

Study programme description

Name of the higher education institution: Comenius University in 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 Medicine

Address of the faculty: Špitálska 24, 813 72 Bratislava 1

University body for the study programme's approval: Provisional Accreditation board of the Faculty of Medicine, Comenius University in Bratislava and Provisional Accreditation Board of the Comenius University in Bratislava.

Date of Approval of the study programme or adjustment of the study programme: March 29, 2021

The date of the last change in the study programme description: does not apply

Reference to the results of the last periodic assessment of the study programme by the university: does not apply

Reference to assessment report to the application for accreditation of the study programme under section 30 of the law No 269/2018 Coll: does not apply.

1. Study programme basic data

a) *Title of the study programme and the number according to the register of the study programmes:*

Medical Biology and Clinical Genetics (new study programme)

b) *The degree of the university studies an ISCED-F code of the education*

The third degree, ISCED-F code 864

c) *Place/s of realisation of the study programme:*

The Medical Faculty, CU in Bratislava and its parts seat, including clinical workplaces, which are part of university hospitals providing an education of students at Faculty of Medicine, CU in Bratislava, with which the university has concluded 'Contracts on practical training' (University Hospital Bratislava, National Institute for Children's Diseases, Merciful Brothers University Hospital, St. Elizabeth Cancer Institute, National Oncological Institute, National Institute of Cardiovascular Disease)

d) *Title and number of the study programme, after completion of which the university education or the combination of two study programmes after completion of which the university education is achieved, SCED-F codes of the branch/ branches of the study:*

45. General Medicine, ISCED-F code of the study branch 0912 Medicine

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 the regulated profession

f) *Awarded academic degree*

doctor ("philosophiae doctor", in short, "PhD. ")

g) *Form of study:*

external

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).*

The study programme is not a joint study programme

i) *The language in which the programme is organised*

Slovak, English

j) *The standard length of study in academic years*

five years

k) *The study programme's capacity (planned number of students), the actual number of applicants and students.*

a new study programme – planned number of students admitted to the 1st year is 5

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.*

The content of the doctoral study programme 'Medical Biology and Clinical Genetics' is focused on studying the cell and molecular mechanisms contributing to the regulation of essential processes providing the growth, differentiation and reproduction of the cell and disorders resulting in pathological conditions. During the doctoral study, a student in this study programme acquires knowledge in medical biology, mechanisms, tissue engineering, regenerative medicine, and pathological processes that run in the human body. It studies the biological nature and heredity of pathological processes at the level of an organism (DNA, polymorphisms, mutations, variable use of genetic information) and cellular and subcellular (DNA, RNA, chromosomes, genes).

In the study, the students learn independently to formulate a scientific problem, formulate a scientific hypothesis, prepare and realise a scientific experiment, use biological model organisms and tissue cultures at the research, objectively assess obtained results and their statistical analysis. The main aim of these activities will be theoretical and practical management of methods for processing of biological material for relevant analyses (mainly microscopic techniques, cytogenetic analysis, molecular cytogenetics (FISH, SKY, mBand, CGH...), immuno and enzymohistochemistry, DNA analysis, molecular and genetic testing at the level of DNA, DNA, amplification and hybridisation techniques, gene expression measurement, sequential analysis and identification of products, whole genomic, exome, transcriptome analyses requiring complicated biostatistical processing, etc. The graduates from the study programme will be focused on analyses of cellular and human biological samples in scientific and diagnostic work, widening of diagnostic procedures for genetically

conditioned diseases, for specific diagnosing, detection of origination, clinical manifestation, the molecular, biochemical, chromosomal and cellular origin of genetic and oncological diseases in particular age groups respecting ethical, legal and social norms. The requirement for the completion of the study programme is also the ability to present the research results to experts at conferences and scientific events and publish the papers in professional journals. The results of creative, experimental work contribute to scientific progress and knowledge. Still, their good scientific value allows their application in various branches of medicine, for example, clinical genetics, regenerative medicine and laboratory preparation of tissue replacements, management and running of the biobanks at various institutions (pathology, oncology, rare diseases and so on), experimental oncology, laboratory part of reproductive medicine, and so on.

- 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 third degree of the study focuses on a closer specialisation and deepening of theoretical and scientific knowledge in the professional preparation of an expert in medical biology and clinical genetics. Graduates from the study programme find employment at all universities where human biology, cytology and genetics is taught, either as university teachers or scientific and research workers. Thanks to familiarisation with a broad spectrum of knowledge and practical laboratory skills, a graduate finds employment at the healthcare workplaces (clinics or departments of clinical genetics, workplaces of reproductive medicine, experimental oncology, workplaces providing biobanking of biological samples, workplaces focused on regenerative medicine, for example at the preparation of tissue replacements at clinics of burns and reconstructive surgery, and so on). A graduate might find employment as researchers, developmental, and professional workers in the private sector of pharmaceuticals industry.

If a graduate from the doctoral studies also has a necessary qualification in the frame of accreditation specialised education (for example, in accredited specialisation branches of specialisation education in the healthcare occupation – medical genetics, doctor – laboratory medicine, laboratory diagnosis and so on), he/she might contribute to the education of future specialists and to their preparation for regulated occupation (general medicine, dentistry, healthcare branches, pharmacy).

- 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 general medicine is a study programme whose content definition is related to the preparation of experts for some of regulated occupations with coordination of education in the appendix No. 2 of the Decree of MSVVS SR No. 16/2016 Coll. according to Government Regulation No. 296/2010 Coll., results from the study branches assigned to regulated professions. On March 29, 2021 we asked the Ministry of Healthcare SR for the affirmative opinion on the concord of acquired qualification with sectoral-specific requirements for the occupation performance.

3. 3. Employability

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

Graduates are sought at the healthcare workplaces (clinics or departments of clinical genetics, workplaces of reproductive medicine, experimental oncology, workplaces providing biobanking of biological samples, workplaces focused on regenerative medicine, for example at the preparation of tissue replacements at clinics of burns and reconstructive surgery, and so on). Graduates from the doctoral studies might find employment in the frame of education as university teachers or scientific research workers at universities focused on medicine, healthcare science, public healthcare and biology.

Graduates from the study programme Medical Biology and Clinical Genetics at the Faculty of Medicine CU in Bratislava master a broad spectrum of scientific methods used in genetic and molecular and biological research, which they can creatively apply in their work and contribute to the development of the scientific knowledge. They are qualified for successful employment in the team leading on a broader spectrum of scientific and research institutions focused on medical, veterinary, or pharmaceutical sciences. They are professionally prepared to work creatively in scientific institutes of the Slovak Academy of Sciences at various research levels.

A doctor – medical genetics, a doctor – laboratory medicine, laboratory diagnostician – laboratory and diagnostic methods in clinical genetics, laboratory diagnostician – laboratory medicine all belong among their other possible occupations that, however, for independent performance require also accredited specialisation education in the healthcare occupation.

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

It is a new study programme, until now without graduates.

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

A request to assess the quality of the submitted study programme was sent to selected employers to express their opinion on the need for a new doctoral study programme focused on medical biology and clinical genetics. Delivered letters are available at the Department of scientific-research activities, doctoral studies and international relationships of the Faculty of Medicine, Comenius University in Bratislava. Relevant external stakeholders who have provided a favourable opinion on the quality of the study programme and support the origination of such study programme are: Biomedical Center of the Slovak Academy of Sciences, Medirex, a.s., Oncological Institute of St. Elizabeth, Cytopathos s.r.o., Department of Clinical Genetics of the National Oncological Institute in Bratislava, National Institute of Rheumatoid Diseases in Piešťany.

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 determined by the Faculty of Medicine Comenius University in Bratislava in the document 'Long-term objectives of the Faculty of Medicine, Comenius University in Bratislava' in the science, research and education. The study programme was created or innovated in terms of trends in the development of similarly oriented programmes in Europe and worldwide with consideration of attractiveness for graduates in the joint degree of the first and second degree of the study in the programme General Medicine and also for graduates from the second degree of the study focused on biology, biochemistry, pharmacy, veterinary medicine and others. The study programme was created in concord with the needs of the practice. Therefore, one of its main viewpoints at outlining the subjects is the applicability of the knowledge and competences in actual practice. The study programme and its study plan are designed so that students interested in this study programme might undergo part of the study abroad. The faculty has rich experience and a wide net of partner universities with similar study programmes to the submitted study programme.

