SVEUČILIŠTE U MOSTARU
S E N A T
Ur. broj: 01-2419/23
Mostar, 26. travnja 2023.

Na temelju članka 53. Statuta Sveučilišta u Mostaru (ur. broj: 01-1685/20 od 26. veljače 2020. godine) i članka 11. Pravilnika o postupku donošenja novih i revizije postojećih studijskih programa na Sveučilištu u Mostaru (ur. broj: 01-993-1/22 od 23. veljače 2022. godine) Senat Sveučilišta u Mostaru je na 401. sjednici, održanoj 26. travnja 2023. godine, donio

O D L U K U

o usvajanju revidiranog Nastavnog plana i programa

I.

Usvaja se revidirani Nastavni plan i program sveučilišnog studija Medicine na engleskom jeziku na Medicinskom fakultetu Sveučilišta u Mostaru.

II.

Sastavni dio ove Odluke čini revidirani Nastavni plan i program sveučilišnog studija Medicine na engleskom jeziku na Medicinskom fakultetu Sveučilišta u Mostaru.

III.

Odluka stupa na snagu danom donošenja.

Rektor

Prof. dr. sc. Zoran Tomić

Dostaviti:

- Medicinskom fakultetu 2x,
- pismohrani.

UNIVERSITY OF MOSTAR

CURRICULUM OF THE INTEGRATED UNIVERSITY STUDY PROGRAMME MEDICAL STUDIES IN ENGLISH

April, 2023

CONTENT

1. INTRODUCTION

The curriculum of the integrated university study programme Medical Studies in English (MSE) is the result of the regular review process, which began with the Decision of the Senate at the session held on February 26, 2022 (No. 01-993-1 / 22). The regular revision procedure was carried out according to the *Rulebook on the Procedure of Adopting New and Regular Revisions of Existing Study Programmes* (No. 01-993-1 / 22). It stipulates that the Committee coordinates a revised curriculum. The Committee also includes student representatives and external users, and the Scientific - Teaching Council of the organizational unit submits their proposal to the University Senate for adoption.

In order to involve all stakeholders in the process of improving the study programme, a public discussion was held on March 14, 2023 (No. 01-I-374/23). Stakeholders and the public were informed about the public discussion via the School's website and by e-mail. The materials for the public discussion were available in advance to heads of individual Chairs, heads of courses, teachers, students and external users. On the basis of the public discussion and the conclusions reached, the Minutes of the public discussion were drafted (No. 01-450/2).

On top of the conclusions of the public discussion, when deciding on the type of changes, the relevant data of the annual report at the level of the organizational unit of the School of Medicine and the study programme Medical Studies in English (No. 01-I-2216-c/21) of December 20, 2021, adopted at the session of the Scientific - Teaching Council on December 17, 2021.

Furthermore, when deciding on the type and extent of changes, suggestions for improvements on the basis of earlier evaluations were also analysed - the last institutional accreditation from 2020 (dated January 23, 2020; No. 05-03-40-92-8/19), and the accreditation of study programmes carried out by AZVO (Certificate of Reaccreditation of AZVO of the University of Mostar (No. 355-01-18-0028 dated May 9, 2018). The application of the provisions of legal and internal acts on the minimum share of pre-examination requirements in the final grade in all courses was also taken into account, as well as the application of modern teaching methods with the student in the centre of the teaching process. In relation to the above, different teaching methods are used that support interactive learning and research, problem solving, and creative and critical thinking. Improvement of the Syllabi encourages different ways of teaching in accordance with the planned learning outcomes, and is achieved on the basis of evidence on achieving the prescribed learning outcomes (e.g. student tests, seminar papers, presentations, etc.).

The School of Medicine of the University of Mostar is a member of the Dean's Conference of Schools of Medicine in the Republic of Croatia. The learning outcomes implemented in this programme hence were adopted in collaboration with Schools of Medicine in the Republic of Croatia and as such correspond to the level of CQF (Croatian Qualification Framework) and EQF (European Qualification Framework). The prescribed learning outcomes clearly define, that is, result in the competencies that students, future doctors of medicine, should acquire during their studies, and which are necessary for entering the labour market, continuing education or other needs of the individual/society. Recommendations of professional associations that monitor their licensing (for example, Medical Chambers) were also accepted, with the aim of educating experts who are competitive on the national and international labour market.

The revised curriculum has complied ECTS credits with the actual student workload based on feedback from participants in the teaching process. Accent lies on achieving clear and accessible criteria and methods of evaluation and assessment of students, in order to make the examination process more transparent, and the students were familiar with expectations of them even before the start of a particular course.
Conclusions were reached through conversations with the students, that they were satisfied with the possibility of performing elective summer rotations in internal medicine and surgery, in different institutions and with the possibility of choosing the department in which they would perform the rotation. This especially applies to the fact that they can work in smaller groups.
In relation to the above, the new curriculum also made a major intervention in the sense of transferring all clinical rotations to the 6th, final year of studies and their organization in the form of student rotations, which is described in more detail below. By doing so, lesser workload for individual Clinics in a single rotation is achieved, and the students will be able to work in smaller groups, which significantly increases their engagement in exercises.

In addition, during the development of the curriculum, all strategic tasks in the strategic area of education from the *University Development Strategy 2017-2023*, which relate to the curriculum and teaching process, were carried out (more in the chapter "3.1. Link to the University Development Strategy").

Taking all of the above into account, several changes have been made in this revised curriculum in comparison to the existing one. The key changes (introduction of new courses and reorganization of internships or clinical rotations) are described in the text below, while minor changes in the form of changes in course names, corrections of time schedule and ECTS credits are presented in a table with a short explanation.

1. 1. New Courses

Back in the previous revision of the programme, numerous new courses were introduced, as follows:
- Personalized Medicine and Biotechnology
- Transfusion and Transplantology
- Medical Statistics
- Clinical Pharmacology

Introduction of these courses proved to be a good decision since the students were satisfied with the classes and the skills they acquired in these courses, which was also reflected in the excellent grades in student surveys.
Medicine is an extremely fast changing field. The literature and materials from which the people who developed this new programme studied when they were students are, in a practical sense, outdated. On top of this, pathology and incidence of certain diseases are changing, and the number of possible tests is increasing day by day. The incidence of serious diseases such as cancer is also increasing. Taking all of the above into consideration, and through comparisons with the programmes of referential Schools in the region (primarily those from the European Union), three new courses were included in the new programme. The mentioned courses are already in the programmes of reference Schools of Medicine in the EU, and some of them were taken by doctors of medicine in EU countries for the purpose of diploma acknowledgment. The introduction of these courses reduces the differences of our programme in comparison with the programmes of EU countries (primarily the Republic of

Croatia), which will facilitate the evaluation process of our diplomas and the possibility of mobility of doctors of medicine after graduation.

a. Clinical Biochemistry
The goal of introducing the course Clinical biochemistry is to achieve students' understanding of the functioning of the organism at the molecular level, which is reflected in the normal functioning of organs, as well as in pathological biochemical processes in the organism, the role of natural biomolecules in the body, the dynamics of the synthesis and breakdown of natural biomolecules (hormones, tumor markers, vitamins, trace elements) and their influence on the functions of the main organ systems. Also, the goal is to train students for critical judgment of laboratory results in different diseases.

b. Palliative Medicine
The goal of introducing this course is to improve and advance students' knowledge of the concept and organization of palliative care, the role of palliative care for patient and family, and health care of the leading symptom of a palliative patient - pain, as well as other symptoms that may appear.
In addition, students will be enabled to communicate with terminally ill patients and their family members, while raising awareness of the need for responsible decision-making within ethical frameworks.

c. Health Care Organization and Health Economics
The goal of introducing this course is to expand students' knowledge about the structure of health systems and the organization of health care. The idea is to enable students understand the fundamentals of health economics and ways of funding the health systems, and to make students aware of the need for an active approach regarding the acquisition of such skills as management, teamwork and planning at different levels of the health system.

1. 2. Reorganization of Clinical Rotations

Clinical rotations, i.e. student practice, will be organized in the form of student rotations at 4 Clinics - Internal Medicine, Surgery, Gynecology and Pediatrics. The expected total duration is 12 weeks, 3 weeks for each rotation respectively. The time schedule of exercises has been increased by 25%.

1.3. Changes in Course Names, Time Schedule, ECTS Credits and Other

A detailed description of all changes is presented in table 2 of the Report of the Committee for the revision of the Medical Studies in English curriculum, which is attached to this Curriculum.

2. GENERAL INFORMATION ABOUT THE STUDY PROGRAMME

Study programme:	Medical Studies in English
Cycle:	Integrated, 2nd cycle
Type:	The Integrated Undergraduate and Graduate University Study Program
Scientific area:	Biomedicine and Health care
Scientific field:	Basic medical sciences Clinical medicine Public health
Academic title:	Doctor of Medicine (MD)
EQF qualification level:	7
Duration of the study programme:	6 Years (XII Semesters)
ECTS:	360
Language:	English
Mode of study:	Regular Study Programme, Teaching Blocks in XII Semesters
Awarding institution:	University of Mostar
Institution administering studies	University of Mostar, School of Medicine
Study programme goals:	1. Achieve an adequate student knowledge on scientific foundations of medicine and train them to differentiate and apply various scientific methods, including principles of biological function measurements, validating scientifically proven facts, and analysing scientific data. 2. Achieve an adequate student knowledge on recognizing and connecting the structures, functions, and behaviours in healthy and sick individuals, as well as influence of socioeconomic environment on human health. 3. Prepare the students to critically evaluate and apply the procedures that enable doctors of medicine a comprehensive input on mental and physical disturbances, on preventive medicine, diagnostics and treatments, as well as human reproduction. 4. Prepare the students to critically judge, select and rationally apply preventive measures, as well as diagnostic and therapeutic algorithms according to relevant guidelines on disease prevention, health status improvement, or a complete resolution of the disease. 5. Train the students in appropriate communication skills with members of their medical teams, patients and their families, other healthcare and non-healthcare professionals, regulatory agencies and public, according to appropriate legislature and ethical principles. 6. Achieve an adequate student awareness on necessity of life-long learning in the field of medicine, and biomedicine and health in general.
Study programme competencies:	Upon completion of Medical Studies in English at the School of Medicine of the University of Mostar doctors of medicine acquire the following competencies: • fundamental theoretical knowledge and practical skills that are necessary for independent work in a doctor's office, correct determination of diagnosis and treatment,

	• broad knowledge and practical skills that qualify them for any type of postgraduate education and cooperation with other healthcare professionals, • professional and scientific education that enables a fundamental approach to the creation of scientific and professional thinking, • knowledge about the process of scientific research work and the ability to critically evaluate old and new scientific knowledge, • correct ethical and deontological attitudes, • knowledge of the correct use of medical information, respect for patient privacy, professional secrecy, empathy towards the patient and acceptable communication with the patient, • the ability to communicate with the patient in a way that is comprehensible to him while respecting the patient's right to participate in treatment decisions or to refuse treatment, • acquire knowledge for further improvement and development of medicine, systematic thinking and structural approach to medical problems, • acquire a systematic way of thinking and a structured approach to medical problems during their education, as well as knowledge about the diagnostic algorithms and making therapeutic decisions, • legal requirements for working in the medical profession while assuming the responsibility associated with the title of doctor of medicine, • knowledge about the functioning and organization, as well as the financing of health care, methods of keeping health records, and knowledge about legal standards in relation to permanent theoretical and practical training, • knowledge of how to approach a psychiatric patient, respecting all his particular needs, and are ready to dedicate themselves to the medical profession and take responsibility for the patient's physical, mental and social well-being, • knowledge of how to provide appropriate medical services to children, • knowledge of the concepts of health promotion and disease prevention, • acquire knowledge of how to cooperate with other health professionals, achieve successful teamwork, teach colleagues and develop personal teaching skills, • acquire knowledge about quality assurance measures and assess their own competence in the field of medicine and knowledge standards, • they are familiar with the harmful effects of ionizing radiation, and methods of protection, • acquire knowledge about anesthetizing pain in different anatomical regions, • acquire basic medical knowledge in order to be able to provide help in all cases of medical emergency and master the diagnostic algorithms, • acquire knowledge for intervention in the event of a medical emergency, and the implementation of preventive protection measures in medicine,

	• be prepared to take responsibility and make the necessary medical decisions, • be prepared and capable of establishing successful teamwork and skill management, • be prepared to consider changes in the socioeconomic context of treatment, • be aware of and ready for lifelong continuous learning and improvement in order to maintain a high level of medical competence. A detailed list of specific knowledge and skills, as well as recommended levels of competence for the performance of each skill, are presented for each course in the "Clinical Skills Booklet".
Study programme learning outcomes:	IU-MSE1. Explain and relate knowledge from the basic natural and medical sciences to apply a scientific approach to solving professional medical issues. IU-MSE2. Describe and relate knowledge about the normal structure and function of organs, organ systems and the body as a whole. IU-MSE3. Describe and relate knowledge about molecular, biochemical and cellular mechanisms important in maintaining homeostasis in the body. IU-MSE4. Explain the abnormal structure and function of organs, organ systems and the body to evaluate and argue the causal relationship between internal and external factors and the individual's behaviour. IU-MSE5. Describe the various causes of diseases (genetic, developmental, autoimmune, degenerative, toxic, metabolic, and neoplastic) and the disease mechanisms. IU-MSE6. Describe and relate knowledge about pathological and clinical manifestations of diseases and apply it in the diagnosis and treatment of diseases. IU-MSE7. Identify the importance of scientific methods in basic, translational and clinical research. IU-MSE8. Connect and apply knowledge about clinical, laboratory and imaging manifestations of the disease state and interpret and conclude in terms of differential diagnosis. IU-MSE9. Assess the functional forms and content of interdisciplinary cooperation and apply good practice of participating in multidisciplinary teams at all levels of health care, implementing and designing public health projects and campaigns, and in scientific research. IU-MSE10. Evaluate and apply the protocols and algorithms of preventive, diagnostic and therapeutic procedures according to current guidelines for the treatment of diseases and maintenance of health. IU-MSE11. Assess and review the rationality and safety of therapy based on knowledge and evidence that contribute to medical care, treatment outcomes, and health maintenance. IU-MSE12. Assess, evaluate, and develop the principles of good medical practice, medical ethics, and deontology.

	IU-MSE13. Assess and argue the importance of socioeconomic, psychological, environmental and other non-biological determinants that contribute to the maintenance of health and/or disease development. IU-MSE14. Conduct a medical interview, comprehensive history-taking and physical examination to obtain information relevant for working and differential diagnosis. IU-MSE15. Develop an appropriate plan for management, inclusion and rational selection of laboratory and instrumental examinations, interpretation of their results, and interventions for disease diagnosis and treatment. IU-MSE16. Practice effective communication with patients and their families when presenting and explaining medical information in accordance with the patient's and family members' level of health literacy and with the patient's consent. IU-MSE17. Explain the content of informed consent and argue for the reason informed consent should be obtained for the diagnostic and therapeutic methods necessary for patient treatment procedures. IU-MSE18. Formulate and explain health information on the disease/diagnosis to other healthcare and non-healthcare professionals, regulatory agencies, and the interested public in an appropriate manner and in compliance with applicable regulations. IU-MSE19. Apply specific forms of digital personal communication with the patient to identify the need for therapeutic interventions, report side effects and meet other medical needs. IU-MSE20. Apply and develop educational and information content and forms of telemedicine. IU-MSE21. Apply learning methods that enable postgraduate specialist training, lifelong learning and doctoral education in the field of biomedicine and health.
Opportunities after graduation:	Upon completion of Medical Studies in English, the following is possible: 1. Take the professional/state exam and, after passing it, perform the duties of a doctor of medicine. 2. Continue studying at the post-graduate doctoral study (3rd cycle) and/or post-graduate specialist study 3. After meeting the other criteria, apply for residency
Accreditation:	The University of Mostar received a Decision on Institutional Reaccreditation on January 14, 2020 (No. 05-03-40-92-8/19) from the competent Ministry of Education, Science, Culture and Sports of Herzegovina-Neretva Canton on the recommendation of the Agency for Development of Higher Education and Quality Assurance of Bosnia and Herzegovina, after which the University was registered in the State Register of Accredited Higher Education Institutions.

3. BASIC CHARACTERISTICS OF THE STUDY PROGRAMME

3.1. Connection with the Development strategy of the University of Mostar

In the *Development Strategy of the University of Mostar 2018 - 2023*, in the strategic area of education, several strategic goals are related to the curriculum and its elements. In objective 1, it is defined that the University, in cooperation with stakeholders, will create, approve, implement and continuously monitor and improve study programs at all levels, with clearly defined learning outcomes related to the needs of the labor market, and in accordance with the European Qualifications Framework (EQF), define the goals and expected learning outcomes of each study program and harmonize the content of the study program with them, in accordance with the appropriate level of the European Qualification Framework and the qualification standard, and to introduce a transparent and consistent process of revision and improvement of study programs with the participation of students and other stakeholders, ensure a realistic allocation of ECTS points, through the defined system of ECTS coordination at all levels of study, to improve the interdisciplinary nature of study programs by enabling the optionality of courses at the University level. Objective 3 refers to the development of a network of teaching bases, that is, organizations from different fields of activity, and to the establishment of cooperation that will enable the connection of practice, science and art, and higher education. In this sense, the goal is to increase the number of hours and the share of teaching practice in study programs and the share of ECTS points that are acquired through professional practice, and to increase the number of Diploma (graduation) theses that have a topic and content related to clinical practice.

3.2. Compliance with the Achievements of a Certain Scientific/Artistic Area and Labour Market and Connection with the Standards of Occupations/Qualifications

Objectives, competencies, and learning outcomes at the level of the study programme are defined in a way that is in line with the achievements of a particular scientific area and labour market and related to the standards of occupations/qualifications. The Employment Office regularly publishes a list of study programs in demand on the labour market for each individual calendar year. Medicine is often highly ranked on the scale of the so-called deficit professions, but the School of Medicine in Mostar is extremely careful in planning enrolment quotas and defining strategic development and management goals. Without harmonizing the fundamental principles of responsible and rational business, and the strategic support of the founder of the University of Mostar, the School of Medicine cannot respond to market challenges without satisfying the fundamental postulates of responsible management, which is the optimization of personnel, space and equipment, after which it would only be possible to comply with the request for an increase in enrolment quota at the School. In accordance with the aforementioned, enrolment quotas were not increased in the Medicine study program.

To harmonize with the achievements of the scientific/artistic area, the representatives of teachers in the Committee for the development of the revised curriculum and other teachers who participated in the development of syllabi for each course took into account current achievements and trends in scientific area of biomedicine and health, field of basic medicinal

sciences, clinical medical sciences and public health, and related branches according to Frascati classification for each study programme).
Also, student representatives and external users were appointed to the Committee for the development of the revised curriculum to harmonize with the labour market. Public hearing was organized with the participation of experts from practice and economics (representatives of public health institutions, representatives of teaching bases, health centres, and general hospitals in FBiH)), and their suggestions were taken into account in the development of the curriculum.
Since no occupational standard or qualification standard has been defined at any level in BiH, the following documents have been taken into account:
- Decision on the standard classification of occupations in the FBiH (Official Gazette of the FBiH, Vol. XI, No. 40, No. 8, 2004), which lists occupations under the category "Class 2. Experts and Scientists" as medical doctors (code 2221.01)and its activities include health promotion, disease prevention, disease detection, patient treatment and medical rehabilitation.
In addition to the above document, the following documents were also considered:
- EU Directive 2005/36/EC in accordance with the framework of EU member states with which best practice examples are exchanged with the aim of realizing the ideas of lifelong learning and mobility, increasing the quality and efficiency of education and training, promoting fairness, social cohesion and active citizenship, and strengthening creativity, innovation and entrepreneurship.

Jobs/competencies/learning outcomes from all the above documents are implemented in the competencies and learning outcomes at the level of the study programme listed in chapter "2. General information about the study programme". They are realised in obligatory courses, in order to ensure that all students achieve them with the acquired qualification. The coverage of these learning outcomes at the level of the study programme with the learning outcomes at the level of obligatory courses is presented in the chapter “3.12. Matrix of learning outcomes” and all with a goal to accelerate the transformation of the open and inclusive higher education system in Europe.

3.3. Comparability with the Study Programmes in the Country and Abroad

The curriculum is comparable to: study programs in the countries of the European Union, especially with the neighbouring Republic of Croatia. The corresponding ECTS credits are based on the principle of well-balanced curricula and qualification standards, focusing on acquiring knowledge, practical work and mastering the basic, clinical and public health skills of medical doctors. The study program of medical studies is related to accredited programs in EU countries, for example, it is completely related to the study of medicine at the School of Medicine of the University of Split, Zagreb, Rijeka and Osijek. Compliance with similar study programs in Bosnia and Herzegovina overlaps in about 70% of the curriculum. Comparability is reflected exclusively in the competencies and learning outcomes at the level of study programmes and in the duration of studies, while the study programme retains its specifics mainly through the structure, course names, and ECTS credits.

3.4. Openness to Student Mobility

Student mobility is defined by the *Rulebook on international mobility*, which refers to administrative support for students, student mobility documents, insurance, method of

application, the procedure for recognizing mobility and information package. The unique recognition methodology is defined at the university level by the Senate Decision on the adoption of a single form for the *Decision on recognition of courses, ECTS credits, grades, and professional practice during student mobility*, which is recorded in the diploma supplement. Students can find information on mobility programmes and accompanying forms on the University's website and through vice-dean for international cooperation and coordinator at the organizational unit that forwards information from the International Relations Office to student representatives.
In the past period, special attention was paid to the outgoing mobility of students, through the signing of bilateral and multilateral agreements and mobility programs within the framework of the ERASMUS+ program. All available information about mobility is available to students on the respective websites of the School of Medicine and University of Mostar, while any additional ambiguities can be resolved with the help of the coordinator for the ERASMUS+ program. The importance of mobility is also reflected in the fact that the University has established an Office for International Cooperation, which implements mobility programs for staff and students, and coordinates all activities related to international cooperation. Also, the mobility websites in Croatian and English have been updated. Furthermore, students and staff are regularly informed about all mobility opportunities, as well as newly signed agreements, and informal meetings were organized where exchange experiences were shared. Exchange experiences are regularly published on the social networks of the School of Medicine and University of Mostar.

3.5. Conditions for Enrolment in the Study Programme and Transfer from other Study Programmes

The *Rulebook on Study of the University of Mostar* defines the right to enrol in undergraduate, graduate, and integrated study programmes, which is done through a public competition. The Senate, at the proposal of the Scientific - Teaching Council of the organizational unit, and with the consent of the Governing Board of the University and the competent Ministry of Education, Science, Culture and Sports of Herzegovina Neretva Canton, announces a public tender. It is published on the website and bulletin board of the School of Medicine of the University of Mostar, which contains information on the conditions for enrolment, entrance examination, tuition fees, criteria for selecting candidates, and other information.

Conditions for enrolment in the MSE study programme:
- Completed secondary education or equivalent from the country where the education was acquired (overall average over the continuum of all 4 years of the secondary school education comprising all the grades, together with the specific evaluation of grades in Biology, Chemistry and Physics).

- Psychophysical abilities to study medicine.

The entrance examination is not conducted. The School committee will conduct an interview with applicants and create a ranking list of candidates who meet the admission criteria.

When transferring from other study programmes, a request is submitted to the Dean of the School of Medicine of the University of Mostar, and the Teaching Committee gives a proposal on the possibilities and conditions for enrolment, while the final decision is made by the dean.

3.6. Conditions for Enrolment in the Next Semester and Year of Study and Graduation

Conditions for enrolment in the next semester and higher year of study are defined by the *Rulebook on Study* of the University of Mostar and the Rulebook on the Integrated Studies at the School of Medicine of the University of Mostar, as well as by decisions on amendments to the Rulebook.
The conditions for enrolment in the next semester and year of study are complied with the requirements of the study programme, they are clear, published and consistently applied.
To enrol in a higher year of study, a student must attend and pass all courses from the current year. Certain deviations from this rule are possible when transferring from other Schools of Medicine.
The study programme ends with writing and defending a Diploma Thesis that carries 3 ECTS credits and is evaluated as described in the appropriate course syllabus.
The manner and procedure of defending the Diploma Thesis and the methodology of its preparation are defined in the *Rulebook on Writing and Defending a Diploma Thesis of the School of Medicine of the University of Mostar* and other appropriate materials available on the School's website (roadmap, instructions for writing the thesis, outline of the thesis, instructions for ethical permission, etc.).
At the end of the study programme, students receive appropriate documents (diploma and diploma supplement). The diploma and the diploma supplement are issued in accordance with the relevant regulations. The School of Medicine issues a diploma supplement in Croatian and English.

3.7. Organization of Study Programme

The study programme is organized through two semesters in the academic year, and classes are conducted according to the schedule of classes through shifts.

The programme lasts 6 years (12 semesters) and includes basic and clinical medical courses, public health, as well as clinical rotations that integrate previously acquired knowledge and skills. The academic year lasts from the beginning of October to the beginning of July, so that the prescribed number of hours of the programme (5690) could be performed without breaching the recommendation that a student does not have more than 25-30 hours of direct teaching in a single week.

During the six years of study at the study programme Medical Studies in English, active teaching and independent student work (10,800 hours) are achieved. The independent student work (5110 hours) includes the time the student needs for independent study, preparation of seminars, preliminary examinations, final tests, notwithstanding contact hours with teachers (lectures, seminars and exercises). The number of hours of independent work is defined in the description of the content of each course. The method of checking the acquired learning outcomes, as well as the percentage value of individual forms of checking the knowledge, are specified in the description of each course (written, oral, practical check). Attendance of classes is obligatory, while absences and consequences thereof are regulated by the *Rulebook on the Integrated Studies at the School of Medicine of the University of Mostar*.

Examinations are organized in the form of a partial (preliminary) examination in a particular course and a final examination. Forms of checking the knowledge can be only oral, only written (tests), tests combined with an oral examination, tests combined with a practical knowledge test and an oral examination.

The pre-term or the post-class term is scheduled after the end of classes (tournament or block), after a few days off (including weekends and holidays). This interval is determined in proportion to the length of the block of the course to which it refers. Summer and autumn examination terms are scheduled in July and September respectively (usually two examination dates for each course in both summer and autumn). In the fourth and eighth examination term, students take their examinations before the Examination Panel.

On top of this, the curriculum of each course defines the possibility of online classes, although in accordance with the decisions of the University and the School of Medicine, traditional "live" teaching is preferred and encouraged. The maximum number of hours of online classes at the level of the study programme is 20%.

