

Description of the study programme

Name of the higher education institution:	Trnava University In Trnava
Address of the higher education institution:	Hornopotočná 23, 918 43 Trnava
Identification number of the higher education institution:	318 25 249
Name of the faculty:	Faculty of Health Care and Social Work
Address of the faculty:	Univerzitné námestie 1, 918 43 Trnava

Institution body for approving the study programme:	Council for Internal Evaluation of the Quality of Higher Education
Date of the study programme approval or the study programme modification:	
Date of the last change of the study programme description:	
Reference to the results of the latest periodic review of the study programme by the institution:	
Reference to the assessment report of the application for accreditation of the study programme under § 30 of Act no. 269/2018:	




1. Basic information about the study programme	
Name of the study programme and its number according to the register of study programmes:	Laboratory Medicine - 11912
Degree of higher education and ISCED-F education degree code:	PhD., ISCED-F: 864
Place(s) of delivery of the study programme:	Univerzitné námestie 1, 918 43 Trnava
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:	Healthcare Sciences - 5618, ISCED FoET 2013: 0910
Type of the study programme: academically oriented, professionally oriented; translation, translation combination study programme (listing the specializations); teaching, teaching combination study programme (listing the specializations); artistic, engineering, doctoral, preparation for regulated profession, joint study programme, interdisciplinary studies:	academically oriented
Awarded academic degree:	PhD. (philosophiae doctor)

Form of study:	Full-time, external
In the case of joint study programmes, cooperating institutions and the range of study obligations the student fulfills at each of the given institutions (§ 54a of the Act on Higher Education Institutions):	
Language or languages in which the study programme is delivered:	Slovak
Standard length of the study expressed in academic years:	3 years in full-time form, 4 years in external form
Capacity of the study programme:	
- planned number of students	1 in academic year
- the actual number of applicants	5
- the actual number of students	1 in full-time form, 3 in external form in academic year

2. Graduate profile and learning objectives	
Learning objectives of the study programme such as student's abilities at the time of completion of the programme and the main learning outcomes:	<p>Graduate of the doctoral study of the study program Laboratory medicine of graduation:</p> <ul style="list-style-type: none"> - masters scientific research and development methods in the field of Laboratory medicine, - analyzes pathological parameters in clinical microbiology, biochemistry, hematology, immunology, pathology, cytology, pharmacology, genetics, - is able to define the main health problems in relation to the dynamics of demographic, socio-economic and environmental conditions in the population, - masters the methodology of research activities and the possibilities of statistical evaluation of data, - can apply theoretical information and knowledge in the field of Laboratory Medicine in scientific work, - is able to select appropriate laboratory methods to achieve the expected results, - manage to set up and lead a scientific team in solving research tasks, - can publish, present the results of their own and team scientific work, - is able to participate in multidisciplinary scientific and research activities, - can create and ensure conditions for the implementation of the research plan.
Professions for which the graduate is prepared at the time of completion and the potential of the study programme from the point of view of graduate's employability:	The medical laboratory assistant acquires professional competence to independently perform professional work activities in laboratory examination methods and educational, upbringing and research activities that correspond to the content and scope of the acquired education.
Relevant external stakeholders who have provided the statement or a favorable opinion on the compliance of the acquired qualification with the sector-specific requirements for the profession:	Piešťany Laboratories Ltd. AnalytX, Ltd. Medirex, Inc.

Unilabs (Alpla Medical), Ltd.
The University Hospital Trnava, Pathology and Anatomy Ward, Hematology Ward

3. Employability

<p>Evaluation of the study programme graduates employability:</p>	<p>The graduate can apply in:</p> <ul style="list-style-type: none"> - public and private medical facilities (medical laboratories - department of clinical biochemistry, clinical microbiology, clinical genetics, clinical hematology, clinical immunology, department of pathology) - as a researcher, quality manager - research institutions with a medical or biomedical focus as a researcher - public administration in the field of health policy development - as a pedagogical and scientific worker in educational organizations
<p>Indication of the successful graduates of the study programme:</p>	<p><i>Mgr. Lucia Malíková (Rapantová), PhD.</i> – Department of clinical laboratories, NIRD, Piešťany</p> <p><i>RNDr. Mgr. Nicholas Martinka, PhD.</i> - The head Laboratory diagnostician of Department of Clinical Biochemistry, Hospital of A.Wintera, Piešťany</p> <p><i>Mgr. Lenka Reizigová, PhD.</i> – Assistant professor of Laboratory medicine Department, Faculty of Health Care and Social Work, Trnava University In Trnava, National Reference Center for Nosocomial Disease Prevention and Control, Regional Public Health Authority of the Slovak Republic in Trenčín</p> <p><i>Mgr. Kamila Melnikov, PhD.</i>- Assistant professor of Laboratory medicine Department, Faculty of Health Care and Social Work, Trnava University In Trnava</p> <p><i>Mgr. Zuzana Bárďyová, PhD., MPH.</i> – Assistant professor of Laboratory medicine Department, Faculty of Health Care and Social Work, Trnava University In Trnava</p> <p><i>Mgr. Dominika Trošanová, PhD.</i>- The head of Quality Assurance Department Imuna Pharm, Inc., Šarišské Michalčany</p>
<p>Evaluation of the study programme quality by employers (feedback):</p>	<p>Attachment: Trade-Union-Committee-LM-PhD-Study; Meeting-minutes-from-Trade-Union-Committee-Laboratory-Medicine; Stanovisko-zamestnávateľa-Martinka</p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p>Trade-Union-Committee-LM-PhD-Study.pdf Meeting-minutes-from-Trade-Union-Committee-Laboratory-Medicine.pdf Stanovisko-zamestnávateľa-Martinka.pdf</p>

4. Structure and content of the study programme

The rules for the creation of study plans in the study programme are based on the internal regulation Rules for the Creation, Modification, Approval and Quality Evaluation of the Study Programmes of the Trnava University in Trnava.

https://www.truni.sk/sites/default/files/rektor/studijne-programy_pravidla-tu.pdf

The study program of the 3rd degree lasts in the standard length of 6 semesters in full-time form and contains 180 ECTS credits; in external form, the student can obtain the same number of credits for a period of 8 semesters.