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

The study programme profile subjects are compulsory or obligatory subjects, determined so that the students, after their completion, acquire the knowledge and skills substantial for completing the study programme. Profile subjects present theoretical and methodological base in the given field of education. They are a substantial part of the thematic group of state examinations. Together with other educational activities offered to a student in particular subjects, they allow the student to have an approach to knowledge and skills necessary to achieve educational outcomes in the graduate's profile and his/her personal and professional development.

Reasons for the origination of the new study programme Medical Biology and Clinical Genetics:

Medical biology is an essential subject studied at medical faculties in the first year. It is a scientific branch at the medically oriented faculties of universities in Europe and out of it. Clinical genetics is studied just as a compulsory elective subject in the 4th and 5th year. Medical Biology and Clinical Genetics as a study programme for the third degree of the university education (PhD.) at medical faculties in Slovakia does not exist, while in European countries, yes. It must be studied in the related branches (e.g., natural sciences and biochemistry), which, however, do not meet modern needs in medicine. Medical biology and clinical genetics are interdisciplinary, modern and permanently developing scientific branches that have practical usage in many fields of medical practice and cover various study branches of so-called biomedicine. As they clarify principles, mechanisms and factors involved in biological processes and ways of their regulation and deregulation, this branch is directly related to a treating doctor. It is an outcome for individual therapy (personalised therapy), which might prolong survival and benefit for a patient, especially with congenital and oncological diseases. Cytogenetics is the oldest and still highly topical field in clinical biology. Compilation of a conventional karyotype, subsequent use of banding, fluorescent and molecular techniques might detect submicroscopic changes at the chromosomes level. They are numeric and chromosomal aberrations which might be the reason for many symptoms. A subsequent field, after cytogenetics, is a DNA diagnosis of diseases and pathological conditions (e.g. monogenic, metabolic, mitochondrial and oncological), where based on molecular changes, a diagnosis can be detected. Based on the concrete types of mutations and DNA polymorphisms also the prognosis for a patient and his/her family might be detected. In the pharmacogenetic field, the impact of SNPs on the efficacy of various types of drugs is observed. Stem cells and tissue engineering are the latest part.

Finally, embryology, teratology, and observation of developmental anomalies prenatally and postnatally are the observation subjects. This study branch integrates graduates of medical, natural science, pharmaceutical and chemical faculties. The need to create this branch is closely related to branches that are in the primary sphere of interest of the modern society (healthcare, biotechnologies, tissue engineering, gene therapy, pharmaceutical disciplines).

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

The study programme, recommended study plan and the standard length of study are regulated in the Act on Higher Education. The study programme in compliance with the faculty Study Regulations follows the European system of transfer and collection of credits and workload of a student in the academic year. It follows the stated workload expressed in hours of contact tuition and all activities needed to prepare and complete the subject. The number of credits for subjects was determined to consider the subject demandingness from the view of a specific field of the curriculum and way of subject completion. The subjects in the frame of a recommended study plan allow achieving the determined outcomes of the education. Compulsory and obligatory elective subjects do not exceed 75% of the number of credits stated to complete the study in the study programme related to the degree of the study.

c) The study programme generally states:

A detailed study plan, also with necessary explanations, is an attachment of the application form.

Outcomes of the education and related criteria and rules of their assessment determined to fulfil all educational aims of the study programme are stated in each subject information sheet.

For each educational part of the study plan/subject there are determined educational activities (lecture, seminar, exercise, state examination) suitable to achieve education outcomes and are stated in each subject information sheet.

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

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 study, which a student must acquire for its successful completion, is 240 credits given 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 study plan, which is an attachment to the application form.

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 subjects of the examination, which do not have assigned separate credits. For the submission of the dissertation thesis for the defence the PhD. student acquires 30 credits. The subjects of the state examinations are part of the study programme. Detailed conditions for regular completion of the study and other conditions which the student must fulfil within the study of the study programme and for its regular completion are in the Study Regulations of the Faculty of Medicine Comenius University in Bratislava (Internal Regulation No. 10/2020), which contains these 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 33 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 accessibility is regulated by the Internal Regulation No. 12/2013 Guideline of Rector CU on essential requirements of the final thesis, rigorous thesis and habilitation works, control of their originality, archiving and accessibility at CU as amended.

Conditions for regular completion of the doctoral study at the Faculty of Medicine CU in Bratislava

1. Successful completion of profile subjects and other 2 obligatory elective subjects/practical educational courses.

2. Realisation of the examination of the English Language.
 3. Successfully completed dissertation examination.
 4. A doctoral student in the full-time and external form must be an author of a minimum 3 scientific works 'in extenso'. A minimum of one work must be related to the dissertation thesis in the indexed journal where the student is the first author. The scientific work in the indexed journal means that it is available in the databases WEB of SCIENCE, PUBMED, and SCOPUS. The doctoral student must have a minimum of one work in the journal with the impact factor (minimum IF=0.5) as the first author or co-author. In the frame of FM CU, as the only credible IF value we consider just the data, which come from the Journal Citation Reports (JCR), which the database Web of Science recognises as the only one.
 5. Just those already published outcomes are taken into consideration. It means not those which were just sent for publishing or accepted for publishing. In reasonable cases, it is possible to recognise one missing publication based on the acceptance list. It is also possible to recognise the publication which is already available on PubMed as 'ahead of print.'
 6. Acquiring a minimum of 210 credits + 30 credits for the acceptance of the dissertation thesis for the defence
 7. Successful defence of the dissertation thesis
- The Scientific Board of the Faculty of Medicine CU in Bratislava approved these conditions on 25 April 2014.

e) *For each learning part/course, the learning outcomes, related criteria and rules of their assessment so that the learning objectives of the study programme are met (they can be stated only in the Course information sheets, in the Learning outcomes section and the Course completion requirements)*

- The number of credits for compulsory subjects needed for proper completion of the study or the study's part is 40 credits for subjects: New trends in medical microbiology and immunology, Introduction to scientific research 1, Introduction to scientific research 2, Introduction to scientific research 3. The PhD. Student can acquire credits for English language and exam in English Language (10 credits), 20 credits for the dissertation examination and 30 credits for dissertation thesis accepted for defence. The supervisor is responsible for subjects the Dissertation Thesis 1 and 2, and the student might achieve 10 credits for each of these subjects.
- The number of credits for compulsory elective subjects needed for proper completion of the study/completion of a certain part of the study, i.e. A doctoral student will choose according to his/her interest 2 compulsory elective subjects from a broad scale of the list of obligatory elective, subjects, while successful completion of each of these subjects has 5 credits.
- The doctoral students in the frame of the scientific part of the doctoral study get credits for publication activities of scientific articles, writing textbooks, for participation in the solving the grants, for lectures at congresses or their workplace and so on. The detailed list of credits, which the doctoral students might gain, is a part of the Study plan, which is an attachment of the application form.
- The doctoral student with his/her supervisor each year submit a yearly assessment of the doctoral student, which at the enrolment to the higher year of study a vice-dean of the faculty responsible for the Doctoral Study checks. The doctoral student in the daily form is advised to gain 60 credits, in the external form 48 credits.
- The doctoral student who wants to undergo the dissertation examination must complete the whole study part of the doctoral study (i.e., to pass all compulsory subjects, two compulsory elective subjects of his/her own choice, passed the examination in the English language)

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

All types of assessment of study results are designed to determine unambiguously required conditions for completing the subject. The student is early enough informed with regular and resit possibilities of continual assessment and regular and resit term examinations. Each student has the right to be informed on all parts of continuous assessment and examination. The student has the right not to accept the evaluation on the exam term and take part in the exam's resit term. Suppose the student was at the regular term of the examination evaluated 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 as a board examination. The Dean, on the suggestion of a person bearing the primary responsibility for performance, development, and provision of the study programme's quality, will assign a minimum three-member examination committee. The chairman of the committee is usually a teacher of the given subject. The board examination form might also be performed without student's applying if a subject teacher applies for it. The Study Regulations of the Faculty arrange details.

