
doc. PharmDr. Miroslava Sýkorová, PhD. The Department of Pharmaceutical Chemistry of the Faculty of Pharmacy Comenius University Bratislava, sykorova1@uniba.sk; +421 2 501 17 222	www.portalvs.sk/regzam/detail/3779	**1. Analytical evaluation of drugs and their formulations used in the treatment of heart failure.** **2. Development of analytical evaluation of drugs and their formulation from the group of analgesics and non-steroidal anti-inflammatory drugs.**
prof. RNDr. Daniela Uhríková, CSc. The Department of Physical Chemistry of Drugs of the Faculty of Pharmacy Comenius University Bratislava uhrikova@fpharm.uniba.sk; +421 2 501 17 292	www.portalvs.sk/regzam/detail/3784	**1. The effect of the composition of pulmonary surfactant model systems on its physicochemical properties** **2. The effect of antimicrobial agents on lipid bilayers of pulmonary surfactant model systems** **3. The study of physical-chemical properties of lipid bilayers mimicking pulmonary surfactant as a carrier of drugs**

doc. PharmDr. Jindra Valentová, PhD. The Department of Chemical Theory of Drugs of the Faculty of Pharmacy Comenius University Bratislava valentova@fpharm.uniba.sk; +421 2 501 17 330	www.portalvs.sk/regzam/detail/3786	**1. Preparation and characterisation of transition metal complexes with anticancer activity**

* **Topics of dissertations of currently trained doctoral students (bold)**, topics of dissertations successfully defended, *topics of dissertations listed (italics)*

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; 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. RNDr. Peter Mikuš, PhD.: individually, by agreement via e-mail: mikus@fpharm.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-oep/). 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 Pharmaceutical chemistry. 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 Pharmaceutical chemistry 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 9 departments and 5 purpose-built facilities, 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^2 with direct stepped sitting, lecture room No. 102 with the capacity of 198 students and area of 142 m^2 with direct stepped sitting, lecture room No. 151 with the capacity of 99 students and area of 85 m^2 with direct stepped sitting and lecture room 418 with the capacity of 96 students and area of 87 m^2 with direct stepped sitting. Laboratories of Department of Pharmaceutical Analysis and Nuclear Pharmacy, Department of Chemical Theory of Drugs, Department of Cell and Molecular Biology of Drugs, Department of Pharmaceutical Chemistry, Department of Pharmacognosy and Botany, Department of Physical Chemistry of Drugs, Central NMR laboratory and laboratories of Toxicologic and Antidoping Centre provide a teaching base for practical teaching.