During the 6th year of studies, clinical rotations are held as a form of professional practice, and are described in more detail in the structure of the study programme (3.8.)

3.7.1. Student organizations, associations and sections at the School of Medicine, University of Mostar

In addition to the prescribed curriculum, tuition in a somewhat informal format is available to students through the activities of student organizational units. By fulfilling the assignments within the programs of individual unit, students may improve their skills of communication, organization, time and resource management, as well as social skills which are known to be crucial for successful work experience.

PULS

Journal of medical students at School of Medicine, University of Mostar – PULS, was founded in 2004. on students' initiative. PULS provides a platform that enables students to develop creativity, originality, ingenuity, and wit. By writing texts on a given topic, students learn to retrieve information from reliable sources, to discern important information and to compose them in a meaningful content. The subject matter is often diverse and includes scientific, medical, and non-medical issues, students' opinions, and attitudes as well as teaching staffs' and interviews with inspiring individuals. By collaborating with other students' magazines, PULS also enables the exchange of experiences and the creation of new student networks.

Association of Medical Students of Bosnia and Herzegovina - BoHeMSA

Bosnian and Herzegovinian Medical Students' Association - BoHeMSA is a non-governmental, non-profit, student organization whose membership consists of students from 4 medical faculties in Bosnia and Herzegovina: Mostar, Sarajevo, Tuzla and Zenica. It is a branch of the International Federation of Medical Student Associations (IFMSA) - a dynamic platform that, in addition to representing medical students and doctors worldwide, also provides opportunities for personal, professional, and social development of its members. The main

activities of BoHeMSA are collaboration between students, representation of students and combining interests of medical students both at the national and international level. BoHeMSA carries out its activities through six active working sectors - Sector for Public Health (SCOPH), Sector for Medical Education (SCOME), Sector for Human Rights and Peace (SCORP), Sector for Sexual and Reproductive Health and Rights including HIV and AIDS (SCORA), the sector for scientific-research exchanges (SCORE), the sector for professional exchanges (SCOPE), which in turn operate through local organizational units.

Student section for pharmacology and immunology – PHARMiON

PHARMiON is the first scientific student section founded at the University of Mostar School of Medicine. Membership consists of medical students, pharmacy students and students of Faculty of Health Studies. Scope of the student section covers the areas of basic and clinical pharmacology with toxicology, basic and clinical immunology, rheumatology, and scientific work. The main goals of the student section are to provide additional education in the mentioned areas, to provide additional clinical practice, to encourage students to do scientific research as well as write and publish scientific publications, to organize scientific meetings and to encourage students to participate in congresses. By collaborating with other students' sections and organizations, PHARMiON enables to create a unique network of biomedical students for exchanging knowledge and experience, and to create a friendly atmosphere between the future pillars of the health system.

Student Section for Emergency Medicine

The student section for emergency medicine is an informal group of students at School of Medicine, University of Mostar. Founded in 2019, the section successfully gathers medical students, pharmacy students and students of Faculty of Health Studies. Annual projects of the section include "Practical skills at EMC", "Save the heart - get moving", First aid education for students and teachers at Mostar high schools, Sanus Motus running school, and Sportikus sports association. The aim mentioned projects is to teach students the algorithm of actions in the event of an accident, to teach how to administrate first aid, to improve the administration of CPR and the Heimlich maneuver, as well as to take care of fractures, burns, and foreign bodies, all through education and demonstration exercises. Also, by carrying out public health actions in collaboration with the partners of the section, an additional goal is to raise awareness among the citizens of the city of Mostar about the importance of knowing how to properly administrate first aid and adopting healthy lifestyle habits.

Student section for surgery - SSS

The student section for surgery was founded in 2019 on the initiative of medical students motivated to acquire new and expand and establish existing knowledge and skills in the field of surgery. Students of Medicine, Dental Medicine and Medical Studies in English are entitled to membership in the section. The section consists of mentors, leadership, and members of the section. Section is based on the volunteer work of medical doctors (mentors) who pass on their knowledge to the students who make up the leadership of the section, who in turn pass on the acquired knowledge and experience to members of the section. The section focuses on practical work in the form of surgical suturing and knotting, instructing on how to approach a patient, wound care and on providing lectures with specific surgical topics. The main goal of

the section is to enable students to improve existing knowledge and acquire new knowledge and skills with the aim of facilitating the start of work after graduation and contributing to the competence and self-confidence of young doctors.

Student Section for Dental Medicine - SSDM

The Student Section of Dental Medicine was founded in 2020 with the aim of bringing the everyday clinical practice of a Doctor of Dental Medicine closer to students and enabling extracurricular training of certain clinical procedures. By organizing workshops such as “Instruments 101”, “How to take impressions”, “How to apply rubber dams, clamps and matrices”, “Orthopantomography analysis”, “Dentition type differentiation on study models” etc., students can practice and independently improve manual skills that come as part of the protocol of clinical procedures that they previously did not improve individually during the regular classes. In addition, the section strives to raise awareness of oral hygiene among fellow citizens by organizing visits to kindergartens and schools on Oral Health Day.

3.8. Structure of the Study Programme

The structure of the study programme is reflected in the number of hours of each type of teaching and teaching in total, the number of hours of practice, and the number of hours of independent student work in the total student workload of 360 ECTS credits, or 10800 hours of work (table 3.8.1 and 3.8.2).
In the first two years of study, the student is acquainted with the medical profession (introduction to medicine), fundamentals of scientific research, medical informatics and the way of studying medicine, as well as the physical, chemical and biological foundations of life, structure and function of the human body (anatomy, histology and embryology, physiology, biochemistry, etc.), with recent knowledge about the molecular mechanisms of diseases, along with a psychological approach to the patient and fundamentals of the Croatian language.
In the third year, mechanisms of diseases, pathogens (pathology, pathophysiology, microbiology), types and manner of drugs effects (pharmacology), and approach and method of examining patients (clinical propaedeutics) are studied.
The fourth, fifth and sixth year of study incorporate clinical courses. Diseases, their prevention, diagnosis, suppression and treatment, as well as rehabilitation of damages that may remain after them, are studied.
Students spend most part of their sixth year on clinical rotations ("internships"). Clinical rotations are a new and modern form of training which basically replaces the former internship with the goal that students in their final year of study gain experience in independent work as a doctor. In frames of rotations, the student integrates acquired knowledge and skills, and applies them in daily work on concrete patients. The rotation assumes that the student follows the mentor in his/her work and responsibilities full time. In order to achieve this type of relation, students are allocated to different departments and "rotate" among them after completing their practice.

According to the *Rulebook on the Procedure for Adopting New and Regular Revisions of Existing Study Programmes* (No. 01-993-1/22), only obligatory courses are listed in the curriculum, while electives are adopted in the annual curriculum for each academic year. However, in our programme, the number of elective courses per semester/year and their structure are pre-defined and therefore the table shows the number of hours of each type of teaching and

teaching in total, the number of hours of practice, and the number of hours of independent work including both obligatory and elective courses (table 3.8.3).
In relation to the total number of ECTS credits, a sum of ECTS credits acquired in elective courses is 17, and the student can choose a total of 12 elective courses. Besides obligatory and elective courses at the level of the study programme, in addition to 30 ECTS credits per semester, a student can choose university elective courses from the list adopted by the Senate each academic year, which are recorded in diploma supplement.

The decision to introduce elective courses emerged in terms of adapting the curriculum to European universities. Elective courses were introduced in order for students to have the opportunity to become acquainted with certain medical courses better and thus deepen their medical knowledge in the area of interest. The purpose of elective courses at the study programme level is a more detailed elaboration of learning outcomes already acquired in obligatory courses but following student preferences. The purpose of university elective courses is to acquire competencies not provided by the study programme, but that can help students achieve competitiveness in the market and contribute to building one's personality through education.

In addition to the courses provided in the curriculum, students have the opportunity to complete two summer clinical rotations during their studies - Internal Medicine Summer Rotation and Surgical Summer Rotation. They include 120 hours each, or 3 working weeks. Many elements of these rotations are left to the student's discretion - the student chooses the time of the rotation, the mentor, and even the institution where to perform it, with a recommendation of the tasks listed in the summer rotation forms.
In frames of the Summer Internal Medicine Rotation, the student spends 80 hours (2 working weeks) in one of the departments of internal medicine, while the remaining 40 hours (1 working week) can be spent in one of the other internal medicine departments that he is acquainted with in the 4th year of study, at their own discretion (infectology, dermatology, neurology or anesthesiology). In frames of the Summer Surgical Rotation, the student spends 80 hours (2 working weeks) in one of the surgical departments, while the remaining 40 hours (1 working week) can be spent in one of the other surgical departments that he is acquainted with in the 5th year of study, at their own discretion (otolaryngology, maxillofacial surgery, ophthalmology or orthopedics). Both rotations can be performed outside the teaching bases of the School, and student mobilities are also recognized if their programmes are similar to the above mentioned rotations.

Table 3.8.1 Review of teaching load, hours of theory and practice and share in load

Type of instruction	1. year	2. year	3. year	4. year	5. year	6. year	In total	%
Lectures	265	251	270	275	308	150	**1519**	14.06%
Seminars	263	316	259	233	258	265	**1594**	14.76%
Exercises	272	213	296	482	444	870	**2577**	23.86%
Independent work	1000	1020	975	810	790	515	**5110**	47.31%
In total	**1800**	**1800**	**1800**	**1800**	**1800**	**1800**	**10800**	**100%**

Table 3.8.2 Share of workload in programme considering theoretical and practical teaching

Type of load	Number of hours	Share %
Theoretical teaching	3113	54.71%
Exercises / practical work	2577	45.29%
In total	**5690**	**100%**

Table 3.8.3 Structure of the study programme including certain types of teaching, practice and independent work

Year of study: 1									
Semester: I									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE101	Medical Physics and Biophysics	24	20	16	60	0	105	165	5.5
MFMSE102	Medical Biology	45	30	35	110	0	175	285	9.5
MFMSE103	Introduction to Medicine and History of Medicine	44	15	31	90	0	30	120	4
MFMSE104	Scientific Methodology	24	46	30	100	0	110	210	7
MFMSE105	Medical Ethics	20	0	25	45	0	15	60	2
MFMSE106	Croatian language I	0	0	25	25	0	5	30	1
MFMSEI01	Elective course	8	10	7	25	0	5	30	1
In total		165	121	169	455	0	445	900	30
ECTS for obligatory courses									29
ECTS for elective courses									1
ECTS IN TOTAL									30

Year of study: 1									
Semester: II									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE201	Medical Chemistry and Biochemistry I	32	26	22	80	0	140	220	7.5
MFMSE202	Physical Education I	0	25	0	25	0	0	25	0.5
MFMSE203	Anatomy	60	90	65	215	0	415	630	21
MFMSEI02	Elective course	8	10	7	25	0	0	25	1
In total		100	151	94	345	0	555	900	30
ECTS for obligatory courses									29
ECTS for elective courses									1
ECTS IN TOTAL									30

Year of study: 2									
Semester: III									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE301	Medical Chemistry and Biochemistry II	42	34	34	110	0	130	240	8
MFMSE302	Medical Genetics	20	5	20	45	0	45	90	3
MFMSE303	Histology and Embryology	50	41	44	135	0	165	300	10
MFMSE304	Basic Neuroscience	20	24	56	100	0	140	240	8
MFMSE305	Croatian language II	0	0	25	25	0	5	30	1
In total		132	119	164	415	0	485	900	30
ECTS for obligatory courses									30
ECTS for elective courses									0
ECTS IN TOTAL									30

Year of study: 2									
Semester: IV									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE401	Medical Physiology	53	40	87	180	0	390	570	19
MFMSE402	Medical Psychology	20	20	20	60	0	45	105	3.5
MFMSE403	Immunology	30	4	16	50	0	70	120	4
MFMSE404	Physical Education II	0	25	0	25	0	0	25	0.5
MFMSEI03	Elective course	8	10	7	25	0	15	40	1.5
MFMSEI04	Elective course	8	10	7	25	0	15	40	1.5
In total		116	109	140	365	0	535	900	30
ECTS for obligatory courses									27
ECTS for elective courses									3
ECTS IN TOTAL									30

Year of study: 3									
Semester: V									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE501	Pathology	70	70	70	210	0	270	480	16
MFMSE502	Pathophysiology	45	30	60	135	0	195	330	11
MFMSEI05	Elective course	8	10	7	25	0	20	45	1.5
MFMSEI06	Elective course	8	10	7	25	0	20	45	1.5
In total		131	120	144	395	0	505	900	30
ECTS for obligatory courses									27
ECTS for elective courses									3
ECTS IN TOTAL									30

Year of study: 3									
Semester: VI									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE601	Medical Microbiology and Parasitology	21	44	30	95	0	145	240	8
MFMSE602	Pharmacology	50	35	50	135	0	195	330	11
MFMSE603	Clinical Propedeutics	30	70	10	110	0	70	180	6
MFMSE604	Personalized Medicine and Biotechnology	10	10	10	30	0	15	45	1.5
MFMSE605	Social Medicine	20	7	8	35	0	25	60	2
MFMSEI07	Elective course	8	10	7	25	0	20	45	1.5
In total		139	176	115	430	0	470	900	30
ECTS for obligatory courses									28.5
ECTS for elective courses									1.5
ECTS IN TOTAL									30

Year of study: 4									
Semester: VII									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE701	Nuclear Medicine	15	10	5	30	0	15	45	1.5
MFMSE702	Radiology	35	49	16	100	0	80	180	6
MFMSE703	Internal Medicine	65	195	80	340	0	245	585	19.5
MFMSEI08	Elective course	8	10	7	25	0	20	45	1.5
MFMSEI09	Elective course	8	10	7	25	0	20	45	1.5
In total		131	274	115	520	0	380	900	30
ECTS for obligatory courses									27
ECTS for elective courses									3
ECTS IN TOTAL									30

Year of study: 4									
Semester: VIII									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE801	Neurology	24	43	23	90	0	90	180	6
MFMSE802	Dermatovenerology	30	25	15	70	0	80	150	5
MFMSE803	Anesthesiology and Intensive Medicine	20	40	0	60	0	75	135	4.5
MFMSE804	Infectology with Clinical Microbiology	20	65	35	120	0	120	240	8
MFMSE805	Clinical Biochemistry	10	5	15	30	0	15	45	1.5
MFMSE806	Psychiatry	40	30	30	100	0	50	150	5
In total		144	208	118	470	0	430	900	30
ECTS for obligatory courses									30
ECTS for elective courses									0
ECTS IN TOTAL									30

Year of study: 5									
Semester: IX									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE901	Surgery	50	100	50	200	0	160	360	12
MFMSE902	Neurosurgery	7	6	7	20	0	10	30	1
MFMSE903	Transfusiology and Transplantology	7	8	5	20	0	10	30	1
MFMSE904	Urology	10	10	10	30	0	15	45	1.5
MFMSE905	Pediatric Surgery	20	5	5	30	0	15	45	1.5
MFMSE906	Clinical Oncology	5	35	10	50	0	10	60	2
MFMSE907	Gynecology and Obstetrics	70	70	60	200	0	130	330	11
In total		169	234	147	550	0	350	900	30
ECTS for obligatory courses									30
ECTS for elective courses									0
ECTS IN TOTAL									30

Year of study: 5									
Semester: X									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE1001	Otorhinolaryngology - Head and Neck Surgery	25	40	10	75	0	105	180	6
MFMSE1002	Maxillofacial Surgery	8	10	7	25	0	20	45	1.5
MFMSE1003	Ophthalmology	20	30	15	65	0	100	165	5.5
MFMSE1004	Orthopaedics and Traumatology	20	40	15	75	0	105	180	6
MFMSE1005	Physical and Rehabilitation Medicine	10	20	10	40	0	20	60	2
MFMSE1006	Environmental and Occupational Health	20	20	20	60	0	30	90	3
MFMSE1007	Epidemiology with Clinical Rotation	20	30	20	70	0	20	90	3
MFMSEI10	Elective course	8	10	7	25	0	20	45	1.5
MFMSEI11	Elective course	8	10	7	25	0	20	45	1.5
In total		139	210	111	460	0	440	900	17
ECTS for obligatory courses									27
ECTS for elective courses									3
ECTS IN TOTAL									30

Year of study: 6									
Semester: XI									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE1101	Medical Statistics	5	20	5	30	0	15	45	1.5
MFMSE1102	Pediatrics	50	90	60	200	0	160	360	12
MFMSE1103	Family Medicine with Clinical Rotation	22	114	44	180	0	90	270	9
MFMSE1104	Forensic Medicine	17	16	17	50	0	40	90	3
MFMSE1105	Palliative Medicine	8	10	7	25	0	5	30	1
MFMSE1106	Health care organization and health economics	30	5	10	45	0	15	60	2
MFMSEI12	Elective course	8	10	7	25	0	20	45	1.5
In total		140	265	150	555	0	345	900	30
ECTS for obligatory courses									28.5
ECTS for elective courses									1.5
ECTS IN TOTAL									30

Year of study: 6									
Semester: XII									
Course code	Course title	Hours of teaching			I. Teaching, in total	II. Hours of practice	III. Independent work	Workload hours, in total (I.+II.+III.)	ECTS
		L	E	S					
MFMSE1201	Clinical Pharmacology	10	15	15	40	0	20	60	2
MFMSE1202	Clinical Rotation: Internal Medicine	0	100	20	120	0	30	150	5
MFMSE1203	Clinical Rotation: Surgery	0	100	20	120	0	30	150	5
MFMSE1204	Clinical Rotation: Pediatrics	0	100	20	120	0	30	150	5
MFMSE1205	Clinical Rotation: Gynecology	0	100	20	120	0	30	150	5
MFMSE1206	Emergency Medicine with Clinical Rotation	0	100	20	120	0	30	150	5
MFMSE1207	Diploma Thesis	0	90	0	90	0	0	90	3
In total		10	605	115	730	0	170	900	30
ECTS for obligatory courses									30
ECTS for elective courses									0
ECTS IN TOTAL									30

3.9. The Optimal Number of enrolled students concerning space, Equipment, and Number of Teachers

Enrolment quotas are adopted before the beginning of each academic year by the Governing Council of the University on the proposal of the Senate and with the consent of the responsible ministry. According to the existing resources, the School of Medicine can enrol about 30 students in the study programme Medical Studies in English.

Students can only study as a full-time student. Full-time students are those who study according to the curriculum with full teaching hours. The students pay for their studies themselves.

3.10. Resources Required to Conduct the Study Programme

To carry out the study program, teachers from the University and teachers from appropriate higher education institutions participate in scientific-teaching activities in the appropriate scientific fields and branches for which there is a lack of domestic staff: Forensic Medicine, Environmental and Occupational Medicine, Emergency Medicine and History of Medicine. Data on the structure of the teaching staff according to title and professional training, gender and age structure, scientific research productivity, mobility and project activities of the teaching staff are regularly monitored through the bodies from the quality assurance system. The aforementioned data are processed at the level of study program, organizational unit and are published in annual reports.

Physical resources for the execution of study programs require:
- lecture halls
- computer equipment
- basic research and teaching laboratories (anatomy and histology, biophysics, physiology, pharmacology, neuroscience, molecular genetics laboratory, sleep medicine laboratory, molecular diagnostics laboratory)
- rooms for clinical exercises (Clinics, Departments and Institutes of the Mostar University Clinical Hospital, Ambulances of the Mostar Health Center).

On the basis of the signed cooperation agreements, the resources of other institutions are also used in the implementation of the study program / professional practice:
- University Clinical Hospital Mostar
- Health Center Mostar
- Institute of Public Health of HNŽ and Institute of Public Health of FBiH

3.11. Study Programme Quality Assurance System

The purpose, goal, structure, operation and areas of evaluation of the quality assurance system of the University of Mostar are defined by the *Rulebook on the Structure and Operation of the Quality Assurance System of the University of Mostar*.
According to the *Rulebook*, the quality assurance system at the University of Mostar consists of permanent bodies of the quality assurance system at the University level: the Quality Assurance and Improvement Committee and the Quality Assurance and Improvement Office. The School of Medicine is operated by the Quality Assurance and Improvement Committee,

which consists of the Vice-Dean for Academic Affairs, the Quality Coordinator, the representative of the teaching staff, the student representative, and the representative of the administrative and technical staff. The Quality Coordinator at the School of Medicine is also a member of the Quality Assurance and Improvement Committee.
The *Rulebook* defines the competencies and activities of each body from the quality assurance system. Bodies from the quality assurance system carry out regular activities defined by the *University Quality Assurance Manual at the University of Mostar*, which relate to conducting surveys and monitoring and data processing. Based on the implemented activities, annual reports are prepared at the level of the study programme, organizational unit, and the University. The annual reports include and evaluate the entire activity and all activities of the School of Medicine, which is reflected in the following:

MONITORING OF DATA ON STUDENTS - freshmen - fulfilment of quotas, structure of freshmen by status and gender, structure of freshmen by type of high school, structure of freshmen by performance in high school; students - structure of students by status and gender, passing the examinations, structure of graduated students, performance in studies and mobility of students.

MONITORING OF DATA ON TEACHING AND NON-TEACHING STAFF - structure of teaching staff by title and status, structure of teaching staff by gender and age, teaching load, scientific and research papers, mobility of teaching staff, project activities of teaching staff; structure of non-teaching staff by status, education and gender, structure of non-teaching staff by gender and age, project activities of non-teaching staff.

MONITORING DATA ON STUDY PROGRAMMES - structure of study programmes, representation of certain forms of teaching, representation of certain forms of knowledge assessment, coverage of literature in the library, structure of literature prescribed by the curriculum, infrastructure and resources.

The above mentioned annual reports are used as a source of results, analyses and conclusions which are implemented in the regular revision process for the purpose of improving the study programme.

3.12. Matrix of learning outcomes

Course title	IU-sp / Course code	IU-MSE 1	IU-MSE 2	IU-MSE 3	IU-MSE 4	IU-MSE 5	IU-MSE 6	IU-MSE 7	IU-MSE 8	IU-MSE 9	IU-MSE 10	IU-MSE 11	IU-MSE 12	IU-MSE 13	IU-MSE 14	IU-MSE 15	IU-MSE 16	IU-MSE 17	IU-MSE 18	IU-MSE 19	IU-MSE 20	IU-MSE 21
Medical Physics and Biophysics	MFMSE101	x		x				x														
Medical Biology	MFMSE102	x	x	x	x																	x
Introduction to Medicine and History of Medicine	MFMSE103							x		x	x	x	x				x					x
Scientific Methodology	MFMSE104	x						x		x										x	x	x
Medical Ethics	MFMSE105							x					x	x			x	x				
Croatian Language I	MFMSE106														x					x		
Medical Chemistry and Biochemistry I	MFMSE201	x																				
Physical Education I	MFMSE202													x								x
Anatomy	MFMSE203	x	x						x													x
Medical Chemistry and Biochemistry II	MFMSE301	x	x	x																		
Medical Genetics	MFMSE302	x		x			x	x	x	x												
Histology and Embryology	MFMSE303	x	x	x	x	x																
Basic Neuroscience	MFMSE304	x	x	x	x	x	x															x
Croatian Language II	MFMSE305														x					x		
Medical Physiology	MFMSE401	x	x	x	x				x													x
Medical Psychology	MFMSE402	x	x	x	x	x	x	x						x								
Immunology	MFMSE403		x	x	x	x			x							x						
Physical Education II	MFMSE404													x								x
Pathology	MFMSE501		x	x	x	x	x		x													
Pathophysiology	MFMSE502			x	x	x		x	x													
Medical Microbiology and Parasitology	MFMSE601	x				x					x	x				x						
Pharmacology	MFMSE602		x	x								x										x
Clinical Propedeutics	MFMSE603	x					x	x	x						x	x	x	x				

Personalized Medicine and Biotechnology	MFMSE604	x	x	x		x	x	x					x									
Social Medicine	MFMSE605				x	x				x		x	x	x				x	x	x	x		x
Nuclear Medicine	MFMSE701	x							x		x	x										
Radiology	MFMSE702	x							x		x							x			x	
Internal Medicine	MFMSE703						x		x		x	x			x	x		x				
Neurology	MFMSE801		x		x	x			x		x				x	x						
Dermatovenerology	MFMSE802	x	x		x	x	x		x						x	x					x	
Anesthesiology and Intensive Medicine	MFMSE803	x	x	x	x	x	x		x		x	x				x						
Infectology with Clinical Microbiology	MFMSE804				x	x	x		x		x	x										
Clinical Biochemistry	MFMSE805					x			x							x						
Psychiatry	MFMSE806	x					x		x	x	x				x	x						
Surgery	MFMSE901	x			x						x	x			x			x				
Neurosurgery	MFMSE902				x		x		x		x	x				x					x	
Transfusiology and Transplantology	MFMSE903	x	x	x	x		x		x	x	x	x				x	x					
Urology	MFMSE904		x	x	x	x	x	x	x	x	x	x	x		x	x	x	x		x		
Pediatric Surgery	MFMSE905	x			x				x		x	x			x			x				
Clinical Oncology	MFMSE906	x			x	x	x			x	x			x	x							
Gynecology and Obstetrics	MFMSE907		x	x	x	x					x											
Otorhinolaryngology - Head and Neck Surgery	MFMSE1001	x				x	x		x		x				x	x			x		x	
Maxillofacial Surgery	MFMSE1002	x	x				x				x	x										
Ophthalmology	MFMSE1003		x		x	x			x						x							
Orthopaedics and Traumatology	MFMSE1004		x						x		x											
Physical and Rehabilitation Medicine	MFMSE1005	x	x				x			x	x	x			x							
Environmental and Occupational Health	MFMSE1006					x			x	x		x		x	x	x			x			
Epidemiology with Clinical Rotation	MFMSE1007	x				x			x		x								x			
Medical Statistics	MFMSE1101	x						x		x	x	x				x						x
Pediatrics	MFMSE1102	x	x	x		x	x		x	x	x	x			x							
Family Medicine with Clinical Rotation	MFMSE1103										x	x			x	x	x		x			
Forensic Medicine	MFMSE1104	x	x	x	x	x			x		x				x				x			

Palliative Medicine	MFMSE1105	x								x	x	x				x	x	x				
Health Care Organization and Health Economics	MFMSE1106									x		x		x								
Clinical Pharmacology	MFMSE1201	x				x	x	x		x	x	x	x	x								x
Clinical Rotation: Internal Medicine	MFMSE1202					x	x				x	x	x		x	x		x	x	x		
Clinical Rotation: Surgery	MFMSE1203					x	x	x		x	x	x	x		x							
Clinical Rotation: Pediatrics	MFMSE1204					x					x	x			x	x						
Clinical Rotation: Gynecology	MFMSE1205				x				x		x			x	x	x	x					
Emergency Medicine with Clinical Rotation	MFMSE1206					x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
Diploma Thesis	MFMSE1207							x					x								x	x