The study plan is composed of compulsory and compulsory optional courses (a total of 60 credits), of which 45 ECTS credits are from the core of the field of study - compulsory courses. For pedagogical activities the student can get 30 credits (direct teaching, training and opposition of bachelor's thesis for full-time students, for external students especially training and opposition of bachelor's thesis). For scientific research activities (publishing their own results and their presentation at conferences, participation in projects, internships abroad), the student can obtain a maximum of 60 credits.

The main topics of the core knowledge of the field of study are laboratory diagnostics in clinical microbiology, clinical biochemistry, clinical hematology, histology and cytology. Students will gain additional knowledge of health information systems, biostatistics in laboratory medicine and will acquire the competence to write publications in Slovak and English.


A detailed breakdown of the doctoral student's study and scientific program is contained in the doctoral student's individual study and scientific plan. The individual study and scientific plan of the doctoral student is specified annually during the annual evaluation of the doctoral student by the supervisor with his personal participation. A written record will be prepared of the evaluation containing the evaluation of the doctoral student's previous activities and determination of tasks for the following period, including dates of publication of scientific and professional works, completion of professional internships and stays, date of dissertation examination and submission of dissertation thesis to the opponent.

Rules for the design of study plans within the study programme:


Recommended study plan:

	<p>Recommended study plan is for the 3rd degree in the study programme Laboratory Medicine designed in accordance with Act 131/2002 Coll. on Higher Education Institutions and with Decree no. 614/2002 Coll. on the study credit system.</p> <p>Attachment: 3_OŠP_LVMvZ_PhD_DF_EF_AJ; List-of-profile-subjects-LM-PhD-Study</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>3_OŠP_LVMvZ_PhD_DF_EF_AJ.xlsx</p> </div> <div style="text-align: center;">  <p>List-of-profile-subjects-LM-PhD-Study.pdf</p> </div> </div>
<p>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:</p>	<p>To properly complete the study, the student must obtain 180 credits, including credits for passing the defense of written part of the dissertation exam (10 credits), the dissertation exam (10 credits) and the defense of the dissertation (10 credits).</p>
<p>Conditions for admission to state examinations:</p>	<p>The condition for admission to state exams is:</p> <ul style="list-style-type: none"> - completion of all compulsory courses in the number of credits: 45 - compulsory optional courses in the number of credits: min 15 - submission and upload to the Evidence of final theses of the written thesis for the dissertation exam <p>The condition for admission to the defense of the dissertation thesis after passing the state exam is:</p> <ul style="list-style-type: none"> - obtaining 60 credits for scientific research activities - obtaining 30 credits for pedagogical activities - submission and uploading of the final thesis to the Evidence of final theses
<p>Rules for re-study:</p>	<p>http://fzsp.truni.sk/studijny-poriadok-fzasp</p>
<p>Rules for the extension and interruption of study:</p>	<p>The rules are defined in Art. 19 of the Study Regulations of the Faculty</p> <p>http://fzsp.truni.sk/studijny-poriadok-fzasp</p>
<p>Requirements for completing the individual parts of the study programme and the student's progress within the study programme in the given structure:</p>	<p>http://fzsp.truni.sk/studijny-poriadok-fzasp</p>
<p>- number of credits for compulsory courses required for proper completion of studies/completion of a part of studies,</p>	<p>45 credits for compulsory courses, 60 credits for scientific research, 30 credits for pedagogical activities</p>



- number of credits for compulsory optional courses required for the proper completion of studies/completion of a part of studies,	15
- number of credits for optional courses required for the proper completion of studies/completion of a part of studies,	
- number of credits for the final thesis and the defense of the final thesis required for the proper completion of studies,	defense of the written part of the dissertation exam (10 credits), dissertation exam (10 credits), defense of the dissertation thesis (10 credits)
- number of credits for professional practice required for the proper completion of studies/completion of a part of studies,	-
- number of credits required for the proper completion of studies/completion of a part of the studies for artistic performances in addition to the final thesis in art study programmes	180
Rules for verification of learning outcomes, students assessment and the possibilities of appealing against the assessment:	<p>The evaluation of study results is given in Art. 8, points 10,11,12,13 and in Art. 15, points 1-5. of the Study Regulations of the Faculty, in the information sheets of individual subjects. Information sheets of the subjects on the current academic year are published in the MAIS to the 1st of September of the relevant academic year.</p> <p>http://fzsp.truni.sk/studijny-poriadok-fzasp</p>
Conditions for recognition of studies or a part of studies:	<p>The conditions for the recognition of the study or its parts are defined in the Study Regulations in Article 8, points 5-9.</p> <p>http://fzsp.truni.sk/studijny-poriadok-fzasp</p> <p>(5) Credits obtained from previous studies may be recognized by the Rector or the Dean, if the study programme is carried out at the faculty, on the recommendation of the head of the department, if no more than five years have elapsed since their acquisition (in the range A - E). Credits can only be recognized if the student received them at the same level of study. The only exceptions are credits obtained during study abroad.</p> <p>(6) The student must apply for recognition of credits by the end of the first week of the relevant semester in the relevant academic year.</p> <p>(7) The recognition of credits obtained under the Erasmus + programme is carried out in accordance with Art. 8 point 5 of the Study Regulations. If it is a content-identical subject, the subject is recognized as identical to the student's study programme in the amount of credits given in the recommended study plan. In case a student obtains credits for a subject that is not included in his / her recommended study plan, these obtained credits will be recognized as selective credits from a study abroad by a decision of the dean or a person authorized by him.</p>

