

Description of the study programme			
Name of the higher education institution		Matej Bel University in Banská Bystrica	
Address of the institution		Banská Bystrica	
Identification number of the higher education institution		CRN: 30232295 / School ID: 714 0000 00	
Name of the faculty		Faculty of Natural Sciences of Matej Bel University (FNS MBU) in Banská Bystrica	
Address of the faculty		Tajovského 40, Banská Bystrica	
Institution body for approving the study programme:		Board for the Internal Quality System (BIQS) of MBU FNS MBU Board of Quality	
Date of the study programme approval or the study programme modification:		FNS MBU Board of Quality (modification of the study programme): 3 March, 2022 MBU BIQS (approved study programme): 2. 6. 2022	
Date of the latest change to the study programme description:		-	
Link to the results of the periodical evaluation of the study programme performed by the higher education institution:		-	
Link to the evaluation report pertaining to the request for accreditation of study programme pursuant to Art. 30 of Act No. 269/2018 Coll.:		-	
1. Basic information about the study programme			
a) Name of the study programme		Number according to the register of study programmes	
Geochemistry		103189	
b) Level of higher education		ISCED-F education level code	
Doctoral level		864 – doctoral study programme	
c) place(s) of delivery of the study programme:		Tajovského 40, Banská Bystrica	
d) name and number of the field of study in which higher education is obtained by completing the study programme, or a combination of two fields of study in which higher education is obtained by completing the study programme, ISCED-F codes of the field/fields.			
Number and name of the field of study:	1217 Earth Sciences	field of study ISCED-F codes	0532 Earth Sciences
e) 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 occupation, joint study programme, interdisciplinary studies.			
Type of study programme:	academically oriented	Teaching qualification:	-
f) Awarded academic title:		„doctor“ („philosophiae doctor“, abbreviated as „PhD.“)	
g) Form of study:		internal	
h) In the case of 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).			
Extent of the student's obligations at MBU:			
Cooperating higher education institution:			
Extent of the student's obligations at the cooperating higher education institution:			
i) Language or languages in which the study programme is delivered:		Slovak, English	
j) Standard length of the study expressed in academic years:		4	

k) Capacity of the study programme (planned number of students), the actual number of applicants and students:	2/2/1
2. Graduate profile and learning objectives	
<i>a) The institution defines the learning objectives of the study programme such as students' abilities at the time of completion of the programme and the main learning outcomes.</i>	
<p>The graduate knows the methods of research in geochemistry and departments related to geological fields, including the newest concepts, principles and techniques focused on the basic and applied research, in both fields of geochemistry (endogenous and exogenous – environmental geochemistry). The graduates are familiar with the methodology of data collection in the laboratory as well as in the field. They are able to process them with modern statistical methods or with GIS tools. They have the necessary skills to work in a modern laboratory. They navigate relevant specialised literature and efficiently apply the knowledge in addressing the research objectives. Graduates know all methods of geochemical research focused on the interaction of abiotic and biotic components of the environment.</p> <p>The graduate can work in geological research institutes as well as in workplaces focused on the study of environmental issues such as: universities, research organizations, geochemical and analytical laboratories focused on the analysis of geological and environmental samples. Another opportunity for the graduate to apply their wide range of knowledge is also in commercial companies, e.g. in the search for and control of water resources, mineral deposits, consultation and expert activities of geological and environmental focus, etc.</p> <p>Theoretical knowledge</p> <p>Graduates:</p> <ul style="list-style-type: none"> • know current concepts, theories and problems in geology of the Western Carpathians. • know the methods of research in geochemistry and departments related to geological fields, including the newest concepts, principles and techniques focused on the basic and applied research, in both fields of geochemistry (endogenous and exogenous – environmental geochemistry), applications of thermodynamics in geochemistry; trace elements in geological processes, • are familiar with the basic microscopic and other identification methods in geochemistry (the relation of minerals and chemical composition). • analyse and understand geological processes in the context of their historical evolution, • have the skills to assess basic phenomena, do field research, mapping and data collection, work with thematic databases, use basic and specialized technology to collect, process and analyse the data and synthesis by comprehensive evaluation of results, create thematic maps in a specialized software environment. <p>Practical skills</p> <p>Graduates:</p> <ul style="list-style-type: none"> • can perform methodical procedures of data collection in the laboratory as well as in the field. They are also able to process them with modern statistical methods or with GIS tools. • have the necessary skills to work in a modern geochemical laboratory and knows all methods of geochemical research focused on the interaction of abiotic and biotic components of the environment. • are able to achieve original scientific results and present them in a foreign language to the scientific community in the form of publications as well as at the domestic and international scientific and specialised events. • are able to carry out professional projects, individually or in a team, is able to solve problems in their field of specialization, to propose solutions and to enforce their own decisions, • can keep documentation and develop research materials for synthesizing professional assessments, projects and studies, • are able to work, or coordinate work on Geoscience research and mapping projects, • use the obtained data ethically and responsibly to create and implement in their own projects. <p>Competences:</p> <p>Graduates are able to:</p> <ul style="list-style-type: none"> • use modern information technologies, • present results and communicate with the public in the field of knowledge of geochemistry, • construct environmental and geochemical maps and assess the impact of heavy metals on the environment, • work independently but also as a member of a research team, • understand and explain the casual links of the researched challenge, • follow practices in accordance with the professional, legal and ethical framework of scientific disciplines. 	
<i>b) List of occupations for which graduates are prepared upon graduation and the study programme potential in terms of its graduates' employability.</i>	
2114001 Geochemist	
2114006 Geology Researcher	
2114007 Geologist (excluding Mining Geologist)	
<i>c) Relevant external stakeholders who have provided a statement or a favourable opinion on the compliance of the acquired qualification with the occupation's sector-specific requirements.</i>	