4. STUDY PLAN

Year of study: 1							
Semester: I							
Course code	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE101	Medical Physics and Biophysics	obligatory	24	20	16		5.5
MFMSE102	Medical Biology	obligatory	45	30	35		9.5
MFMSE103	Introduction to Medicine and History of Medicine	obligatory	44	15	31		4
MFMSE104	Scientific Methodology	obligatory	24	46	30		7
MFMSE105	Medical Ethics	obligatory	20	0	25		2
MFMSE106	Croatian Language I	obligatory	0	0	25		1
MFMSEI01	Elective course	elective	8	10	7		1
ECTS for obligatory courses							29
ECTS for elective courses							1
ECTS TOTAL							30

Year of study: 1							
Semester: II							
Course code	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE201	Medical Chemistry and Biochemistry I	obligatory	32	26	22		7.5
MFMSE202	Physical Education I	obligatory	0	25	0		0.5
MFMSE203	Anatomy	obligatory	60	90	65		21
MFMSEI02	Elective course	elective	8	10	7		1
ECTS for obligatory courses							29
ECTS for elective courses							1
ECTS TOTAL							30

Year of study: 2							
Semester: III							
Course code	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE301	Medical Chemistry and Biochemistry II	obligatory	42	34	34		8
MFMSE302	Medical Genetics	obligatory	20	5	20		3
MFMSE303	Histology and Embryology	obligatory	50	41	44		10
MFMSE304	Basic Neuroscience	obligatory	20	24	56		8
MFMSE305	Croatian Language II	obligatory	0	0	25		1
ECTS for obligatory courses							30
ECTS for elective courses							0
ECTS TOTAL							30

Year of study: 2							
Semester: IV							
Course code	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE401	Medical Physiology	obligatory	53	40	87		19
MFMSE402	Medical Psychology	obligatory	20	20	20		3.5
MFMSE403	Immunology	obligatory	30	4	16		4
MFMSE404	Physical Education II	obligatory	0	25	0		0.5
MFMSEI03	Elective course	elective	8	10	7		1.5
MFMSEI04	Elective course	elective	8	10	7		1.5
ECTS for obligatory courses							27
ECTS for elective courses							3
ECTS TOTAL							30

Year of study: 3							
Semester: V							
Course code	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE501	Pathology	obligatory	70	70	70		16
MFMSE502	Pathophysiology	obligatory	45	30	60		11
MFMSEI05	Elective course	elective	8	10	7		1.5
MFMSEI06	Elective course	elective	8	10	7		1.5
ECTS for obligatory courses							27
ECTS for elective courses							3
ECTS TOTAL							30

Year of study: 3							
Semester: VI							
Code of the course	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE601	Medical Microbiology and Parasitology	obligatory	21	44	30		8
MFMSE602	Pharmacology	obligatory	50	35	50		11
MFMSE603	Clinical Propedeutics	obligatory	30	70	10		6
MFMSE604	Personalized Medicine and Biotechnology	obligatory	10	10	10		1.5
MFMSE605	Social Medicine	obligatory	20	7	8		2
MFMSEI07	Elective course	elective	8	10	7		1.5
ECTS for obligatory courses							28.5
ECTS for elective courses							1.5
ECTS TOTAL							30

Year of study: 4							
Semester: VII							
Course code	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE701	Nuclear Medicine	obligatory	15	10	5		1.5
MFMSE702	Radiology	obligatory	35	49	16		6
MFMSE703	Internal Medicine	obligatory	65	195	80		19.5
MFMSEI08	Elective course	elective	8	10	7		1.5
MFMSEI09	Elective course	elective	8	10	7		1.5
ECTS for obligatory courses							27
ECTS for elective courses							3
ECTS TOTAL							30

Year of study: 4							
Semester: VIII							
Course code	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE801	Neurology	obligatory	24	43	23		6
MFMSE802	Dermatovenerology	obligatory	30	25	15		5
MFMSE803	Anesthesiology and Intensive Medicine	obligatory	20	40	0		4.5
MFMSE804	Infectology with Clinical Microbiology	obligatory	20	65	35		8
MFMSE805	Clinical Biochemistry	obligatory	10	5	15		1.5
MFMSE806	Psychiatry	obligatory	40	30	30		5
ECTS for obligatory courses							30
ECTS for elective courses							0
ECTS TOTAL							30

Year of study: 5							
Semester: IX							
Course code	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE901	Surgery	obligatory	50	100	50		12
MFMSE902	Neurosurgery	obligatory	7	6	7		1
MFMSE903	Transfusiology and Transplantology	obligatory	7	8	5		1
MFMSE904	Urology	obligatory	10	10	10		1.5
MFMSE905	Pediatric Surgery	obligatory	20	5	5		1.5
MFMSE906	Clinical Oncology	obligatory	5	35	10		2
MFMSE907	Gynecology and Obstetrics	obligatory	70	70	60		11
ECTS for obligatory courses							30
ECTS for elective courses							0
ECTS TOTAL							30

Year of study: 5							
Semester: X							
Course code	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE1001	Otorhinolaryngology - Head and Neck Surgery	obligatory	25	40	10		6
MFMSE1002	Maxillofacial Surgery	obligatory	8	10	7		1.5
MFMSE1003	Ophthalmology	obligatory	20	30	15		5.5
MFMSE1004	Orthopaedics and Traumatology	obligatory	20	40	15		6
MFMSE1005	Physical and Rehabilitation Medicine	obligatory	10	20	10		2
MFMSE1006	Environmental and Occupational Health	obligatory	20	20	20		3
MFMSE1007	Epidemiology with Clinical Rotation	obligatory	20	30	20		3
MFMSEI10	Elective course	elective	8	10	7		1.5
MFMSEI11	Elective course	elective	8	10	7		1.5
ECTS for obligatory courses							27
ECTS for elective courses							3
ECTS TOTAL							30

Year of study: 6							
Semester: XI							
Course code	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE1101	Medical Statistics	obligatory	5	20	5		1.5
MFMSE1102	Pediatrics	obligatory	50	90	60		12
MFMSE1103	Family Medicine with Clinical Rotation	obligatory	22	114	44		9
MFMSE1104	Forensic Medicine	obligatory	17	16	17		3
MFMSE1105	Palliative Medicine	obligatory	8	10	7		1
MFMSE1106	Health Care Organization and Health Economics	obligatory	30	5	10		2
MFMSEI12	Elective course	elective	8	10	7		1.5
ECTS for obligatory courses							28.5
ECTS for elective courses							1.5
ECTS TOTAL							30

Year of study: 6							
Semester: XII							
Course code	Course title	Course status	Teaching hours			Hours of practice	ECTS
			L	E	S		
MFMSE1201	Clinical Pharmacology	obligatory	10	15	15		2
MFMSE1202	Clinical Rotation: Internal Medicine	obligatory	0	100	20		5
MFMSE1203	Clinical Rotation: Surgery	obligatory	0	100	20		5
MFMSE1204	Clinical Rotation: Pediatrics	obligatory	0	100	20		5
MFMSE1205	Clinical Rotation: Gynecology	obligatory	0	100	20		5
MFMSE1206	Emergency Medicine with Clinical Rotation	obligatory	0	100	20		5
MFMSE1207	Diploma Thesis	obligatory	0	90	0		3
ECTS for obligatory courses							30
ECTS for elective courses							0
ECTS TOTAL							30

5. SYLLABI

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	1	Semester	I			
Course title	MEDICAL PHYSICS AND BIOPHYSICS	Course code	MFMSE101			
ECTS	5.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			24	20	16	0
Course objectives	- to provide the students with knowledge regarding the basics of atomic physics and basic physical phenomena and laws. - to achieve theoretical knowledge that is necessary as a prerequisite for understanding the basics of nuclear physics, nuclear medicine, radiological physics, magnetic resonance imaging and ultrasound physics. - to provide student with the understanding of biotransport, membrane and action potential, physics of the ear and hearing, physics of the eye and vision, and measurement of the potentials on the surface of the body. - to provide students with understanding of the work of the human body: the deformation of a solid body (elastic and plastic deformation) and the representation of the musculoskeletal system as a system of levers. - to achieve understanding of the work of the heart and circulation and the physics of the lungs and breathing.					
Course learning outcomes	Learning outcome (LO) Student:			Course learning outcome code	LO code at the study program level	
	- Describes and explains the physical basics necessary for understanding the application of physical laws in biological systems and the basics of biological processes at the molecular level			IU-MFMSE101-1	IU-MSE1 IU-MSE7	
	- Describes and explains physical quantities and units used in biophysics			IU-MFMSE101-2	IU-MSE1 IU-MSE3	
	- Explains the basic concepts of mechanics and hydromechanics and apples them to the human body			IU-MFMSE101-3	IU-MSE1 IU-MSE3	
	- Explains and defines the basic terms and laws of thermodynamics and uses them to explain the behavior of the human body as a thermodynamic system			IU-MFMSE101-4	IU-MSE1 IU-MSE3	
	- Applies the basic concepts of electromagnetism and thermodynamics in order to explain nerve signal transmission			IU-MFMSE101-5	IU-MSE1 IU-MSE3	
	- Describes and explains the mechanisms of interaction between ionizing radiation and substances, the effects that ionizing radiation can cause in humans, and recognizes the importance and scope of work of dosimetry and define doses			IU-MFMSE101-6	IU-MSE1 IU-MSE7	
	- Explains the laws of optics and applies them to the propagation and nature of light, the creation of an image in the eye, and optical devices and the correction of optical errors of the eye using glasses			IU-MFMSE101-7	IU-MSE1 IU-MSE7	
	- Defines and explains vibration of mechanical systems and applies it to the description of sound waves and explains the connection between acoustic parameters and physiological sensations of sound waves			IU-MFMSE101-8	IU-MSE1 IU-MSE7	
	- Distinguishes radiograms from scintigrams, echograms and images obtained by magnetic resonance or computerized tomography, and recognizes what these basic imaging			IU-MFMSE101-9	IU-MSE1 IU-MSE7	

	methods of medical diagnostics represent and what they are for		

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.

Course content	Week / shift	Topic
	Lectures	(L1) Introduction. Basics of nuclear physics (L2) Radiation and matter (L3) Physical basis of nuclear medicine (L4) Physics of diagnostic radiology (L5) Physics of MR imaging (L6) Ultrasound physics (L7) Biotransports, membrane potential (L8) Action potential (L9) Biophysics of senses, ear and hearing (L10) Biophysics of the eye and vision (L11) Biomechanics of tissues (L12) Body biomechanics (L13) Haemoreology 1 (L14) Haemoreology 2
	Seminars	(S1) Recapitulation seminar 1: L1-L3 (S2) Recapitulation seminar 2: L4-L6 (S3) Comparison of diagnostic methods (S4) Potentials on the surface of the body (S5) Recapitulation seminar 3: L7-L8 (S6) Recapitulation seminar 4: L9-L10 (S7) Recapitulation seminar 5: L11-L12 (S8) Recapitulation seminar 6: L13-L14
	Exercises	(E1) Introduction to cyclic exercises. Overview. Statistics. (E2) Cyclic exercises C1 – C6 (E3) Cyclic exercises C1 – C6 (E4) Cyclic exercises C1 – C6 (E5) Cyclic exercises C1 – C6 (E6) Cyclic exercises C1 – C6 (E7) Cyclic exercises C1 – C6 (E8) Radioactivity and Radiation Protection (E9) Computer Tomography, External Beam Radiotherapy (E10) Practical exam C1: Microscopy C2: Periodic Signal Analysis C3: Electric Circuit C4: Viscosity C5: Surface Tension C6: Air Humidity

Language	English
E-learning	Classes are taken in person. If necessary, lectures, seminars and part of the exercises can take place combined (live and online) or completely online via e-learning platforms (Google Meet) up to max 20 %.
Teaching methods	Teaching, interactive and active-experiential.

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	**other**	**written exam**	oral exam	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		60	2	

Students' activity during interactive seminars		30	1	20% - in pre-exam term
Pre-exam/Practical exam	IU-MFMSE101-2 IU-MFMSE101-3 IU-MFMSE101-4 IU-MFMSE101-6 IU-MFMSE101-9	30	1	10% - in pre-exam term
Pre-exam/Written exam	IU-MFMSE101-1 IU-MFMSE101-2 IU-MFMSE101-3 IU-MFMSE101-4 IU-MFMSE101-5 IU-MFMSE101-6 IU-MFMSE101-7 IU-MFMSE101-8 IU-MFMSE101-9	45	1.5	70% - in pre-exam term 100% - all other terms
In total		165	5.5	100%

Method of calculating the final grade

Students have to pass the written exam (in form of a test, comprised of 60 questions, each containing 5 statements: 4 false and 1 true). The threshold for the written exam is 33 points. Number of total bonus points awarded during seminars and practical exam will be added to the written exam score if a student passes the threshold for the written exam of 33 points. Bonus points are valid only for the first exam term. According to the Rulebook on Studying final grade is obtained as follows:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	1. Eterović D.: Physics of diagnostic imaging for medical students, Zagreb, 2002.		*		*					*	
	2. Eterović D.: Biophysical grounds of physiology; script materials		*		*					*	
	3. Eterović D. et. al.: Laboratory exercises - Medical physics and biophysics		*		*					*	
Additional	1. JA Pope: Medical Physics (second edition); Heinemann, 1989.		*		*			*			

Additional course information

Students' obligations:
Students have to attend all course lectures, seminars and exercises. Up to 20% of justified absence from seminars and lectures can be tolerated. Students are expected to participate actively during the course.

Types of seminars:
First type is described in the course curriculum by a name of the topic to be covered. The names in the curriculum correspond to the chapter titles in the literature. Seminars are interactive. The teacher explains the topic at hand and can pose questions to the students in order to assess their current knowledge. Students are expected to prepare the content of corresponding seminars in advance.

Second type of seminar is a recapitulation seminar. The goal of this type of seminar is to address the most common issues regarding the topics covered during few previous lectures and seminars. The student's positive response at recapitulation

seminar will be awarded with a bonus point. Only one bonus point per seminar can be obtained by one student. Number of possible bonus points at seminars is 6.

Types of exercises:
Introduction exercise term includes explanation of mathematical functions and statistical methods required to analyze data collected during cyclic exercises.
First exercise type - cyclic exercises (C1-C6) include six different laboratory exercises. Students are expected to prepare the content of corresponding exercise in advance. The teaching material will be posted on the students' platform (SUMARUM). At the beginning of exercises the teacher will check whether the students are ready to perform the exercise through a short conversation. During exercise the students will make measurements. They are supposed to analyze data at home and present their reports during next exercise term. The teacher will review the results and make comments if mistakes were made during collecting data or calculation. If student does not bring or present unsatisfactory report he/she will be obligated to repeat that exercise during additional exercise term that will be organized at the end of classes. Student can repeat exercise only once. If a student doesn't appear for any of exercises he/she will have to take an additional exercise term. All students who miss one exercise term will be obliged to take it.
Second exercise type will be organized in the hospital. The goal is to familiarize students with the physical methods and instrumentation used in the hospital in order to obtain detailed diagnostic information and achieve useful therapeutic effects
After completing all the exercises, students are obligated to take practical exam related to the exercises. Students will be awarded with a bonus point during practical exam. Number of minimal bonus points that student should obtain during practical exam in order to qualify to take written exam is 2. Maximal number of bonus points that student can achieve during practical exam is 5.

Attending all exercises is mandatory. Students are strongly advised to participate actively during the course. Practical exam will be related to exercises during course.

Exam:
Students have to pass the written exam (in form of a test, comprised of 60 questions, each containing 5 statements: 4 false and 1 true). The threshold for the written exam is 32 points. Number of total bonus points awarded during seminars and practical exam will be added to the written exam score if a student passes the threshold for the written exam of 33 points. Bonus points are valid only for the first exam term.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	1	Semester	I			
Course title	MEDICAL BIOLOGY	Course code	MFMSE102			
ECTS	9.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			45	30	35	0

Course objectives	The objectives of the Medical Biology course are making an introduction for students to the basic principles of modern biological science which is of high importance for the diagnosis and therapy of human diseases, and the future of medicine. During this course, students should acquire terminology necessary for understanding of modern biomedical literature. The students will learn basic cell biology, molecular biology, developmental biology with an emphasis on human biology. They will be actively involved in problem-orientated work, organized in the form of blended lectures, seminars and exercises in order to develop practical communication skills and understanding of fundamental biological processes, as well as critical thinking based on acquired knowledge in modern biological science.		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains the basic structure and function of cells (macromolecules, cytoskeleton, transport of macromolecules, organelles, mitochondria and energy production, cell cycle, cell signaling and tumor biology)	IU-MFMSE102-1	IU-MSE1
	Describes and explains the basics of molecular cell biology (cell genome, replication and repair of DNA, transcription and RNA species, regulation of transcription, RNA modification, translation, regulation of translation, synthesis and modification of proteins, transport and function of proteins)	IU-MFMSE102-2	IU-MSE2 IU-MSE21
	Distinguishes the principles of the basics of developmental biology (fertilization, meiosis, mitosis, stem cells and the molecular mechanisms of cell differentiation)	IU-MFMSE102-3	IU-MSE3
	Distinguishes the medical human genetics (basic principles of genetic inheritance, sexual and autosomal inheritance, chromosome aberrations, genetic counseling)	IU-MFMSE102-4	IU-MSE4
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.		

Course content	Week / shift	Topic
	Lectures	L1 – Cell -evolution prokaryotes vs. eukaryotes, cell compartments, inner membrane, cytoplasm L2 - cell structure, the cell chemistry, macromolecules, enzymes L3 - Cell membrane L4 - Nucleic Acids, gens, eukaryotic organisms, DNA L5 - Nucleus, transport, organization, nucleolus L6 – cytoskelet - microfilaments, intermediar filaments, microtubules L7 - extracellular matrix and organization, cell surface, cellular interactions L8 - Cell research methods and microscopy L9 - Introduction to molecular biology - DNA replication and telomeres L10 - maintenance and DNA recombination, DNA repair L11 - synthesis and RNA transcription, transcription factors L12 - synthesis and RNA transcription, RNA trafficking L13 - genomic DNA, recombination L14 - synthesis of proteins, translation, protein sorting and transport L15 - Bioenergetics and metabolism, mitochondria and peroxisomes

		L16 - transport and protein sorting - ER, Golgi apparatus L17 - protein transport - vesicular transport, lysosome L18 - Cell signaling - signal molecules and action of cell surface receptors L19 - Cell signaling - intracellular signal transduction, cytoskelet and signaling network L20 - cell cycle - cell cycle checkpoints, cell cycle regulation, mitosis and meiosis L21 - Meiosis L22 - Programed cell death L23 - Stem cells L24 - Cancer - development and causes, tumor viruses, oncogenes
	Seminars	S1 - cell structure, the cell chemistry, macromolecules, enzymes S2 - cell membrane - micro and macro molecules transport S3 - Nucleus, DNA S4 - extracellular matrix and cytoskeleton S5 - DNA analysis S6 - protein analysis S7 - cell genome, DNA replication S8 - transcription, transcription regulation, transport and processing of RNA S9 - translation and translational regulation S10 - ER and Golgi apparatus S11 - Bioenergetics and metabolism, mitochondria and peroxisomes S12 - Cell signaling S13 - cell cycle S14 - Stem cells and programed cell death S15 - Cancer S16 - repetition and knowledge testing
	Tutorials	E1 (10 hours) - DNA analysis E2 (4 hours) - Methods of cell investigation. Microscope and microscopy 1 E3 (4 hours) - Methods of cell investigation. Microscope and microscopy 1 E4 (2 hours) - Repetition. Microscope and microscopy E5 (10 hours) - Protein analysis
Language	English	
E-learning	Up to 20% (lectures).	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/ report	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance		110	3,6	
Seminar paper	IU- MFMSE102-1 IU- MFMSE102-2 IU- MFMSE102-3 IU- MFMSE102-4	45	1,5	20%
Pre-exam/Written exam	IU- MFMSE102-1 IU- MFMSE102-2 IU- MFMSE102-3 IU- MFMSE102-4	130	4,4	80%
In total		285	9,5	100%

Method of calculating the final grade
The final grade is obtained as a weighting of the grades from the seminar assignment (20% of the grade) and the written exam (80% of the grade). A detailed description is given in the additional course information.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Cooper GM, Hausman RE. The		x		x			x			

	Cell, a Molecular Approach. 8th ed. Washington DC, Sunderland (Massachussets): ASM Press, Sinauer Associate										
	Cox TM, Sinclair J. Molecular biology in medicine. Blackwell Science, 1997. Oxford, UK (5th and 17th chapter)										
Additional	Alberts B et. all. Essential Cell Biology, New York, Garland Science,3/e, 2009		x		x			x			
	Turnpenny P, Ellard S. Emery's Elements of Medical Genetics. 14th edition, Elsevier Churchill Livingstone, Edinburgh 2011.										

Additional course information

Further explanation: The course of Medical biology is performed during the first semester in the form of lectures (45 hours), seminars (35 hours) and exercises (30 hours). All forms of education are obligatory, and the participation of students will be monitored regularly.

The teacher evaluates the student's participation in the seminar (demonstrated knowledge, understanding, ability to define problems and reasoning).
Seminars consist of seminar work and quizzes. For seminar work each student will get their own topic and presentation will be graded from 1-5. This mark will be evaluated as 10% of grade. All 16 seminars will finish with quiz (10 question per seminar). Maximal number of points can be 160 (16 seminars). These points will be evaluated as 10% of final grade according to the key: 91 – 110 – pass; 111 – 120 – good; 121 – 140 – very good; 141 - 160 – excellent.
Written test consists of 80 questions; 55 percent is necessary to pass (44 points). Written test will be evaluated as 80% of final grade.

44-52 – sufficient
53-62 – good
63-71 – very good
72-80 – excellent
Final mark: seminar work (10% of grade) + seminar quizzes (10% of grade) + written exam (80 % of grade).

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	1	Semester	I			
Course title	INTRODUCTION TO MEDICINE AND HISTORY OF MEDICINE	Course code	MFMSE103			
ECTS	4	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			44	15	31	-

Course objectives	To acquaint medical students with: - studying at the Faculty of Medicine, - the development of medicine throughout history, - the role of doctors in the health system and in society. Also, the aim is to analyze the definition of health and health system in a narrower and wider environment and through the basics of Latin to create a foundation for learning unique medical terminology.		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Plans independent learning through studies in a way of critical and self-critical questioning of scientific truths.	IU-MFMSE103-1	IU-MSE7 IU-MSE12 IU-MSE21
	Describes the development of medical thought and practice through the history of different cultures.	IU-MFMSE103-2	IU-MSE9
	Correctly values scientific achievements in the development of medicine.	IU-MFMSE103-3	IU-MSE7
	Demonstrates possession of personality qualities (team work and personal contribution, active listening and building positive relationships with group members).	IU-MFMSE103-4	IU-MSE9
	Explains the importance of preventive and curative medicine.	IU-MFMSE103-5	IU-MSE9 IU-MSE10 IU-MSE11
	Describes and explains first aid procedures.	IU-MFMSE103-6	IU-MSE11 IU-MSE21
	Forms regular and irregular morphological forms according to the declinational and conjugation system (Latin).	IU-MFMSE103-7	IU-MSE16 IU-MSE21
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.		

Course content	Week / shift	Topic
	Lectures	What is the medicine? Study of medicine, division of medicine and the role of the doctor
		The main health problems in FBiH (in terms of organization of health care and health insurance)
		The clinical requiring of basic resuscitation procedures and sensitivity of brain cells to stop circulation (hypoxia)
		Recognizing obstruction of upper airway and corrective actions
		Latin
		Access to health care in pediatrics. The most common health problems in pediatrics.

		Acute poisoning and first aid (identification and elimination of toxins from the body, antidotal and symptomatic therapy the most common poisoning, poisoning plants)
		Medical Sociology, Health behavior: positive promotion and illness.
		Medical Sociology: Theory of stress and social support. The main forms of social anomie. Career patients
		Historical development of nursing. Definitions and theories of health care. Basic human needs and their relation to health care. The nurse as a person, professional, ethical and moral issues. Basicskills assessment the patient's condition.
		Basic revival procedures and subsequent resuscitation methods
		Recognition of cardiac arrest on the monitor and ECG difference
		The historical turning point medicine. Basics of scientific medicine.
		Looking back in history of medicine. Birth of modern medicine.
		Introduction to medical care
	Seminars	What is the health (WHO definition), how to preserve it and improve it?
		Social-economic development and health
		Hypoxia and consequences
		Obstruction of upper airway - first aid
		Word formation - morphology of medical terms Combining forms: body parts and tissues
		Cardiopulmonary resuscitation of the newborn.
		Acute poisoning and first aid
		Theoretical approaches to the relationship doctor-patient.
		The task of the medical profession in the past and today. The way to a medical profession
		Prevention of infection, the conditions essential for the development of infection
		The difference between the percentage of oxygen that patient gets from exhaled mixture of the air of rescuers and the application of mechanical ventilation
		ECG normal curve and ventricular fibrillation, total atrioventricular block and electromechanical dissociation
		Psychological Medicine and its importance in the everyday activities of doctors
		Health care education
		What is the disease, how to prevent it and treat its effects
	Exercises	Basic resuscitation procedures
		Obstruction of upper airway - first aid
		Terms pertaining to the body as a whole: 1. structural organization of the body; 2. body cavities; 3. abdominopelvic quadrants and regions; 4. anatomical division of the back; 5. positional and directional terms; 6. planes of the body
		The procedure with a child in convulsions
		Acute poisoning and first aid
		Mastering basic skills of nurturing patients, patients personal hygiene and hygiene of its environment, care for comfort
		ECG
		Psychological Medicine
Language	English	
E-learning	Classes are conducted live. If necessary, lectures and seminars can be held combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching, interactive and active experiential.	
Types of assessment (indicate - **Bold**)		

Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes with engagement	IU-MFMSE103-1 IU-MFMSE103-4	90	3	0%
Pre-exam/Written exam	IU-MFMSE103-2 IU-MFMSE103-3 IU-MFMSE103-5 IU-MFMSE103-6 IU-MFMSE103-7	30	1	100%
In total		120	4	100%

Method of calculating the final grade

The exam is written.