	<p>(8) Credits obtained by successful completion of courses are credited to the student on the basis of a statement of study results prepared for the student by the faculty or university at which he obtained them. It is possible to obtain credits for a given subject only once during the study.</p> <p>(9) A course completed at another faculty or university in the Slovak Republic or abroad will be assessed with the number of credits assigned to the course at the faculty.</p>
<p>The topics of final theses of the study programme:</p>	<p>http://fzsp.truni.sk/sites/default/files/dokumenty/info-uchadzac/dr-studium/PHD-navrh-temy-lvmvz-2022-23.pdf</p> <p>Attachment: Topics-of-final-theses-LM-PhD-Study</p>  <p>Topics-of-final-theses -LM-PhD-Study.pdf</p>
<p>Rules for the assignment, processing, opposition, defense and evaluation of final theses in the study programme:</p>	<p>The rules for the submission, processing, opposition, defense and evaluation of final theses in the study programme are defined in the Study regulations in Article 16, points 1-14.</p> <p>http://fzsp.truni.sk/studijny-poriadok-fzasp</p> <p>Art. 16 Final Thesis</p> <p>(1) The final theses are: a) Bachelor's thesis b) Master's thesis c) PhD thesis</p> <p>(2) Through bachelor's and master's thesis, the student has to demonstrate the ability to work creatively in the chosen field of study.</p> <p>(3) The topics of bachelor's theses for students in the penultimate year of study of a given degree of study will be published by the relevant department within the deadline set by the time schedule of the faculty in MAIS. Topics in MAIS are listed by the supervisor. Students choose a bachelor's thesis no later than the end of the month following the publication of topics in MAIS.</p> <p>(4) The topics of master's theses for students of the penultimate year of study of a given degree of study shall be published by the relevant department within the deadline set by the time schedule of the faculty in MAIS. Topics in MAIS are listed by the supervisor. Students choose a master's thesis no later than the last day of the month following the publication of topics in MAIS.</p> <p>(5) The student may choose the topic at his / her own discretion, but it must be approved by the head of the relevant department.</p>

- (6) The final thesis will be prepared by the student under the guidance of the supervisor of the final thesis (supervisor). The final work is assessed by the opponent. The supervisor of the final thesis and the opponent will prepare an assessment of the final thesis which also includes the evaluation of the final thesis by the appropriate qualification level. The student who prepared the final thesis has the right to get acquainted with the assessment of the final thesis supervisor and the opponent no later than five days before the defense of the final thesis.
- (7) The student submits two copies of the final thesis and CD to the department, the others according to the requirements of the department.
- (8) The result of the defense of the final thesis is evaluated in the first and second degree of study with classification grades "A" to "FX". In case of the doctoral degree, the result of the defense is evaluated with the verbal expression "defended" or "not defended".
- (9) If the supervisor and the opponent have classified the work as FX, the overall evaluation is FX and the work is not submitted for defense, the student must remake it and submit it again within the deadline set by the faculty schedule.
- (10) Before submitting the final thesis, the student is obliged to upload its electronic version to the Central register of final theses, print twice the license agreement, analytical letter and protocol of the control of originality (without the section "Plain text of the document to be checked"). The specified number of copies of final theses in the form determined by the faculty is submitted by the student at the date and place specified in the schedule of the academic year of the faculty.
- (11) The defense of the final thesis, together with the final thesis, forms one subject and belongs to the state exams. The result of the defense of the final thesis is evaluated with classification levels A to FX. If the result of the defense is FX and the student had an evaluation by the supervisor and the opponent of the thesis in the range of classification grades A-E, he can defend the said thesis again within the corrective term. If the evaluation of the supervisor or the opponent of the thesis was FX and the result of the defense of the thesis was FX, he must remake the thesis and defend it in the corrective term. With the consent of the head of the relevant department, he can change the topic of the work, as well as the supervisor of the work.
- (12) The student has the right to participate in the defense of the final thesis even if the supervisor or opponent has evaluated the final thesis with the FX grade.
- (13) If the supervisor of the final thesis or the opponent is not a member of the examination commission, he / she may be invited to process of thesis defence and has an advisory vote in its evaluation. The commission decides on the result of the defense of the final thesis by voting.
- (14) The final thesis is prepared in the Slovak language and, if the dean agrees, in another language, usually in the English language.

	<p>Attachment: Members-of-the-examination-commission-LM-PhD-Study</p>  <p>Members-of-the-examination-commission</p>
Opportunities and procedures for participation in student mobility:	<p>http://fzsp.truni.sk/erasmus-studenti http://fzsp.truni.sk/oznamy-erasmus-pre-studentov https://www.truni.sk/zakladne-informacie https://www.truni.sk/en/erasmus-0 https://www.truni.sk/sites/default/files/zo/study_at_the_university_of_trnava.pdf</p>
Rules for adherence to academic ethics and rules for drawing consequences:	<p>http://fzsp.truni.sk/dokumenty-smernice</p>
Procedures applicable to students with special needs:	<p>https://www.truni.sk/podpora-studentov-so-specifickymi-potrebami</p>
Procedures for filing complaints and appeals by students:	<p>http://fzsp.truni.sk/sites/default/files/dokumenty/legistaltiva/studijny_poriadok_FZaSP-2018.pdf</p>






5. Information sheets of the subjects of the study programme

	<p>Attachment: 4_ILP_LVMvZ_PhD_DF_AJ; 4_ILP_LVMvZ_PhD_EF_AJ</p>   <p>4_ILP_LVMvZ_PhD_DF_4_ILP_LVMvZ_PhD_EF_AJ.pdf 4_ILP_LVMvZ_PhD_EF_AJ.pdf</p>
Hypertext link with Information sheets of the subjects:	

6. Current academic year plan and current schedule

Current academic year plan:	<p>http://fzsp.truni.sk/harmonogram-akademickeho-roka</p>
Current schedule:	<p>http://fzsp.truni.sk/rozyrh-hodin</p>