ENVIGEO, a.s., Kynceľová 2, Banská Bystrica 974 11, RNDr. Pavol Tupý; RNDr. Jaroslav Schwarz	
ŠGUDŠ, Mlynská dolina 1, Bratislava 817 04, Mgr. Róbert Jelínek, PhD.	
3. Employability	
<i>a) Evaluation of the study programme graduates employability.</i>	
A wide range of knowledge gained in the study of geochemistry has also proved its worth in the application of MBU graduates at specialized geological workplaces (HES-COMGEO, ENVIGEO), where they are in high demand for the position of geologist-specialist.	
<i>b) List of successful graduates of the study programme</i>	
Mgr, Lucia Vetráková, PhD. (Geologist-specialist – HES-COMGEO)	
<i>c) Employers' evaluation of the study programme quality (feedback)</i>	
Quality assessment of the study programme has been performed by employers who created evaluation reports attached to the accreditation file.	
4. Structure and content of the study programme	
<i>a) The rules for designing the study programme curricula</i>	
The rules for the design of study plans within this field of study are specified in Directive No. 1/2021 Creation, modification and approval of study programmes and submission of applications to the Slovak Accreditation Agency for Higher Education,	
<i>b) Recommended study plan for individual study paths</i>	Geochémia_PhD(D)_Studijny_plan.docx
c) Credit distribution	
<i>The total number of credits required for the successful completion of the study:</i>	240 credits (of which 160 for the scientific part)
<i>Non-teaching study programmes (specify the credit allocation to the individual components)</i>	
<i>Number of credits for compulsory courses:</i>	48 study part + 128 scientific part (of which 60 for the state exam)
<i>number of credits for professional practice</i>	-
<i>Number of credits from elective courses:</i>	20 study part + 20 scientific part
<i>Number of credits for optional courses:</i>	12 study part + 12 scientific part
<i>Number of credits for the state examination</i>	60 (doctoral examination 20 + dissertation and defence 40)
<i>d) Other requirements that the student must meet within the study programme for its proper completion, including the requirements for state examinations, rules for repeat study and rules for the extension and interruption of study.</i>	
<i>e) Rules for verifying the learning outcomes, student assessment and the possibilities of appealing against the assessment.</i>	
<i>f) conditions for recognition of studies or a part of studies.</i>	
The requirements and rules for successful completion of the study and state examinations as well as other study-related rules are defined in the FNS MBU Study Regulations. Link: https://www.fpv.umb.sk/studium/pre-studenta/studijny-poriadok-a-ine-dokumenty/studijny-poriadok.html	
<i>g) Final theses topics of the study programme</i>	
The dissertation must have a compilation-original character. It has to prove the students' ability to work independently and creatively, master the methods of scientific work and should bring new knowledge in the field of geochemistry. In addition to theoretical knowledge, it must contain original data obtained by the student during their studies. At the same time, students must prove that they can interpret the data at the required level. A necessary part of the project is also a discussion, which consists of a comparison of expected results and research results presented in the dissertation. The dissertation thesis must be based on a sufficient amount of studied domestic and foreign literature. The thesis must also meet the formal requirements. Members of the Department of Geography and Geology, as well as experts from practice, will be used in conducting the final theses, but also in their assessment.	
h) Other rules and procedures related to studies	
<i>Rules for the assignment, processing, review, defence and assessment of final theses in the study programme</i>	
Rules for the assignment, reviewing, defence a assessment of final theses are defined in the FNS MBU Study Regulations link: https://www.fpv.umb.sk/studium/pre-studenta/studijny-poriadok-a-ine-dokumenty/studijny-poriadok.html	
Detailed rules for the writing of final theses are specified in Directive No. 9/2021 on final, rigorous, and habilitation theses at MBU in Banská Bystrica link: https://www.fpv.umb.sk/studium/pre-studenta/zaverecne-prace-a-statne-skusky.html	
<i>Opportunities and procedures for participation in student mobility</i>	