All those who have not missed classes have the right to take the tests. Also, the tests can be taken by those who passed the teaching units during which they were not in class or in which they did not demonstrate sufficient knowledge.
At the end of the class in a pre-exam term and all subsequent terms the test will include material from introduction to medicine, medical sociology, first aid, health care and history of medicine in the form of an integrated test and a special exam in Latin.
According to the Rulebook on Studying final grade is obtained as follows:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Detels R, Beaglehole R, Lansang MA, Gulliford M editors. Oxford Textbook of Public Health, 5th ed. Oxford University Press, New York 2011.		X		X			X			
	Porter R. The Greatest Benefit to Mankind: A Medical History of Humanity. Fontana Press; 1999. (Chapters II, III, V, VIII, IX, X and XI)		X		X			X			
	Jerry P. Nolana,⁎, Jasmeet Soarb, David A. Zidemanc, Dominique Biarentd, Leo L. Bossaerte,Charles Deakinf, Rudolph W. Kosterg, Jonathan Wyllieh, Bernd Böttigeri,on behalf of the ERC Guidelines Writing Group: European Resuscitation Council Guidelines for Resuscitation 2015. Resuscitation 81 (2015)		X		X						

	Handouts and Dorland's Illustrated Medical Dictionary, Saunders		X		X						X
Additional	Additional literature will be assigned individually during the seminar preparations according to the seminar theme.										
Additional course information											

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	1	Semester	I			
Course title	SCIENTIFIC METHODOLOGY	Course code	MFMSE104			
ECTS	7	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			24	46	30	-

Course objectives

The aim of the course is to enable students to acquire knowledge and skills necessary for the following:
- performing the study and presenting the results of the research thesis by applying the fundamental postulates of science and information technology;
- learning (especially permanent medical education i.e. lifelong learning) using the results of scientific research studies.

Additional aim is to enable that all students, future physicians, recognize and utilize the following during later years of study:
- evidence-based medical information (information)
- continuous development of the scientific way of thinking and the use of scientific principles in studying various subjects of preclinical and clinical medicine
- the role and the tasks of physicians in the health care team using basic scientific principles in the development and improvement of diagnosis of disease and treatment of patients
- presenting the results of professional and research work using IT technology
- learning (especially in the field of permanent medical training) using computer networks (the Internet).

Course learning outcomes

Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
Explains, differentiates and interprets types of research in medicine.	IU-MFMSE104-1	IU-MSE1
Designs, organizes and conducts scientific research based on the postulates of responsible and objective science and teamwork.	IU-MFMSE104-2	IU-MSE9
Collects, distinguishes and classifies types of data in medicine.	IU-MFMSE104-3	IU-MSE7
Interprets the foundations of statistical inference and chooses a suitable statistical test.	IU-MFMSE104-4	IU-MSE7
Writes, evaluates, revises and presents a scientific paper.	IU-MFMSE104-5	IU-MSE7
Reviews the strategy for searching and evaluating medical literature and information, presents and applies them in appropriate manner.	IU-MFMSE104-6	IU-MSE19 IU-MSE20 IU-MSE21

Prerequisites for the course enrolment

In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.

Course content

Week / shift	Topic
Lectures	L1. Medicine is science - an introductory lecture L2. Scientific research L3. Scientific information L4. Scientific work L5. Medical data L6. Science and preclinical/clinical medicine L7. Medical information on the web L8. Index publications and access to them L9. Ethics in research L10. Basics of statistical conclusion L11. How to select an appropriate statistical test? L12. Presenting the results of scientific work

	Seminars	S1. Types of scientific research, planning S2. Planning scientific research and determining topics by individual groups of students S3. Types of scientific research, measurement S4. Use of bibliographic sources and strategies for their search S5. Scientific article in medicine S6. Data collection and measurement S7. Data types (Analog, Digital) S8. Preparation for data processing S9. Preparation for writing own scientific article (instructions for authors, mentor agreement) S10. Interpreting the research results S11. Scientific article presentation and discussion S12. Writing own scientific article S13. Communication skills in scientific research S14. Preparation of the final draft of students' own scientific work
	Practical (Exercises)	P1. Data collection P2. Data collection online P3. Data types (analog, digital), creating the coding plan P4. Data organization and formatting – sorting, formulas, functions, filters P5. Confronting the data – Data entry P6. Confronting the data – Data entry (2) P7. Data validation – analyzing the correctness and validity of the entered data; organizing data P8. Dealing with the data – Data processing P9. Dealing with the data – Data processing (2) P10. Confronting the data – Data presentation P11. Writing the Materials and methods and Results sections of own scientific article P12. Search for the relevant journal articles in accordance with the set problem and strategy P13. Analysis of the structure and content of the selected scientific article P14. Writing the Introduction and Discussion sections of own scientific article P15. Writing References – introduction to reference organizing tools P16. Final writing and submitting the scientific paper for review
Language	English	
E-learning	Classes are conducted live. If necessary, lectures, seminars and part of the exercises can be combined (live and online) or online via e-learning platforms (Google Meet) - up to max. of 20% of the classes can be held online.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	**practical/project task**	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		100	3.33	20%
Practical/project task with oral presentation	IU-MFMSE104-2 IU-MFMSE104-3 IU-MFMSE104-4 IU-MFMSE104-5 IU-MFMSE104-6	70	2.33	50%
Written exam	IU-MFMSE104-1 IU-MFMSE104-2	40	1.34	30%

	IU-MFMSE104-3 IU-MFMSE104-4 IU-MFMSE104-5 IU-MFMSE104-6			
In total		210	7	100%

Method of calculating the final grade

The final grade is obtained by adding up the total number of points achieved by regular attendance at classes (20% of the grade), exam results (30% of the grade) and the quality of scientific research (written work and presentation of the work, 50% of the grade). A detailed description is given in the additional information about the subject.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	Croatian	English	other	multilingual	book	article	script	other
Compulsory	Matko Marušić et al.: Principles of research in medicine, 2nd edition, Medicinska naklada, Zagreb 2019.		x		x			x			
Additional	Teaching materials	x			x						x

Additional course information

Teaching in **Scientific Methodology** consists of lectures, seminars and exercises, where the focus is on practical exercises and the creation of own research (50% of the lesson) where each student must work in a team (small group) on a unique research problem under the supervision of the head of the exercises and the head of the course. Teaching is organized through six teaching units: 1. Scientific way of thinking 2. Scientific research 3. Scientific information 4. Scientific work 5. Science in preclinical and clinical medicine 6. Students' scientific work.

Student work and activity in class are continuously evaluated during classes, mainly in seminars and exercises that are organized through the active work of students under the supervision of teachers who direct, supervise and help them in the implementation of scientific research, which ends with the submission of a written scientific paper and an oral and poster presentation. Classical delivery of classes (ex-chair) is minimized in this course and is based on the principles of the Bologna process, which is working in small groups with the active involvement of the student who is at the center of the teaching as a dynamic and not a passive participant. Students are also taught the basics of communication skills in science, especially in public speaking and how scientific research is presented.
According to the Rulebook on studying at the University of Mostar, the final grade is assigned as follows:
0-54%, insufficient (1);
55-66%, sufficient (2);
67-78%, good (3); 7
9- 90%, very good (4);
91-100%, excellent (5).

The written test consists of 30 written questions of the multiple-choice type with one correct answer. The minimum for passing is 60% of correctly solved questions.

The oral presentation includes the presentation of scientific research works according to the principle applicable for presentations at the congresses. Each student group presents their scientific research results with a PowerPoint presentation and answers the questions of fellow students and teachers with a final poster presentation (50% of the final grade).

The final grade is calculated as the total sum of points achieved during active attendance at classes (share of points gained in the final grade 20%), grades of the final paper and oral/poster presentation (share of points achieved in the final grade 50%), and the results of the written test (share of acquired points in the final grade 30%).

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	--			
Year of study	1	Semester	I			
Course title	MEDICAL ETHICS	Course code	MFMSE105			
ECTS	2	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	0	25	0

Course objectives	The aim of this course is to familiarize students with basic principles of ethics, medical ethics and medical deontology, as well as to enable them to identify moral dilemmas in medicine, and provide means of dealing with them. Additionally, students will familiarize themselves with specifics of research and publications ethics, as well as procedures for ethics assessment of research proposals, and understand the development of human and patients' rights movements.		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Understands the differences between ethics, medical ethics, medical deontology, and law.	IU-MFMSE105-1	IU-MSE12
	Understands the history of development of physicians' oaths and medical deontology, as well as patient and human rights.	IU-MFMSE105-2	IU-MSE12
	Acquaint themselves with the important international documents related to human rights and medical ethics: General Declaration of Human rights, European Declaration of Human Rights, Hippocratic oath, The Deceleration of Geneva, The Declaration of Helsinki, Good clinical practice.	IU-MFMSE105-3	IU-MSE12
	Lists and understands the most common ways of addressing moral dilemmas in medicine.	IU-MFMSE105-4	IU-MSE12
	Practices obtaining and explaining basic informed consent to a patient.	IU-MFMSE105-5	IU-MSE16 IU-MSE17
	Understands and debates ethical dilemmas related to: beginning and end of life matters, genetic testing, reproductive medicine, sport and doping, mental illness, vulnerable groups, consent and assent to treatment, medical errors, rights to privacy, research integrity, animal rights, and stem cell research.	IU-MFMSE105-6	IU-MSE12 IU-MSE13
	Understands the value and importance of research ethics and research integrity and data protection.	IU-MFMSE105-7	IU-MSE7 IU-MSE12
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.		

Course content	Week / shift	Topic
	Lecture 1 (2h)	Introduction to ethics and moral development
	Lecture 2 (2h)	Medical deontology
	Lecture 3 (2h)	Handling ethical dilemmas
	Lecture 4 (2h)	Animal rights and laboratory research
	Seminar 1 (3h)	Patient-doctor relationship
	Seminar 2 (3h)	Applying basic ethical principles in practice
	Seminar 3 (3h)	Informed consent
	Seminar 4 (3h)	Issues related to the beginning and end of life
	Seminar 5 (3h)	Medicine of the future
	Seminar 6 (3h)	Case studies I
	Seminar 7 (3h)	Case studies II
	Seminar 8 (3h)	Reflection and re-evaluation
	Lecture 5 (2h)	History of human experimentation
	Lecture 6 (2h)	Patient rights
	Lecture 7 (2h)	Vulnerable groups

	Lecture 8 (2h)	Disasters
	Lecture 9 (2h)	Research and publication ethics
	Lecture 10 (2h)	Data protection
	Seminar 9 (2h)	Research integrity I
	Seminar 9 (2h)	Research integrity II
Language	English	
E-learning	None	
Teaching methods	Lectures, moderated group discussions and debates, case analyses and discussions, roleplay.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	**essay/report**	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Regular course attendance	IU-MFMSE105-1, 2, 3	45	1.5	25%
Seminar report	IU-MFMSE105-4, 5,	10	0.33	25%
Essay (main exam)	IU-MFMSE105-6,7	5	0.17	50%
In total		60	2	100%

Method of calculating the final grade

Course attendance (25%, passing 14%) + Seminar report (25%, passing 14%) + Essay (50%, passing 28%).

According to the Study Regulations, the final grade is obtained as follows:
0 – 54% insufficient (1)
55 – 66% sufficient (2)
67 – 78% good (3)
79 – 90% very good (4)
91 – 100% excellent (5)

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	Croatian	English	other	multilingual	book	article	script	other
	Medical Ethics Manual. World Medical Association, 2015.				X			X			
	The Universal Declaration of Human Rights				X						X
	European Convention on Human Rights				X						X
	The Declaration of Helsinki				X						X
	Patients' rights in the European Union. Directorate-General for Health and Food Safety (European Commission)				X						X
	European Code of Conduct for Research Integrity				X						X
Additional	Principles of Biomedical Ethics. Beauchamp and Childress. 7th				X			X			

	edition. 2013.										
	Resolving Ethical Dilemmas: A Guide for Clinicians, Bernard Lo, 2015.				X			X			
Additional course information											
For the seminar “Medicine of the future”, students have a task to write a brief report about what they see as the future of medicine, along with an example of the application of a novel technology in medicine.											

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	1	Semester	I			
Course title	CROATIAN LANGUAGE I	Course code	MFMSE106			
ECTS	1	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			0	0	25	0
Course objectives	- to apply grammatical structures in the Croatian language and vocabulary for acquiring language competence at the A1 and A2 levels (according to the *Common European Framework of Reference for Languages*) - to recognize cultural features of the Croatian speaking area					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Applies the basics of phonology, morphology and syntax of the CL related to the content of the course	IU-MFMSE106-1	IU-MSE14 IU-MSE19
	Demonstrates basic conversational skills	IU-MFMSE106-2	IU-MSE14 IU-MSE19
	Demonstrates reading and writing of simple texts	IU-MFMSE106-3	IU-MSE14 IU-MSE19
	Applies topic-related vocabulary	IU-MFMSE106-4	IU-MSE14 IU-MSE19
	Recognizes cultural features of the Croatian speaking area	IU-MFMSE106-5	IU-MSE14 IU-MSE19

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.

Course content	Week / shift	Topic
	1.	Personal pronouns.
	2.	The verb *biti*: affirmative, negative and interrogative.
	3.	Nouns: grammatical gender.
	4.	Croatian Alphabet. Capital Letters.
	5.	Possessive pronouns. Capitalizing the pronoun in formal situations.
	6.	The verb *imati.* Numbers.
	7.	The pronoun *kakav*. Adjectives.
	8.	Possessive adjectives.
	9.	Present tense (*-ati > -am*). Accusative case.
	10.	Long plural.
	11.	The target of movement: prepositions *u* and *na* + accusative case.
	12.	The purpose of movement: preposition *po* + accusative case.
	13.	Time expressions.
	14.	Present tense (-iti > -im, -jeti > -im).
	15.	Present tense of the verbs *jesti* and *piti*.

Language	English
E-learning	In accordance with study regulations (up to max 20%).
Teaching methods	- Teaching methods - Interactive methods

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	**other**	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade

Attending classes and preparing for the exam	-	25	0,8	20 %
Pre-exam/Final exam	IU-MFMSE106-1 IU-MFMSE106-2 IU-MFMSE106-3 IU-MFMSE106-4 IU-MFMSE106-5	5	0,2	80 %
In total		30	1	100%

Method of calculating the final grade

Attending classes and preparing for the exam:
- irregular arrivals = 0% of the final grade
- regular arrivals without activities = 11% of the final grade
- activity only at the teacher's instigation = 14% of the final grade
- self-initiated activity = 17% of the final grade
- self-initiated activity with quality discussion = 20% of the final grade

Pre exam or final written/oral exam:
less than 55% correct answers = 0% of the final grade
55% - 66% correct answers = 44% of the final grade
67% - 78% correct answers =56% of the final grade
79% - 90% correct answers = 68% of the final grade
91% - 100% correct answers = 80% of the final grade

According to the Study Regulations, the final grade is obtained as follows:
0 – 54% insufficient (1)
55 – 66% sufficient (2)
67 – 78% good (3)
79 – 90% very good (4)
91 – 100% excellent (5)

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Čilaš Mikulić, M. – Gulešić Machata, M. – Udier, S. L., *Razgovarajte s nama!*, udžbenik hrvatskoga jezika za razine A1 -A2, Hrvatska sveučilišna naklada, Zagreb, 2021.		x	x				x			
	Čilaš Mikulić, M. – Gulešić Machata, M. – Udier, S. L., *Razgovarajte s nama!*, vježbenica hrvatskoga jezika za razine A1 -A2, Hrvatska sveučilišna naklada, Zagreb, 2021.		x	x				x			
Additional	Krešić, K. – Budmir, I., *Hrvatski za vas*, udžbenik hrvatskoga jezika za početnike A1 I A2, PRESSUM, Mostar, 2021.	x		x				x			

Additional course information

- The student is obliged to regularly attend lectures.
- Unexcused absences must be justified with our student doctor and with a request to the course instructor.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	1	Semester	II			
Course title	MEDICAL CHEMISTRY AND BIOCHEMISTRY I	Course code	MFMSE201			
ECTS	7.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			32	26	22	0
Course objectives	- train students to apply basic knowledge about chemical structure and physicochemical processes, which are necessary for understanding biochemical and physiological processes - achieve the student's understanding of the basic principles and mechanisms of reactions of simple and complex organic/biological molecules - train students to apply classical and instrumental methods of chemical analysis - train students to interpret results and experimentally determined chemical changes using theoretical chemical laws					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Explains the theory of aqueous solutions, electrolytes, non-electrolytes, and physical laws.	IU-MFMSE201-1	IU-MSE1
	Analyzes chemical processes according to the concepts of chemical thermodynamics, kinetics, and equilibrium	IU-MFMSE201-2	IU-MSE1
	Solves calculation problems in chemistry and interprets results using theoretical chemical laws	IU-MFMSE201-3	IU-MSE1
	Classifies organic molecules important for the construction of biological macromolecules, and correlates the properties of molecules (based on chemical structure) and the mechanisms of chemical changes.	IU-MFMSE201-4	IU-MSE1
	Applies physicochemical quantities and methods used in biomedical sciences.	IU-MFMSE201-5	IU-MSE1
	Independently calculates and explains the results of chemical analysis.	IU-MFMSE201-6	IU-MSE1

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar

Course content	Week / shift	Topic
	L2	Molecular structure and chemical bond, bioelements, chemical bonds between biomolecules, basic elements of living matter
	L4	Water as the solvent. The distribution of the substance in solution. Electrolytes. The acids and base. Buffers.
	L6	Colligative properties. The osmotically active particles. Colloid-dispersed systems. Precipitation reactions. Colloids and macromolecules.
	L8	Thermodynamics and thermochemistry. Thermodynamic Laws. Internal energy. Enthalpy. Entropy. Gibbs's energy.
	L10	Energy of biological systems. Energy balance of biochemical systems.
	L12	Chemical equilibrium. The influence of concentration, temperature and pressure on the chemical balance. The equilibrium constant and Gibbs energy.
	L14	Chemical kinetics. The speed of reaction. Order and molecularity reaction. Factors affecting the rate of reaction. Enzymes. Complex reactions.
	L16	Electrochemistry. Electrode potential and electrochemical cells.
	L17	Gibbs energy of redox reactions. The biological redox systems.

	L18	Introduction to Organic Chemistry. Classification of organic compounds. The functional groups.
	L19	Alkanes and cycloalkanes. Stereochemistry.
	L20	Alkenes and alkynes.
	L21	Aromatic compounds.
	L22	The alkyl halides. Nucleophilic substitution at saturated carbon. Elimination reactions.
	L23	Alcohols, ethers, thiols, sulfides. Classification and physical properties of alcohol. Biologically important alcohols and phenols.
	L24	Oxidation and reduction of carbonyl compounds.
	L25	Aldehydes and ketones. Nucleophilic addition reaction.
	L26	Carboxylic acid and derivatives. Physical Properties. The acidity of the carboxylic acid. The carboxylic acid derivatives. Nucleophilic acyl substitution.
	L28	Carbohydrates. Nucleosides, nucleotides and nucleic acids. Classification. Fisher's formula. Epimers. Redox reactions of monosaccharides. Straight-chain and cyclic forms. Anomeric carbon atom. Mutarotation. Haworth formula. Glycosides. Reducing and non-reducing sugars. Disaccharides. Polysaccharides. Nucleosides, nucleotides and nucleic acids.
	L30	Amino acids and proteins. Relative configuration. Zwitterion. Peptide bond. Primary, secondary and tertiary protein structure. Enzymes. Lipids. Physico-chemical properties of lipids.
	S3	Calculation problems in chemistry -solutions.
	S6	a pH of acids, bases and salts
	S9	pH of buffers
	S11	Colligative properties
	S14	Thermodynamics and thermochemistry
	S15	Electrochemistry.
	S17	Nomenclature. Isomerism.
	S18	Stereochemistry. Chirality. Stereoisomers: enantiomers and diastereomers. Fisher projection formula. CIP system nomenclature.
	S19	Substitution, elimination, oxidation, reduction.
	S20	Addition at carbonyl carbon.
	S21	Acyl substitution.
	S22	Bioorganic compounds.
	V1	Laboratory equipment and basic laboratory techniques.
	V2	Preparation of the solutions.
	V3	Optical methods
	V4	Colloids
	V5	Osmotic resistance of erythrocytes
	V6	Buffers; The buffer capacity; The influence of the addition of a strong acid / base to buffer pH value
	V7	Volummetry: Acid-base titration
	V8	Classification tests of functional groups
	V9	Synthesis of aspirin
Language	English	
E-learning	Classes are conducted in person (live). If necessary, lectures, seminars and part of the exercises can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum 20%.	
Teaching methods	- lecture, presentation - free and guided conversation, dialogue, discussion - work in the laboratory	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	Other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes	-	80	2.7	0%
Midterm I (calculation problems in general/physical chemistry)	IU-MFMSE201-3	30	1	20%
Midterm II (properties and reactions of an organic compound)	IU-MFMSE201-4	30	1	20%
Midterm III (exercises)	IU-MFMSE201-5 IU-MFMSE201-6	10	0.3	10%
Written exam	IU-MFMSE201-1 IU-MFMSE201-2 IU-MFMSE201-3 IU-MFMSE201-4	75	2.5	50%
In total		225	7.5	100%

Method of calculating the final grade

Midterm I and Midterm II:
Each max. points: 30
1-14 - insufficient (1)
15-18 – sufficient (2)
19-22 – good (3)
23-26 – very good (4)
27-30 – excellent (5)

Midterm III
Max. points:10
1-4 - insufficient (1)
5-6– sufficient (2)
6-7 – good (3)
8-9 – very good (4)
10 – excellent (5)

Written exam:
Max. points:100
< 55 insufficient (1)
55 - 66 - sufficient (2)
67-78 – good (3)
79-90 – very good (4)
91-100 – excellent (5)

Example of final grade calculation:
Student gets:
-4 from the written exam, **(4x0.5)**
-3 from Midterm I, **(3x0.2)**
-4 from Midterm II, **(4x0.2)**
-3 from Midterm III, **(3x0.1)**

Final grade = (4x0.5)+ (3x0.2)+ (4x0.2)+ (3x0.1) = 2 + 0.6 + 0.8 + 0.3 = 3.7 (very good)

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	K. J. Denniston, J. J. Topping, R. L. Caret, General, Organic, and Biochemistry, 4th Edition, McGraw Hill, New York, 2004.		x		x			x			

	Calculation problems in chemistry, G. Zlatić, I. Martinović, 2019.	x			x					x	
	Laboratory Manual for Medical Chemistry (I. Mikulić and co.), 2019	x			x					x	
Additional	P. W. Atkins and J. de Paula, Physical Chemistry For The Life Sciences, 2nd edition, Oxford University Press, 2011.		x		x			x			
	D. J. Hart, C. M. Hadad, L. E. Craine, H. Hart, Organic Chemistry – A Short Course, 13th Ed, Brooks/Cole, Cengage Learning, Belmont, 2012.		x		x			x			
Additional course information											

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	1	Semester	II			
Course title	PHYSICAL EDUCATION I	Course code	MFMSE202			
ECTS	0.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			0	25	0	0
Course objectives	- To expand students' knowledge about the impact of kinesiology activities on the level of health. - To expand students' knowledge about the general process of exercise as well as the consequences of the effects of these processes on the human body with special reference to the preservation of health achieved through kinesiology processes. - To expand students' knowledge about ways to solve problems related to exercise processes. - to train students for independent work and expand students' knowledge about the importance of exercise in everyday life.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Applies warm-up exercises for a particular kinesiological activity.	IU-MFMSE202-1	IU-MSE21
	Independently analyzes and becomes aware of the importance of exercise in everyday life.	IU-MFMSE202-2	IU-MSE21 IU-MSE13
	It assesses the need and importance of daily exercise in order to preserve health and improve the quality of life.	IU-MFMSE202-3	IU-MSE13
	It creates an active break (an active break between studying and during free time).	IU-MFMSE202-4	IU-MSE13
	It presents tolerance, work habits and self-discipline.	IU-MFMSE202-5	IU-MSE13

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar

Course content	Week / shift	Topic
	1.	Introductory meeting and familiarization of students with obligations
	2.	Structure of the Physical Education class
	3.	General preparatory exercises and their application
	4.	Football - structure of football training (content and organization)
	5.	Football – a modified form of indoor and outdoor football
	6.	Handball - basics of handball game and improvement of new elements
	7.	Volleyball - the basics of the volleyball game and improvement of volleyball training structures
	8.	Volleyball - service, service reception, lifting, throwing, block and defense in the field
	9.	Basketball - structure of basketball training (content and organization)
	10.	Basketball – a modified mode of basketball
	11.	Tennis – forehand shot under the hand, forehand shot above the head
	12.	Tennis - high serve and short serve and movements on the court in the direction back and forth
	13.	Walking tour - organization of excursions in nature
	14.	Repetition and improvement of general preparatory exercises
	15.	Repetition of the learned content as chosen by the student

Language	English
E-learning	Sumarum, possibility of establishing online classes via the platform: Google meet or Zoom up to a maximum 20 %.
Teaching methods	- teaching methods - presentation - practical methods (exercises in the hall, exercises in nature or outdoors, exercises in the pool)

	- interactive methods (conversation and agreement about the class and exercises, dialogue, communication about the course and mutual, creative ideas about the contents of the exercises)

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	written exam	oral exam	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes preparing for the practical	IU-MFMSE202-1 IU-MFMSE202-2 IU-MFMSE202-3 IU-MFMSE202-4 IU-MFMSE202-5	25	0.5	100 %
In total		25	0.5	100 %

Method of calculating the final grade

Attending classes and preparing for the practical assignment/exam:
Class attendance and class activities:
- irregular arrivals = 0% grade
- more than 80% attendance at exercises = 100% descriptive grade

Exceptionally for students who are exempted from exercises due to health or sports (top athletes) exemptions, students are required to write a seminar paper.