7. Persons responsible for the study programme

A person responsible for the delivery, development, and quality of the study programme (indicating the position and contact details):	Prof. RNDr. František Ondriska, PhD., Professor of Laboratory Medicine, frantisek.ondriska@truni.sk
The research/art/teacher profiles of persons responsible for the profile courses of the study programme	Attachment: VUPCH_Ondriska  VUPCH_Ondriska.xlsx
List of the supervisors of final theses with the assignment to topics (indicating the contact details):	http://fzsp.truni.sk/sites/default/files/dokumenty/info-uchadzac/dr-studium/PHD-navrh-temy-lvmvz-2022-23.pdf Attachment: Supervisors-and-topics-of-final-theses-LM-PhD-Study  Supervisors-and-topics-of-final-theses-LM-
The research/art/teacher profiles of the supervisors of final theses:	Attachment: VUPCH-Vyučujúci-a-škoolitelia-PHD  VUPCH-Vyučujúci-a-škoolitelia-PHD.docx
Student representatives representing the interests of students of the study programme (name and contact details):	Attachment: Trade-Union-Committee-LM-PhD-Study; Meeting-minutes-from-Trade-Union-Committee-Laboratory-Medicine   Trade-Union-Committee-Meeting-minutes-from-Trade-Union-Committee-LM-PhD-Study.pdf
Study advisor of the study programme (indicating contact details and information on the access to counseling and on the schedule of consultations):	Doc. MVDr. Alžbeta Kaiglová, PhD. http://fzsp.truni.sk/personalne-zabezpecenie-katedry-lvmvz
Other supporting staff of the study programme – assigned study officer, career counselor, administration, accommodation department, etc. (with contact details):	The head study officer: Mgr. Dušana Horváthová, dusana.horvahotva@truni.sk http://fzsp.truni.sk/kategoria/informacie-pre-studentov Secretary of Department: Gabriela Semešová, semesova@truni.sk

Erasmus+ Departmental Coordinator: doc. MVDr. Alžbeta Kaiglová, PhD.,
alzbeta.kaiglova@truni.sk
 Department Administrator of MAIS, MOODLE: PhDr. Zuzana Bárdyová, PhD., MPH,
zuzana.bardyova@truni.sk
<http://fzsp.truni.sk/personalne-zabezpecenie-katedry-lvmvz>

Students with special needs Coordinator: doc. PhDr. Nadežda Kovalčíková PhD.,
nadezda.kovalcikova@truni.sk
<https://www.truni.sk/podpora-studentov-so-specifickymi-potrebami>

Accommodation: Ing. Miroslava Baranová – cooperation with Study Department of Faculty of Health Care and Social Work of Trnava University In Trnava
<https://www.truni.sk/kategoria/ubytovanie>
<https://www.truni.sk/student-sky-domov>

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 centers, training schools, classroom-training facilities, sports halls, swimming pools, sports grounds).

To ensure practical teaching of profile subjects, Faculty of Health Care and Social Work of Trnava University In Trnava has laboratories on Hornopotočná Street in Trnava, where there is a microbiological, biochemical and biophysical laboratory. The laboratories underwent extensive reconstruction and modernization in the years 2020-2021. The individual laboratories represent a comprehensive complex providing students with an excellent space for acquiring practical skills.

The microbiological laboratory is characterized by the teaching of practical exercises of students within the subjects Microbiology - bacteriology, virology, mycology and parasitology. Powdered and liquid chemicals, laboratory glassware, small laboratory equipment and micropipettes are an essential part of the laboratory. Autoclaves and a hot air sterilizer are designed for the preparation of sterile media and for the preparation of sterile laboratory glassware and plastics. Students have at their disposal two laminar boxes which are used for working with solutions and biological samples in a sterile environment. Biological samples are stored in a deep freezer at -80 °C. Biological samples are cultured in thermostats at 30 °C and 37 °C while cell cultures are incubated in a thermostat at 37 °C in the presence of CO₂. The number of colonies is determined using a table densitometer for cell suspensions.

The Hettich centrifuge and the microcentrifuge are used to centrifuge the samples. During DNA analysis, students have a PCR cycler available along with an electrophoretic kit. Depending on the task, students observe samples with a type 1 inverted microscope, a Bresser Erudit MO20-153 6x microscope or a XTD-3C stereo microscope. In addition to practical exercises, the microbiological laboratory is also conducting research work aimed at studying the toxicity and interaction of pathogenic bacteria and yeasts in the model organism *Caenorhabditis elegans*.

The biochemical laboratory is focused on teaching practical exercises in the subjects Analytical Chemistry, Biochemistry and Investigation Methods in Biochemistry. The basic equipment of the laboratory consists of chemicals, laboratory glassware, small laboratory equipment and micropipettes which are needed for individual exercises. Analytical scales and mechanical scales are available to students from the instrumentation, which are designed for weighing the exact weights of individual chemicals. The pH meter is used to adjust the pH of solutions. The UV / VIS spectrophotometer, which is a specialized instrument for microvolume UV / VIS spectrophotometry, is used in experiments focused on quantification and kinetic analyzes. The flame photometer is used to determine the elements Na, K, Ca, Li and Ba in different types of samples. With the Reflotron Plus reflex photometer, students have the opportunity to analyze up to 16 parameters in human blood, such as hemoglobin, metabolites, pancreatic enzymes, etc.

The biophysical laboratory is newly equipped with several devices that are used for practical teaching of students in the subjects of Biophysics, Physiology, Objectification of Work and Environmental Factors. The basic equipment includes devices used to measure human vital functions (eg ECG, sphygmomanometers, spirometers of open and closed system, measurement of transcutaneous electrical neurostimulation ..), and examination of sensory perception (audiometer (hearing measurement), Snellen optotype (measurement of central visual acuity). In addition to the above-mentioned instrumentation, which is focused on the measurement of human body factors, the biophysical laboratory also has instruments for measuring environmental factors, which affect human health, such as luxmeter (light measurement), sound level meter (noise measurement), psychrometer (humidity measurement), Hill catatempmeter and anemometer (air flow measurement), dust meter, EMG, UV or gamma meter and others. The biophysical laboratory has a sufficient number of all devices so that the student can work with each device according to the prepared protocols.