Student mobility opportunities and participation conditions are specified in Directive No. 2/2017 on mobilities abroad at MBU Faculty of Natural Sciences in Banská Bystrica. Other relevant information related to mobility opportunities is available at the faculty website.

link: <https://www.fpv.umb.sk/medzinarodne-vztahy/mobility-erasmus/>

The rules for adherence to academic ethics and consequences of non-adherence.

At MBU, there is an Ethics Committee, which addresses the questions and issues related to adherence to academic ethics (employees and students). Relevant information related to Ethics committee and its activity can be found on the university website.

link: <https://www.umb.sk/univerzita/univerzita/o-univerzite/akademicka-etika-umb/eticka-komisia/>

Procedures applicable to students with special needs

Students with special needs follow the Study Guide for Students with Special Needs published at the university website.

link: <https://www.umb.sk/studium/student/student-so-specifickymi-potrebami/informacie-pre-studentov-so-specifickymi-potrebami.html>

FNS MBU has an SSN Coordinator who supports students with special needs and helps them adapt to the university environment, and resolve any study-related issues.

link: <https://www.fpv.umb.sk/studium/pre-studenta/studijny-poriadok-a-ine-dokumenty/sprievodca-studiom-pre-studentov-so-specifickymi-potrebami.html>

Procedures for filing complaints and appeals by students

Complaints and appeals related to studies, results assessment may be addressed in written form/request filed to the Vice-Dean for Pedagogical Activities. Requests for a board examination, if any, are complied with according to academic regulations of FNS MBU.

link: <https://www.fpv.umb.sk/studium/pre-studenta/studijny-poriadok-a-ine-dokumenty/studijny-poriadok.html>

Complaints related to violation of the Code of Ethics can be submitted directly to the Ethics Committee in writing.

link: <https://www.umb.sk/univerzita/univerzita/o-univerzite/akademicka-etika-umb/eticka-komisia/>

5. Course information sheets of the study programme

Link: [Geochémia_PhD_Informacne_listy.rtf](#)

6. Current academic year plan and the current timetable (or a hyperlink).

Year plan: <https://www.fpv.umb.sk/studium/pre-studenta/harmonogram-studia.html>

Timetable: <https://www.fpv.umb.sk/studium/pre-studenta/rozvrhy-hodin/>

7. Staff responsible for the study programme

a) Person responsible for the delivery, development, and quality of the study programme (including their position and contact details).

Full name (including titles)	prof. RNDr. Jám Spišiak, PhD.
Position:	University teacher in the position of professor
Telephone number:	048/4467244
E-mail:	jan.spisiak@umb.sk

b) List of persons responsible for the profile courses of the study programme

Full name (including titles)	List of profile courses	Contact (telephone/e-mail)
prof. RNDr. Peter Andráš, CSc.	Geochemistry of Exogenous Processes Creation and removal of environmental burdens	048/446 5808 peter.andras@umb.sk
doc. Mgr. Štefan Ferenc, PhD.	Genetic types of mineral deposits in Slovakia	048/446 7253 stefan.ferenc@umb.sk
doc. RNDr. Stanislav Jeleň CSc.	Minerals – composition, geochemistry Mining waste minerals	048/446 7254 stanislav.jelen@umb.sk
doc. RNDr. Zuzana Melichová, PhD.	Hydrogeochemistry	048/446 7350 zuzana.melichova@umb.sk
prof. RNDr. Jám Spišiak, DrSc.	Geochemistry of Endogenous Processes Geochemistry of rocks	048/446 7244 jan.spisiak@umb.sk

c) List of teachers in the study programme

Full name (including titles)	List of courses	Contact (telephone/e-mail)
prof. RNDr. Peter Andráš, CSc.	Geochemistry of Exogenous Processes Creation and removal of environmental burdens	048/446 5808 peter.andras@umb.sk