Writing a seminar paper:
- the paper is not written = 0% grade.
- The work fully meets the formal and content criteria and is grammatically and spelling correct = 100% grade

According to the Study Regulations, the final grade is obtained as follows:
0 – 54% insufficient (1)
55 – 66% sufficient (2)
67 – 78% good (3)
79 – 90% very good (4)
91 – 100% excellent (5)
An exception is the subject of Physical Education, where a descriptive grade of "passed" is included in accordance with regular attendance at exercises.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Educating the Student Body: Taking Physical Activity and Physical Education to School, Harold W. Kohl III and Heather D. Cook, 2013.		X		X			X			
Additional											

Additional course information

- The student is obliged to regularly attend exercises from the course.
- The condition for entering the final descriptive grade is met with the attendance of at least 80% of the classes held.
- Exceptional efforts at exercises will be rewarded with additional (accumulation) pluses. The maximum number of accumulation points is 2 plus in the record.
- Unexcused absences must be justified with our student doctor and with a request to the course instructor.
- Exempted students are required to write a seminar paper

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	1	Semester	II			
Course title	ANATOMY	Course code	MFMSE203			
ECTS	21	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			60	90	65	0

Course objectives	Course objectives are: To enable students to understand the structure of the human body. To enable students to acquire knowledge about the structure of the human body through systematic and topographic anatomy and thus enable them to understand the normal and pathological morphology of man, the relationship between surface forms and deeper structures and the relationship of these structures as a framework for life processes. Clinical importance of individual regions and coping in spatial orientation within the human body. Master in detail the systematic, functional and topographic anatomy of all regions, as well as the functional anatomy of the locomotor system, cardiovascular, respiratory, digestive, urinary and sexual systems and peripheral nervous system, including the basics of organization of major motor and sensory systems. Systemic anatomy: features of organs, their blood supply and innervation. According to this approach, organs are grouped according to a common function. The emphasis is on general anatomical principles important for understanding the structure and function of the human body. Topographic anatomy: characteristics of organs with regard to their location and interrelationship with surrounding structures (position in the body). All organs belong to a body system and a specific anatomical region.		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Explains the concepts of anatomical terminology	IU-MFMSE203-1	IU-MSE2 IU-MSE21
	Describes the similarities and distinguishes the peculiarities of the individual organs structures of each of the basic structural groups: a) somatic structures (skin, fascia, bones, joints, muscles...), b) visceral structures (solid and hollow organs), c) supply and control structures (vascular and nervous systems)	IU-MFMSE203-2	IU-MSE2
	Describes the human body division into regions (separated by "anatomic borders"), describes the content of regions and assembles anatomical structures (tissues and organs), with regard to common functional features, in (organic) systems	IU-MFMSE203-3	IU-MSE2
	Applies basic knowledge of anatomy to concrete clinical situations	IU-MFMSE203-4	IU-MSE1 IU-MSE8
	Shows projections of clinically relevant anatomical structures on normal, living body and connects the peculiarities of structure with function of individual anatomical structures (for important movements, activities, reflexes...)	IU-MFMSE203-5	IU-MSE1
	Compares anatomical sections of anatomical structures with different radiological methods	IU-MFMSE203-6	IU-MSE2 IU-MSE8
	Describes anatomical structures on body sections in various body heights and directions	IU-MFMSE203-7	IU-MSE1
	Explains and names parts of isolated and/or dissected organs of the body.	IU-MFMSE203-8	IU-MSE1
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.		

	Week / shift	Topic
	I.	**UNIT 1: BONES AND JOINTS OF THE TRUNK**

Course content		Lecture 1: Introduction to anatomy, principles of osteology and syndesmology Seminar 1: Vertebral column, ribs and sternum Exercise 1: Bones and joints of the trunk
	II.	**UNIT 2: BONES AND JOINTS OF THE UPPER LIMB – PECTORAL REGION AND SHOULDER GIRDLE** Seminar 2: Bones of shoulder girdle and shoulder joints Exercise 2: Bones of shoulder girdle and shoulder joints and arm
	III.	**UNIT 3: RADIOLOGICAL ANATOMY** Lecture 2: Principles of radiological anatomy Exercise 3: Orientation points on the body. Radiological anatomy of axial skeleton and shoulder regions
	IV.	**UNIT 4: BONES AND JOINTS OF THE UPPER LIMB – FOREARM AND HAND** Seminar 3: Bones and joints of the forearm and hand Exercise 4:Bones and joints of the forearm and hand
	V. VI.	**UNIT 5: BONES AND JOINTS OF THE LOWER LIMB – PELVIC GIRDLE, HIP & THIGH** Seminar 4: Bones and joints of the hip and thigh Exercise 5: Bones and joints of the hip and thigh **UNIT 6: BONES AND JOINTS OF THE LOWER LIMB – LEG AND FOOT** Seminar 5: Bones and joints of the leg and foot Exercise 6: Bones and joints of the leg and foot
	VII.	**UNIT 7: NEUROCANIUM** Lecture 3: Cranial bones and aspects of cranium Seminar 6: Orientation points on the cranium. Neurocranial bones and aspects of neurocranium Exercise 7: Neurocranial bones
	VIII.	**UNIT 8: VISCEROCRANUIM** Seminar 7: Viscerocranium Exercise 8: Viscerocranial bones and aspects of viscerocranium
	IX.	**UNIT 9: PRINCIPLES OF ORGANIZATION OF THE CENTRAL NERVOUS SYSTEM** Lecture 4: Organization of the central nervous system Seminar 8: Cerebrum and cerebellum Exercise 9:Sectional anatomy of the central nervous system
	X.	**UNIT 10: SPINAL CORD AND SPINAL NERVES** Lecture 5: Spinal cord and spinal nerves Seminar 9: Somatic and autonomic nervous systems Exercise 10:Spinal nerves and somatic plexuses, structure and organisation
	XI.	**UNIT 11: BASIS OF THE BRAIN AND CRANIAL NERVES** Lecture 6: Brainstem and cranial nerves Seminar 10: Organisation of cranial nerves Exercise 11: Cranial nerve exits at brain basis and cranium, cranial nerve nucleus structure. Organisation of brain stem nuclei
	XII.	**UNIT 12: VENTRICULAR SYSTEM AND BLOOD VESSELS OF THE BRAIN** Lecture 7: Blood vessels of the brain, spinal cord and CSF Seminar 11: Blood brain circulation in the central nervous system Exercise 12:Venous sinuses, blood vessels of the brain, spinal cord and meninges, ventricular system of CNS
	XIII.	**UNIT 13: PRINCIPLES OF CARDIO-VASCULAR SYSTEM AND HEART** Lecture 8: Principles of cardiovascular system and heart, circulation Seminar 12: Heart Exercise 13: Heart and blood vessels and circulation
	XIV.	**UNIT 14: PRINCIPLES OF VISCERAL SYSTEMS** Lecture 9: Principles of the organization of visceral organs Exercise 14: Position and structure of visceral organs
	XV.	**UNIT 15: REGIO PAROTIDEOMASSETERICA ET REGIO BUCCALIS** Lecture 10: Regio parotideomasseterica et buccalis Seminar 13: Regio parotideomasseterica et buccalis Exercise 15: Regio parotideomasseterica et regio buccalis – section
	XVI.	**UNIT 16: EPICRANIUM ET REGIO TEMPORALIS**

		Lecture 11: Epicranium et regio temporalis Seminar 14: Auris Exercise 16: Regio temporalis et auricularis – section
	XVII.	**UNIT 17: REGIO ORBITALIS** Lecture 12: Regio orbitalis Seminar 15: Orbita et oculus Exercise 17: Regio orbitalis – section
	XVIII.	**UNIT 18: REGIO NASALIS, FOSSA INFRATEMPORALIS ET PTERYGOPALATINA** Lecture 13: Regio nasalis Seminar 16: Nose and paranasal sinuses. Fossa infratemporalis et pterygopalatina Exercise 18: Facies, fossa pterygopalatina et fossa infratemporalis- section
	XIX.	**UNIT 19: REGIO ORALIS ET MENTALIS. TRIGONUM SUBMANDIBULARE** Lecture 14: Cavum oris et trigonum submandibulare Seminar 17: Oral cavity Exercise 19: Trigonum submandibulare – section
	XX.	**UNIT 20: TRIGONUM CAROTICUM** Lecture 15: Trigonum caroticum Seminar 18: Pharynx Exercise 20: Trigonum caroticum et pharynx – section
	XXI.	**Lecture 16: Trigonum musculare** Seminar 19: Larynx Exercise 21: Trigonum musculare et fossa jugularis – section
	XXII.	**UNIT 22: REGIO CERVICALIS LATERALIS** Lecture 17: Regio cervicalis lateralis Seminar 20: Regio cervicalis lateralis Exercise 22: Regio cervicalis lateralis – section
	XXIII.	**UNIT 23: REGIO PECTORALIS ET FOSSA AXILLARIS** Lecture 18: Regio pectoralis et fossa axillaris Seminar 21: Muscles of shoulder girdl and axilla Exercise 23: section of axilla
	XXIV.	**UNIT 24: TOPOGRAPHIC ANATOMY OF ARM** Lecture 19: Topographic anatomy of arm Seminar 22: Muscles of arm and elbow region Exercise 24: Section of arm and elbow region
	XXV.	**UNIT 25: TOPOGRAPHIC ANATOMY OF FOREARM AND HAND** Lecture 20: Topographic anatomy of forearm and hand Seminar 23: Muscles of forearm and hand and carpal tunnel Exercise 25: Section of forearm and hand
	XXVI.	**UNIT 26: TOPOGRAPHIC ANATOMY OF THORACIC CAVITY** Lecture 21: Mediastinum Seminar 24: Lungs and bronchi Exercise 26: Section of thoracic region
	XXVII.	**UNIT 27: ABDOMINAL WALL AND INGUINAL CANAL** Lecture 22: Abdominal wall and inguinal channel Seminar 25: Projections of abdominal organs on the abdominal wall Exercise 27: Anatomical section and demonstration
	XXVIII.	**UNIT 28: PERITONEUM AND MESENTERY** Lecture 23: Peritoneum and mesentery Seminar 26: Spaces in the abdominal cavity Exercise 28: Anatomical section and demonstration
	XXIX.	**UNIT 29: TOPOGRAPHIC ANATOMY OF ABDOMINAL CAVITY** Lecture 24: Topographic anatomy of the stomach, duodenum, small and large intestine Seminar 27: Abdominal organs Exercise 29: Section of stomach, duodenum, small and large intestine
	XXX.	**UNIT 30: TOPOGRAPHIC ANATOMY OF BACK** Lecture 25: Topographic anatomy of back Seminar 28: Back muscles

		Exercise 30: Section of back muscles
	XXXI.	**UNIT 31: TOPOGRAPHIC ANATOMY OF RETROPERITONAL ORGANS** Lecture 26: Topographic anatomy of retroperitoneum Seminar 29: Kidneys and ureters Exercise 31: Section of retroperitoneum
	XXXII.	**UNIT 32: TOPOGRAPHIC ANATOMY OF FEMALE PELVIS** Lecture 27: Topographic anatomy of female pelvis Seminar 30: Female reproductive organs Exercise 32: Anatomical section and demonstration
	XXXIII.	**UNIT 33: TOPOGRAPHIC ANATOMY OF MALE PELVIS** Lecture 28: Topographic anatomy of male pelvis Seminar 31: Male reproductive organs Exercise 33: Anatomical section and demonstration
	XXXIV.	**UNIT 34: TOPOGRAPHIC ANATOMY OF PELVIC GIRDLE AND THIGH** Lecture 29: Topographic anatomy of pelvic girdle and thigh Seminar 32: Muscles of pelvic girdle and thigh Exercise 34: Anatomical section and demonstration
	XXXV.	**UNIT 35: TOPOGRAPHIC ANATOMY OF LEG AND FOOT** Lecture 30: Topographic anatomy of leg and foot Seminar 33: Muscles of leg and foot Exercise 35: Anatomical section and demonstration
	XXXVI.	**Exercise 36**: Anatomical section and demonstration: head and neck
	XXXVII.	**Exercise 37**: Anatomical section and demonstration: upper and lower limbs
	XXXVIII.	**Exercise 38:** Anatomical section and demonstration: trunk
Language	English	
E-learning	Classes are taken in person. If necessary, teaching can take place online via e-learning platforms (Google Meet) in accordance with the Rulebook, up to a maximum 20%.	
Teaching methods	Lectures, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/ report	practical/ project task	**other**	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance		215	7.2	
Pre-exam/partial written exams (A1 + A2)	IU- MFMSE203-1 IU- MFMSE203-2 IU- MFMSE203-3 IU- MFMSE203-4	205	6.8	50%
Practical exam	IU- MFMSE203-5 IU- MFMSE203-7 IU- MFMSE203-8	60	2	20%
Final oral exam	IU- MFMSE203-2 IU- MFMSE203-3 IU- MFMSE203-4 IU- MFMSE203-5 IU- MFMSE203-6 IU- MFMSE203-7 IU- MFMSE203-8	150	5	30%
In total		630	21	100%

Method of calculating the final grade
The final grade is calculated based on the weight. The written exam carries 50% of the grade, the practical exam carries 20% of the grade, and the oral exam carries 30% of the grade. A detailed description is given in the additional course information.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Gray's Anatomy for Students, 4th		x		x			x			

	Edition. Authors: Richard Drake & A. Wayne Vogl & Adam W. M. Mitchell										
	Sobotta Atlas of Anatomy, 16th ed., English/Latin, 16th Edition. Authors: Friedrich Paulsen & Jens Waschke		x		x						atlas
Additional	Netter, F.H. Atlas of human anatomy, ICON Learning Systems. 3rd Bk&Cdr edition. Teterboro, NJ; 2003 and updated versions		x		x						atlas

Additional course information

The anatomy course contains 215 hours and is taken over 12 weeks. This includes the time for preparing partial exams, and the first exam term.
The anatomy exam consists of three parts: written, practical and oral.
Two partial written exams will be held during classes.
The first partial exam consists of 50 test-questions and the **second partial exam** consists of 100 multiple-choice test-questions. Each correct question brings one point.
Also, during the class, there will be a **continuous knowledge check**, students will take quizzes every day. Quizzes are not graded (only pass / fail is recorded), and depending on the success, the student can get up to three additional points on each partial exam, which are added together with the correct answers.
Based on the total number of points (correct answers from the partial exam + additional points), partial exams are graded as follows:
The written exam is graded as follows:
less than 60% correct answers = insufficient (1)
from 60% to 70% = sufficient (2)
from 71% to 80% = good (3)
from 81% to 90% = very good (4)
from 91% to 100% = excellent (5)
Once passed, the partial exam is valid for the entire academic year and that part of the material will not have to be taken again in writing.
After passing the written part, a practical exam follows.
At the practical exam, 25 anatomical structures on the preparations will be marked. All types of preparations can be considered - human plasticized, plastic models as well as donor bodies. To pass the practical part, the student must correctly name and write at least 18 marked structures.
Less than 18 points = insufficient 1
18-19 points = sufficient 2
20-21 points = good 3
22-23 points = very good 4
24-25 points = excellent 5
Once passed, the practical exam is valid for the entire academic year.
After passing the practical exam, the oral part follows.
At the oral exam, the student draws 7 cards with questions that are divided into the same number of categories. The student should orally demonstrate basic knowledge from all parts of the material he has extracted in order for his answer to be considered satisfactory.
The final grade is calculated based on the weight. The written exam carries 50% of the grade, the practical exam carries 20% of the grade, and the oral exam carries 30% of the grade.
During the exam deadlines, students who have not passed some of the partial exams must first pass the written part of the exam that did not pass on the partial exams. After passing the complete written exam, the student takes the practical exam, and after passing the practical exam, he takes the oral part of the exam.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	2	Semester	III			
Course title	MEDICAL CHEMISTRY AND BIOCHEMISTRY II	Course code	MFMSE301			
ECTS	8	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			42	34	34	0
Course objectives	- To achieve students' understanding of the functioning of the organism at the molecular level, which is reflected in the normal function of the organs as well as in the pathological biochemical processes in the organism. - To achieve students' understanding of the role of natural biomolecules in the body. - To achieve students' understanding of the dynamics of synthesis and degradation of natural biomolecules: proteins, carbohydrates, lipids and nucleic acids. - To achieve students' understanding of the influence of hormones on the function of the main organ systems.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and presents the role of biomolecules in the human body.	IU-MFMSE301-1	IU-MSE2
	Describes and explains the mechanisms of synthesis and degradation of natural macromolecules: proteins, carbohydrates, lipids and nucleic acids.	IU-MFMSE301-2	IU-MSE3
	Explains the principles of regulation and control of cellular metabolism, using biochemical and metabolic arguments to explain physiological and pathophysiological processes.	IU-MFMSE301-3	IU-MSE3
	Draws the structure of biomolecules.	IU-MFMSE301-4	IU-MSE1
	Calculates the number of moles of ATP that are generated/consumed in the metabolism of natural macromolecules.	IU-MFMSE301-5	IU-MSE3
	Calculates the charge of a polypeptide at a given pH.	IU-MFMSE301-6	IU-MSE1

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures:	(L1) The Conformation and Dynamics of Protein Structure (L2) Proteins with Special Functions: Hemoglobin, Myoglobin (L3) Proteins with Special Functions: Collagen, Elastin (L4) Proteins with Special Functions: Actin, Myosin (L5) Plasma Proteins and Immunoglobulins (L6) Vitamins: role and function (L7) Coenzyme; Bioenergetics: The role of ATP (L8) Enzyme catalysis (L9) Metabolism of Nucleotides (L10) Nucleic Acid Structure & Function (L11) DNA Organization, Replication & Repair (L12) RNA Synthesis, Processing & Modification; Protein Synthesis & the Genetic Code (L13) Regulation of Gene Expression (L14) Molecular Genetics, Recombinant DNA & Genomic Technology (L15) Metabolism of Xenobiotics, Pharmacogenetics (L16) Glycolysis

		(L17) Glycogen: Synthesis and degradation (L18) Gluconeogenesis, Cori cycle (L19) The Pentose Phosphate Pathway, Fructose, Galactose (L20) Oxidative decarboxylation, Citric acid cycle (L21) The Respiratory Chain & Oxidative phosphorylation (L22) Lipids of Physiologic Significance; Cholesterol Synthesis, Transport & Excretion (L23) Lipid Transport & Storage (L24) Oxidation of Fatty Acids: Ketogenesis (L25) The Diversity of the Endocrine System (L26) Urea Cycle, Metabolism of Amino Acids (L27) Free Radicals & Antioxidant Nutrients (L28) Overview of Metabolism & the Provision of Metabolic Fuels
	Seminars:	At the seminars, students will solve some tasks about specific topics. They will make presentations about seminar topic given by teacher.
	Exercises:	(E1) Qualitative detection of protein (E2) Serum protein electrophoresis (E3) Ionization properties of amino acids (E4) Enzyme kinetics (E5) Monosaccharides and polysaccharides determination (E6) Lipids (E7) Acid-base and mineral status in organism (E8) Qualitative urine analysis (E9) Creatinine Clearance (E10) Human DNA isolation
Language	English	
E-learning	Classes are taken in person. If necessary, lectures, seminars and part of the exercises can take place combined (live and online) or completely online via e-learning platforms (Google Meet) up to max 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		110	3,7	0%
Seminar		10	0,3	0%
Midterm/Colloquium of exercises	IU-MFMSE301-1 IU-MFMSE301-6	15	0,5	0%
Pre-exam/Written exam	IU-MFMSE301-2 IU-MFMSE301-4 IU-MFMSE301-5	55	1,8	50%
Oral exam	IU-MFMSE301-1 IU-MFMSE301-2 IU-MFMSE301-3	50	1,7	50%
In total		240	8	100%

Method of calculating the final grade
The final grade is obtained as an arithmetic mean of grades from the written exam and oral exam. A detailed description is provided in additional information about the case.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Harper's Illustrated Biochemistry 31st Edition; V. Rodwell, D. Bender, K. Botham, P.		x		x			x			

	Kennelly, PA. Weil; 2018.										
	Biochemistry,9th Edition, Berg JM, Tymoczko JL, Gatto Jr. GJ,Stryer L., 2019.		x		x			x			
	Medical chemistry and biochemistry exercises handbook for medical students, I. Mikulić, N. Jelić Knezović, V. Mikulić, K. Landeka, A.Ćuk., 2014.	x			x					x	
Additional	Lehninger principles of biochemistry 8th Edition, DL. Nelson and MM. Cox, 2021.		x		x			x			
	Scientific papers for seminars,different authors		x		x					x	
	teaching materials		x		x						x

Additional course information

As it is a basic course in a specific field of biochemistry, in addition to theoretical classes, by processing selected different seminar topics and solving tasks, the student further expands his knowledge and can demonstrate the ability to think critically and recognize the essential elements of a certain educational issue.
The course in medical chemistry and biochemistry II. contains 110 hours and takes over 5 weeks, which also includes a post-class examination period (pre-exam).
Classes consist of lectures, seminars and exercises.
In order to take the exam, the student is required to fulfill all the other following obligations: attend classes regularly, prepare and present a seminar essay on the given topic, do exercises in the practical part of the class, support them with an appropriate report, and pass the final colloquium.
To pass the pre-exam/written exam (grade sufficient) and to participate in the oral exam, a student has to answer 55% of the questions correctly.

According to the Rulebook on studying at the University of Mostar, grades are assigned as follows:
0-54% insufficient (1);
55-66% sufficient (2);
67-78% good (3);
79- 90% (very good 4);
91-100% excellent (5).

The results of the pre-exam/written exam and the results of the oral exam are included in the final grade. The oral exam includes the most important, integrative units of overall biochemistry. The final grade is calculated as the arithmetic mean of the grades obtained on the pre-exam/written exam and oral exam.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	2	Semester	III			
Course title	MEDICAL GENETICS	Course code	MFMSE302			
ECTS	3	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	5	20	0

Course objectives	The objectives of the Medical Genetics course are: - to introduce medical students with basic facts in medical genetics; - introduce students to concepts in human medical genetics and train them to understand genetics' point of view on health and disease; - describe and explain the basics of a comprehensive approach to a patient with a genetic disease or disorder, or an increased risk for specific disease.		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains types of genetic disorders as causes of diseases and medical conditions.	IU- MFMSE302-1	IU-MSE1
	Describes and explains the types and outcomes of genetic testing according to groups of indications and elaborates the advantages and limitations of genetic tests and the methods used.	IU- MFMSE302-2	IU-MSE3
	Distinguishes the effects of genetic variability on the therapeutic outcome, and selects the appropriate method of genetic testing according to the indication and the genetic cause of the disease, interprets the basic elements of genetic testing findings.	IU- MFMSE302-3	IU-MSE6 IU-MSE8
	Applies basic communication skills in explaining genetic information.	IU- MFMSE302-4	IU-MSE9
	Searches diagnostic and educational databases of genetic diseases.	IU- MFMSE302-5	IU-MSE7
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar		

Course content	Week / shift	Topic
	Lectures	(L1) Introduction to Medical genetics (L2) Functional genomics and proteomics (L3) Genomics and the Human Genome Project (L4) Pharmacogenomics (L5) RNA genes and RNAi (L6) Mutations and aberrations (L7) DNA analysis (L8) Mitochondrial inheritance and human development (L9) Gene therapy. Genetically modified organisms (GMO) (L10) Epigenetics
	Seminars	(S1) Chromosomes. DNA analysis techniques. (S2) Inheritance patterns (Mendelian and Non-Mendelian) and genetic counselling (S3) Applications to public health - screening and identification of populations at risk (S4) Carcinogenesis and common genetic factors (S5) Genes and molecular mechanisms underlying human disease (S6) Genetic background of congenital anomalies (S7) Gene ethics
	Exercises	(E1) Introduction to Cytogenetics laboratory (E2) Primer design for genetic testing (E3) Bioinformatics (database search and OMIM)

		(E4) Cloning, transgenic animals, gene therapy (E5) Odds, probabilities, Bayes' theorem.
Language	English	
E-learning	Classes are conducted in person. If necessary, lectures, seminars and part of the practicals can be combined (in person and online) or completely online via e-learning platforms (Google Meet) up to a maximum 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/ report	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance		45	1,5	
Seminar paper	IU-MFMSE302-1 IU-MFMSE302-4,5	15	0,5	15%
Pre-exam/Written exam	IU-MFMSE302-1 IU-MFMSE302-2 IU-MFMSE302-3	30	1,0	85%
In total		90	3	100%

Method of calculating the final grade

The final grade is obtained as a weighting of the grades from the seminar assignment (15% of the grade) and the written exam (85% of the grade).