The student can submit a written application for reviewing the decision on 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 delivery with the attached entire file and written standpoint to the applicant's statements and objection to the Rector. Based on the written student's application, the Dean might grant an exception from the terms of the faculty schedule of the study, control stages of the study, the maximum length of the study interruption in case the student has not fulfilled conditions of the control stages of the study or to excuse the missed time limit. The Study Regulations of the Faculty arrange details.

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

The study programmes are designed following ECTS transfers and recognition of credits. The priority is that the graduates from the study programmes acquired knowledge and new skills via mobilities at domestic and foreign institutions. Specific requirements for completion of mobilities are adjusted by an individual study plan of a PhD. student. Mobilities are organised in the frame of a broad scope of offered publicly available schemes (Erasmus+, SAIA).

The recognition of the subject's completion is the granting of the subject evaluation and subsequent gaining of the number of credit points, which are assigned to 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, the student applying for transfer and the student applying for the change of the study programme in the frame of the study branch might ask for recognition of completed subjects if he/she fulfils the conditions given in the Study Regulations of the FMCU. The student might apply in writing to recognise 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 the teachers' opinion of the subjects, recognising of which the student requires. The transfer of the credit points is the process of inclusion of credit points gained in the frame of the part of the study at another university in the Slovak Republic or at the university abroad into the number of counted credit points of the student according to Art. 4 Sec. 3 of the Decree on the Credit System of the Study. Academic mobility is formally conditioned with the study's agreement between the student, CU, and the receiving university. The study's agreement contains a suggested study plan of the receiving university and recognition of the adequate part of the study at the sending university. The subjects the student should complete at the receiving university based on the agreement about

the study become the valid part of the student's study plan. The subjects completed at the receiving university in the frame of academic mobility the faculty recognises based on the record of the study results which the receiving university issues at the end of his/her study. The record of study results becomes part of the student's study documentation kept by the faculty. The details on the recognition of academic mobility subjects are stated in the Study Regulations of FM CU.

h) *The institution states the topics of the study programme's final theses (or a link to the list).*

Final theses are regularly updated and published on the faculty website (www.fmed.uniba.sk) and in the Academic Information System AIS. As it is a new study programme, no concrete theses for the dissertation theses have been announced.

i) *The institution describes or refers to:*

- The rules at entering, elaboration, reviewing, defence and assessment of the final theses in the study programme are stated in the Study Regulations of the Faculty of Medicine, Comenius University in Bratislava (Internal Regulation No. 10/2020) and are freely available on the address: www.fmed.uniba.sk/fileadmin/lf/o_fakulte/dokumenty/SP_1_9_2020.pdf
- Possibilities and procedures of participation in student mobilities are published on the faculty's website seat in part international relationships on the address: www.fmed.uniba.sk/medzinarodne-vztahy/
- Rules of complying with the academic ethic and concluding of subsequent consequences are adjusted by the Disciplinary Board of the Faculty of Medicine, Ethical Codex and Ethical Board, while more detailed information is freely available on the websites:

The Disciplinary Board CU (Disciplinary Regulations CU in Bratislava for students, the Internal Regulation No 13/2018)
https://uniba.sk/fileadmin/ruk/legislativa/2018/Vp_2018_13.pdf

The Rules of Procedures of the Disciplinary Board CU (the Internal Regulation No 14/2018)
https://uniba.sk/fileadmin/ruk/legislativa/2018/Vp_2018_14.pdf

Disciplinary Board for Students of the Faculty of Medicine CU
www.fmed.uniba.sk/o-fakulte/organy-fakulty/disciplinarna-komisia-pre-studentov/

Ethical Codex of Comenius University in Bratislava (the Internal Regulation No. 23/2016)
https://uniba.sk/fileadmin/ruk/legislativa/2016/Vp_2016_23.pdf

Ethical Board CU
<https://uniba.sk/o-univerzite/organy-uk/eticka-rada-uk/>

The Rules of Procedures of the Ethical Board 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 Comenius University in Bratislava. The centre provides information, advisory, supportive services and educational activities for applicants and students with specific needs, teachers and the wider public. A coordinator for the support for students with specific needs acts at the Faculty level and assesses the possibilities/restrictions/ and the risk 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 mediatorial activities. He/she contributes to creating a specific system of hybrid education and support for students with specific needs.

Support Centre for Students with Specific Needs CU
<https://uniba.sk/o-univerzite/rektorat-uk/oddelenie-socialnych-sluzieb-a-poradenstva-osspp/centrum-podpory-studentov-so-specifickymi-potrebami-cps/>

The present coordinator for students with specific needs in the frame of the Faculty of Medicine CU in Bratislava is:
prof. MUDr. Ján Pečeňák, CSc., Psychiatric clinic Faculty of medicine CU and University Hospital Bratislava
tel. number: 02/572 90 385; e-mail: Jan.Pecenak@sm.unb.sk

- Procedures in submission of impulses and appeals from the side of students are adjusted in the Study Regulations of the Faculty of Medicine, Comenius University in Bratislava (the Internal Regulation No. 10/2020), which is freely available at the address: www.fmed.uniba.sk/fileadmin/lf/o_fakulte/dokumenty/SP_1_9_2020.pdf

5. **Course information sheets of the study programme subjects**

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

The course information sheets of the study programme subjects are a separate attachment of the description of the study programme.

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

It is a new study programme, the timetable of which is not available yet. The current schedule of the current academic year is available on the website seat of the faculty:

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

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. Vanda Repiská, PhD., university teacher – professor, in the function professor. Contact: The Institute of Biology, Genetics and Clinical Genetics of the Faculty of Medicine Comenius University in Bratislava, Špitálska 24, 813 72 Bratislava, tel.: +421/ 9011 9011, e-mail: vanda.repiska@fmed.uniba.sk

- b) *List of persons responsible for the profile courses of the study programme with the assignment to the course and provided with a link to the central register of university staff and with contact details (they may also be listed in the study plan).*

The teacher of the profile subject/ Contact (workplace, e-mail, telephone number)	Reference to the Register of the University Employees	Title the profile subject
prof. RNDr. Vanda Repiská, PhD. The Institute of Biology, Genetics and Clinical Genetics of the Faculty of Medicine Comenius University in Bratislava, vanda.repiska@fmed.uniba.sk ; 02 90119 500	www.portalvs.sk/regzam/detail/3360	1. New Trends in Medical and clinical genetics 2. Dissertation work I. 3. Dissertation work I". 4. Dissertation Examination 5. Defence of the Dissertation Thesis
doc. MUDr. Daniel Böhmer, PhD. The Institute of Biology, Genetics and Clinical Genetics of the Faculty of Medicine Comenius University in Bratislava, daniel.bohmer@fmed.uniba.sk ; 02 90119 203	www.portalvs.sk/regzam/detail/3094	1. New Trends in Medical and clinical genetics 2. Dissertation work I. 3. Dissertation work I". 4. Dissertation Examination 5. Defence of the Dissertation Thesis
doc. RNDr. Ľuboš Danišovič, PhD. The Institute of Biology, Genetics and Clinical Genetics of the Faculty of Medicine Comenius University in Bratislava, lubos.danisovic@fmed.uniba.sk ; 02 90119 215	www.portalvs.sk/regzam/detail/3122	1. New Trends in Medical and clinical genetics 2. Dissertation work I. 3. Dissertation work II. 4. Dissertation Examination 5. Defence of the Dissertation Thesis
doc. Ing. Helena Gbelcová, Ph.D. The Institute of Biology, Genetics and Clinical Genetics of the Faculty of Medicine Comenius University in Bratislava, helena.gbelcova@fmed.uniba.sk ; 02 90119 502	www.portalvs.sk/regzam/detail/5829	1. New Trends in Medical and clinical genetics 2. Dissertation work I. 3. Dissertation work II. 4. Dissertation Examination 5. Defence of the Dissertation Thesis