The scientific part of the doctoral work in the study programme Pharmaceutical Chemistry will be provided mainly at the Department of Pharmaceutical Analysis and Nuclear Pharmacy, Department of Chemical Theory of Drugs, Department of Cell and Molecular Biology of Drugs, Department of Pharmaceutical Chemistry, Department of Pharmacognosy and Botany, and Department of Physical Chemistry of Drugs of the FPHARM CU. If interdisciplinary research is needed, the study will be carried out at the laboratories of the Department of Pharmacology and Toxicology, Department of Organisation and Management of Pharmacy, Department of Galenic Pharmacy, and Central NMR laboratory and Toxicologic and Antidoping Centre. The existing workplace infrastructure corresponds with the requirements for well-functioning pharmaceutical chemistry 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 Department of Pharmaceutical Analysis and Nuclear Pharmacy has essential equipment technique as rotary vacuum evaporators EV400H, VC1000, electromagnetic stirers with heating plate Heidolph MR Hei-Tec, pH meter, analytical scales Mettler Toledo, lyophylisator FreeZone 2.5 Liter Benchtop, microplate reader Epoch 2 Reader + softvér GEN5. The department has a state-of-the-art microwave reactor for microwave synthesis with in situ Raman spectroscopy (Monowave 400 R, Cora 5001, Anton Paar) for efficient synthesis and analysis of new molecules as potential drugs. Isolation of prepared compounds can be realised by semipreparative LC system, which contains pumps LC-20AP, autosampler SIL-10AP, termostat of column CTO-20A, PDA detector SPD-M20A, fraction collector FRC-10A, + LabSolutions Software. Preapred compounds are possible analysed by UV-VIS spectrometers UV-2700 a UVmini 1240, FT-IR spectrometer UATR Spectrum Two + The Spectrum 10TM software a fluorimetr Cary Eclipse Fluorescence Spectrophotometer. Modular potentiostat Metrohm Autolab PGSTAT12 is used in electrochemical analysis of drugs. The apparatus is equipped with FRA modul for electrochemical impedance spectroscopy. Electrochemical analysis is also performed by compact potenciostat Metrohm Autolab PGSTAT204. TLC skener miniGITA + Gina Star TLC software is intended for analysis of radionuclides. Ultra High Performance Liquid Chromatography Analyzer (UHPLC, Agilent Technologies) is used as a reference analytical method in the analysis of complex mixtures. Electromigration analytical separation methods are developed using Agilent 7100 Capillary Electrophoresis, one column or two as well as three column closed system of Isotachophoresis EA102 and EA103 with conductivity and UV-VIS detector (ECOM ECD2000). The device also includes a TIDAS IV highly sensitive photomultiplier with fiber optics for LIF (laser-induced fluorescence) applications and a DAD detector. The SEC Desktop Scanning Electron Microscope with EDS detector (SNE-4500M Plus B, Bruker XFlash630H mini EDS, MCM-100 Ion Sputter Coater) is used to evaluate materials (nanosystems as innovative drug carriers or modifiers of electrochemical analytical sensors).
Three student laboratories in which the subjects Analytical Chemistry I and Analytical Chemistry II are taught: 1 - laboratory of chemical analytical methods (qualitative and quantitative chemical analysis), 2 - laboratory of instrumental analytical methods (electrochemical, optical and separation methods), 3 - laboratory of computer simulations (HPLC, GC, CE simulations, spectrum databases).
The five research laboratories where the primarily research takes place, staff: teachers, researchers, doctoral students and graduates, or technicians: 1 - laboratory of electromigration separation methods (CE-UV / DAD / LIF, CZE, ITP, EKC, etc., 1D, 2D) and electron microscopy, 2 - laboratory of electrochemical methods (CV, SWV, DPV, etc.) and microwave synthesis (with Raman spectroscopy), 3 - laboratory of optical methods (UV, fluorescence spectroscopy, IR), 4 - laboratory of liquid chromatography, synthesis and isolation techniques (lyophilization, semi-preparative LC), 5 - laboratory of organic synthesis and preparation of complexes.

The Department of Chemical Theory of Drugs has essential equipment technique used in the synthesis of inorganic and organic bioactive compounds: analytical scales (Kern, Sartorius), thermostats (Memmert), magnetic stirrers, ultrasonic baths (Fischerbrand), pH meters, high pressure hydrogenation autoclave AMAR, rotary evaporators (Heidolph) Rodem 6 deionized water generator, SANYO low temperature freezer (-75 ° C), ECOCELL / DUROCELL drying box, melting temperature measuring device - Buchy B450.
The department has modern instrumentation for physicochemical characterization of chemical compounds: FLASH2000 instrument for elemental analysis (CHNS), FT-IR spectrometer NICOLET 6700, UV-VIS spectrophotometer GENESYS 10S, centrifuges SIGMA 3-16K, refrigerated centrifuge Sigma 3-30K, UV-VIS GENESYS 10S spectrophotometer, JASCO J-815 CD spectrometer, BioTek Synergy HT microplate reader, ZetaPlus zeta potential analyser (Brookhaven), fluorimeter for measuring dynamic (time-resolving) fluorescence LifeSpec, FS 5 spectrofluorometer (Edinburgh Instruments), polarimeter Jasco 1010, device for measuring diameters of colloidal particles by the method of dynamic light scattering Brookhaven BI9000AT, computer-controlled tensiometer Kruss K100MK2 for measuring the surface tension of solutions of amphiphilic compounds, computer-controlled electrical conductivity meter WTW for measuring the critical micelle concentration of amphiphilic compounds, FL2002 fluorescence microscope, Dosimat 765 titrator, Biosan Microspin 12 microcentrifuge, Icanclave sterilizer, Benchmark incubator.
The department has modern instrumental analytical technology for identification and determination of chemical compounds and also used in the evaluation of biological activities in vitro: Liquid chromatography-HPLC systems (Agilent), liquid and gas chromatography system combined with mass detection - LC-MS / MS, GC-MS (Thermo Scientific), ORBITRAP LTQ XL high resolution mass spectrometer.
The department has two student laboratories for teaching general and inorganic chemistry and organic chemistry (for 42 students), three synthetic laboratories, a laboratory of liquid chromatography, a laboratory of liquid and gas chromatography and mass spectrometry, a laboratory of physico-chemical methods, a laboratory of spectral methods.