According to the Study Regulations, the final grade is obtained as follows:
0 – 54% insufficient (1)
55 – 66% sufficient (2)
67 – 78% good (3)
79 – 90% very good (4)
91 – 100% excellent (5)

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Emery's Elements of Medical Genetics – Peter D Turnpenny, Sian Ellard, 14th edition, Elsevier, 2012		x		x			x			
Additional	Essential Medical genetics – Tobias E.S, Connor M, Ferguson-Smith M, 6th edition, Wiley-Blackwell, 2011		x		x			x			

Additional course information

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	2	Semester	III			
Course title	HISTOLOGY AND EMBRYOLOGY	Course code	MFMSE303			
ECTS	10	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			50	41	44	0
Course objectives	The objectives of this course are to provide information's about morphology of human organs and development of human being, to synthesize the knowledge about the microscopic structure and function of human tissues that build organs and tissues in the human body.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Distinguishes the basics of microscopic structure of human body through the microscopic analysis of human tissue and organs preparations.	IU-MFMSE303-1	IU-MSE1
	Applies the skills in microscopic analysis and recognition of important histological structures of tissues and organs.	IU-MFMSE303-2	IU-MSE2
	Distinguishes and describes details on general and specific embryology	IU-MFMSE303-3	IU-MSE3
	Distinguishes the normal body structure and applies the principles on which pathology and pathophysiology are based.	IU-MFMSE303-4	IU-MSE4
	Distinguishes and applies knowledge in human embryology (recognizing, treating and preventing developmental disorders).	IU-MFMSE303-5	IU-MSE5

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	(L1) Gametogenesis, the first and second week of development (L2) Embryonic period, foetal period and congenital malformations (L3) Epithelial and connective tissue (L4) Formation of blood cells (L5) Development of the skeletal system (L6) Development and structure of muscle tissue (L7) Development and structure of the nervous tissue (L8) Development and structure of the heart and blood vessels (L9) Development and structure of the lymphatic system (L10) Development and structure of the neuroendocrine system (L11) Development and structure of the respiratory system, skin system (L12) Development of head and neck (L13) Development of oral cavity (L14) Development of body cavities and structure of alimentary canal (L15) Development and structure of the gastrointestinal tract (L16) Development and structure of the glands of the gastrointestinal tract (L17) Development and structure of the urinary tract (L18) Development and structure of the female reproductive system (L19) Development and structure of the male reproductive system (L20) Development and structure of the ear (L21) Development and structure of the eye
	Seminars	(S1) Menstrual, ovarian cycle and fertilization (S2) The placenta and placental membranes (S3) Covering and glandular epithelium, cells and intercellular substance of connective tissue (S4) Blood cells and anomalies

		(S5) Supportive tissue-cartilage, adipose tissue and bone ossification. (S6) Morphological based contractility (S7) The histological structure of the nervous tissue (S8) Structure of the heart and blood vessels, placenta (S9) The lymphatic organs, regional lymph nodes and lymph vessels (S10) The organization of the endocrine glands (S11) Respiratory membranes and skin (S12) Development and anomalies of the organs of the head and neck (S13) Structure of the mouth (S14) General structure of the alimentary canal - oesophagus and stomach (S15) Structure of the digestive system - small and large intestine, appendix (S16) Glands of the gastrointestinal tract (S17) Structure of the urinary tract (S18) Structure of the female reproductive system (S19) Structure of the male reproductive system (S20) Structure of the ear (S21) Structure of the eye
	Exercises	(E1) Preparing preparations for histology (E2) The placenta and umbilical cord (E3) Lining epithelium, unformed connective tissue, tendons (E4) Smear of bone marrow and blood smear (E5) Hyaline, elastic and connective cartilage, decalcificated bone, a bone specimen, enchondral and desmal ossification (E6) The skeletal, smooth and cardiac muscle (E7) Spinal cord, cerebrum, cerebellum, peripheral nerve ganglia (E8) Heart valves, arteries and veins (E9) Thymus, lymph nodes, spleen and palatine tonsil (E10) The pituitary gland, thyroid gland, adrenal gland, epithelial corpuscle (E11) The lungs and trachea, skin, mammary gland (E12) Lip, tip of the tongue, salivary and papilla vallata (E13) Palate, teeth and tooth development (E14) The oesophagus and stomach (E15) Small and large intestine, appendix (E16) Liver and pancreas (E17) Kidney, bladder and urethra (E18) Ovary, fallopian tube, uterus, vagina (E19) Testis, vas deferens, prostate, seminal vesicle and penis (E20) Ear (E21) Eye
Language	English	
E-learning	Up to 10%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/ report	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		135	4.5	0%
Seminar essay	IU- MFMSE303-1 IU- MFMSE303-2 IU- MFMSE303-3 IU- MFMSE303-4 IU- MFMSE303-5	15	0.5	0%
Pre-exam/Written exam	IU- MFMSE303-1 IU- MFMSE303-2 IU- MFMSE303-3	90	3	50%

	IU- MFMSE303-4 IU- MFMSE303-5			
Oral exam	IU- MFMSE303-1 IU- MFMSE303-2 IU- MFMSE303-3 IU- MFMSE303-4 IU- MFMSE303-5	30	1	30%
Practical exam	IU- MFMSE303-1 IU- MFMSE303-2 IU- MFMSE303-3 IU- MFMSE303-4 IU- MFMSE303-5	30	1	20%
In total		300	10	100%

Method of calculating the final grade

The final score is the sum of = complete written (50%) + practical (20%) + oral (30%) exam.
A detailed description is given in the additional information about the subject.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Junqueira's Basic Histology: Text and Atlas, 12th Edition		X		X						X
	Langman's Medical Embryology. 12th edition by Sadler, T. W. (2011)		X		X			X			
Additional	VMS image collection: Histology Atlas, 2008.	X					X				X

Additional course information

Students are obliged to regularly attend and actively participate in all forms of classes.
During the course there will be two partial tests (H1 and H2). The first partial test (H1) includes General Embryology and development of the skeletal, muscular, circulatory, respiratory, nervous system and skin (Special embryology). Histological threads in the first partial test consists of epithelial, connective, fat, cartilage, bone, nerve and muscle tissue and vascular system, blood cells and formation of blood cells, immune, respiratory, neuroendocrine system and skin. The first partial test consists of 60 questions (30 questions from Embryology and 30 questions from Histology).
The second partial test (H2) includes the development of body cavities, digestive and urogenital system, the development of head and neck, ear and eye (Special embryology). Histological threads in the second partial test consists of the digestive system, liver, pancreas, urinary system, male and female reproductive system and sensory organs. The second partial test consists of 50 questions (20 questions from Embryology and 30 questions from Histology).
The total percentage of correct answers needed for a positive assessment, 60% of the written tests. For a positive evaluation is also necessary to achieve 50% correct answers from the first and second group of questions from Embryology and from the first and second group of questions from Histology.
For students who didn't pass partial tests, written exam makes a single unit of 110 questions and cannot be taken separately.
Positive mark of preliminary tests is recognized during the current academic year.
All students who weren't absent from school have the right to take partial tests. Also, those who pass additional exam from lectures during which they were not in class or on which they didn't show sufficient knowledge can approach to test.

H1-first partial test
36-41=(2);
42-48=(3);
49-54=(4);
55-60=(5);

H2-second partial test

30-35=(2);
36-40=(3);
41-45=(4);
46-50=(5);

Final written exam
66-76=(2);
77-88=(3);
89-99=(4);
100-110=(5);

Practical and oral exam are available to students who have passed the first and second part of the test in Histology and Embryology.
Practical exam (20% of the final grade)
The practical exam consists of 7 histological samples. Students must at least identify 5 out of 7 samples under the microscope, and then must identify microscopic details on them. The recognition of the samples is scored (maximum 7 points), showing the required structure on the samples (maximum 7 points), and finding the required structure to the samples (maximum 7 points).
13-14 = (2);
15-17 = (3);
18-19 = (4);
20-21 = (5);

Oral examination (30% of the final grade) The oral exam consists of 4 questions (1 general embryology, 1 special embryology, 1 general histology, 1 special histology). Students draw cards with certain issues.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	2	Semester	III			
Course title	BASIC NEUROSCIENCE	Course code	MFMSE304			
ECTS	8	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	24	56	0
Course objectives	Course objectives are: - to provide the student with knowledge about the normal function of our nervous system by applying the acquired knowledge of physics, chemistry, biochemistry, biology, anatomy, histology and physiology - to provide the student with knowledge about morphology of the brain in general - external and internal structure of the brain, cellular and molecular neuroscience, synaptic transmission, sensory and motor systems, general and control function of the brain, higher brain functions.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	- names, recognizes and describes the morphological features of the central nervous system, midbrain, end brain, peripheral nervous system as well as spinal cord and explains their function.	IU-MFMSE304-1	IU-MSE1 IU-MSE2
	- describes the fundamental electrophysiological features of neurons, explains the generation of resting transmembrane potential, action potentials and postsynaptic potentials.	IU-MFMSE304-2	IU-MSE1 IU-MSE2 IU-M3
	- describes and explains the way information is transmitted between neurons, classifies and explains the basic properties and mechanism of action of neurotransmitters, describes the structure of receptors and discusses their role in information transmission.	IU-MFMSE304-3	IU-MSE1 IU-MSE2 IU-MSE3
	- describes, explains and outlines the organization of sensory systems and applies knowledge in solving examples from clinical practice.	IU-MFMSE304-4	IU-MSE1 IU-MSE2 IU-MSE3 IU-MSE4 IU-MSE5 IU-MSE6
	- describes, explains and sketches the organization of motor systems and applies knowledge in solving examples from clinical practice.	IU-MFMSE304-5	IU-MSE1 IU-MSE2 IU-MSE3 IU-MSE5 IU-MSE6
	- describes and interprets the structure and neurophysiological features of higher brain functions: learning and memory, emotions, sexuality, wakefulness and sleep, and the neural control of breathing and heartbeat.	IU-MFMSE304-6	IU-MSE1 IU-MSE2 IU-MSE3
	- applies knowledge from theoretical classes and demonstrates skills in solving electrophysiological problems on the computer.	IU-MFMSE304-7	IU-MSE1 IU-MSE21
	- applies knowledge from theoretical classes and demonstrates the skills of recording bioelectric (EEG, EMG, EOG) potentials from the human body.	IU-MFMSE304-8	IU-MSE1 IU-MSE21

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	(L1) Introductory lecture (L2) Neuron is a basic structural-functional unit of the CNS (L3) CNS research methods. Development of the CNS and processes of development reorganization and plasticity (L4) Biophysical basics of excitability (L5) Neurotransmitters in health and disease (L6) Serotonin (L7) General organization of the sensory systems. Taste and smell (L8) Physiology of the eye and phototransduction (L9) General structure of the motor systems (L10) Motor cortex and voluntary movements (L11) Brain lateralization (L12) Control of breathing during wakefulness and during sleep. Sleep medicine. (L13) General brain function
	Seminars	(S1) The structure of gray and white matter of the spinal cord (S2) The structure of gray and white matter of the brainstem and (S3) The structure of gray and white matter of the diencephalon (S4) Telencephalon (S5) Neuroanatomy, summary (S6) Cell membrane, ion channels, passive and active neuron properties (S7) Structure and function of the synapse and the cellular basis of behavior (neuron sequences, pathways, circles, networks, systems) (S8) Neurotransmitters, neuropeptides and their receptor (S9) Electrophysiology of neurons, summary (S10) Pain, heat and cold – anterolateral sensory system Touch, pressure, and kinesthesia - the dorsal column system (S11) Ear - organ of hearing and balance. Auditory and vestibular system (S12) Organization of the retina, primary visual pathway and primary visual cortex (S13) Eye movement and the organization of associative visual fields (S14) Sensory system, summary (S15) Spinal motor mechanisms and reflexes. Role of the descending pathways from the brainstem in maintaining posture and muscle tone; spinal shock šok (S16) Motor functions of the cerebellum and the basal ganglia (S17) Motor system, summary (S18) Organization and structure functions of the limbic system (S19) Neurobiology of emotion and sexuality (S20) Anatomy and psychology of learning and memory (S21) Hypothalamus; autonomic and endocrine control (S22) Clinical seminar (S23) General brain functions; EEG (S24) Stages of wakefulness and alertness; sleep (S25) Neurobiology of attention and associative functions of the prefrontal and posterior parietal cortex (S26) Cellular mechanisms of learning and memory
	Exercises	(E1) Appearance and distribution of gray and white matter of the spinal cord (E2) Appearance and distribution of gray and white matter of the brainstem (E3) Clinical-anatomic syndromes of the spinal cord (E4) Resting potential (E5) Action potential

		(E6) Synaptic potential (E7) Signalization (E8) Reflexes and reaction time (E9) Physiology of sensation (E10) Muscle and electromyography (E11) EEG and evoked potential (E12) *SleepLab* Polysomnography
Language	English	
E-learning	Classes are conducted in person. If necessary, lectures, seminars and part of the exercises can be combined (in person and online) via e-learning platforms (Google Meet) – up to 20% of classes can be performed online.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	**other**	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		100	3.3	0%
Activity during seminars	IU-MFMSE304-1,2,3,4,5,6,7,8	40	1.3	0%
Pre-exam/Written exam	IU-MFMSE304-1,2,3,4,5,6,7,8	100	3.4	100%
In total		240	8	100%

Method of calculating the final grade

The final grade is based on the result achieved on the written exam.
According to the Rulebook on the Integrated Studies at the School of Medicine University of Mostar, grades are assigned as following:
0-54% insufficient (1);
55-66% sufficient (2);
67-78% good (3);
79- 90% (very good 4);
91-100% excellent (5).

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Siegel, A. and Sapru, H.: ESSENTIAL NEUROSCIENCE, 4th Edition, Wolters Kluwer/ Lippincott Williams & Wilkins		x		x			x			
	John Huguenard and David A. McCormick: Electrophysiology of the Neuron, Windows Version, A Companion to *Neurobiology* by Gordon Shepard		x		x			x			
Additional	Purves et al Neuroscience 5th edition published by Sinauer Associates		x	x				x			
	Kandel, E.R., Schwartz, J.H. and Jessel, T.M.: PRINCIPLES OF NEURAL SCIENCE, 4th edition,		x	x				x			

	McGraw-Hill; New York, SAD, 2000.										
	Guyton, A.C. and Hall: MEDICAL PHYSIOLOGY, 11th edition. 2006.		x	x				x			

Additional course information

The Basic neuroscience course is performed with a total duration of 100 hours, divided into five teaching units (Neuroanatomy, Basics of neuron electrophysiology, Sensory systems, Motor systems, General brain functions). Topics that are covered through lectures, seminars and practical lessons are announced on the beginning of the course, including an indication of the prescribed literature.

Attendance of all forms of instruction is obligatory (except the attendance of individual consultations), and all students are obligated to study the prescribed material IN ADVANCE for seminars and practical lessons, using the main textbook and/or the additional literature.

Activity at the seminars is rewarded with pluses, whilst not being prepared will be marked as a minus. All absences and minuses have to be compensated through a colloquium at least 2 days before the exam. Students not taking the exam in the pre-exam period have to take a colloquium in a 10 days period after the end of the Basic neuroscience course, in order to compensate their absences and minuses.

Neuroscience is tested in the form of written exam that consists of 100 multiple answer questions with only one answer being correct. Each correct answer carries one point. In order to pass the exam (grade sufficient), the student must answer 55% of the questions correctly.

The final grade is based on the result achieved on the written exam.

Study programme	MEDICAL STUDIES IN ENGLISH		
Cycle	INTEGRATED	Type	UNIVERSITY
Study track	-	Module	-
Year of study	2	Semester	III
Course title	CROATIAN LANGUAGE II	Course code	MFMSE305
ECTS	1	Status	OBLIGATORY

Teaching hours	Lectures	Exercises	Seminars	Practice
	0	0	25	0

Course objectives

- to apply grammatical structures in the Croatian language and vocabulary for acquiring language competence at the A1 and A2 levels (according to the *Common European Framework of Reference for Languages*)
- to recognize cultural features of the Croatian speaking area

Course learning outcomes

Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
Applies the basics of phonology, morphology and syntax of the CL related to the content of the course	IU-MFMSE305-1	IU-MSE14 IU-MSE19
Demonstrates basic conversational skills	IU-MFMSE305-2	IU-MSE14 IU-MSE19
Demonstrates reading and writing of simple texts	IU-MFMSE305-3	IU-MSE14 IU-MSE19
Applies topic-related vocabulary	IU-MFMSE305-4	IU-MSE14 IU-MSE19
Recognizes cultural features of the Croatian speaking area	IU-MFMSE305-5	IU-MSE14 IU-MSE19

Prerequisites for the course enrolment

In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar

Course content

Week / shift	Topic
1.	Present tense of the modal verbs: *morati, trebati.*
2.	Present tense of the modal verbs: *smjeti, moći, htjeti.*
3.	Present tense (*-ovati/-ivati > -ujem*).
4.	Locative case.
5.	Past tense of the verb *biti*.
6.	Past tense of the verbs ending in *-ati, -iti, -ovati, -ivati*. Reflexive verbs.
7.	Past tense of the verbs ending in *-sti, -ći.*
8.	Omitting the personal pronouns in the nominative case.
9.	Future tense.
10.	Dative case.
11.	Instrumental case.
12.	Genitive case.
13.	The use of a number in front of a noun.
14.	The concept of possession
15.	The conditional.

Language	English
E-learning	In accordance with study regulations (up to max 20%).
Teaching methods	- Teaching methods - Interactive methods

Types of assessment (indicate - **Bold**)

Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	**other**	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade

Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade

Attending classes and preparing for the exam	-	25	0,8	20 %
Pre-exam/final exam	IU-MFMSE305-1, 2, 3, 4, 5	5	0,2	80 %
In total		30	1	100%

Method of calculating the final grade

Attending classes and preparing for the exam:
- irregular arrivals = 0% of the final grade
- regular arrivals without activities = 11% of the final grade
- activity only at the teacher's instigation = 14% of the final grade
- self-initiated activity = 17% of the final grade
- self-initiated activity with quality discussion = 20% of the final grade

Pre exam or final written/oral exam:
less than 55% correct answers = 0% of the final grade
55% - 66% correct answers = 44% of the final grade
67% - 78% correct answers =56% of the final grade
79% - 90% correct answers = 68% of the final grade
91% - 100% correct answers = 80% of the final grade

According to the Study Regulations, the final grade is obtained as follows:
0 – 54% insufficient (1)
55 – 66% sufficient (2)
67 – 78% good (3)
79 – 90% very good (4)
91 – 100% excellent (5)

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Čilaš Mikulić, M. – Gulešić Machata, M. – Udier, S. L., *Razgovarajte s nama!*, udžbenik hrvatskoga jezika za razine A1 -A2, Hrvatska sveučilišna naklada, Zagreb, 2021.		x	x				x			
	Čilaš Mikulić, M. – Gulešić Machata, M. – Udier, S. L., *Razgovarajte s nama!*, vježbenica hrvatskoga jezika za razine A1 -A2, Hrvatska sveučilišna naklada, Zagreb, 2021.		x	x				x			
Additional	Krešić, K. – Budmir, I., *Hrvatski za vas*, udžbenik hrvatskoga jezika za početnike A1 I A2, PRESSUM, Mostar, 2021.	x		x				x			

Additional course information

- The student is obliged to regularly attend lectures.
- Unexcused absences must be justified with our student doctor and with a request to the course instructor.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	2	Semester	IV			
Course title	MEDICAL PHYSIOLOGY	Course code	MFMSE401			
ECTS	19	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			53	40	87	0
Course objectives	The objective of the Medical Physiology course is: - acquaint students with the normal functions of the organism that maintain homeostasis, and expand the existing knowledge about the functioning of cells, tissues and organs; - train students to be able to understand pathophysiological mechanisms and pharmacotherapeutic measures.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains basic functional features of neuromuscular, cardiovascular and renal systems at the level of cell, organ and the whole organism.	IU-MFMSE401-1	IU-MSE1 IU-MSE2
	Describes and explains the basic functional features of respiratory, gastrointestinal, endocrinological, reproductive and hematopoietic system at the level of cell, organ and the whole organism.	IU-MFMSE401-2	IU-MSE2
	Analyzes and associates the operation of control mechanisms including negative and positive feedback systems to controlled factors and physiological processes in the organism that are necessary for maintenance of homeostasis.	IU-MFMSE401-3	IU-MSE3
	Describes and analyzes the changes that occur in organic systems if there is a deviation of the controlled parameters and relates them with the appearance of symptoms and/or signs of the disease.	IU-MFMSE401-4	IU-MSE4
	Measures the arterial pressure value and interprets the obtained values.	IU-MFMSE401-5	IU-MSE3 IU-MSE8
	Analyzes and interprets the results of basic respiratory function measurements, stress test and glucose tolerance.	IU-MFMSE401-6	IU-MSE3 IU-MSE8
	Analyzes and interprets a normal electrocardiographic record.	IU-MFMSE401-7	IU-MSE1 IU-MSE21

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	(L1) Functional organization of human body; transport through cell membranes (L2) Basic physics of membrane potentials (L3) Excitation of skeletal muscle (L4) Contraction of skeletal muscle (L5) Excitation and contraction of smooth muscle (L6) Physiology of cardiac muscle (L7) Overview of the circulation: physics of pressure, flow and resistance (L8) Vascular distensibility, functions of the arterial and venous systems, the structure of microcirculation (L9) Long-term control of arterial pressure: integrated system for arterial pressure regulation (L10) Hemorrhagic shock and physiological principles of treatment (L11) Kidneys: physiological anatomy and function (L12) Micturition and diuretics

		(L13) Thirst, integration of renal mechanisms for control of blood volume and extracellular fluid volume (L14) Mechanics of lungs, Laplace's law, functions of the respiratory passageways (L15) Regulation od respiration (L16) Methods for studying respiratory abnormalities (L17) Physiological problems of high-altitude and deep-sea diving (L18) The autonomic nervous system and the adrenal medulla (L19) General principles of gastrointestinal function (L20) Propulsion and mixing of food in the alimentary tract (L21) Review and regulation of carbohydrate metabolism, formation of ATP (L22) Review and regulation of lipid and protein metabolism (L23) The liver as an organ (L24) Dietary balance, regulation od feeding, obesity and starvation, vitamins and minerals (L25) Body temperature regulation (L26) Introduction to endocrinology; principles of secretion, transport, action and clearance of hormones (L27) Pituitary gland-hypothalamus relation, posterior pituitary hormones (L28) Pregnancy, parturition, lactation (L29) Erythrocytes and blood types (L30) Resistance of the body to infection; leucocytes (L31) Hemostasis and blood coagulation
	Seminars	(S1) Membrane and action potentials (S2) Cardiac cycle, regulation of heart pumping (S3) Rhythmical excitation of the heart (S4) ECG (S5) Integration (general physiology, potentials, muscles and heart) (S6) Capillary fluid exchange, local control of tissue blood flow (S7) Humoral and nervous regulation of circulation, rapid control of arterial pressure (S8) Cardiac output and venous return (S9) Muscle blood flow and coronary circulation (S10) Integration (circulation) (S11) The body fluid compartments and volumes and their balance; edema (S12) Glomerular filtration, renal blood flow and their control (S13) Tubular reabsorption and secretion (S14) Regulation of reabsorption in tubules (S15) Regulation of extracellular fluid osmolarity and sodium concentration (S16) Regulation of renal potassium, calcium and magnesium excretion (S17) Acid-base regulation: respiratory and renal regulation, acidosis and alkalosis (S18) Integration (kidneys and body fluids) (S19) Pulmonary ventilation (S20) Pulmonary circulation, pulmonary edema and pleural fluid (S21) Physical principles of gas exchange; diffusion of gases through the respiratory membrane (S22) Transport of oxygen and carbon dioxide in blood and tissue fluids (S23) Integration (respiratory system) (S24) Secretory functions of the alimentary tract: secretion of saliva, gastric and pancreatic secretion (S25) Secretory functions of the alimentary tract: bile secretion and intestinal secretion; absorption of water and ions (S26) Energetics and metabolic rate (S27) Integration (alimentary tract and metabolism) (S28) Anterior pituitary hormones (S29) Thyroid hormones (S30) Insulin and glucagon (S31) Blood glucose regulation, diabetes mellitus

		(S32) Calcium and phosphate metabolism, Bone and teeth physiology (S33) Parathyroid hormone, calcitonin and vitamin D (S34) Synthesis of adrenocortical hormones, functions of mineralocorticoids (S35) Adrenocortical hormones; stress (S36) Integration (endocrinology) (S37) Reproductive and hormonal functions of the male (S38) Female physiology before pregnancy and female hormones (S39) Integration (reproduction)
	Exercises	(E1) Transport through cell membranes Basic physics of membrane potentials (E2) Recording and vectorial analysis of ECG (E3) Interactive physiology 9.0: Cardiovascular system (E4) Measuring of the arterial pressure and peripheral pulse rate, heart sounds (E5) Electrocardiogram repetition, orthostatic test (E6) Kidney problem solving, ABS cases (E7) Spirometry test (E8) The Astrand cycle test; Effect of exercise on arterial pressure (E9) OGTT- Oral Glucose Tolerance Test (E10) Blood typing (E11) Hematology (erythrocyte count, hemoglobin and hematocrit; hematological indices)
Language	English	
E-learning	Classes are taken in person. If necessary, lectures, seminars and part of the exercises can take place combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		180	6	0%
Midterm/Colloquium of exercises	IU- MFMSE401-5	30	1	0%
Practical exam	IU- MFMSE401-6 IU- MFMSE401-7	30	1	0%
Pre-exam/partial written exams (P1+P2)	IU- MFMSE401-1 IU- MFMSE401-2	180	6	66,6%
Final oral exam	IU- MFMSE401-3 IU- MFMSE401-4	150	5	33,4%
In total		570	19	100 %

Method of calculating the final grade
The final grade is obtained as the arithmetic mean of the grades from two partial exams and the oral exam (sum of grades from P1, P2 and oral exam divided by 3). A detailed description is given in the additional information about the subject.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	A. C. Guyton. J. E. Hall: Medical physiology, 14th Edition. Elsevier, Philadelphia, USA, 2020		x		x			x			
	Exercises in physiology. Internal edition, Faculty of	x			x					x	

	Medicine University of Mostar, 2020.										
Additional	Lecture notes		x		x						x
	Linda Costanzo: Physiology, 7th edition, 2021		x		x			x			

Additional course information

Physiology classes contain 180 hours and are taken over 11 weeks, which includes the post-class examination period (pre-exam). The class is divided into two approximately equal parts: Physiology I (P1) and Physiology II (P2). The teaching consists of
lectures, seminars and exercises. At the end of each week a seminar entitled "Repetition and examination of passed material" is organized. In this part of the course, the topics are repeated and consolidated based on problem solving and test questions.

During classes from seminars and exercises, **knowledge is continuously checked**. To students who demonstrate exceptional knowledge of the learning material covered in the seminar or motivation and understanding in the exercises additional points will be awarded (bonuses), which will be added to the points on the final exam. **Weekly tests** are held at the beginning of each week, and there are 6 weekly tests in total. They contain 20 questions related to the previous week's topics. On these tests, knowledge is evaluated as follows: for a grade of 5, the student receives 2.0 points, for a grade of 4, the student receives 1.5 points, for a grade of 3, student receives 1 point, and for a grade of 2, student receives 0.5 points. The maximum number of additional points that student can earn for one partial exam is 6, and it is obtained on the basis of the sum of points from classes and the results of weekly tests.

Partial exams are held about a week after the lessons from P1 or P2. They consist of 80 test-questions with multiple choice of answers (one of the five offered answers is always correct). To pass the exam (grade sufficient), the student must answer 55% of the questions correctly, i.e., must obtain at least 44 points.
According to the Rulebook on Studying at the University of Mostar grades are assigned as follows:
0-54% insufficient (1);
55-66% sufficient (2);
67-78% good (3);
79- 90% (very good 4);
91-100% excellent (5).

The colloquium of the exercises refers to the skill of measuring arterial pressure. The student should demonstrate the ability to measure arterial pressure and interpret the measured values.

The practical exam consists of several tasks where the understanding of ECG, respiratory analysis, stress tests, OGTT, blood types, ABS and other units that were processed and taught using active-experiential methods at exercises. The exam is divided into two parts, the knowledge of ECG is evaluated separately, and the other parts separately, due to the importance of ECG interpretation for everyday practice. The minimum for passing is 80% of correctly solved tasks.

The partial exams, colloquium and practical exam, when passed, are acknowledged during the academic year.

The oral exam includes the most important, integrative units of overall physiology. In the final exam, it is not details that are required, but integrative knowledge that is essential for understanding the whole subject, medical practice and others courses. The condition for taking the oral exam is that the student has passed all partial exams and the colloquium/practical exam of exercises. Students who have passed the partial exams and the colloquium/practical exam during the class will be admitted in the pre-exam term and subsequent terms (when applicable) directly to the oral exam, which is counted as taking the exam.