- 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:*

Compulsory subjects:

The teacher of the profile subject/ Contact (workplace, e-mail, telephone number)	Reference to the Register of the University Employees	Course ID:
prof. MUDr. Viera Štvrtinová, CSc. The 1st Internal Clinic of the Faculty of Medicine CU in Bratislava viera.stvrtinova@uniba.sk ; 02 57 290 329	www.portalvs.sk/regzam/detail/3380	Introduction to scientific research 1.
doc. MUDr. Jozef Záhumenský, Ph.D. The Second Oncological Clinic of the Faculty of Medicine, Comenius University in Bratislava zahumensky@ru.unb.sk ; 02 57 290 682	www.portalvs.sk/regzam/detail/23975	Introduction to scientific research 1.
prof. RNDr. Ivan Varga, PhD. et PhD. The Institute of Histology and Embryology of the Faculty of Medicine, Comenius University in Bratislava ivan.varga@fmed.uniba.sk ; 02 90119 547	www.portalvs.sk/regzam/detail/3448	Introduction to scientific research 1.
prof. MUDr. Ján Pečenák, CSc. The Psychiatric Clinic of the Faculty of Medicine, Comenius University in Bratislava jan.pecenak@sm.unb.sk ; 02 57 290 385	www.portalvs.sk/regzam/detail/3337	Introduction to scientific research 2.
prof. MUDr. Daniela Ostatníková, PhD. The Institute of Physiology of the Faculty of Medicine, Comenius University in Bratislava daniela.ostatnikova@fmed.uniba.sk ; 02 90119525	www.portalvs.sk/regzam/detail/3323	Introduction to scientific research 2.
doc. MUDr. Alexandra Bražinová, PhD., MPH ass. prof.	www.portalvs.sk/regzam/detail/8790	Introduction to scientific research 2.

The Institute of Epidemiology of the Faculty of Medicine, Comenius University in Bratislava alexandra.brazinova@fmed.uniba.sk ; 02 90119 487		
prof. MUDr. Michal Mego, PhD., DrSc. The Second Oncological Clinic of the Faculty of Medicine, Comenius University in Bratislava michal.mego@nou.sk	www.portalvs.sk/regzam/detail/3289	Introduction to scientific research 3.
prof. MUDr. Boris Mravec, PhD. The Institute of Physiology of the Faculty of Medicine, Comenius University in Bratislava boris.mravec@fmed.uniba.sk ; 02 90119 527	www.portalvs.sk/regzam/detail/3305	Introduction to scientific research 3.
prof. MUDr. Fedor Šimko, CSc. The Institute of Pathological Physiology of the Faculty of Medicine, Comenius University in Bratislava fedor.simko@fmed.uniba.sk ; 02 90119 288	www.portalvs.sk/regzam/detail/3366	Introduction to scientific research 3.
PhDr. Tomáš Hamar, PhD. The Institute of the Foreign Languages of the Faculty of Medicine Comenius University in Bratislava tomas.hamar@fmed.uniba.sk ; 02 90119 320	www.portalvs.sk/regzam/detail/5222	English language and Exam in the English Language
Ing. Janka Babelová, PhD. The Institute of the Foreign Languages of the Faculty of Medicine Comenius University in Bratislava janka.babelova@fmed.uniba.sk ; 02 90119 418	www.portalvs.sk/regzam/detail/3075	English language and Exam in the English Language
Mgr. Katarína Hromadová, PhD. The Institute of the Foreign Languages of the Faculty of Medicine Comenius University in Bratislava katarina.hromadova@fmed.uniba.sk ; 02 90119 504	www.portalvs.sk/regzam/detail/5021	English language and Exam in the English Language

Compulsory elective subjects:

The teacher of compulsory elective subject/ Contact (workplace, email, telephone number)	Reference to the Register of the University Employees	Course ID:
prof. PhDr. MUDr. Alena Furdová, PhD., MPH, MSc., FEBO , the Clinic of Ophthalmology of the Faculty of Medicine Comenius University in Bratislava, alika.furdova@gmail.com ; 02 48234 607	www.portalvs.sk/regzam/detail/3147	The register of diseases, national healthcare registers, follow-up
Doc. MUDr. Jozef Záhumenský, Ph.D. The Second Oncological Clinic of the Faculty of Medicine, Comenius University in Bratislava zahumensky@ru.unb.sk ; 02 48234 682	www.portalvs.sk/regzam/detail/23975	Functional Anatomy of human reproduction and clinical embryology
Prof. RNDr. Ivan Varga, PhD. et PhD. The Institute of Histology and Embryology of the Faculty of Medicine, Comenius University in Bratislava ivan.varga@fmed.uniba.sk ; 02 90,119,547	www.portalvs.sk/regzam/detail/3448	Functional Anatomy of human reproduction and clinical embryology
Prof. MUDr. Ján Pečeňák, CSc. The Psychiatric Clinic of the Faculty of Medicine, Comenius University in Bratislava jan.pecenak@sm.unb.sk ; 02 57290 385	www.portalvs.sk/regzam/detail/3337	Neuroscience – New Trends
Prof. MUDr. Daniela Ostatníková, PhD. The Institute of Physiology of the Faculty of Medicine, Comenius University in Bratislava daniela.ostatnikova@fmed.uniba.sk ; 0290119525	www.portalvs.sk/regzam/detail/3323	Neuroscience – New Trends
Prof. MUDr. Boris Mravec, PhD. The Institute of Physiology of the Faculty of Medicine, Comenius University in Bratislava boris.mravec@fmed.uniba.sk ; 02 90119 527	www.portalvs.sk/regzam/detail/3305	Neuroscience – New Trends
Prof. MUDr. Beata Mladosičová, CSc. The Institute of Pathological Physiology of the Faculty of Medicine, Comenius University in Bratislava beata.mladosievicova@fmed.uniba.sk ; 02 90119 604	www.portalvs.sk/regzam/detail/3298	Pathological Physiology and Pathology – new trends
Prof. MUDr. Martin Wawruch, PhD. The Pharmacology and Clinical Pharmacology of the Faculty of Medicine, Comenius University in Bratislava martin.wawruch@fmed.uniba.sk ; 02 90119 229	www.portalvs.sk/regzam/detail/3464	New medicaments and strategies in pharmacotherapy
Doc. MUDr. Mária Bucová, CSc., adj. prof.	www.portalvs.sk/regzam/detail/3101	New trends in medical microbiology and immunology

Immunological Institute of the Faculty of Medicine CU in Bratislava, maria.bucova@fmed.uniba.sk ; 02 90119 351		
Doc. et Doc. MUDr. Adriana Liptáková, PhD., MPH Immunological Institute of the Faculty of Medicine CU in Bratislava adriana.liptakova@fmed.uniba.sk ; 02 9011 9206	www.portalvs.sk/regzam/detail/8382	New trends in medical microbiology and immunology
Doc. RNDr. Vladimíra Ďurmanová, PhD. Immunological Institute of the Faculty of Medicine CU in Bratislava vladimira.durmanova@fmed.uniba.sk ; 02 9011 9887	www.portalvs.sk/regzam/detail/5446	New trends in medical microbiology and immunology
Doc. Mgr. Ivana Shawkatová, PhD. Immunological Institute of the Faculty of Medicine CU in Bratislava ivana.shawkatova@fmed.uniba.sk ; 02 9011 9886	www.portalvs.sk/regzam/detail/3394	New trends in medical microbiology and immunology
Prof. MUDr. Ladislav Turecký, CSc. The Institute of Medical Chemistry, Biochemistry and Clinical Biochemistry of the Faculty of Medicine Comenius University in Bratislava, ladislav.turecky@fmed.uniba.sk ; 02/90119 416	www.portalvs.sk/regzam/detail/3438	New Trends in Medical, Clinical and Pharmaceutical Biochemistry
Doc. RNDr. Jana Muchová, PhD. The Institute of Medical Chemistry, Biochemistry and Clinical Biochemistry of the Faculty of Medicine Comenius University in Bratislava, jana.muchova@fmed.uniba.sk ; 02/90119 411	www.portalvs.sk/regzam/detail/3309	New Trends in Medical, Clinical and Pharmaceutical Biochemistry
Doc. Ing. Ingrid Žitňanová, PhD. The Institute of Medical Chemistry, Biochemistry and Clinical Biochemistry of the Faculty of Medicine Comenius University in Bratislava, ingrid.zitnanova@fmed.uniba.sk ; 02/90119 559	www.portalvs.sk/regzam/detail/3466	New Trends in Medical, Clinical and Pharmaceutical Biochemistry
Doc. RNDr. Monika Ďurfinová, PhD. The Institute of Medical Chemistry, Biochemistry and Clinical Biochemistry of the Faculty of Medicine Comenius University in Bratislava, monika.durfinova@fmed.uniba.sk ; 02/90119 575	www.portalvs.sk/regzam/detail/3133	New Trends in Medical, Clinical and Pharmaceutical Biochemistry