The Department of Cell and Mollecular Biology of Drugs has essential euipment 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 stirer (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 boxs MEMMERT, Beckman Coulter SC100 autosampler, autoclaves on decontamination and sterilisation of equipment (IcanClave, Witeg), desintegrator of biological materials SONIPRET 150 and cryogenne Dewar flask.
The department has also special quipment 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)). Ultracentifuge (BECKMAN Avanti J301) is also located at department, it enable fractionation of biological materials. Electroforetic apparatus (FE20-ATC Five Easy In.) for saparations of DNA, RNA or proteins are deposited at department. Mastercycler X 50 (Eppendorf), ECT–UVC reader VILBER LOVRMAT, qPCR (RT-PCR system 7300 Aplied 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, EPPOCH 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 Pharmaceutical Chemistry has essential equipment techniques as water bath Memmert, drying chamber UN30, drying chamber MEMMERT UN55M, analytical scales PM480 DeltaRange Mettler, analytical scales Kern ABT 220-4NM, scales KERN PCB 3500-2, electromagnetic stirrers with heating plate Heidolph Hei-Tec s Pt 1000, electromagnetic stirrer BIOSAN MSH-300, shaker IKA Vortex Genius 3, shaker MEDFORM LT3, heaters, UV lamps, rotary vacuum evaporator KNF RC600 with pump KNF SC 920G, rotary vacuum evaporator Heidolph Hei-VAP Ultimate Control ML/G3B XL with pump Heidolph Rotavac Valve Control, distillation apparatus Bűchi B-585 Glass Oven Kugelrohr with pump EDWARDS nXDS15iC, vacuum pump KNF LABOPORT® Vacuum system SH 820, several Kofler melting point apparatus, spectrophotometer ELISA reader Epoch 2 NSC (BioTek), Muffle furnance HT60B, sonicator SONOREX DIGITEC (BANDELIN) several refrigerators and freezers for storage of material at -20°C.
The workplace is also equipped with pH meters, conductometer COND8 (XS INSRUMENTS), polarimeter Polatronic E, refractometer RL 3008. Preparation of new bioactive compounds can be carried out in microwave reactor Discover SP CEM and purification of compounds can be realized by flash chromatography on apparatus PURIFLASH 5.020 Interchim. Spectrophotometer UV-1800 Shimadzu, UV–VIS spectrophotometer Spekol 1300, UV spectrophotometer Milton Roy Spectronic 20d, IR spectrometer Agilent Cary 630 FTIR Instrument Bundle, includes KBr engine and Single Reflection, diamond ATR, HPLC apparatus Delta chrom and Thermo Scientific Utimate 3000 UHPLC can be used for the analysis of prepared compounds and medicines.
The department has two student laboratories (for 48-50 students). The scientific and research background of the department consists of: 2 synthetic laboratories and 4 analytical laboratories.