doc. Mgr. Štefan Ferenc, PhD.	Methodology and Ethics of Scientific Work Genetic types of mineral deposits in Slovakia	048/446 7253 stefan.ferenc@umb.sk
doc. RNDr. Stanislav Jeleň CSc.	Ore mineralizations in neovolcanites of Slovakia Minerals – composition, geochemistry Mining waste minerals	048/446 7254 stanislav.jelen@umb.sk
doc. Ing. Radoslava Kanianska, CSc.	Geochemistry of soils	048/446 5810 radoslava.kanianska@umb.sk
doc. RNDr. Zuzana Melichová, PhD.	Hydrogeochemistry	048/446 7350 zuzana.melichova@umb.sk

prof. RNDr. Ján Spišiak, DrSc.	Geochemistry of Endogenous Processes English for Scientists Geochemistry of rocks Geochemical modelling	048/446 7244 jan.spisiak@umb.sk
PhDr. Mária Spišiaková, PhD.	English for Scientists	048/446 2511 maria.spisiakova@umb.sk
c) List of the supervisors of final theses of the study programme		
<i>Full name (including titles)</i>	<i>The list of current dissertation theses topics</i>	<i>Contact (telephone/e-mail)</i>
doc. Mgr. Štefan Ferenc, PhD.	Rodingites in the Western Carpathians – geochemistry and mineralogy Super-genic transformations of U-TR ores in the Permian and the Early Palaeozoic	048/446 7253 stefan.ferenc@umb.sk
doc. RNDr. Zuzana Melichová, PhD.	Research of properties and use of selected nanomaterials in removing metal elements from water	048/446 7350 zuzana.melichova@umb.sk
Mgr. Viera Simonova, PhD.	Mineralogical-paragenetic research of Cu and polymetallic mineralization in the northern part of the Vepor zone (Low Tatras, Slovak Ore Mountains)	048/446 7246 viera.simonova@umb.sk
<i>Link to the staff register:</i>	https://www.portalvs.sk/regzam/?do=filterForm-submit&university=714000000&faculty=714070000&sort=surname&employment_state=yes&filter=Vyh%C4%BEda%C5%A5	
<i>Link to the RATPs of university staff:</i>	https://ais2.umb.sk/ais/start.do	
d) List of students representing the interests of students of the study programme:		
<i>Full name (including titles)</i>	<i>Contact (telephone/e-mail)</i>	
Mgr. Richard Kopáčik	048/446 7253 richard.kopacik@umb.sk	
Mgr. Juraj Butek	048/446 7246 juraj.butek@umb.sk	
f) Study advisor of the study programme		
<i>Full name (including titles)</i>	<i>Contact (telephone/e-mail)</i>	<i>Link to the webpage with consulting hours</i>
Mgr. Viera Simonova, PhD.	048 446 7246 viera.simonova@umb.sk	https://www.fpv.umb.sk/visimonova/
f) Supporting staff of the study programme		
Study Officer		
<i>Full name (including titles)</i>	<i>Contact (telephone/e-mail)</i>	
Mgr. Jana Smolecová	048/4467407 jana.smolecova@umb.sk	
International Relations Officer (mobilities)		
<i>Full name (including titles)</i>	<i>Contact (telephone/e-mail)</i>	
Mgr. Viera Pavlovičová	048/4467439 viera.pavlovicova@umb.sk	
8. Spatial, material, and technical provision of the study programme and support		
<i>a) List and description of the study programme classrooms and their technical equipment assigned to the learning outcomes and courses (laboratories, design and art studios, other studios, workshops, interpreting booths, clinics, seminaries, science and technology parks, technology incubators, school enterprises, practice centres, training schools, classroom-training facilities, sports halls, swimming pools, sports grounds).</i>		
The material and technical equipment of the study plan of the Geopotential of the Regions provides a quality instrumental, material and data base for teaching and research. Classrooms are equipped with a PC and a connected projector and an interactive whiteboard. Students have the opportunity to participate in scientific work using modern instrumentation and software equipment and tools. Within the study plan, research activities will focus on geological, geographical and geochemical research. The workplace is equipped with:		
• basic collection material of minerals, ores and rocks		