The Laboratory of Immunology and Hematology is located in the Ad Albertinum building in Trnava, where there are devices such as luminometers, spectrophotometers, flow cytometers, which are also used for scientific research purposes, in solving dissertations and other final theses. All laboratory instruments are equipped with modern user software. The laboratories also carry out research within the framework of master's theses and other scientific research projects in cooperation with research centers of the Slovak Academy of Sciences, other universities and diagnostic laboratories throughout Slovakia.

In 2017, a new pavilion of clinical and laboratory disciplines of the Faculty of Health Care and Social Work of Trnava University In Trnava was opened, to which belongs a microbiological and microscopic laboratory.

In pavilion there is another new workplace **Research Centre of Microbiology, Hospital Hygiene and Infection Prevention**, which was established as an independent specialized workplace on 1.1.2019, when it was officially integrated into the organizational structure of the Faculty of Health Care and Social Work of Trnava University In Trnava. This workplace is with its specialization a unique workplace in Slovakia. This centre will carry out applied research aimed directly at requirements of professional experience in the field of hospital hygiene, hospital infections prevention and especially resistance to antibiotics with a focus on the development of new methods to combat antibiotic resistance, implementation of standard procedures for prevention and infection control into practice and their further evaluation.

The centre owns a unique collection of environmental isolates of bacteria from inpatient medical facilities in the Slovak Republic, which it collects in cooperation with the National Reference Center for Environmental Microbiology (more here: <https://www.ta3.com/clanok/203049/najvacsia-zbierka-bakterii-na-slovensku-trnavsky-unikat-je-zamrazeny-a-strazeny>).

Organisationally, it consists of a microbiology laboratory, a laboratory of molecular microbiology, office space and a seminar room. The laboratories have comprehensive equipment for classical and molecular diagnostics of microorganisms and for the analysis of antibiotic resistance. This research centre brings together a relatively diversified group of researchers who have experience in clinical and research work in the laboratory in the field of microbiology and molecular biology, as well as field work of hospital hygienists and epidemiologists, as well as clinical research in medicine. The staff of the centre used their rich experience during the outbreak of the COVID-19 pandemic and participated in the implementation of disease diagnosis in the Trnava and Trenčín regions.

Practical clinical teaching is realized in the form of practice on teaching bases in clinical laboratories of companies Piešťany Laboratories Ltd., AnalytX, Ltd., Medirex, Inc., Unilabs (Alpla Medical), Ltd., The University Hospital Trnava, Pathology and Anatomy Ward, Heamatology Ward

Attachment: Photo-Documentation-LM-PhD-Study



Photo-Documentatio
n-LM-PhD-Study.pdf

The basic pillar of the communication infrastructure of the Trnava University in Trnava (hereinafter also "TU") is a high-speed metropolitan optical network, which is part of the Slovak academic network SANET.

All faculty buildings in Trnava have an optical connection with the main communication node at the TU Rectorate, which is connected to the SANET network with a transmission capacity of 2 Gb / s. The university's core server infrastructure consists of SunFire servers (SPARC platform and Intel Xeon), which are connected to the central data storage (Sun Storage 6140) via optical switches (SAN box 5000), while their communication speed is at the level of 4 Gb / s. Data archiving is realized through an automated magnetic tape library (StorageTek SL48). All university buildings have the necessary number of access points (68 Access Points), which ensure full signal coverage of the centrally managed university wifi network.

The university has a good hardware and software infrastructure enabling the expansion of access points to the Internet and to university information systems. A total of 75 SunRay terminals are located in the corridors of the university buildings, in the computer rooms and in the study room of the University Library, which are used exclusively by university students for independent study and free internet access. In addition to SunRay terminals, 1,234 personal computers (including laptops) are connected to the university data network, of which 725 are used in the pedagogical process.

Modular academic information system MAIS

MAIS is a modular information system for comprehensive management of credit studies at a public university in accordance with Act No. 131/2002 Coll. about universities. It has a modern multi-tier architecture and meets demanding security and accessibility criteria for a wide range of users in five interfaces: student, teacher, clerk, administrator and electronic application. TU is one of six universities in the Slovak Republic that has an electronic application for

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

registration fully integrated with the central electronic application, which means that it can automatically process applicants' applications submitted electronically on the University Portal. A separate software application closely connected to the processing of the admissions agenda is the system for automated evaluation of written tests "Autotest". This system shows a high level of anonymity in the process of entrance exams and has the potential for wider use in the pedagogical process during the academic year.

DAWINCI library information system

Since 2006, the university has been using the library information system called DAWINCI to manage the library collection, manage loans and record publishing activities. The system provides users with access to the library collection through the ONLINE catalog via a web interface and similarly handles the records of publishing activity. The University Library is involved in the central project of automated collection of publishing activities for the needs of the Ministry of Education, Science, Research and Sport of the Slovak Republic. The identification medium for the registration of readers is the student's or employee's card. In 2011, the Evidence of Final Theses module was added to the system, which ensures the transfer of all students' final theses to the central register of final theses to check originality and is integrated with the MAIS system.

Virtual university

As part of a project from the EU Structural Funds, an electronic collaboration system was implemented at the university between the teacher and the "Virtual University" study group, which is based on the Adobe Connect commercial system. The system enables the creation of a virtual classroom with the sharing of electronic teaching resources, recording of lectures, the use of chat, a library of experience and knowledge (wiki) and other tools that increase the efficiency of the teaching process.