The Department of Pharmacognosy and Botany has the following instruments: qPCR (RT-PCR, BioRad), NIKON ECLIPSE Ni-E fluorescence microscope, Tuttnauer 3150 EL autoclave, BIAffinity system for analysis of interactions between molecules (Zeiss Jena Optik), Airstream Biohazard Box Class II, centrifuge Hettich Universal 320, flash chromatograph CombiFlash Rf 4X (Teledyne Isco), fast centrifugal partition chromatograph FCPC Kromaton A200 with ELSD and DAD detectors and fraction collector Kromaton), incubator Panasonic 19AIC, cryotome Cryostat SleeMEV, lyophilizer SCANVACvertX microscope C, NIKON ECLIPSE Ni-U, counter freezing box ULT C75, Vacuubrand Biochem-VacuuCenter BVC Control, Direct-Q8 UV for deionized ultrapure water (Millipore, Corporation), calScreener ™ Label-Free Cell Based Assays (SymCel), microplate reader Tecan M200 infinite with dispenser, thermoshaker Biosan CH-100, analytical balances Kern ABJ 220-4NM, UV-VIS spectrometer Genesys 6 (The rmo Eelctro Corp.).
The biological laboratory is GMO 2 certified. Other laboratories of the department: student microscopic laboratory (2x), student chemical laboratory, doctoral laboratory (2x), graduate laboratory (4x).

The Departments of Physical Chemistry of Drugs has essential equipment technique as analytical ascale (0,0001 g, Kern), several laboratory scales (0,001 g), Koflerov melting point apparatus (Electrothermal), conductometers (Phenomenal CO; VWR), UV-VIS spectrophotometer (Avantor V-1200), polarimeter P-1000-LED (Krüss Optronic), refractometer A4 with thermostat PT 31 (Krüss Optronic), several pH meters with equipments (Eutech Instrument, Mettler Toledo, Metrohm), thermostatic bath (Julabo), electromagnetic stirrers Hei-Mix S (Heidolph), electromagnetic stirrers with heating plate (IKA), laboratory shakers GFL 3006 (Helago), incubated shakers (TS100; BioSan) apparatus for preparation of distiled water GFL 2008 (Unimed Pharma), ultrasanic baths (Sonorex (Bandelin)a K5-LE (Kraintek)), Hand Held homogenizer (VWR), vortex mixers VV3 (VWR) a IKA Vortex3 (Sigma-Aldrich), Digital dry bath NDK200 (MiuLab), oil vacuum pumps V-i220-R32 (Value) with vacuum meter DCP3000 (Fisher Scientific). The deparment is also equipped with Ultra Low Temperature Upright Freezer VWR 24086V (VWR Avantor), laboratory refrigerators Mediline (Liebherr) and drying box WS30 (MLW).
The department is equipped with a special technique for the preparation of liposomes. Extruders Liposofast Basic (Avestin) Luvet (Avanti Polar Lipids) and LiposoFast LF-50 (Avestin) are used for this purpose. The laboratories are equipped with Minispin (Eppendorf), EBA 20 (Hettich) and Rotofix 32A (Hettich) centrifuges. There is a single-beam UV-VIS spectrophotometer 8453 with a temperable holder (Agilent), a Fluoromax-4 spectrofluorimeter (Horiba Jobin Yvon) with accessories for stopped flow measurement and a DMA 4500M vibrating densitometer (Anton Paar). The microscopic laboratory is equipped with a polarizing microscope LAB.A1, ZEISS AXIO (Carl Zeiss), a polarizing microscope Eclipse LV100N POL (Nikon) with a temperable stage (Lincam) and a fluorescence microscope Eclipse Ts2R-FL (Nikon). The latest equipment of the department includes a DSC calorimeter Nano DSC with platinum cappilary cells (TA Instrument), a particle size and zeta potential measuring instrument Litesizer 500 (Anton Paar) and a two-beam spectrophotometer with a temperable holder for 8 samples UV -VIS Specord 200 PLUS (AnalyticJena). The SuperMicro graphics GPU Server (located in the CIT server room at Faculty of Mathematics, Physics, and Informatics of CU) and the Lenovo ThinkStation P910 workstation are used for computer chemistry and the design of bioactive substances and drugs.