- 4 pieces of latest type of professional mineralogical microscope Nikon ECLIPSE LV 100 POL (transmitted and reflected light) with accessories (camera, computer, software – NIS-Element D 3.10)
- 1 piece of special educational multi-ocular (1 + 5 on-line observers) professional mineralogical microscope Nikon ECLIPSE LV 100 POL (transmitted and reflected light) with accessories (camera, computer, software – software NIS-Element D 3.10).
- 3 pieces of professional binocular magnifiers Nikon SMZ 1500 with complete equipment, camera and software – NIS-Element D 3.10,
- 2 pieces of universal mineralogical microscopes (Jenapol, Amplival) with complete equipment, including a universal table (1 piece),
- within the joint workplace (with UVZ SAV Banská Bystrica) – electron microscope with EDAX,
- top-class instruments for the laboratory of environmental analyses, the laboratory of analytical chemistry and the laboratory of physicochemical methods,
- UV lamp (2 pcs.), Radiometer, professional GPS, geological compasses , Retch PM 200 planetary mill with agate vessels, geological sample cutter, core drill,
- for field work within the study of abiotic components of the environment are available: GNSS rover with controller, mobile GIS, total station, GPS Sonar with accessories, field tablet (15 pieces), permeameter, penetrometer, infiltrometer, set of soil drills, etc.,
- software packages – Surfer 10, Digger 4, Strater 2 Voxler 2, complete digitized map materials,
- Trimble UX5 photogrammetric drone – with a 24 MPix camera with a large image sensor with the ability to capture elements on the earth with a resolution of less than 2 cm, data processing software: Agisoft PHOTOSCAN.
- Terrestrial 3D scanner RIEGL VZ1000 – high-performance 3D scanner; Laser Class I; repeatability up to 5 mm; scan speed up to 122000 pts; 100 degrees x 360 degrees; various interfaces (LAN, WLAN, USB 2.0), data processing software: RISCAN Pro.
- ALSSUS APS-3G GNSS system with the Handheld control unit (4 pieces) – high-performance and multi-frequency global navigation satellite system guaranteeing geodetic accuracy.
- Total station Nikon Nivo C3 “(2 pieces) – powerful tachometer for data collection.
- Handheld – Algiz 7 (15 pieces) – professional single-frequency GPS tablet device.
- Handheld – Algiz XRW (5 pieces) – ultra durable notebook.
- GPS Sonar with accessories – Lowrance HDS-9 GEN2 touch sonar + complete GPS (1 piece).
- Multifunctional measuring device for measuring non-electrical quantities with recording – KIMO Instruments AMI300-CLA set (1 piece) – anemometer.
- Integrated software package Golden Software (1 piece) – the ability to enter analyses, syntheses and visualizations of diverse data from geoscience disciplines.
- Extensive geodatabase of data – digital vector layers of topographic Slovak maps and digital vector/raster layers of abiotic components of the landscape sphere.
- 2 fully equipped (HV and SV) specialized classrooms on GIS in the field of geography, landscape ecology and ecology. Equipment: 30 x high-performance computers (22 "W" with LCD screen), 1 x high-end multimedia board, 2 x high-performance and sensitive data projector, 10 x Garmin Oregon GPS class, ArcGIS 10.5 (Advanced – multi-license) 31 "single user", 2 x integrated field meteorological measuring device and 2 x integrated field hydrometric measuring device.
- <https://www.fpv.umb.sk/katedry/katedra-geografie-a-geologie/centrum-geoinformatiky-a-digitalnych-technologii/>
- Laboratory of development of teaching materials for blind students – specialized set of PC (braille line, sound output, printers, scanner).
- Employees, students and guests use cable and wireless connection to LAN UMB and WAN (SANET, Internet), DNS, mail, other services, system capacity and SW. UMB's computing resources are located in the data center (SUN Box, Tajovského 10) and the backup centre (Tajovského 51).

b) information management of the study programme (access to study literature listed in course information sheets, access to information databases and other information sources, information technologies, etc.).

Library and information services are also provided by the University Library of Matej Bel University at the central workplaces at Tajovského 40 and 51 and at dislocated workplaces on each faculty, also in a form of partial libraries in the departments. The university library provides absence and presence book loans, consulting, research, reference service, copying, and Internet access 54 hours/week plus online services and access to electronic information sources 24/7.

The library collection contains over 277,000 scholarly and specialized monographs, textbooks, edited volumes, encyclopaedias, dictionaries and other types of documents. Acquisition is managed in cooperation with teachers according to the current academic and scholarly duties of the university. The collection also includes 251 periodicals, 120 of which are from abroad. Final theses and other qualification theses defended at the university have been available online since 2009. Over 700 textbooks and study materials published by the university press are available via the MBU Virtual Reading Room.