Identity Management System (Novell IDM)

This system is built modularly for access to each information system and ensures the unification of access logins and user passwords. The following information systems are already integrated with Novell IDM:

- a) MAIS academic system
- b) MS Office 365
- c) System for secure connection to the VPN network
- d) RayMote Terminal Services Management System

	<p>e) Evidence of final theses</p> <p>University network systems and services Within the university data network, several systems and services are available to users, which are centrally managed on university servers:</p> <ul style="list-style-type: none"> a) Wireless data network (wifi) services b) Web hosting services for the websites of the TU components c) University data archiving system d) Meet Video and EVO video conferencing systems <p>Information systems that serve to ensure the pedagogical and study process (MAIS, EKP, LCMS, Virtual University, SOFIA, DAWINCI, Autotest) cover the main activity of the university and provide access for most university users. The University has approved the framework document "Information Security Policy", in accordance with Act No. 122/2013 Coll. on the protection of personal data has been prepared a Security Project for the protection of personal data and the resulting security directives.</p> <p>The following selected electronic information sources are also available: EBSCO, NISPEZ - National Information System for Support of Research and Development in Slovakia, Knovel Library - Electronic collection of interactive full-text reference manuals and databases in the field of natural sciences, technology, pharmacy, food, health and hygiene, ProQuest Central - ProQuest's comprehensive production database accessing articles from periodicals (11,000 titles), dailies (400 titles), company and industry profiles, market reports and dissertations (30,000), SCOPUS, Springer Link, Web of Knowledge, EZB - Electronic Journal Library - Elektronische Zeitschriften bibliothek - EZB is a project of the University Library of Regensburg, Bulletin_SAIA,</p> <p>https://www.truni.sk/en/university-information-systems https://mais.truni.sk/ http://ezp.truni.sk/opac?fn=main</p>
<p>Characteristics and extent of distance education applied in the study programme with the assignment to courses. Access, manuals of e-learning portals. Procedures for the transition from contact teaching to distance learning.</p>	<p>The university uses central information systems MS Teams to implement modern forms of the teaching process in the distance form and managerial activities related to management and main processes. Microsoft Teams is a center for team collaboration in Office 365. It brings people together, content, and tools to increase team engagement and effectiveness. It is one of the tools of distance education (eg online lectures and its recording). The link to the meeting (lecture) can be placed directly in the course in the Moodle system.</p>

Microsoft Teams (MS TEAMS) is a distance learning application that can be used by students and staff at our faculty.

Educational content and assigned tasks can be published online and students can access it from anywhere. Using the MS TEAMS application, students can access educational content, collaborate with other students, communicate with teachers, and submit assignments online. Teachers can evaluate the student's role online and provide timely feedback. Using MS TEAMS is only possible with a login through the university email address.

E-learning systems - EKP and Moodle

Enterprise Knowledge Platform (EKP) is a professional e-learning management system. It provides a wide range of opportunities for the application of distance learning methods in the form of special training courses, video conferencing, personal electronic communication between the student and the teacher. The system was implemented in the first stage at the Faculty of Education, where the Center for Further Education was established. More than 80 electronic courses were created within the projects from the EU structural funds, which enabled the extension of the EKP system to other faculties of TU. As part of another project, software modules and electronic content creation tools (LCMS) were added to the system. Faculty of Health Care and Social Work and the Faculty of Education at some of their departments use the e-learning Open Source system Moodle.

The university meets the criteria for spatial, material, technical and information provision of the study programme at a high level. As the faculty as well as the university regularly invest funds in the modernization of ICT, in the modernization of premises, in the improvement of working and study conditions of teachers and students, the precondition for the sustainability of meeting this criterion in the future.

<https://www.truni.sk/ms-teams>

<https://moodle.truni.sk/>

Practical teaching of students is realized in the form of professional practice on teaching bases, whose participation in teaching is ensured by contract:

<http://fzsp.truni.sk/en/department-laboratory-medicine>

The University Hospital Trnava, A. Žarnova 11, 917 75 Trnava

Pathology and Anatomy Ward of the University Hospital Trnava belongs to the joint testing and diagnostic units of the hospital. Pathology represents a specialised discipline

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

dealing with all aspects of the disease. It necessarily adverts to the nature of the disease, the cause and occurrence of an abnormal state and also to changes in structure and function, which result from the pathological process. The role of this field is diagnostic activity based on histomorphological evaluation of changes in organs, tissues and cells. In cooperation with other fields of medicine, its activity is focused on diagnosis, its stadium, medical treatment and prognosis of the disease.

Heamatology Ward of University Hospital Trnava is divided into a laboratory department, an outpatient department and a blood bank. The laboratory department performs basic and special haematological and haemocoagulant tests, cell-mediated immunity tests and the immunohematological testings. The blood bank is comprised of blood storage and immunohematological laboratory. In the blood store is realized a purchase of blood, storage and dispatching of blood transfusion medications to particular wards and clinics, it records and ensures the dealing with transfusion responses. In the immunohematological laboratory is realized the blood group test, anti-erythrocyte antibody screening and pre-transfusion testing, where students can see the complete transfusiological testings.

National Blood Transfusion Service of the Slovak Republic, Ďumbierska 3/L, 831 01 Bratislava (pracovisko Trnava, Andreja Žarnova 11, 917 02 Trnava)

National Blood Transfusion Service of the Slovak Republic was established in order to produce blood derivatives at high effectivity level, securing a high-quality hemotherapy and safety in required volume of achieving national self-sufficiency in its production.

Piešťany Laboratories Ltd., Sad Andreja Kmeťa 22, 921 01 Piešťany

Piešťany Laboratories Ltd. performs diagnostic activity and consultancy in the sphere of clinical microbiology, immunology and allergology, clinical biochemistry and clinical haematology. The laboratories are accredited in accordance with ISO 15189:2012 standards, so the students participating in practice can see the quality management system in practice.

AnalytX, Ltd., Kazanská 46, 821 06 Bratislava

AnalytX, Ltd. is a non-state medical facility that runs the Department of the Laboratory Medicine in the following fields: clinical biochemistry, clinical microbiology, clinical immunology and allergology and clinical haematology. The company AnalytX Ltd. is accredited according to ISO 15189:2012 standards. In each of the departments are working experts – doctors, highly educated staff and medical laboratory technicians qualified in the relevant field. The medical laboratory technicians professionally process the samples of

biological material, then the doctors and highly-educated workers evaluate it expertly and, if needed, they provide consultations to the doctor in charge.