The department has one student laboratory with a capacity of 22-25 students, 2 larger instrument laboratories, a sample preparation laboratory, 2 smaller laboratories, and a microscopy laboratory.

The Toxicology and Anti-Doping Centre (TAC) conducts analytical studies of the profiles of pharmaceutical, plant and biomedical samples to determine the chemical structure and concentration of known and unknown biologically active substances in these samples. For this purpose, the TAC is equipped with a liquid chromatographic analyser hyphenated with an electrospray ionisation interface (ESI) and a detector based on quadrupole - time-of-flight (TOF, time – of – flight) – Agilent Technologies 6520 Accurate – Mass Q-TOF LC/MS, a liquid chromatographic analyser with ESI in conjunction with a triple quadrupole (QQQ) detector – Agilent Technologies 6410 Triple Quad LC/MS, Capillary Electrophoresis Analytical Apparatus - Agilent 7100 Capillary Electrophoresis, which is connected to the QQQ or Q-TOF detectors. The determination of volatile substances, essential oils, short-chain carboxylic acids is performed by a gas chromatograph with a flame ionization detector (FID) - Thermo Finnigan TRACE GC. A single-column resp. two-column hydrodynamically closed modular system for capillary electrophoresis Isotachophoresis EA102 is used for the analysis of ionic substances. It enables connection with optical detectors (DAD, LIF) as well as mass detectors (QQQ, Q-TOF) and integration of sample treatment (concentration, pre-separation) with own analysis in an online way, thus minimizing sample handling and increasing application range, reliability, and effectivity of analyses. NEYA and EBA 12 - Hettich Zentrifugen centrifuges are used to prepare samples during the preparation phase. The Forma 88000 series Thermo Scientific deep-freezing box is used to store biological samples at -80 °C. Net resp. ultrapure water is obtained via the Direct-Q 3 UV-R Water Treatment System from Merck. In connection with the implementation of multidisciplinary research, laboratories for pharmacological studies (pharmacoproteomics and pharmacogenomics) and laboratories of chemical and biological information systems and technologies (molecular modeling) are also adequately equipped (PCR, readers, PC stations, etc.).

The Central Laboratory for Nuclear Magnetic Resonance is a special service and research workplace of the faculty, whose activities are focused on providing NMR spectra measurements for the needs of FPHARM CU departments, focusing on confirmation of structure and purity of newly synthesized compounds, determination of physicochemical properties by NMR, identification and structure determination of substances isolated from plant materials. The department has a Varian MR400 spectrometer (Agilent Technologies, CA, USA) with two probes: Varian 400 MHz 5 mm AUTOX PFG and Varian 400 MHz 5 mm AUTOX / ID PFG.

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 Iternet 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 an 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 S224OT 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 in the Slovak and English versions,