The final grade is calculated as the arithmetic mean of the grades obtained on the two partial exams and the grade obtained on the oral exam. That is: (P1+P2+Oral)/3.

Study programme	MEDICAL STUDIES IN ENGLISH					
CYCLE	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	2	Semester	IV			
Course title	MEDICAL PSYCHOLOGY	Course code	MFMSE402			
ECTS	3.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	20	20	0
Course objectives	- To achieve students' understanding of psychological functions and to expand existing knowledge about the human soul. - To achieve students' understanding of medical psychology and psychopathology					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains basic psychological functions	IU-MFMSE402-1	IU-MSE1 IU-MSE2
	Describes and explains the basics of psychopathology	IU-MFMSE402-2	IU-MSE4 IU-MSE5
	Analyzes and connects various psychological functions and processes that help in better understanding of psychology	IU-MFMSE402-3	IU-MSE2 IU-MSE7
	Describes and analyzes psychopathology	IU-MFMSE402-4	IU-MSE4 IU-MSE6
	Analyzes and interprets psychological disorders that are important for a better understanding of psychological processes and overall human functioning	IU-MFMSE402-5	IU-MSE3 IU-MSE13

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week/shift	Topic
	Lectures	1. Introduction to psychology 2. Personality 3. Normality 4-6. General psychopathology 7. Stress 8. Aggressiveness 9,10. Anxiety 11. Resilience 12. Doctor-patient relationship 13. Patient's reaction to the disease 14. Psychological manifestations of serious somatic diseases 15. Communication with terminally ill patients 16. Psychotherapy 17. Group processes in psychology 18. The psychology of pain 19. Learning and learning ways 20. Doctors personality
	Seminars	1. Anxiety 2. Aggressiveness (assertiveness) 3. Defense mechanisms 4. Personality 5. Positive emotions 6. Negative emotions 7. Thought disorders 8. Perception disorders 9. Suicidality

		10. Stress in medicine 11. Spirituality and mental disorders 12. Psychotherapy 13. Resilience 14. The relationship between the sexes 15. Doctor's personality 16. Psychology and politics 17. Psychology of sport 18. Emotions disorders 19. History of psychology 20. Mourning
	Exercises	1-20. Presentation of patients with different psychopathologies
Language	English	
E-learning	Classes are taken in person. If necessary, lectures, seminars and part of the exercises can take place combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20% in accordance with the decision of the organizational unit.	
Teaching methods	Teaching methods (lectures, presentation, demonstration).	

Types of assessment (indicate-**Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	Seminar paper	Essay/report	Practical/project task	other	**written exam**	**oral exam**	practical exam

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		60	2	0
Pre-exam/written exam	IU-MFMSE402-1 IU-MFMSE402-2	22,5	0,75	50,0%
Final oral exam	IU-MFMSE402-3 IU-MFMSE402-4 IU-MFMSE402-5	22,5	0,75	50,0%
In total		105	3,5	100 %

Method of calculating the final grade

The final grade is obtained as the arithmetic mean of the grades from the written exam and the oral exam.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Babić D. & Barbaric R. Medical psychology, University of Mostar, 2021.	x			x			x			
Additional	Lecture notes										

Additional course information

The Medical Psychology course contain 60 hours and are taken over 3 weeks which includes the post-class examination period (pre-exam). The course consist of lectures, seminars and exercises.

Students' knowledge is continously checked during seminars and exercises.

Written exam is carried out in the usual way, where students are given questions to which they must give written answers.

Oral exam includes the most important, integrative units of overall medical psychology. The final exam examines detailed integrative knowledge, which is essential for understanding the whole subject, medical practice or for understanding the connection between medical psychology and other subjects.

The final grade is calculated as the arithmetic mean of the grades obtained in the written and the oral exam.

According to the Study Regulations, the final grade is obtained as follows:
0 – 54% insufficient (1)

55 – 66% sufficient (2)
67 – 78% good (3)
79 – 90% very good (4)
91 – 100% excellent (5)

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	2	Semester	IV			
Course title	IMMUNOLOGY	Course code	MFMSE403			
ECTS	4.0	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			30	4	16	0

Course objectives	The aim of the course "Immunology" is: - to achieve students' understanding of the basic components and actions of the immune system in a state of health or illness - train students to understand basic interventions (vaccination, immunosuppression, transplantation) that change the functioning of the immune system in order to comprehend the importance of their usage in clinical medicine		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	-defines the nomenclature, basic properties and components (genes, cells, tissues and organs) of innate and acquired immunity	IU-MFMSE403-1	IU-MSE2
	-describes the mechanisms of antigen collection and presentation to lymphocytes, as well as antigen recognition in the acquired immune response	IU-MFMSE403-2	IU-MSE3
	-describes and analyzes T cell-mediated Immunity and humoral immunity, as well as their executive mechanisms	IU-MFMSE403-3	IU-MSE3 IU-MSE5
	-explains and analyzes the mechanisms of immune tolerance, autoimmunity, hypersensitivity reactions and immune responses to tumors and tissue transplants, and relates their significance to clinical conditions and interventions	IU-MFMSE403-4	IU-MSE5 IU-MSE6 IU-MSE8 IU-MSE15
	-defines and describes congenital and acquired immunodeficiencies	IU-MFMSE403-5	IU-MSE5 IU-MSE6 IU-MSE8

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	(L1) Innate and acquired immunity, types of acquired immunity, characteristics of acquired immune responses (L2) Immune system cells and tissues, review of immune responses to microorganisms (L3) Basic characteristics and specificity of innate immune responses, cellular receptors for microorganisms and damaged cells (L4) Components, reactions and role of innate immunity in stimulating acquired immune responses (L5) Processing and presentation of protein antigens, other roles of APS and recognition of antigens by B lymphocytes (L6) Cytokines and chemokines (L7) Development of immune repertoire; Lymphocyte development, emergence of diverse antigen receptors, maturation and selection of T and B lymphocytes (L8) Phases of T lymphocyte response, antigen recognition and costimulation, biochemical pathways of T lymphocyte activation (L9) Complement system (L10) Executive mechanisms of T lymphocyte-mediated immunity (L11) The executive mechanisms of humoral immunity

		(L12) Tolerance mediated by lymphocytes B; Tolerance of commensal microorganisms and fetal antigens; Autoimmunity (L13) Immune responses to transplants (L14) Diseases caused by antibodies, immunocomplexes and T lymphocytes (L15) Congenital and acquired immunodeficiencies
	Seminars	(S1) Antigens recognized by T lymphocytes, the way how APC collect protein antigens, structure and function of HLA/MHC molecules (S2) Antigenic lymphocyte receptors; Antibodies and T lymphocyte receptors (S3) Functional responses of T lymphocytes to antigen and costimulation and their migration in cellular immunity responses (S4) Phases and types of humoral immune responses, stimulation of lymphocytes B by antigen (S5) Roles of helper T lymphocytes and antibodies in humoral immune responses (S6) Immunological tolerance: significance and mechanisms; Central and peripheral tolerance mediated by T lymphocytes (S7) Immune responses to tumors (S8) Types of hypersensitivity reactions; Early hypersensitivity
	Exercises	(E1) ELISA and immunofluorescence (E2) Flow cytometry
Language	English	
E-learning	Classes are held live. If necessary, lectures and seminars can take place combined (live and online) or completely online via e-learning platforms (Sumarum, Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching and interactive methods.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		50	1.7	0%
Pre-exam/final written exam	IU- MFMSE403-1 – IU- MFMSE403-5	70	2.3	100%
In total		120	4.0	100%

Method of calculating the final grade

The written exam consists of 50 test-questions with multiple choice of answers (one of the five offered answers is always correct). To pass the exam (grade sufficient), the student must answer 55% of the questions correctly, i.e. must obtain at least 27 points. According to the Study Regulations, the grade is obtained as follows:
0 – 54% insufficient (1)
55 – 66% sufficient (2)
67 – 78% good (3)
79 – 90% very good (4)
91 – 100% excellent (5).

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Abul K. Abbas, Andrew H. Lichtman, Shiv Pillai. Basic Immunology: Functions and Disorders of the Immune System, Sixth edition, Elsevier (Philadelphia, USA), 2020.		x		x			x			

Additional	Teaching materials		x		x						x
Additional course information											
Students are obliged to regularly attend and actively participate in all forms of classes. Students must complete all classes, i.e. they can be absent up to the limit prescribed by the Regulations of the School of Medicine University of Mostar.											

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	2	Semester	IV			
Course title	PHYSICAL EDUCATION II	Course code	MFMSE404			
ECTS	0.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			0	25	0	0
Course objectives	The aim of the Physical Education course is: - Expand students' knowledge about the impact of kinesiology activities on the level of health. - To expand students' knowledge about the general process of exercise as well as the consequences of the effects of these processes on the human body with special reference to the preservation of health achieved through kinesiology processes. - To expand students' knowledge about ways to solve problems related to exercise processes. - Train students for independent work and expand students' knowledge about the importance of exercise in everyday life.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Applies warm-up exercises for a particular kinesiological activity.	IU-MFMSE404-1	IU-MSE21
	Independently analyzes and becomes aware of the importance of exercise in everyday life.	IU-MFMSE404-2	IU-MSE21 IU-MSE13
	It assesses the need and importance of daily exercise in order to preserve health and improve the quality of life.	IU-MFMSE404-3	IU-MSE13
	It creates an active break (an active break between studying and during free time).	IU-MFMSE404-4	IU-MSE13
	It presents tolerance, work habits and self-discipline.	IU-MFMSE404-5	IU-MSE13

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.

Course content	Week / shift	Topic
	1.	Introductory meeting and familiarization of students with obligations
	2.	Structure of the Physical Education class
	3.	General preparatory exercises and their application
	4.	Football – futsal 4+1
	5.	Soccer – small soccer 5+1
	6.	Handball - jump shot, play in defense, play in attack
	7.	Volleyball – organization of the game
	8.	Volleyball - game
	9.	Basketball – basketball 3 vs 3
	10.	Basketball - game
	11.	Tennis – organization of the game in pairs
	12.	Tennis – 1 on 1 game
	13.	Walking tour - organization of outdoor excursions
	14.	Repetition and improvement of general preparatory exercises
	15.	Repetition of the learned content as chosen by the students

Language	English
E-learning	Sumarum, possibility of establishing online classes via the platform: Google meet or Zoom up to a maximum of 20%.
Teaching methods	- teaching methods - presentation - practical methods (exercises in the hall, exercises in nature or outdoors, exercises in the pool) - interactive methods (conversation and agreement about the class and exercises, dialogue, communication about the course and mutual, creative ideas about the contents of the exercises)

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	written exam	oral exam	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes and preparing for the practical	IU-MFMSE404-1 IU-MFMSE404-2 IU-MFMSE404-3 IU-MFMSE404-4 IU-MFMSE404-5	25	0.5	100 %
In total		25	0.5	100 %

Method of calculating the final grade

Attending classes and preparing for the practical assignment/exam:

Class attendance and class activities:

- irregular arrivals = 0% grade
- more than 80% attendance at exercises = 100% descriptive grade

Exceptionally for students who are exempted from exercises due to health or sports (top athletes) exemptions, students are required to write a seminar paper.

Writing a seminar paper:

- the paper is not written = 0% grade.
- The work fully meets the formal and content criteria and is grammatically and spelling correct = 100% grade

According to the Study Regulations, the final grade is obtained as follows:
0 – 54% insufficient (1)
55 – 66% sufficient (2)
67 – 78% good (3)
79 – 90% very good (4)
91 – 100% excellent (5)

An exception is the subject of Physical Education, where a descriptive grade of "passed" is included in accordance with regular attendance at exercises.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Educating the Student Body : Taking Physical Activity and Physical Education to School, Harold W. Kohl III and Heather D. Cook, 2013.		X		X			X			
Additional											

Additional course information

- The student is obliged to regularly attend exercises from the course.
- The condition for entering the final descriptive grade is met with the attendance of at least 80% of the classes held.
- Exceptional efforts at exercises will be rewarded with additional (accumulation) pluses. The maximum number of accumulation points is 2 plus in the record.
- Unexcused absences must be justified with our student doctor and with a request to the course instructor.
- Exempted students are required to write a seminar paper

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	3	Semester	V			
Course title	PATHOLOGY	Course code	MFMSE501			
ECTS	16	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			70	70	70	0

Course objectives	The aim of the Pathology course is to: - provide the students with knowledge about the mechanisms of cells, tissues and organs injury and familiarize them with the morphological changes that underlie diseases; - train students to recognize morphological changes in cells, tissues and organs by acquiring theoretical knowledge in lectures and seminars; - gain knowledge about the origin and outcome of the disease, based on own experiences at clinical autopsies, analysis of microscopic images and analysis of macroscopic preparations		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes groups of pathological processes, their etiopathogenetic mechanisms and connects knowledge about the pathological structure and function of organs, organ systems and whole body.	IU-MFMSE501-1	IU-MSE2 IU-MSE4
	Describes and connects knowledge about the most important pathological changes in organ systems with features of pathological processes, morphological characteristics specific to individual organ systems, and applies this knowledge in clinical examples.	IU-MFMSE501-2	IU-MSE3 IU-MSE4
	Describes disorders of the structure and function of organs and organ systems (morphological changes).	IU-MFMSE501-3	IU-MSE4
	Describes certain methods of morphological diagnosis and their clinical use, as well as signs of death and features of certain stages of autopsy.	IU-MFMSE501-4	IU-MSE4 IU-MSE5
	Recognizes and describes typical macroscopic changes in individual tissues and organs (pathological processes from general and organic pathology) and, based on their characteristics, thinks through differential diagnosis and creates a diagnosis.	IU-MFMSE501-5	IU-MSE6
	Shows and describes the technique of microscopy of pathohistological preparations, critically analyzes histochemical and immunohistochemical methods and uses them in the diagnosis of diseases.	IU-MFMSE501-6	IU-MSE8
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.		

Course content	Week / shift	Topic
	Lectures And Seminars	(L1, S1) Overview of cellular responses to stress and noxious stimuli, Causes of cell injury, Sequence of events in injury and cell death. (L2, S2) Mechanisms of cell injury and cell deaths, Cellular adaptations to stress, Intracellular accumulations, Pathologic calcification, Cellular aging. (L3, S3) Overview of inflammation, definitions and general features, Causes of inflammation, Recognitions of microbes and damaged cells, Acute inflammation, Mediators of inflammation. (L4, S4) Morphologic patterns of acute inflammation, Outcomes of acute inflammation, Chronic inflammation, Systemic effects of inflammation, Tissue repair. (L5, S5) Hyperemia and congestion; Edema; Haemorrhage, Hemostasis and

		thrombosis: Thrombosis, Embolism, Infarction, Shock. (L6, S6) The normal immune response, Cells and tissues of the immune system, Overview of lymphocyte activation and adaptive immune responses, Hypersensitivity: Immunologically mediated tissue injury, Rejection of transplants. (L7, S7) Autoimmune diseases, Immunodeficiency syndromes, Acquired immunodeficiency syndrome, Amyloidosis. (L8, S8) Nomenclature, Characteristics of benign and malignant neoplasms, Epidemiology, Cancer genes, Genetic lesions in cancer, Carcinogenesis: a multistep process. (L9, S9) Hallmarks of cancer: Self-sufficiency in growth signals; Insensitivity to growth inhibitor signals: tumor suppressor genes, Sustained angiogenesis; Clinical aspects of neoplasia. (L10, S10) Marfan syndrome, Ehlers-Danlos syndrome; Familial Hypercholesterolemia, Cystic fibrosis; Phenylketonuria; Complex multigenic disorders; Trisomy 21, Klinefelter syndrome, Turner syndrome; Triplet repeat mutations: Fragile x syndrome; Congenital anomalies; Perinatal infections, prematurity and fetal growth restrictions, RDS, Necrotizing enterocolitis, SIDS, Fetal hydrops, Tumors and tumor like lesions of infancy and childhood. (L11, S11) Structure and function of blood vessels, Congenital anomalies, Hypertensive vascular disease, Vascular wall response to injury, Arteriosclerosis, Atherosclerosis, Aneurysms and dissections, Vasculitis, Disorders of blood vessels hyper reactivity, Veins and lymphatics, Tumors. (L12, S12) Heart failure, Congenital heart diseases, Ischemic heart diseases, Arrhythmias. (L13, S13) Hypertensive heart disease, Valvular heart disease, Cardiomyopathies and myocarditis, Pericardial disease, Cardiac tumors. (L14, S14) Atelectasis (Collapse); ARDS; Obstructive vs Restrictive pulmonary diseases; Obstructive lung (airway) diseases; Chronic interstitial (Restrictive infiltrative) lung diseases; Pulmonary diseases of vascular origin. (L15, S15) Pulmonary infections; Lung tumors; Pleural lesions; Lesions of the upper respiratory tract. (L16, S16) Red cell disorder; Bleeding disorders; Complication of transfusion; Disorders of the spleen and thymus. (L17, S17) White cell disorders. (L18, S18) Acute Inflammatory dermatoses; Chronic Inflammatory dermatoses; Infectious dermatoses; Blistering (Bullous) disorders; Tumors of the skin. (L19, S19) Oral cavity, Esophagus, Stomach. (L20, S20) Small and large intestine, Appendix. (L21, S21) General features of liver diseases, Infectious disorders, Autoimmune hepatitis, Drug and toxin induced liver injury, Alcoholic and non-alcoholic fatty liver disease, Inherited metabolic liver diseases. (L22, S22) Cholestasis syndromes; Circulatory disorders; Nodules and tumors; Gallstone diseases; Cholecystitis; Carcinoma of the gallbladder. (L23, S23) Congenital anomalies; Pancreatitis; Pancreatic neoplasms. (L24, S24) Clinical manifestations of renal diseases; Glomerular diseases. (L25, S25) Diseases affecting tubules and interstitium; Diseases involving blood vessels; Chronic kidney diseases; Cystic diseases of the kidney; Urinary outflow obstruction; Congenital and developmental anomalies; Neoplasms. (L26, S26) Basic structure and function of the bone; Congenital disorders of Bone; Metabolic disorders of Bone; Paget disease of bone; Fractures; Osteonecrosis; Osteomyelitis; Bone tumors and tumor like lesions. (L27, S27) Joints; Soft tissue tumors, Disorders of neuromuscular junction: Myasthenia gravis, Lambert-Eaton syndrome page; Disorders of skeletal muscle: Dystropathies: Duchenne and Becker Muscular Dystrophy page; Peripheral nerve sheet tumors: Schwannomas and Neurofibromatosis Type 2, Neurofibromatosis Type I, Malignant peripheral nerve sheet tumors. (L28, S28) Clinical presentations of breast disease; Inflammatory processes; Stromal neoplasms; Benign epithelial lesions; Carcinoma.

		(L29, S29) Penis; Scrotum, testis and epididymis; Prostate; Ureter, Bladder and Urethra; Sexually transmitted diseases. (L30, S30) Vulva; Vagina; Cervix; Uterus. (L31, S31) Fallopian tubes; Ovaries; Diseases of pregnancy. (L32, S32) Thyroid; Parathyroid glands. (L33, S33) Pituitary; Endocrine pancreas; Adrenal cortex; Adrenal medulla; Multiple Endocrine Neoplasia Syndromes. (L34, S34) Edema; Herniation and hydrocephalus; Cerebrovascular diseases; Central nervous system trauma; Congenital malformation and perinatal brain injury; Infections of the Nervous system. (L35, S35) Genetic metabolic diseases; Acquired metabolic and toxic disturbances; Neurodegenerative diseases; Tumors.
	Exercises	(E1) Cell Injury, Cell Death, and Adaptations I (E2) Cell Injury, Cell Death, and Adaptations Ii (E3) Inflammation and Repair I (E4) Inflammation and Repair II (E5) Hemodynamic Disorders, Thromboembolism and Shock (E6) Diseases of the Immune System I (E7) Diseases of the Immune System II (E8) Neoplasia I (E9) Neoplasia II (E10) Genetic and Pediatric Diseases (E11) Blood Vessels (E12) Heart I (E13) Heart II (E14) Lung I (E15) Lung II (E16) The Hematopoietic and Lymphoid System I (E17) The Hematopoietic and Lymphoid System II (E18) The Skin (E19) Oral Cavities and Gi Tract I (E20) Oral Cavities and Gi Tract II (E21) The Liver and Biliary System I (E22) The Liver and Biliary System II (E23) The Pancreas (E24) Kidneys and its Collecting System I (E25) Kidneys and its Collecting System II (E26) Bones and Joints I (E27) Bones and Joints II (E28) The Breast (E29) The Male Genital System and Lower Urinary Tract (E30) The Female Reproductive System I (E31) The Female Reproductive System II (E32) The Endocrine System I (E33) The Endocrine System II (E34) The Nervous System I (E35) The Nervous System II
Language	English	
E-learning	Classes are conducted live. If necessary, lectures, seminars and part of the exercises can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/ project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade

Attending classes		210	7	
Pre-exam/partial written exam (P1)	IU- MFMSE501-1 IU- MFMSE501-2 IU- MFMSE501-3	135	4,5	50%
Pre-exam/partial written exam (P2)	IU- MFMSE501-4 IU- MFMSE501-5 IU- MFMSE501-6	135	4,5	50%
In total		480	16	100%

Method of calculating the final grade

The final grade is obtained as the arithmetic mean of the grades from the two partial exams (sum of grades from P1 and P2 divided by 2). A detailed description is given in the additional information about the subject.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Kumar V, Abbas A, Aster J: Robbins Basic Pathology, 10th edition, Elsevier, 2017.		X		X			X			
	The Internet Pathology Laboratory for Medical Education courtesy of Prof. Edward C. Klatt, MD, Mercer University School of Medicine available on https://webpath.med.utah.edu/.		X		X						X
Additional	Power point presentations used during lecturers and seminars.	X	X		X						X

Additional course information

Teaching in Pathology for each unit begins with lectures (L), followed by seminars (S) and exercises (E), according to the topic headings determined for that day. At the seminars, students are given problem tasks (case presentation) which they solve in small groups, at the end of the seminar, knowledge is checked through a quiz-test, and then the correct answers are discussed with explanations of the problem tasks. During the exercises, students examine macroscopic and microscopic images of diseased organs with the help of a computer program, and with a macroscopic examination of diseased organs at the Department of Pathology of UCC Mostar, they independently examine diseased organs. Students also attend the performance of autopsies. The lectures and seminars cover the same teaching units. Students should thoroughly study the prescribed material before the seminar. Seminars or practices from which students were absent must be made up, as they are a condition for sitting the partial and final exams.

The exam is taken in two parts: the first partial test P1 includes general pathology, pathology of blood vessels, heart, respiratory system, blood and blood-forming organs and skin, and the second partial test P2 the remaining part of the pathology of organs and organ systems. Each partial test has 100 questions in the theoretical part. To pass a particular test, it is necessary to achieve 60 correct answers (60% of the solved test).
Test scores and grades: 60-70 sufficient, 71-80 good, 81-90 very good and 91-100 excellent. At the end of each part of the tour, a written exam P1 and P2 is organized. Students are required to pass both partial tests to be able to get final grade. The passed written exam is valid only during the current academic year.

The final grade is calculated as the arithmetic mean of the grades obtained on the two partial exams that is: (P1+P2)/2.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	3	Semester	V			
Course title	PATHOPHYSIOLOGY	Course code	MFMSE502			
ECTS	11	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			45	30	60	0
Course objectives	The main goal of this course is to enable students to apply previously acquired knowledge from all subjects of the first two years of the study especially from the courses of Medical Physiology and Medical Chemistry and Biochemistry I and II, in order to become familiar with the pathological function of the certain organic system, as well as etiopathogenetic mechanisms that lead to functional disorders and development of diseases. The knowledge acquired in this course forms the basis for learning and understanding the diagnostic and therapeutic procedures that students learn in many clinical courses, especially in Internal Medicine.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes the mechanisms of action of biological, physical and chemical etiological factors in the emergence and development of various etiological conditions in patients (genetic, developmental, autoimmune, degenerative, toxic, metabolic, microbiological, neoplastic, traumatic).	IU-MFMSE502-1	IU-MSE5
	Explains the general patterns of etiopathogenetic events and pathophysiological reactions of the patient at the organismic level using etiopathogenetic clusters.	IU-MFMSE502-2	IU-MSE4
	Explains disorders of the structure and function of the heart, circulatory, respiratory and urogenital systems, and evaluates and argues the connection between external factors and patient reactivity in the pathogenesis, course and degree of disorders of these systems, and the outcome of the disease.	IU-MFMSE502-3	IU-MSE4
	Explains disorders of the structure and function of the metabolism, digestive and endocrine systems, and evaluates and argues the connection between the effects of external factors and patient reactivity in the pathogenesis, course and degree of disorders of these systems, and the outcome of the disease.	IU-MFMSE502-4	IU-MSE4
	Describes the chronobiological characteristics of the pathophysiological response to the influence of etiological factors.	IU-MFMSE502-5	IU-MSE4
	Describes and connects knowledge about molecular, biochemical and cellular mechanisms that are important in maintaining and disrupting body homeostasis.	IU-MFMSE502-6	IU-MSE3
	Combines and applies knowledge about the disease's clinical, laboratory and imaging features, and based on etiopathogenesis, interprets and concludes in terms of differential diagnosis.	IU-MFMSE502-7	IU-MSE8
	Identifies the importance of scientific methods in the discovery and explanation of etiopathogenetic mechanisms in the development of diseases and their usage in translational and clinical research.	IU-MFMSE502-8	IU-MSE7

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	(L1) Introduction to pathophysiology. General causes and development of pathophysiological processes. Homeostatic maintenance and disorders. Health and disease. An integrative approach to the disease. (L2)Principles of the pathogenetic mechanisms.