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

It is a new study programme. Until now, any concrete theses for the dissertation theses were announced. We state the orientation of the research of the final thesis supervisors.

Name of the supervisor of the final thesis Contact (workplace, e-mail, telephone number)	Reference to the Register of the University Employees	The orientation of the dissertation works
prof. RNDr. Vanda Repiská, PhD. The Institute of Biology, Genetics and Clinical Genetics of the Faculty of Medicine Comenius University in Bratislava, vanda.repiska@fmed.uniba.sk ; 02 90119 500	www.portalvs.sk/regzam/detail/3360	Molecular Biology, Experimental Oncology, Cytology
doc. MUDr. Daniel Böhmer, PhD. The Institute of Biology, Genetics and Clinical Genetics of the Faculty of Medicine Comenius University in Bratislava, daniel.bohmer@fmed.uniba.sk ; 02 90119 203	www.portalvs.sk/regzam/detail/3094	Clinical Genetics, Tetralogy, Genetically conditioned diseases, Cytology, Diagnosis of the Causes of Spontaneous Miscarriage and other reproductive losses.
doc. RNDr. Ľuboš Danišovič, PhD. The Institute of Biology, Genetics and Clinical Genetics of the Faculty of Medicine Comenius University in Bratislava, lubos.danisovic@fmed.uniba.sk ; 02 90119 215	www.portalvs.sk/regzam/detail/3122	Issue engineering, cellular cultures, somatic stem cells, in vitro cultivation, regenerative medicine
doc. Ing. Helena Gbelcová, Ph.D. The Institute of Biology, Genetics and Clinical Genetics of the Faculty of Medicine Comenius University in Bratislava, helena.gbelcova@fmed.uniba.sk ; 2 90119 502	www.portalvs.sk/regzam/detail/5829	molecular biology, experimental oncology, cellular cultures an in vitro cultivations, stem cells

f) *Reference to scientific/artistic-pedagogical characteristics of the supervisor of final works:*

The research/art/teacher profiles of supervisors is available at the faculty.

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 Medicine, Comenius University in Bratislava (www.fmed.uniba.sk/scas/).
The chairman is Ivan Fuljer, MPH (fuljer1@uniba.sk), the vice-chairman is Ján Chvála (chvala2@uniba.sk).

h) *Study advisor of the study programme (indicating contact details and information on the access to counselling and consultations schedule).*

doc. RNDr. Ľuboš Danišovič, PhD. (lubos.danisovic@fmed.uniba.sk; personal contact after agreement via e-mail)

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

The Department of Scientific-Research Activity and Foreign Relations acts as part of the Dean's Office of the Faculty of Medicine, Comenius University in Bratislava, responsible for complex care of students in the doctoral study programmes. The department is adequately personally, professionally, and financially funded. The supportive professional staff at this department 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 contacts of the employees of the department are on the websites: www.fmed.uniba.sk/pracoviska/dekanat/ and on <https://zona.fmed.uniba.sk/studium/doktorandske-studium/>

Since the year 2017, the **Project centre** is an integral part of the Faculty of Medicine CU in Bratislava. It provides active cooperation for students in the third grade of the education as well as to their supervisors at:

- Searching and observing present appeals for the support of education, research and development in the frame of the SR, international institutions and EU institutions,
- Provision of information to workplaces and employees of FM CU on present appeals for submitting of projects,
- Provision of training activities and seminars for faculty workplaces on specifics of particular appeals for submitting projects,
- Consultancy activities at the processing of projects for faculty workplaces,
- Organising internal faculty presentations of project objectives and organising independent external examination of the prepared project proposal,
- Management of administrative part of the preparation and realisation of projects from the professional faculty workplaces,
- Provision of basic administrative service at the processing of projects to present appeals,
- Preparation and realisation of own projects to widen activities of the project centre,
- Systematic building of contacts and cooperation on the national and international level in education, research, and application of its results in practice.

The Project Centre of the Faculty of Medicine CU in Bratislava contact is on the website: www.fmed.uniba.sk/opp/

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

For **the activities in the programme Erasmus+**, there is the department for European programmes Erasmus+ at the Rector's Office of the Comenius University in Bratislava, which manages all activities of the programme at Comenius University and is un the scope of the vice-rector CU for International relations (contacts on <https://uniba.sk/o-univerzite/rektorat-uk/oddelenie-pre-europske-projekty-a-erasmus-oep/>). The students in the full-time doctoral study programmes utilise the **accommodation facilities of the Comenius University in Bratislava** with the supportive administrative and technical personnel (<https://uniba.sk/studujinauk/byvainauk/>).

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

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 the quality tuition of the subjects in the study programme. Regarding the present number of students, the faculty has enough reconstructed classrooms with quality technical infrastructure, including classrooms for interactive teaching. The study programme Medical Biology and Clinical Genetics will be realised mainly at the Faculty of Medicine CU theoretical institutes in Bratislava. The place of tuition will depend on the dissertation thesis, the year of the study in which the PhD. student studies.

The teaching bases for theoretical tuition presents 18 theoretical institutes and 4 purpose-built facilities, which are on the premises of FM CU in the buildings of 'Old theoretical institutes' in Sasinkova street 2 and 'New theoretical Institutes' in Sasinkova street 4 and the building in Moskovska street 2, Bratislava. Theoretical institutes are equipped with specialised classrooms, seminar rooms, computer rooms and dissection rooms with necessary audio-visual techniques and instrumental equipment for students, libraries with particular librarian funds for employees and students' needs, laboratories with technical equipment for needs of tuition and research activities besides libraries and seminar rooms of particular institutes, meeting room of the Scientific Board of FM CU. PhD. students can also utilise common study space and auditories. The large auditory with the capacity of more than 300 students with the area of 276,0 m² with semi-circular stepped sitting, Small Auditory with the capacity of 144 students with the area of 108,0 m² with direct stepped sitting, Ladziansky Auditory with the capacity of 200 students with the area of 184,0 m² with direct stepped sitting. 54 clinics present the teaching base for practical tuition – specialised teaching workplaces which are on 6 Bratislava healthcare workplaces (University Hospital Bratislava, National Institute for children's Diseases, University Hospital of Merciful Brothers, St. Elizabeth Cancer Institute, National Oncological Institute, National Institute of Cardiovascular Diseases), with which the faculty concluded 'Contracts on practical tuition'. The use of computer simulators and interactive models is in the medical tuition, including the third degree, i.e. PhD. study, a worldwide trend. The interactive procedure contains the assessment, formulation of decisions and correction of errors which has advantages compared to the direct work with patients and the tuition is more effective.