- possibility to use the university Moodle environment (moodle.uniba.sk) for E-learning education. 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, 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 Pharmaceutical Chemistry 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 Mathematics, Physics and Informatics, Faculty of Medicine, Jessenius Faculty of Medicine, and partner institutions of the Slovak Academy of Sciences: Institute of Neuroimmunology (Dr. A. Kováč, MSc. D. Olešová), Institute of Chemistry (Dr. J. Katrlík), Institute of Virology BMC (Dr. I. Nemčovičová) and Slovak University of Technology in Bratislava: Institute of Physical Chemistry and Chemical Physics (Assoc. Prof. J. Kožíšek), Institute of Organic Chemistry, Catalysis and Petrochemistry (prof. V. Milata), Institute of Analytical Chemistry (prof. J. Labuda, prof. Ľ. Švorc), Institute of Inorganic chemistry, Technology and Materials (prof. P. Segľa), Department of Gastroenterology, St. Michal Infirmary (assoc. prof. Z. Zelinová), the National Oncology Institute in Bratislava (Assoc. prof. M. Chovanec), the Academy of the Police Force in Bratislava (Mgr. Ľ. Cehlárik), with the companies BIONT, a. s. (Ing. Z. Kassai), and Hameln rds, s.r.o. and VULM (Dr. J. Tomasch) 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), University of Ss. Cyril and Methodius in Trnava: Faculty of Natural Sciences (Prof. S. Miertuš, Assoc. Prof. M. Ondrejovič), Saneca Pharmaceuticals a.s., Hlohovec (Dr. B. Vladovičová, Dr. A. Bednárová).

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 Pharmaceutical Chemistry, the FP of CU cooperates with the following international workplaces: Materials Research Centre, Faculty of Chemistry, University of Technology, Brno, Czech Republic (Assoc. Prof. T. Opravil, Dr. M. Březina), Department of Biophysics, Dubna State University, Dubna, Russian Federation (E.A. Kuzmina), Biological Nanochemistry Research Group, Research Centre for Natural Sciences, Hungary (Assoc. Prof. A. Bóta), HASYLAB at DESY, Hamburg, Germany (Dr. S. de Souza Funari), Department of Biotechnology and Biomedicine, Technical University of Denmark, Kongens Lyngby, Denmark (Prof. P. Westh), Frank Laboratory of Neutron Physics, Joint Institute for Nuclear Research, Dubna, Russia (E. Ermakova, prof. K. T. Kholmurodov, Dr. S. Kurakin), Laboratory of Radiation Biology, Joint Institute for Nuclear Research, Dubna State University, Dubna, Russia (Dr. E. Dushanov), Université Paris-Saclay, Laboratoire L´eon Brillouin, Gif-sur-Yvette Cedex, France (Dr. J. Teixeira), ALBA Synchrotron, Barcelona, Spain (Dr. J.C. Martínez), Tumor Biology Department, Institute of Oncology of Prof. Dr. Ion Chiricuță Cluj-Napoca, Romania (Dr. E. Fischer-Fodor), Dipartimento di Scienze Chimiche e Farmaceutiche, Università degli Studi di Trieste, Terst, Taliansko (Prof. F. Benedetti, Prof. F. Berti), Faculty of Pharmacy, Masaryk University in Brno, CZ (prof. J. Csollei), Faculty of Pharmacy, Charles University in Hradec Králové, CZ (prof. P. Solich), University of Texas at Arlington,

Texas, USA (prof. P.A. Schug), University of Florence, Florence, IT (prof. C.T. Supuran), Department of Gastroenterology and Hepatology, Erasmus Medical Center, Rotterdam, NL (Prof. M. Peppelenbosch).

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 Kalinčiakova 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 Kalinčiakova 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, Charles University. These are activities such as: "Beánia 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 Kalinčiakova 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) 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 Gottingen, 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 obtaines 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

prof. Ing. Vladimír Frecer, DrSc. – Faculty Coordinator for Erasmus+ / frecer@fpharm.uniba.sk / +421 2 50 117 281

Mgr. Kristína Piatničková, PhD. – Faculty Administrator for Erasmus+ / erasmus@fpharm.uniba.sk / +421 2 50 117 132

Office of Science and Research and Foreign Relations

Mgr. Adriana Lendvayová - ov@fpharm.uniba.sk / 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: Pharmaceutical Chemistry

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: Inorganic Chemistry, Organic Chemistry, Analytical Chemistry, Physical Chemistry, Biochemistry, Pharmacology, Pharmaceutical technology.

The condition for admission is a completed Master program of university studies (pharmacy or technical or scientific chemical 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_04.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
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
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/
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/