Unilabs (Alpha medical), Ltd., Záborského 2, 036 01 Martin

Unilabs, Ltd., provides via network more than 40 laboratories throughout the Slovak Republic in the fields of clinical biochemistry, haematology and transfusiology, clinical immunology and allergology, clinical microbiology, medical genetics and pathological anatomy. Laboratories Alpha medical, Ltd. in Ružomberok are accredited according to the international quality standards for medical laboratories EN ISO 15:189.

Medirex, Inc., Holubyho 35, 902 01 Pezinok

Medirex, Inc., represents a complex of diagnostics laboratories in the fields of clinical biochemistry, haematology, clinical immunology, toxicology, medical genetics, bacteriology, mycology, parasitology, serology, virology, molecular biology and microbiology of the environment. It provides complex laboratory diagnostics for the most important medical facilities in Bratislava, Košice and their surroundings, for a large number of health centres and medical facilities and as well as for a lot of general and specialized outpatient clinics. Medirex operates the technologically most modern and largest central laboratories not only in the Slovak Republic but also in Central Europe and also a network of hospital and clinic diagnostics laboratories. Besides the world-class automated analysers, it has at disposal also a fully automated robotic system for sample analysis, employs top Slovak experts, who led a number of erudite workers and so they are ensuring high quality and professional evaluation of results.

Gammalab, Ltd., Workplace: Starohájska 2, 917 01 Trnava

Gammalab, Ltd., provides services in nuclear medicine area. Nuclear medicine department is the only one in Trnava region. The department works with a new SIEMENS dual-head scintillation camera, it also uses a gamma probe to detect sentinel lymph nodes and, in addition, it features a special hybrid SPECT/CT system. Scintigraphy imaging methods visualised pathological changes in organs, while they are not visible by other imaging methods. Development of these methods significantly improves early diagnostics of wide spectrum of diseases (oncological, thyroid gland, heart, kidneys, lungs, bones, orthopedic disorders, bleeding and inflammation detection, etc.), which contributes to reduction of recovery time and improves disease prognosis. The department of nuclear medicine is certified according to ISO 9001:2009 and 9001:2015 standards.

National Institute of Rheumatic Diseases (NIRD), Nábřežie I. Krasku 4, 921 12 Piešťany

Clinical laboratories of NIRD are leaders in laboratory diagnostics of rheumatic diseases in Slovakia. Laboratory examinations are focused on differential diagnosis and prognostic resolving of rheumatic diseases. Laboratory diagnostics realises professional personnel with a modern equipment of the highest quality. The quality of work is ensured by internal and external controlling system (SEKK Ltd.- Pardubice, ČR a RIQAS - Crumlin, UK). Department of clinical laboratories provides biochemical, hematological, immunological, immunogenetics examinations for ambulance and patient department of NIRD.

The university also creates conditions for its students for regular sports activities. Athletes can choose from: football, volleyball, basketball, futsal, floorball or swimming. Since 2004, it has been organizing Sports Days, the aim of which is competition between students and employees of individual parts of the university. Traditionally, competitions in basketball, volleyball and futsal are held for the TU rector's cup and table tennis tournaments for the master of the university. The best athletes from these competitions represent the university at regular academic competitions in the Slovak Republic or occasional competitions between Slovak universities. In addition, students have the opportunity to sign up for various dance and aerobic classes.

The university also provides full-time study for students with special needs by creating appropriate adaptations and support services. The university coordinator together with the faculty coordinators initiate the following activities:

- identification of students with special needs,
- providing information and guidance to students with special needs,
- creation of suitable conditions for the use of services of all parts of the Student Support Center (psychological and legal counseling, sports activities),
- education of teachers, staff and students of the Trnava University In Trnava in order to gain the right access to students with special needs,
- cooperation with the study departments of the faculties in connection with the admission procedure for students with special needs,
- provision of priority accommodation for students with special needs in barrier-free areas,
- establishing contacts with other organizations that are helpful to students,
- provision of compensatory aids (reading magnifiers, positioning couch, hearing aids, etc.).

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

<https://www.truni.sk/sportove-aktivita>

<https://www.truni.sk/en/sports-activities>

<p>Possibilities and conditions for participation of the study programme students in mobilities and internships (indicating contact details), application instructions, rules for recognition of this education.</p>	<p>https://www.truni.sk/podpora-studentov-so-specifickymi-potrebami</p> <p>The study programme enables appropriate training outside the university in foreign institutions through the support of mobility, namely through study at one of the institutions which the university has a bilateral agreement with or through internships during which the student carries out internship in a company or other organization in a country eligible for Erasmus + programme. The results of this education are recognized by the university. All information regarding the possibility of travel, selection procedures are published on the faculty website in the student information section or on the university rector's website. The university has a departmental coordinator which students can turn to at any time in matters related to mobility and internships.</p> <p>http://fzsp.truni.sk/erasmus-studenti http://fzsp.truni.sk/oznamy-erasmus-pre-studentov https://www.truni.sk/zakladne-informacie https://www.truni.sk/en/erasmus-0 https://www.truni.sk/sites/default/files/zo/study_at_the_university_of_trnava.pdf</p>
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9. Required abilities and admission requirements for the study programme applicants	
<p>Required abilities and necessary admission requirements.</p>	<p>Requirements for applicants and the method of their selection are generally specified in §56 to 58 of Act no. 131/2002 Coll. on universities, they are regulated in more detail by the Study Regulations of the Faculty of Health Care and Social Work of Trnava University In Trnava and the Study Regulations of the Trnava University in Trnava in accordance with the standards for the assessment of the internal quality system of the university. The basic condition for admission to the PhD study program is the completion of a master's degree in the same study program – Laboratory Medicine, or a related study program in science and health.</p> <p>The applicant for doctoral studies is able to demonstrate knowledge and skills at the level of completing the master's degree of the Laboratory Medicine study program. It is necessary to demonstrate a sufficient level of knowledge of subjects in relation to the content and performance standard defined in the State educational program or the target requirements for profile subjects for the study program. The entrance interview takes place in the form of a written test in a world language, an oral interview in the field of Laboratory Medicine, and a presentation of a potential PhD. thesis, which are verified by an oral interview. Other activities of the applicant are also taken into account when deciding on admission to study: participation</p>