The University Library manages access to databases courtesy of national grants – Web of Science and Scopus scientometric databases, and full-text scholarly publication databases e.g. ACM, ProQuest Central, ProQuest Ebook Central, ScienceDirect, SpringerLink, Springer Nature, Wiley Online Library. Using its own funds, the library also offers access to the Cambridge Journals and Emerald full-text databases, and educational videos on the HSTalks platform.

The General Reading Room at Tajovského 51 features a reference collection of over 16,500 printed documents and 134 periodicals. All fields of study are covered. Office hours: Monday – Wednesday (8.30 am – 9.00 pm), Thursday – Friday (8:30 am – 4:00 pm). European Documentation Centre is a part of the reading room. The study room also manages the deposit of printed final and qualification theses.

The Circulation Branch at Tajovského 40 St is the library's central branch for circulation services, allowing users to borrow from a collection of over 87,000 library documents. Office hours: Monday to Friday, 9:00 am to 4:00 pm. Interlibrary loan services are also offered.

The departmental library has basic study literature, which is represented by course book, books (approx. 2000 books), final theses, monographs and magazines for the field of study. The individual subjects of the study plan are sufficiently covered by course books, scripts and basic study literature. The number of available units to students varies depending on the year of publication.

List of university textbooks and scripts, teaching texts that have been created in recent years in connection with the subjects of the study program:

1. ANDRÁŠ, P., Geochémia pre environmentalistov. Vysokoškolské skriptá, UMB, Banská Bystrica, 123 s.
2. BALÁŽOVIČ, Ľ.: Spracovanie a analýzy geopriestorových údajov – vysokoškolské skriptá, Banská Bystrica: Belianum, 2015, 160s.
3. BALÁŽOVIČOVÁ, Ľ.: Základy meteorológie a klimatológie pre geografov – vysokoškolské skriptá, Banská Bystrica: Belianum, 2015, 148 s.
4. FERENC Š., 2013: Rudné suroviny Slovenska. Vysokoškolské skriptá, UMB, Banská Bystrica, 123 s. ISBN 978-80-557-0445-6
5. GAJDOŠ, A. et al.: Regionálna geografia Európy. Bratislava: VEDA, 2013. 592 s.
6. GREGOROVÁ, B., NERADNÝ, M., KLAUČO, M., MASNÝ, M., BALKOVÁ, N.: Cestovný ruch a regionálny rozvoj – vysokoškolské skriptá, Banská Bystrica: Belianum, 2015, 198s.
7. ILLÁŠOVÁ, L. SMREČKOVÁ, M., ŠLARMANOVÁ, I. 2014: Paleontológia pre gemológov. UKF Nitra, 236 s.
8. JAKUBÍK, J.: Základy kartografie a topografie. – vysokoškolské skriptá, Banská Bystrica : UMB, 2010, 143 s.
9. JELEŇ, S. et al. 2009. Náučno-poznávací sprievodca po geologických lokalitách stredného Slovenska. GIÚ SAV, QUICK PRINT, Martin, 319 s.
10. JELEŇ, S.; FERENC, Š., 2021: Odrasová mikroskopia. Vysokoškolská učebnica, Banská Bystrica, Belianum – vydavateľstvo Univerzity Mateja Bela, 256 s. ISBN 978-80-557-1934-4
11. KANIANSKA R., 2012: Environmentálna pedológia. Vysokoškolská učebnica, UMB, Banská Bystrica, 123 s.
12. KLAUČO, M., WEIS, K., GREGOROVÁ, B., ANSTEAD, L.: Geografické informačné systémy 1, 2, 3 – vysokoškolské učebnice, Banská Bystrica: Belianum, 2014, 71 s., 99 s., 87 s.
13. KLAUČO, M.: Geoinformačné minimum v oblasti ochrany prírody a krajiny – doplnkový vzdelávací materiál, Banská Bystrica: SAŽP, 2010, 95 s.
14. MICHAL, P., BARTO, P.: Geografia Slovenska 1.: príroda a prírodné krajinné typy – vysokoškolské skriptá, Banská Bystrica: Univerzita Mateja Bela, Fakulta prírodných vied, 2012, 167 s.
15. POUŠ, R.: Základy geografie mesta – vysokoškolská učebnica, Banská Bystrica: Belianum, 2013, 240s.
16. PROKEŠOVÁ, R., SPIŠIAK, J.: Všeobecná geológia, mineralológia a petrolológia – vysokoškolské skriptá Banská Bystrica: UMB, 2010, 178 s.
17. ŠKODOVÁ, M., MAZÚREK, J.: Chránené územia Slovenska – vysokoškolské skriptá, Banská Bystrica : UMB, FPV, 2011, 117 s.
18. ŠKODOVÁ, M., URBAN, P.: Národný systém ochrany prírody a krajiny na Slovensku – vysokoškolské skriptá, Banská Bystrica: Belianum, 2015, 156s.
19. URBAN, P., ŠKODOVÁ, M., MEZEI, A., SAXA, A., ŠVAJDA, J.: Prípadové štúdie z ochrany prírody a krajiny a starostlivosti o prírodné zdroje – vysokoškolské skriptá, Banská Bystrica: Belianum, 2015, 152s.
20. www.zaklady-strukturnej-geologie.sk