The scientific part of the PhD. work in the study programme Medical Biology and Clinical Genetics will be provided mainly at the Institute of Biology, Genetics and Clinical Genetics FM CU. In case of need of interdisciplinary research, also in laboratories of the Institute of Pathological Anatomy FM CU, the Institute of Forensic Medicine FM CU, Immunological Institute FM CU, Microbiological Institute FM CU, Institute of Histology and Embryology FM CU as well as at the Institute of Anatomy FM CU. The scientific part of 'tuition' of PhD. students depend on the theme of the dissertation thesis. The existing infrastructure of the Institute of Medical Biology, Genetics and

Clinical Genetics FM CU corresponds with the requirements placed on the molecular-genetic and biochemical diagnosis and solving of scientific projects. Technical conditions also correspond with the methodological procedure allowing for the realisation of the PhD. scientific part of the study programme. The workplace has at its disposal a portfolio of instruments and procedures for complex work with nucleic acids. Simultaneously, as their sources either directly the human tissues might be used (it disposes of equipment for their processing) or cellular lines cultivated in vitro (it disposes of two separate spaces with pre-boxes 2A class and CO2 incubators, one of the spaces is pressurised). Equipment infrastructure involves an inverted light microscope Zeiss Axio Vert. A1 with the possibility for photo documentation via back and white camera and software Gen 5 1.10, automated counter of cells Countess™ II FL with the option to make measurements with software Cedex XS, several spectrophotometers including detector of absorbance, fluorescence and luminescence for 96 hole plates Biotek Synergy Htx with the possibility to assess measurements with the software Gen5, two flow cytometry MACs Quant Analyzer meeting the modern requirements for flow cytometry, allowing for automated isolation and characterisation of cells, following various signal pathways, a small laboratory flow cytometry Guava® Muse® Cell Analyzer utilising fluorescence agents and detection for measurement of three parameters with minimal preparation of the sample with the help of commercially available sets allowing for observation of several cellular processes with focusing on the cell cycle and cell death with the possibility of closer determination of mechanisms of the cell death, several pieces of equipment for realisation of PCR in various versions including thermal cycler of Biometra UNO II, thermal gradient cyclers Applied Biosystems SimpliAmp and BioRad T100, equipment for detection of synthesis of PCR product in the real time with fluorescent marked Taq man probes in various setting including QuantStudio™ 3 Real-Time PCR System and Eco Real-Time PCR System, Illumina, 4 and also 16-capillary DNA sequenator Applied Biosystems ABI 3130xl Genetic Analyser, chemiluminescent western blott detector Azure c300, Nextgene sequenator MiniSeq Illumina, microarray system Agilent and others.

The Institute of Biology, Genetics and Clinical Genetics FM CU is a common workplace also with the University Hospital in Bratislava, which provides acquirement of clinical experience and skills under experienced and certified clinical geneticists' supervision. The Institute of Biology, Genetics and Clinical Genetics FM CU is also a significant part of the centre for the SR's trophoblastic disease, for which it provides differential diagnosing of gestational trophoblastic disease. The institute provides a cell bank for diagnosing enzymopathies for the National Institute of Children's diseases

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 **Academic Library of the Faculty of Medicine, Comenius University in Bratislava** (further just AL FM 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 AL FM CU are predominantly oriented to activities, the prevailing part of which has a long-term or permanent character:

- Supplementing the library fund focused on the coverage of obligatory and obligatory elective subjects – purchase, exchange with domestic and international partners, with a donation,
- Name and factual processing of all types of documents in the 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 absent borrowing of the literature,
- Exchange of the journal Bratislava Medical Journal with domestic and international exchange partners
- Inter librarian and international borrowing service
- Borrowing of literature from other libraries users, the arrangement of request for borrowing from other libraries, acquiring of article copies from scientific journals,
- Consultation activity – professional help for users at searching for information,
- Provision of study rooms,
- Creation of specialised databases,
- Registration of public activities and citations of the FM CU employees,
- Research service – overview of the literature on required themes (selective until the level of full texts), overviews of publication activities, citation research,
- On-line access to electronic information sources – bibliographic, citation and full-text databases, e-print of journals,
- Information preparation of users – lectures and courses for the students focused on searching for information,
- Solving of own projects oriented to grant schemes especially of the Ministry of Education, Science and Research of the SR or the Ministry of Culture of the SR.

Statistical indicators of the Academic Library of the Faculty of Medicine, Comenius University in Bratislava

The status of the librarian fund – 136 109 library units.

The number of registered users – 2 889, out of it 2 383 students.

Approximated number of borrowings realised in the period before the pandemic COVID-19 – 42 374.

The database contains complete bibliographic information on publications of pedagogical and scientific-research employees and PhD. students in the full-time form at FM CU. The information value of the databases also increases the record-keeping of responses to the publications. The database's data are exported to the Central register of publication activities (further just CREPČ) (<http://www.crep.sk/>). They are one of the bases for the allocation of the state budget grants to public universities.

Availability of electronic information sources of the Academic Library of the Faculty of Medicine, Comenius University in Bratislava

AL FM CU in the frame of NIZPEZ projects (National Information System for Support of Science and Development – 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). Based on the subscription for FM CU, access is provided to the collection of e-books of the printing house EBSCO and WILEY and the Portal 5 Minute Consult,

WWW website and propagation of the Academic Library

The library website (www.fmed.uniba.sk/pracoviska/kniznica) available in Slovak and the English language is regularly updated and allows for optimal services via the internet.

Information systems of the Faculty of Medicine CU are an inseparable part of CU's information systems in Bratislava. They aim to collect data, process, assess, store, and publish relevant information for the PhD study programmes' 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 the domestic environment or from abroad in case of participation at international conferences or study stays, AIS is another essential information system, which is the central university system for the complete administration of the study agenda.

The hardware equipment of Medicine, Comenius University in 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 at disposal also for students. The domain environment of the faculty allows for each PhD. student to use any computer at the institutes of the faculty. Access is possible after the authentication with the unique domain 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 1600 computers, notebooks, and tablets connected in the faculty's pedagogical, scientific and research process. They are placed in the theoretical institutes and clinics of the FM. Out of the number of computers, 70 computers are available directly for students and PhD. students in the computer rooms and study rooms of the faculty academic library. All desktop computers and mobile equipment can provide an unlimited connection to the internet with structured cabling of the LAN net or Wi-Fi net of the faculty. The skeleton of the net is realised on an optical basis, allowing for the fitting of new technologies acquiring high-speed connection into the internet.

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

Wi-Fi covering faculty premises provides for students and PhD. students free connection to the internet and access the information sources on the internet via their own IT equipment such as notebooks, tablets, and smartphones. At present, the faculty's Wi-Fi covering provides 27 connection points placed in auditories, study rooms, and libraries of the theoretical institutes and free premises of the FM with students' high movement.

The faculty equipped three computer rooms. There are 25 computers of the type 'All in One' and a video projector in the main computer room. All PCs are equipped with the operating system Windows 7 in the Slovak language with the possibility to switch into the English language. As an office package, there is used MS OFFICE 2016. A newly built smaller computer room in Moskovska street 2, Bratislava, is equipped with 13 pieces of AIO PC with the operation system Win 10 and office package MS Office 2016. Both computer rooms are under the Computer Centre FM CU administration and are fully available for each institute and clinic at request.

Besides stated, the faculty has at disposal four large auditories, 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.

Beside the computer rooms and auditories, the tuition also runs at computers in libraries and practical rooms of institutes and FM clinics. The presentation technique is fixed in the majority and consists of a computer or a notebook, a video projector, and the presentation screen. In the auditories of the clinics without fixed installed presentation technique have the possibility to use a mobile presentation technique at disposal in three sets at request.

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

The faculty also has 6 pieces of teleconference equipment (Cisco and Huawei) placed at the selected clinics and institutes of FM CU. They serve for immediate connection between clinics to share the interactive educational content (operations, consultations, MRI and X-ray scans, and so on) and for treating purposes, in case of immediate need of consultation with an expert from another clinic or faculty hospital. Teleconference equipment allows for live transmission directly from the dissection room

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

- the faculty operates the website as part of the university website, which allows publishing relevant information about the study programmes on the address www.fmed.uniba.sk in the Slovak and English mutation.
- The faculty provides a space for storing educational and other helpful information materials on the address <http://portal.fmed.uniba.sk/>. The teaching portal is part of the project Mefanet, in which all medical faculties are involved from the Czech and Slovak Republic.
- 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 for utilising multimedia educational elements and new information-communication means for the upgrade and better attractiveness of the educational process.
- Computers and notebooks of the faculty are equipped with MS WIN 7 and 10, version Professional.
- 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 tuition, for the administration of the study and study results.
- Possibility to utilise the licensed software.
- Possibility to utilise freely available software.