	<p>in university professional activities, certificate in a foreign language, other activities (sports, cultural ...). Applicants who have completed their studies abroad must submit a decision on the equivalence of education issued by the relevant district office and a transfer of marks issued by the Ministry of Education, Science, Research and Sport of the Slovak Republic. A foreign applicant who is applying to study in a study program carried out in Slovak language must prove his / her knowledge and skills in the Slovak language at the B1 level.</p>
<p>Admission procedures.</p>	<p>The admission procedure is carried out in accordance with Act no. 131/2002 Coll. on universities and on Amendments to Certain Acts, Sections 56 to 58 and in accordance with the standards for the assessment of the internal quality system of the university.</p> <p>The admission process will enable the applicant who proves the fulfillment of the specified conditions for admission to study to become a student of the chosen study programme. An applicant who does not prove the fulfillment of the basic conditions for admission to the study at the time of verification of the fulfillment of the conditions for admission may be admitted to the study conditionally provided that he / she is obliged to prove the fulfillment of the basic conditions of admission to the study no later than on the day of enrollment.</p> <p>The method of admission is governed by the general conditions approved by the academic senate of the faculty for the relevant academic year, and these conditions must be published together with the offer of study programmes and the planned number of accepted applicants, no later than two months before the last day set for the submission of applications. General conditions of admission to study in accordance with Act no. 131/2002 Coll. on universities and the obligations of universities are published on the website of the faculty and the university, on the website www.portalvs.sk.</p> <p>University applications are accepted by the deadline published on the faculty and university website and on the website www.portalvs.sk. The admission process evaluates the result of a written test in a foreign language, for which the applicant can obtain a maximum of 60 points, the result of an oral interview focused on the knowledge that is a prerequisite for successful entry into doctoral studies (http://fzsp.truni.sk/okruhy-otazok-na-prijimacie-pohovory) for which the candidate can obtain a maximum of 60 points and a presentation and discussion on the project on the topic of the dissertation thesis, which must be consulted in advance with a supervisor or a specialist trainer (http://fzsp.truni.sk/zoznam-skolitelov, http://fzsp.truni.sk/temy), for this area the candidate can get a maximum of 150 points. Non-specific evaluation is also taken into account in the admission procedure: participation in</p>

	Student Scientific and Professional Activities, in projects, in competitions, own publishing activity ..., the candidate can obtain a maximum of 30 points for this area. The maximum possible number of points obtained for the admission procedure is 300 points.
Results of the admission process over the last period.	<p>The results of the admission procedure are published anonymously on the faculty website and the applicant who submits the application via e-application (MAIS) can obtain this result directly from MAIS. The decision on the admission procedure will be sent to the applicant by registered mail to the address.</p> <p>http://fzsp.truni.sk/oznamy/vysledky-prijimacieho-konania-doktorandsky-stupen http://fzsp.truni.sk/en/offered-study-programmes-postgraduate-study</p>

10. Feedback on the quality of provided education

Procedures for monitoring and evaluating students' opinions on the study programme quality.	<p>Students have the opportunity to express themselves once a semester through an anonymous questionnaire to comment on the quality of teaching and teachers of the study programme, this evaluation is carried out in writing and evaluated at the faculty level. Students also have the opportunity to express themselves in the form of an electronic anonymous questionnaire via MAIS, which is implemented at the University level. The results of the questionnaire surveys are processed at the university and faculty level and published in the Internal Quality System section.</p> <p>http://fzsp.truni.sk/dokumenty-smernice</p>
Results of student feedback and related measures to improve the study programme quality.	<p>Assessment criteria are publicly available, students are acquainted with them at the beginning of teaching. The results of the study are regularly monitored and students have the opportunity to participate in the evaluation of individual subjects after the end of teaching. Their views are summarized and reflected at the faculty and university levels.</p> <p>In case of finding out the shortcomings by the teacher, the suggestions are discussed at the level of the Department, or the management of the faculty will call the teacher for a meeting. The determination and verification of the authenticity of the alert is, according to its severity, handled in accordance with the applicable legislation.</p>

	http://fzsp.truni.sk/studenti-dotazniky-spokojnosti http://fzsp.truni.sk/sites/default/files/dokumenty/OA/Vyhodnotenie-dotaznikov-predmetovej-ankety-ZS-FZaSP-19-20.pdf
<p>Results of graduate feedback and related measures to improve the study programme quality.</p>	<p>Graduates of study programmes have the opportunity to express themselves by filling out an anonymous electronic questionnaire. The results are submitted to the faculty management and published on the faculty website: http://fzsp.truni.sk/absolventi-dotaznikove-prieskumy Graduates' suggestions are reflected.</p>
<p>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.).</p>	http://fzsp.truni.sk/sites/default/files/dokumenty/legistaltiva/studijny_poriadok_tu_2018.pdf http://fzsp.truni.sk/sites/default/files/dokumenty/legistaltiva/studijny_poriadok_FZaSP-2018.pdf http://fzsp.truni.sk/legislativa-student http://fzsp.truni.sk/stipendia-pozicky http://fzsp.truni.sk/ubytovanie-pre-studentov https://www.truni.sk/podpora-studentov-so-specifickymi-potrebami https://www.truni.sk/centrum-podpory-studentov https://truni.isportsystem.sk/ https://www.truni.sk/news/studentska-rada-vytvara-hlbsi-vztah-medzi-studentmi-vyucujucimi