c) Characteristics and extent of distance education applied in the study programme courses Access to and manuals of e-learning portals. Procedures for the transition from contact teaching to distance learning

The department of geography and geology has multiple platforms suitable for distance teaching. Most frequently, LMS Moodle and MS Teams are used. LMS Moodle serves as a tool for creating courses and implementing teaching through assignments, resp. tasks, also provides study materials and serves as an interactive tool for feedback provision. MS Teams provides communication channels for online lectures, seminars, exercises, and also as a source of storage of study materials, assignments, tasks, instructions for teaching individual subjects and the like. In the case of teaching subjects with a focus on geoinformation technologies, the Google Classroom platform is used, which allows to share individual assignments or tasks with multimedia content and also serves as a tool for obtaining feedback or evaluation. The teaching of GIS subjects, or with the support of GIS, in which it is necessary to have the ArcGIS program provided by ESRI installed, is fully provided on the basis of free student licenses without the need to install the program but with a guarantee of its full functionality. Based on an agreement between the site and ESRI, 50 licenses can be renewed each year.

d) Partners of the institution in providing educational activities for the study programme and the nature of their participation

CBS spol., s r.o. Banská Bystrica – the goal is to increase the quality and readiness of graduates for the needs of practice with an emphasis on the interests of the region's development. The cooperation is focused on science and research in the field of cartography and geoinformatics, identification, monitoring and forecasting of educational needs, creation of teaching aids for geography and national geography, listing of final thesis topics and supervising such projects, application of graduates in practice, students' professional practice and mutual promotion.

Slovak Environment Agency – the aim is to intensify and deepen cooperation in research and pedagogical activities. The cooperation is implemented in the field of nature and landscape protection, zoology, botany, ecology, environmental studies and landscape ecology. The staff of the agency provide pedagogical activities in the form of lectures on selected specialized topics and participates in the management of bachelor's or master's theses and consultations. The Agency also participates in joint research projects as an output recipient (APVV).

Earth Science Institute SAS – mainly implements joint research and development projects (APVV, VEGA); exchange of research and development results in areas of common interest; work on joint monographs and scientific publications and joint use of research infrastructure. Through the use of unique instrumentation and laboratory technology, the institute provides a large amount of scientific and technical information in the form of geochemical and mineralogical analyses and laboratory samples.

ENVIGEO a.s. – cooperation in order to help develop education, increase the quality and readiness of graduates for the needs of practice, with emphasis on the interests of the region's development. The aim is to enable short-term internships for students in the form of participation in fieldwork and field trips. Further cooperation is in the field of teaching in the form of invited lectures in existing subjects or as comprehensive optional courses focused on practice, as well as in listing the topics of final theses and conducting such works.

e) Opportunities for social, sport, cultural, spiritual and social activities

The university offers other opportunities besides education in various study programmes. Students may participate in various cultural, sport, spiritual activities. At the university there are several sports clubs, art ensembles, students may even use university sports grounds. There is also the University Pastoral Centre. All information related to the mentioned opportunities can be found at the university website.

link: <https://www.umb.sk/studium/student/volny-cas/>

link: <http://upcbb.sk/o-upc/kto-sme/>

f) Opportunities and conditions for participation of the students of the study programme in mobility opportunities and internships (indicating contact details), application instructions, rules for recognizing such education

Other relevant information related to mobility opportunities is available at the faculty website.

link: <https://www.fpv.umb.sk/medzinarodne-vztahy/mobility-erasmus/>

Each department has its own mobility coordinator for students, who offers the students introductory information about mobility opportunities for them and directs them during other related activities and formal processing.

link: <https://www.fpv.umb.sk/medzinarodne-vztahy/mobility-erasmus/koordinatori-programu-erasmus.html>