The faculty's whole computer net is under the management of the Computer Centre FM CU, which administer the faculty's server equipment, provides the basic working of the computer network and other network services. The essential services provided for the user is timely unlimited connectivity into the internet provided with the administration of the firewall, e-mail service with the address @fmed.uniba.sk, presentation of the faculty in the form of the website and provided date warehouse with guaranteed renewability in case of breakdowns. Teachers and PhD. students can utilise free access to external paid on-line information sources, paid full-text journals and other library databases run by the Academic Library of CU from the faculty's environment. The teachers and PhD. students have this service also available from home environment via remote access. But the inevitable condition is the affiliation to the academia of CU. This service is part of the information system provided and maintained centrally by the university for all its employees and students

- b) *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 platform MS Teams, to which all students and employees of Comenius University in Bratislava have free access. With the help of MS Teams lectures, seminars and selected exercises might run. All study materials are available for students also in electronic form. MS Forms is used for testing. Alternatively, Moodle is used for distant teaching.

Thanks to the package MS Office 365, which uses the whole university, the sharing of the large files is allowed, on-line teaching and testing in a very reliable regimen with fluent transfer of big volumes of data. On-line teaching and examination in this package frame as, e.g., Teams and Forms might be used. In case of transition of the whole faculty from in-person study to distant education, the Dean's board of the Faculty of Medicine in Bratislava informs the students via electronic post. At short-time transition in the frame of a particular subject, the teacher responsible for the 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 content of the subject published in the subject information sheet is also the description of the relevant sources of literature inevitable for the knowledge acquiring determined by the subject's content. The faculty tries to provide the needed study literature via its Academic Library. Another way is to publish the presentations and other study materials on the faculty's website about relevant subjects in particular institutes and clinics following the author law. The newest, more sophisticated approach is the publishing of the study materials via the system Moodle and other means of e-learning, which allows the students based on the university personal access to use the study material like presentations, videos, tests and provide direct communication with the teacher, with lectures, seminars, exercises and consultations on the subject.

The realisation of the scientific/practical part of the study programme Medical Biology and Clinical Genetics in the third degree of education exclusively via the distant method would be likely an exception. In practice, the most used method is the combined method, where part of in-person theoretical education is replaced with the distant method with electronic support.

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

The Faculty of Medicine CU in Bratislava, based on the concluded contracts on practical teaching, cooperates with six hospital facilities, i.e. University Hospital Bratislava, the National Institute of the Children's Diseases, the University Hospital of Merciful Brothers, St. Elizabeth Cancer Institute, National Oncological Institute, National Institute of Cardiovascular Diseases. The cooperation in the frame of practical tuition of the study programme Medical Biology and Clinical Genetics will be realised primarily via clinic-genetic outpatient clinics in the University Hospital Bratislava and the Department of Medical Genetics of the St. Elizabeth Cancer Institute.

At provision of education in the third degree of the study the Faculty of Medicine CU in Bratislava cooperates with the partner institutes of the Slovak Academy of Sciences: Institute of Experimental Oncology of the Biomedical Center of the Slovak Academy of Sciences and Institute of Clinical and Translational Research of the Biomedical Center of the Slovak Academy of Sciences. It is a custom that some scientific workers of the Slovak Academy of Sciences workplaces train students of the third degree. The students have access to relevant institutes and financial sources of scientific infrastructure via the project schemes (research and travel allowance) of the Slovak Academy of Sciences determined for PhD. students.

The Faculty of Medicine, Comenius University in Bratislava, cooperates with many international universities and scientific-research institutions where our students can acquire knowledge and perform part of their research in specialised laboratories of complementary modern equipment. At the realisation of the study in the third degree in the study programme Medical Biology and Clinical Genetics, there is a plan to cooperate with the following international workplaces: Department of Biochemistry and Microbiology, University of Chemistry and Technology, Prague, Prague, Czech Republic (Prof. Ing. Tomáš Ruml, Ph.D., Ing. Jitka Viktorová, Ph.D.), Vysoká škola chemicko-technologická, Fakulta potravinářské a biochemické technologie, Ústav biochemie a mikrobiologie, Technická 3, 166 28 Praha, Česká republika, Laboratory of Genomics and Bioinformatics, Institute of Molecular Genetics, Czech Academy of Science, Prague, Czech Republic (Ing. Michal Kolář, Ph.D.), Oddělení genomiky a bioinformatiky, Ústav molekulární genetiky, Akademie věd České republiky, Praha, ČR, Institute of Medical Biochemistry and Laboratory Diagnostics, and 4th Department of Internal Medicine, 1st Faculty of Medicine, Charles University in Prague, Prague, Czech Republic (Prof. MUDr. Libor Vítek, Ph.D., MBA), Department of Medical Microbiology and Immunobiology, Faculty of Medicine, University of Szeged, Hungary (Dr. Gabriella Spengler).

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

The Faculty of Medicine premises, Comenius University in Bratislava (buildings in Sasinkova and Moskovska street), provide equipment for the work and relax in the corridors, buffet, where the students in their free time meet, discuss or possibly study. The faculty provides a connection to the internet for every student/ employee after entering the identification data. In Sasinkova street's outer premises, there is a newly created park with banks, where the students might relax. On the faculty's premises on Sasinkova street, there is a tennis court, fitness centre and sauna, which the students might utilise. Further, they have the Botanic garden of the Faculty of Medicine at their disposal. Especially in the summer months, they can prepare for the examinations or attend the events organised there.

The Institute of the Physical Education and Sports workplace is also part of the Faculty of Medicine CU in Bratislava. The Institute of the Physical Education and sports' primary mission is to provide the obligatory teaching of physical education for the Faculty of Medicine students. Further, the institute organises the optional physical education, sports, and activities for the faculty students and employees. Annually, a non-compulsory winter and summer sports training camp is organised. It runs the gymnasium in Mlynska dolina, the dock in Karlova Ves and sports area in the FM CU court, which provides other possibilities for physical activities. The Institute of Physical Education and Sports provides the following sports activities for students in the second and third degree of the study, as well as for its employees: tourism, ski trips, rafting on the Danube and recreational football in the frame of the Football club of FM CU. At the institute, there also acts the Sports organisation TJ Slavia Medik, in the frame of which under the supervision of the teachers of the Institute of the Physical Education and Sports FM CU they created sports teams: basketball – female and male, volleyball – female and male, swimming, football, tennis, touristic – water and hiking, floorball team and football team of the employees of FM CU. The activity of the clubs is focused mainly on sports for everybody or recreational sports.

In the frame of the university, there is a concert ensemble and choir. The university and the faculty provide for workers and PhD. students possibility to buy a reduced price ticket for various cultural events.

University Pastoral centre of Jozef Freinademetz of Comenius University (www.upc.uniba.sk/) provides possibilities for spiritual activities during the study. Also, directly in the building of the Dean's Office of the Faculty of Medicine Comenius University, a chapel in which the church service is occasionally organised.

- d) *Possibilities and conditions for the study programme students' participation in mobilities and internships (indicating contact details), application instructions, and rules for recognition of 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 Medicine and University. In the frame of scientific work on their projects, possibly on projects of the supervisor, they are sent to partner universities and research institutions in Europe and worldwide. They can also use bilateral international mobility projects, e.g., via the Slovak Academic Information Agency and the National Grant Fund.

The binding contractual partnerships allow the participation of interested parties and their representatives at the proposal, approval, performance and assessment of the study programme. The agreements with partners to specify the conditions of the partner employees' participation in the provision of the study programme and conditions for the provision of space, material and information sources and provision of the quality of the study realised in the premises of a partner including the final thesis.

Comenius University can send students abroad with the aim of the study or internship in its partners' frame (Utrecht Network, SYLFF, some bilateral agreements) **to 63 international universities in more than 30 countries** in Europe and also outside of it. Even broader possibilities covering practically the whole world exist in the frame of other schemes, especially in the frame of the programme Erasmus+ and MSVVS SR activities, realised via SAIA. They are mainly: the Central Europe Exchange Programme of University Studies (CEEPUS), the National Grant Programme (NGP), Austria-Slovakia Vysegradsky fund and others. New possibilities for mobilities in the broader frame of the programme Erasmus+ provides the university alliance ENLIGHT, in the frame of which Comenius University in Bratislava established cooperation in the year 2020 in the field of education with eight European Universities: University in Bordeaux, University in Gent, University in Groningene, University in Göttingen, University in Uppsala, University in Tart, the Irish National University in Galway and Basque university. The universities undertook to offer their students various educational formats from short-time physical and virtual mobilities in summer schools or so-called live laboratories up to common study programmes, following the accredited SP in the particular countries and to recognise mutually completed subjects.

However, during the present pandemic COVID-19, it plans and realises international mobility to be careful, especially considering the benefits versus risks, especially regarding the epidemiological situation in the receiving country.

The coordinators of Erasmus+ acting at the faculty help to comply with the applicant's precise study plan at the international university, which creates a precondition for recognition of the study completed abroad at CU. Detailed information on the participation of a student in the international mobilities for particular academic years provides the annual reports of the Faculty. Thanks to the activity of the **Department for Scientific Work and Foreign Relations CU in Bratislava**, each employee or student has to get good information possibilities on mobilities and also has administrative support at application for the international mobility. The department of foreign relationships of FM CU aims to improve the provision of information on countries for students and employees and help plan their studies and research abroad. The contact to the mentioned workplace is: www.fmed.uniba.sk/medzinarodne-vztahy/referat-zahranicnych-stykov/

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

a) Required abilities and necessary admission requirements.

Required abilities and necessary admission requirements for the study's admission are following the regularly updated conditions for the relevant degree of the study and are published on the faculty website seat. The admission conditions are usually yearly discussed at the Scientific Board of the Faculty of Medicine CU and are approved by the Academic Senate of the Faculty of Medicine CU in Bratislava. The conditions are published at least three months before the last day determined for submitting the application form. There are adjusted the basic conditions for applying and admission to the study programme in the material, the term for the application forms, term and scope for the entrance examination. Details are on the website: www.fmed.uniba.sk/studium/doktorandske-studium/

b) Admission procedures

The study's admission procedures comply with the Study Regulations of the Faculty of Medicine, Comenius University (the Internal Regulation No. 10/2020, approved according to Art. 27 Sect. 1(a) of Act No. 131/2002 Coll. on Higher Education and on changing and amending certain acts by the Academic Senate of the Faculty of Medicine, Comenius University on June 23, 2020). The Study Regulations of FM CU are freely available on the website www.fmed.uniba.sk/fileadmin/lf/o_fakulte/dokumenty/SP_1_9_2020.pdf.

At the Dean's suggestion, the Academic Senate FM CU in Bratislava each year discusses and approves the Internal Regulation with the title: Admission procedure and conditions for admission for the PhD. study at the Faculty of Medicine CU in Bratislava. It is a freely available minimum three months before the last day determined for the submission of the application form on the website of the faculty, in the section Dean's Internal Regulations: www.fmed.uniba.sk/o-fakulte/legislativa-a-dokumenty/vnutrofakultne-predpisy/vnutorne-predpisy-dekana/. Cited Internal Regulation contains the term for submitting the application form also with attachments, determines obligatory attachments to the application form, dates of entrance examinations, conditions for admitting and the way of admission to the study. The attachments usually contain:

- Structured c.v. signed by the applicant,
- Certified copy of the document about the completion of the university studies. An applicant for the study in the full-time form attaches the average of study results for particular school years.
- Graduates from an international university also submit the recognition of documents on education from abroad.
- The applicant in the external form of the study submits the confirmation from his/her employer about the length of the employment at the time of the submitted application form for the study.
- The list of published and non-published works of the applicant (or expert opinions on these works) and other documents (e.g., a diploma from conferences of the students' scientific professional activity, documents on completed professional courses, documents on language examinations and so on).
- A short annotation of the planned project of the dissertation work elaborated together with the future supervisor,
- Confirmation on payments of the fee for admission procedure.

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

It is a new study programme. Therefore, no possibility to provide an overview of recent admission procedures. The university archives the documentation of the admission procedure, enrolment for the study and enrolments 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 since the day of the study completion.

10. Feedback on the quality of provided education

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

At present, the internal system of Comenius University undergoes harmonisation with the accreditation standards published by the Slovak Accreditation Agency for higher education on 25 July 2020, to be harmonised to the legally stated term of 31 August 2022, at the latest. The formalised processes harmonised with the internal system will also be procedures of collection, analysis, and utilisation of relevant information for effective management of the study programme. Following the formalised processes of utilising relevant information provides the analysed information used at the assessment of the study programme and suggestions for its adjustments and improvement.

The vice-dean of the Faculty of Medicine CU in Bratislava personally participates in the enrolment of the PhD. students into the higher years, which allows him/her a discussion with the students of all study programmes of the third degree. During the enrolment, the students are asked to share their positive and negative experience, which might increase the quality of the study programme with a relevant vice-dean or employees of the Department of Scientific-Research Activity, PhD. Study and Foreign Relations FM CU personally during office hours, via e-mail or phone.

Some processes already provide an effective collection and analysis of information about the study programme and other activities. The faculty has a processed procedure of managing the results from the students' opinion pool, where the subjects of the submitted study programme are, where the competencies are exactly stated, together with responsibility, and procedures of particular participants. It is secured that students' feedback will be utilised at the proposal and future maintenance of the study programme quality. The pool results are beside the other discussed at the Dean's board. In cooperation with the Students Chamber of the Academic senate the popularisation of the pool among the students is provided to reach the highest possible participation. At the same time, the Dean's board discusses the structure and the diction of the questions with students.

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

At present, the internal system of Comenius University undergoes the process of harmonisation with the accreditation standards published by the Slovak Accreditation Agency for higher education on 25 July 2020, to be harmonised to the legally stated term, 31 August 2022. Formalised processes of the harmonised internal system will provide that the collection, analyses, and utilisation of relevant information for effective management of the study programmes will suitably involve students, teachers, employers, and other involved parties of the study programme.

At present, each stimulus that comes from the students is discussed at the Dean's board level, about the result of which a teacher or supervisor will be informed if needed.

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

At present, the internal system of Comenius University undergoes harmonisation with the accreditation standards published by the Slovak Accreditation Agency for higher education on 25 July 2020, to be harmonised to the legally stated term until 31 August 2022. Formalised processes of the harmonised internal system will provide that the collection, analyses and utilisation of relevant information for effective management of the study programmes will suitably involve students, teachers, employers and other involved parties of the study programme.

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/studujnauk/byvajnauk/>

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

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

Guide for the accommodation process for students at Comenius University in Bratislava

https://uniba.sk/fileadmin/ruk/as/2020/Ubytovanie/Sprievodca/Sprievodca_ubytovacim_procesom.pdf

Accommodation Rules

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

University Hostel Družba CU - <https://druzba.uniba.sk/ubytovanie/ubytovaci-poriadok/>

Current information on PhD. study

www.fmed.uniba.sk/studium/doktorandske-studium/

<https://zona.fmed.uniba.sk/studium/doktorandske-studium/>

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/>

Scientific Conference of PhD. Students of the Medical faculty CU

www.fmed.uniba.sk/konferencia/

Students' Chamber of the Academic Senate of the Faculty of Medicine CU

www.fmed.uniba.sk/scas/

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 e-mail and Office

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

Comenius University Journal 'Naša univerzita'

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