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

a) Required abilities and necessary admission requirements

Opportunities and admission requirements for study, as well as syllabuses of admission proceedings for individual study programmes for the following academic year are specified in Opportunities and requirements of admission to study for the year 2022/2023.

link na aktuálny dokument: <https://www.fpv.umb.sk/studium/pre-uchadzaca/podmienky-prijatia-na-studia-v-roku-2022-2023/>

The main criterion for admission to doctoral studies is a university degree in the same or a related field. The applicant must also demonstrate sufficient knowledge of the core subjects of the field of geology (petrology, mineralogy, stratigraphy,

palaeontology, mineral deposits) at the level of the master's degree programme in geology. In addition to this expertise, a sufficient knowledge of a foreign language is a prerequisite (English is preferred).

b) Admission procedures

The admission procedures and conditions are defined in the FNS MBU Study Regulations.

link: <https://www.fpv.umb.sk/studium/p.re-studenta/studijny-poriadok-a-ine-dokumenty/studijny-poriadok.html>

c) Admission results from the recent period

In the case of written admission examination, results are announced to the applicants at the faculty website on the day of the admission examination.

Applicants who meet the set requirements for admission to study receive a decision of admission to study with other relevant documents. The results of admission proceedings are recorded in the academic information system.

10. Feedback on the quality of education

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

1. University faculties annually conduct sociological surveys focusing on study programme assessment, asking graduates of the 1st and 2nd degree of studies after state examinations. The questionnaire focuses on the summary of their studies, contents of their study programme and conditions created for the purposes of their completion. The questionnaire is anonymous; students fill in the questionnaire form after they successfully complete their state examination. Questionnaire sheets are later processed in TAP software.

The questionnaire is evaluated at the university level and the results are included in the MBU Report on Pedagogical Activity. At the faculty level, the questionnaire is analysed in detail, focusing on evaluation of answer trends in questionnaire questions in several years for every study programme delivered. At the faculty and department levels, measures after the evaluation improving on the specific aspects in question, are applied. The results of the questionnaire are presented at the Dean's College and are a part of the Reports on Pedagogical Activity.

2. Another questionnaire conducted at the university is focusing on assessment of teachers. The aim of this questionnaire is to receive feedback from students on the quality of classes with a given teacher, their class delivery, their approach to teaching and student assessment. The questionnaire allows students to formulate their opinions on a specific teacher and their work, and complain if they wish. The questionnaire is anonymous and takes place in AIS. Every teacher has access to results of the questionnaire regarding themselves, Chair of the Department has access to results of all teaching staff in the department. Any potential deficiencies and objections are resolved in cooperation with the Vice-Dean for Pedagogical Activities at the department level.

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

Results of the questionnaire focusing on the students' opinions on their teachers' performance are stored in the academic information system.

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

Results of the questionnaire on the study programme quality assessment filled in by graduates are included in the Reports on Pedagogical Activity at the university and the faculty levels.

11. References to other relevant internal regulations and information concerning studies or students in the study programme (e.g. study handbook, accommodation rules, directive on fees, guidelines for student loans, etc.)

<i>Document type</i>	<i>Link to the document</i>
<i>FNS MBU Study Regulations</i>	https://www.fpv.umb.sk/studium/pre-studenta/studijny-poriadok-a-ine-dokumenty/studijny-poriadok.html
Study Guide	https://www.fpv.umb.sk/studium/pre-studenta/studijny-poriadok-a-ine-dokumenty/sprievodca-studiom.html
Study Guide for Students with Special Needs	https://www.fpv.umb.sk/studium/pre-studenta/studijny-poriadok-a-ine-dokumenty/sprievodca-studiom-pre-studentov-so-specifickymi-potrebami.html
Directive No. 9/2021 on final, rigorous, and habilitation theses at MBU in Banská Bystrica	https://www.fpv.umb.sk/studium/pre-studenta/zaverecne-prace-a-statne-skusky.html
Disciplinary Code for students of Matej Bel University in Banská Bystrica	https://www.fpv.umb.sk/studium/pre-studenta/studijny-poriadok-a-ine-dokumenty/disciplinarny-poriadok.html
Directive on tuition and fees related to studies and awarding of scholarly-pedagogical titles at Matej Bel University in Banská Bystrica for the current academic year	https://www.fpv.umb.sk/studium/skolne-a-poplatky-spojene-so-studiom/

FNS MBU Scholarship Regulations

<https://www.fpv.umb.sk/studium/stipendia/stipendijny-poriadok.html>