		(L3) Inflammation. (L4) Immunopathophysiology. Immunopathogenetic role of the HLA system. Tissue transplant reactions. (L5) Immunodeficiencies. Autoimmunity. (L6) Malignant transformation and growth. Disorders of energy metabolism. (L7) Red blood cell disorders. (L8) White blood cell disorders. (L9)Endogenous bioactive compounds in disease processes. (L10) Disorders of myocardial function. Disorders of the heart valve function. Congenital heart defects. Cardiac filling disorders. Cardiac output disorders. (L11) The coronary circulation and ischemic heart disease. (L12) Disorders of arterial pressure. Hypertension. Local tissue perfusion disorders. (L13) Circulatory Shock. (L14) Overview of renal function disorders. (L15) Overview of respiratory system disorders. (L16) Chronobiological pathophysiology. (L17) Pathophysiology of the gastrointestinal system. Disorders of the exocrine functions of the pancreas - acute and chronic pancreatitis. (L18) Disorders of pancreatic endocrine function. Diabetes mellitus. (L19) Integral organismic reactions to noxious stimuli. (L20) Causes of endocrinopathies. Disorders of pituitary function. Thyroid gland disorders. (L21) Functional disorders of the cortex and medulla of the adrenal gland. (L22) Disorders of gonadal function. (L23) Disorders of parathyroid glands function. Disorders of calcium, phosphate and magnesium metabolism.
	Seminars	(S1) Pathophysiology of DNA: DNA damages, chromosomal aberrations, genomic instability. Gene expression disorders. Hereditary metabolic diseases. (S2) Functional disorders of subcellular structures. (S3) Function and composition disorders of blood and hematopoietic organs. (S4) Immune hypersensitivities and transfusion reactions. (S5) Disorders of impulse conduction. Heart rhythm disorders. Heart adaptation to the functional load. (S6) Cardiac Failure. (S7) Disorders of arterial pressure and blood flow. (S8) Circulatory Shock. (S9) Disorders of osmolality and hydration of the body. Disorders of extracellular fluid distribution. (S10) Disorders of urine quantity and composition. (S11) Pathophysiology of the respiratory system. (S12) Disorders of electrolytic homeostasis. (S13) Acid-base balance disorders. (S14) Disorders of metabolism of proteins and carbohydrates. Disorders of dietary balances. (S15) Lipid metabolism disorders. Atherosclerosis. (S16) Pathophysiology of the liver. (S17) Disorders of energy metabolism. Disorders of thermoregulation. (S18) Disorders of specific metabolic substances. (S19) Structural and functional disorders of connective and bone tissue. (S20 Disorders of neurovegetative regulation. Disorders of consciousness.
	Exercises/Practicals	(P1) Leukocytes and the monocyte-macrophage system disorders. Biological etiological factors. (P2) Physical and chemical etiological factors. (P3) Disorders of the composition and structure of plasma protein.

		Function disorders of the spleen. Hematological laboratory tests. (P4) Hemostasis and blood clotting disorders. (P5) Electrocardiographic interpretation of disorders of the heart muscle and coronary circulation - Vectorial analysis (P6) Cardiac arrhythmias and their electrocardiographic Interpretation. Pathological electrocardiogram. (P7) Disorders of the digestive system and metabolism. (P8) Pathophysiology of the liver and exocrine pancreas. (P9) Disorders of conception, pregnancy, fetal growth and development. Disorders of sexual function. (P10) Endocrinopathies.
Language	English	
E-learning	Classes are held live. If necessary, lectures, seminars and exercises can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to max 20%.	
Teaching methods	Teaching, presentations, interactive and active.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	**other**	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance		135	4,5	
Midterm I	IU-MFMSE502-1	30	1	10%
Midterm II	IU-MFMSE502-2	30	1	10%
Knowledge and active participation in classes	IU-MFMSE502-7 IU-MFMSE502-8	30	1	10%
Pre-exam/written exam	IU-MFMSE502-3 IU-MFMSE502-4	60	2	40%
Final oral exam	IU-MFMSE502-5 IU-MFMSE502-6	45	1,5	30%
In total		330	11	100%

Method of calculating the final grade
1) The final grade is obtained by adding up the points gained during classes (in partial exams and by knowledge and dedication during classes) to points gained on the final written and oral exam. 2) A detailed description is provided in additional information about the case.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Gamulin S, Marušić M, Kovač Z. et all. Pathophysiology (7th edition), Medicinska naklada Zagreb, 2014.		x	x	x			x			
	Guyton A.C., Hall J.E. Textbook of Medical Physiology (14th edition), Elsevier, 2020.	x		x	x			x			
Additional	Teaching material	x	x	x	x						x
	Kovač Z, Gamulin S, et all. Pathophysiology. Study guide algorhythms – problem solver, Medicinska naklada, Zagreb, 2014.		x	x	x			x			

Additional course information
The course is performed in the winter semester at the third year of study, in the form of lectures (45 teaching hours), seminars (60 teaching hours), and exercises (30 teaching hours). Lectures last 2, and seminars and exercises 3 teaching

hours.
Lectures are a form of classes that provide an introduction and an overview of a thematic unit that is taught in more detail on seminars and exercises.
Seminars and exercises/practicals are a form of classes where students actively review and critically discuss physiological and pathophysiological mechanisms of certain morphological and functional units, which are then explained at the molecular, microenvironmental, organic, systemic and whole-organism levels.
Active participation of students in the curriculum program is further achieved by studying natural integrators of etiopathogenetic events, the so-called etiopathogenetic clusters, performing exercises in the laboratory and on computer programs that simulate pathological conditions and provide clinical correlates of certain diseases
Students are obliged to prepare material that is discussed in lectures, seminars and exercises. In seminars and exercises, students actively discuss physiological and pathophysiological mechanisms with the teacher. Through presentations of clinical cases during the exercises, students have the opportunity to connect pathophysiological conditions with their clinical manifestations.
The teacher evaluates the student's participation in seminars and exercises (demonstrated knowledge, understanding, ability to pose problems, reasoning, etc.). "Earned" points are added to the points obtained in the final exam.
Class attendance and student participation in all forms of classes are compulsory in accordance with the Law and the Statute of the Faculty of Medicine in Mostar. Accordingly, student attendance at lectures, seminars, and exercises will be regularly checked. Only justifiable absences due to, for example, the illness will be acceptable within the limits allowed and according to the Ordinance on Studies.

Student work will be evaluated during classes and at the final exam. A maximum of **(I) 30 grade points** can be obtained during classes and up to **(II) 70 grade points** on the final exam, which totals **100 grade points**.

I. The following components are evaluated during classes (up to 30 grade points):

1) acquired knowledge (up to 20 grade points)
2) active participation in classes (up to 10 grade points)

1) acquired knowledge (up to 20 grade points)

During classes, the acquired knowledge will be evaluated by means of **two midterm tests comprising 50 questions.**

A student may obtain up to **10 grade points** on each test as follows:

Correct answers	Grade points
48-50	**10**
45-47	**9**
42-44	**8**
39-41	**7**
36-38	**6**
33-35	**5**
30-32	**4**
27-29	**3**
24-26	**2**
21-23	**1**

2) active participation in classes (up to 10 grade points)

Based on oral discussions, activities and knowledge students are graded at all seminars and exercises. Students will be graded in the range of 1 to 5. The score scale is determined according to the absolute distribution of mean values of grades, which is achieved by summing all grades from seminars and exercises (a total of 30 teaching units) and dividing by the number 30 (or less if the student was justifiably absent or not graded). Students can obtain grade points during classes only if they are **graded** at least on 10 seminars and 5 exercises. The obtained average grade is converted into grade points as shown in the table:

4,26-5,0	**10 points**
3,76-4,25	**8 points**
3,26-3,75	**6 points**
2,76-3,25	**4 points**
2,00-2,75	**2 points**

II. Final exam (up to 70 grade points):

The final exam consists of an **oral and a written part**. This exam tests key, specific competencies that have been determined for each unit separately. A student must solve **at least 50% of the test** in order to be able to access the oral part of the final exam.

Who can NOT access the final exam:

Students who missed 20% or more teaching hours. Such a student cannot take the final exam, i.e. he/she must re-enroll in the course in the following academic years.

Students can obtain a maximum of 70 grade points at the written part of the final exam (100 questions) which corresponds to the total number of grade points as shown in the table:

Correct answers	**Grade points**		Correct answers	**Grade points**
97-100	**70**		70-71	**58**
94-96	**69**		68-69	**57**
91-93	**68**		66-67	**56**
88-90	**67**		64-65	**54**
86-87	**66**		62-63	**52**
84-85	**65**		60-61	**50**
82-83	**64**		58-59	**48**
80-81	**63**		56-57	**46**
78-79	**62**		54-55	**44**
76-77	**61**		52-53	**42**
74-75	**60**		50-51	**40**
72-73	**59**		<50	**0**

III. The final grade (a maximum of 100 grade points)

The final grade represents the sum of all grade points obtained during classes and on the final exam. It is based on the absolute distribution according to the following scale:

A (80-100 grade points)	**excellent (5)**
B (70-79,99 grade points)	**very good (4)**
C (60-69,99 grade points)	**good (3)**
D (40-59,99 grade points)	**sufficient (2)**
F (student who has solved less than 50% of the test on the final exam)	**insufficient (1)**

IV. The final grade obtained on the written test has to be confirmed at the oral exam

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	3	Semester	VI			
Course title	MEDICAL MICROBIOLOGY AND PARASITOLOGY	Course code	MFMSE601			
ECTS	8	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			21	44	30	0

Course objectives	- to learn the basic biological characteristics of microorganisms that cause infections in humans, their pathogenic properties, prevalence and resistance to environmental conditions, ways of their transmission, sensitivity to antimicrobial drugs and the basics of human defense against infection; - to learn the types of vaccines; - to learn the basic groups of antimicrobial drugs, their spectrum and mechanisms of action, and mechanisms of resistance of microorganisms to antimicrobial drugs; - to sample the swab of the nose and throat independently, to determine the type of the most common microorganisms according to the microscopic slide or other features, to read and interpret antibiograms and to determine the mode of transmission as well as the way of defense against a specific microorganism.

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Lists and describes the most important biological features of normal human flora and pathogenic microorganisms (bacteria, viruses, fungi and parasites) and explains the effects of the most important virulence factors of microorganisms that cause infections in humans.	IU-MFMSE601-1	IU-MSE1
	Describes the ways of transmission of microorganisms, pathogenesis and methods of prevention of infectious diseases.	IU-MFMSE601-2	IU-MSE5
	Describes the basic mechanisms of human immune defense against infection and types of vaccines.	IU-MFMSE601-3	IU-MSE10
	Names the basic groups of antimicrobial drugs, explains the mechanisms of their action and the mechanisms of resistance of microorganisms to these agents.	IU-MFMSE601-4	IU-MSE11
	States, describes and justifies the applicability of different methods of microbiological diagnostics and testing of the sensitivity of the bacteria to antimicrobial agents and adequately and critically selects and performs them.	IU-MFMSE601-5	IU-MSE15

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.

Course content	Week / shift	Topic
	Lectures	(L1) Introduction to medical microbiology. Structure, physiology and genetics of the bacterial cell. Bacterial antigens. Pathogenesis of bacterial diseases. Vaccines. (L2) Antibacterial chemotherapeutic agents. Bacterial resistance to antimicrobial drugs. (L3) Gram-negative spiral bacteria - family *Spirochaetaceae*. Bacteria without a cell wall - family *Mycoplasmataceae*. Obligate intracellular bacteria: *Rickettsiaceae, Chlamydiaceae.* (L4) Acid-resistant bacteria - genus *Mycobacterium*.

		(L5) Introduction to virology. Chemical composition and structure of viruses. Viral antigens and hemagglutination. Virus replication. (L6) Pathogenesis of viral diseases. Interference and interferon. Chemoprophylaxis and therapy of viral diseases. Viral vaccines. Prions. (L7) *Flaviviridae, Togaviridae, Bunyaviridae, Filoviridae*. (L8) Introduction to mycology. Shape, structure and reproduction of fungi. Fungal diseases – pathogenesis. Antifungal drugs. (L9) Introduction to medical parasitology. Blood and tissue protists - genera: *Toxoplasma, Plasmodium, Leishmania.*
	Seminars	(S1) Genera *Streptococcus, Staphylococcus, Enterococcus*. (S2) Genera *Neisseria, Moraxella, Haemophilus*, *Bordetella, Brucella*. (S3) Characteristics of bacteria from the *Enterobacteriaceae* family. (S4) Gram-negative non-fermenting bacteria – genera *Pseudomonas, Acinetobacter*. (S5) Gram-negative, curved, rod-shaped bacteria - genera *Vibrio, Helicobacter, Campylobacter*. Anaerobic bacteria - genera *Clostridium, Actinomyces*. (S6) Genera – *Bacillus, Corynebacterium, Listeria, Legionella*. (S7) Multiresistant bacteria. (S8) DNA viruses: *Parvoviridae, Papovaviridae, Adenoviridae, Poxviridae*. (S9) *Herpesviridae*. Hepatitis B, C, D viruses. (S10) RNA viruses: *Picornaviridae (Enterovirus, Hepatovirus), Caliciviridae, Reoviridae*. (S11) *Orthomyxoviridae, Paramyxoviridae, Coronaviridae*. (S12) *Rhabdoviridae, Retroviridae*. (S13) Medically important yeasts and molds. (S14) Protists of the digestive and urogenital system - genera: *Giardia, Entamoeba, Cryptosporidium, Trichomonas.* (S15) Round and flat worms - *Platyhelminthes* (*Taenia, Echinococcus*), *Nematoda* (*Trichinella, Trichuris, Enterobius, Ascaris*).
	Exercises	(E1) Introduction to microbiological laboratory and the basics of safe laboratory work. Laboratory-acquired infections. Microscopic examination of principal bacterial shapes. Differential staining in bacteriology. Cultivation of bacteria. Media types. (E2) Performance, reading and interpretation of antibiogram. Principles of isolation and identification of pyogenic cocci. (E3) Identification of bacteria from the genera *Neisseria* and *Haemophilus*. (E4) Macroscopic and biochemical identification of enterobacteria. (E5) *Pseudomonas, Campylobacter, Vibrio, Helicobacter* – microbiological diagnostics. (E6) Sampling, sending and processing samples for the isolation of mycobacteria. (E7) Hospital infections. Multiresistant bacteria. (E8) Methods of direct diagnosis of viral diseases. (E9) Methods of indirect diagnosis of viral diseases. (E10) Yeasts and molds - macro and micromorphology. (E11) Diagnostics of toxoplasmosis, leishmaniasis and malaria. (E12) Diagnostics of intestinal parasitosis. (E13) Final practical exercise - practical exam.
Language	English	
E-learning	Classes are conducted in person (live). If necessary, lectures, seminars and part of the exercises can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/ report	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		95	3.2	
Pre-exam/Written exam (B + V+ MaP)	IU- MFMSE601-1 IU- MFMSE601-2 IU- MFMSE601-3 IU- MFMSE601-4	75	2.5	50 %
Practical exam	IU- MFMSE601-5	25	0.8	20 %
Oral (final) exam	IU- MFMSE601-1 IU- MFMSE601-2 IU- MFMSE601-3 IU- MFMSE601-4	45	1.5	30 %
In total		240	8	100 %

Method of calculating the final grade
The final grade is the result of the ratio of grades achieved in written exams (50% of the grade), practical (20%) and oral part of the exam (30% of the final grade).

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Brooks GF, Carroll KC, Butel JS, Morse SA, Mietzner TA, eds. Jawetz, Melnick and Adelbergs Medical Microbiology. 26th ed. New York: McGraw-Hill; 2013.		x		x			x			
	Jakovac S, et al. Medical microbiology – laboratory manual for medical students. University of Mostar School of Medicine, 2022.	x			x					x	
	PowerPoint Presentations	x			x						x
Additional	http://phil.cdc.gov/phil/home.asp http://www.microbelibrary.org/				x						x

Additional course information
All forms of teaching are obligatory. Students are allowed to miss up to 20% of the total course hours justifiable, provided that all absences are compensated through a colloquium. Students must be prepared for seminars and practical work, according to the topics in the schedule. Active participants will be given extra pluses that will be added to the points achieved on written part of the exam (3 pluses = 1 point). Unprepared seminars and exercises will be punished with a minus and must be compensated through a colloquium, because these are condition for partial written exams and final exam. Minuses and all absences must be compensated through a colloquium, before gaining entry to a partial test-exam, and the entire exam. To work in the practice room, students need a white coat, manual, a pen or ballpoint pen, and wooden crayons. No food, drink, cigarettes or chewing gum should be brought into the practice room. After the practical work, students MUST wash their hands thoroughly according to the enclosed instructions and after that must not touch or take out the working materials. **EXAM** The exam in the subject Medical Microbiology and Parasitology is written, practical and oral. During the classes, three partial test exams will be organized. Only students who attend the 6th semester of this academic year, and who have not

missed classes or have justified their absences and made up for them with a colloquium, have the right to access the partial exam.

PARTIAL WRITTEN EXAMS

The first partial test contains questions from bacteriology (60 questions - 60 minutes). The second partial test contains questions from virology (40 questions - 40 minutes). The third partial test contains questions from mycology and parasitology (30 questions - 30 minutes).

The percentage of correct answers required for a positive grade for each test exam is 60% (bacteriology - 36 points; virology - 24 points parasitology and mycology - 18 points). Passed partial exams are recognized as passed written part of the exam. Results achieved in partial exams and points collected by active participation in classes are valid only during the academic year in which they are passed.

PRACTICAL EXAM

The practical part of the exam consists of 10 tasks, as follows:

1. description of 3 microscopic slides, one of which is parasitological
2. readings of grown cultures on the 3 media (bacteriological and/or mycological)
3. recognition and description of the phenomenon that can be recognized on 3 nutrient media
4. reading of antibiogram

ORAL EXAM

The exam card for the oral part of the exam contains five questions according to the following schedule:

1. one question from general microbiology (general bacteriology, mycology, parasitology or virology)
2. one question from special bacteriology
3. one question from special parasitology
4. one question from special virology
5. one question from special mycology

The final grade is the result of the ratio of grades achieved in written exams (50% of the grade), practical (20%) and oral part of the exam (30% of the final grade).

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Track	-	Module	-			
Year of study	3	Semester	VI			
Name of the subject	PHARMACOLOGY	Subject code	MFMSE602			
ECTS	11	Status	OBLIGATORY			
Number of teaching hours			Lectures	Exercises	Seminars	Practice
			50	35	50	0

Goals of the subject	The goals of the Pharmacology course are: -Achieve students' understanding of general pharmacology, which includes: knowledge of the drugs origin, the way the drugs are administered, the metabolism and elimination of drugs, the mechanisms of action of drugs, the factors that alter drugs effects, and the adverse effects of drugs. -Achieve students' understanding of mechanisms of action, indications, clinically significant side effects, and drug interactions of different groups of drugs. -Acquiring knowledge about writing prescriptions (Pharmacography).		
Learning outcomes	Learning outcomes (LO) Student:	Learning outcome code	LO on the level of study programme
	Describes and explains the ways of drug administration.	IU-MFMSE602-1	IU-MSE11
	Describes and explains the processes of drug distribution in the body.	IU-MFMSE602-2	IU-MSE2
	Describes and explains the biotransformation and elimination processes important for the therapeutic as well as harmful effects of drugs.	IU-MFMSE602-3	IU-MSE3
	Describes and explains the role of the autonomic nervous system in the effects of drugs acting on organ systems. Describes and explains the latest therapeutic options in the treatment of motor disorders (antiepileptics, antiparkinsonian drugs), psychotropic diseases (anxiolytics/sedatives/hypnotics, antidepressants, antipsychotics), and other neurodegenerative diseases.	IU-MFMSE602-4	IU-MSE11
	Describes and explains the pharmacology of ergot alkaloids, histamine, serotonin, NO and ET.	IU-MFMSE602-5	IU-MSE11
	Identifies general and local anesthetics, and the method of their administration. Evaluates good and bad properties of analgesics and non-steroidal anti-inflammatory drugs and their application in practical settings. Explains the pharmacology of opioid analgesics and addictive substances (heroin, cannabis, psychostimulants, and ethanol).	IU-MFMSE602-6	IU-MSE11
	Describes the mechanisms of action, indications, clinically significant side effects and interactions of drugs that act on: cardiovascular, digestive, respiratory and endocrine systems.	IU-MFMSE602-7	IU-MSE11
	Analyzes the mechanism of action and application of antibiotics, antiviral drugs, and other chemotherapeutics.	IU-MFMSE602-8	IU-MSE11
	Describes the use of drugs in special groups of patients (children and the elderly).	IU-MFMSE602-9	IU-MSE11
	Describes and explains writing drug prescriptions.	IU-MFMSE602-10	IU-MSE21

Prerequisites for course enrollment	In accordance with the regulation on integrated studies.	
Contents of the subject	Week/type	Theme
	Lectures	L1. Introduction, absorption, distribution of drugs

		L2. Metabolism and drug elimination, pharmacokinetics L3. Drug action mechanisms, pharmacodynamics L4. Pharmacology of ANS, cholinergic drugs L5. Pharmacology of ANS, adrenergic drugs L6. Pharmacology of histamine, serotonin, and ergot alkaloids, NO L7. Anxiolytics, sedatives – hypnotics, antiepileptics L8. Pharmacotherapy of most common neurodegenerative diseases L9. Antipsychotics, antidepressants L10. Opioid analgesics L11. General and local anesthetics L12. Addictive substances (heroin, cannabis, psycho stimulants, alcohol) L13. Drugs for hypertension treatment L14. Vasodilators in angina pectoris treatment L15. Diuretics L16. Drugs for heart failure treatment L17. Drugs for treatment of arrhythmias L18. Drugs for asthma treatment L19. Drugs for coagulation disorders L20. Pancreatic hormones and drugs in diabetes treatment P21. Antimicrobial drugs L22. Drugs for malignant diseases treatment L23. Immunopharmacology L24. Drugs for peptic disease and laxatives L25. Antidiarrhoeal drugs, antiemetics, and inflammatory bowel disease drugs
	Seminars	S1. New drug discoveries, generic drugs, and pharmacogenomics S2. Drug's final outcome in the organism S3. Actions of drugs, mechanisms of side effects S4. Cholinergic drugs S5. Adrenergic drugs S6. Anxiolytics, antiepileptics, neurodegenerative diseases S7. Antipsychotics, antidepressants S8. Nonsteroidal anti-inflammatory drugs, antirheumatics S9. Pain treatment S10. General and local anesthetics S11. Antihypertensives, drugs in angina pectoris treatment S12. Drugs in cardiac insufficiency treatment S13. Drugs for treatment of arrhythmias S14. Drugs for treatment of dyslipidemias S15. Drugs for treatment of anemias and hematopoietic growth factors S16. Hormones of hypothalamus, pituitary gland, thyroid gland, and osteoporosis S17. Hormones of the adrenal gland cortex and their antagonists S18. Sex hormones and their inhibitors S19. Drugs in diabetes treatment S20. Most important antibiotics S21. Drugs in treatment of fungi, protozoa, and helminths S22. Drugs for viral and TBC infections S23. Application of drugs in children and elderly patients S24. Drug interactions and side effects S25. Pharmacology of the digestive system
	Exercises	E1. Pharmacokinetics and pharmacodynamics E2. ANS, isolated muscle E3. Psychopharmacology drugs E4. Analgesics E5. Effects of drugs on cardiovascular system E6. Isolated organs as pharmacological models

		E7. Dose calculations, ways of different drug administration
Language	English	
E-learning	Classes are conducted in person. If necessary, lectures and seminars can be held in combination (live and online) or completely online via e-learning platforms (Google Meet) up to maximum of 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Forms of knowledge testing							
Type of pre-exam obligation					Type of exam		
midterm	seminar paper	Essay/report	practical/project assignment	other	**written**	**oral**	practical

Allocation of ECTS points and share in the total grade				
Student obligations	Learning outcome code	Hour load	ECTS share	Grade share
Attending classes		135	4,5	
Midterm/Written colloquium, pharmacography	IU-MFMSE602-10	15	0,5	
Partial exams/Written exam	IU-MFMSE602-1 IU-MFMSE602-2 IU-MFMSE602-3 IU-MFMSE602-4 IU-MFMSE602-5 IU-MFMSE602-6 IU-MFMSE602-7 IU-MFMSE602-8 IU-MFMSE602-9	90	3	50%
Oral exam	IU-MFMSE602-1 IU-MFMSE602-2 IU-MFMSE602-3 IU-MFMSE602-4 IU-MFMSE602-5 IU-MFMSE602-6 IU-MFMSE602-7 IU-MFMSE602-8 IU-MFMSE602-9	90	3	50%
Total		330	11	100%

How to calculate the final grade

According to the Study Regulations, the final grade is obtained as follows:
0-54% insufficient (1)
55-66% sufficient (2)
67-78% good (3)
79-90% very good (4)
91-100% excellent (5).

Literature	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	Cro.	Engl.	other	Multi.	book	article	script	other
Mandatory	Bertram G. Katzung, Susan B. Masters, Anthony J. Trevor: Basic and Clinical Pharmacology 2020.		x	x	x			x			
	V. Bradamante, M. Klarica, M. Šalković-Petrišić: Farmakološki priručnik, Medicinska naklada, Zagreb, 2008.		x	x				x			
Complementary	H.P. Rang, M.M. Dale, J.M. Ritter, P.K. Moore Pharmacology, 2006.		x	x	x			x			
	Study materials from lectures (handouts etc.)		x	x	x						x

Additional information about the subject:

The exam consists of **two partial written exams** that are organized during the Pharmacology class. **Only students who**

have passed both partial exams can take the oral exam. Students who did not pass a single partial exam during class will have to take the full test on next terms. Also, to take the final exam in Pharmacology, **the student must pass a written colloquium in Pharmacography** where the skill of writing a doctor's prescription is tested. The colloquium is organized immediately after the Pharmacography round. If the student did not pass Pharmacography at that time, the students can take it during regular outings for the final exam, where a successful result of the colloquium is a prerequisite for taking the Pharmacology exam. **In order to take the final exam, certification of class attendance and fulfillment of other obligations during Pharmacology classes in the ISS system is an obligatory condition.**

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Course	-	Module	-			
Year of study	3	Semester	VI			
Course name	CLINICAL PROPEDEUTICS	Course code	MFMSE603			
ECTS	6	Status	OBLIGATORY			
Number of teaching hours			Lectures	Exercises	Seminars	Practical
			30	70	10	0

Course objectives	The goal of the clinical propaedeutics course is: - to achieve the knowledge and skills necessary to recognize the leading signs and syndromes in the field of internal medicine. - to train the student to independently take anamnesis, clinical examination of the patient, and teach them how to communicate with the patient and his family. - to train students for clinical reasoning, analysis of obtained findings, identification of problems and decision-making		
Learning outcomes	Learning outcomes (IU) Student:	Code of learning outcomes	Code IU at the level of the study program
	Describes the basics and principles of clinical propaedeutics and its significance as the basis of all branches of clinical medicine.	IU-MFMSE603-1	IU-MSE1 IU-MSE7
	Connects and applies knowledge about clinical, laboratory and imaging features of the disease, as well as think about and conclude with differential diagnostics.	IU-MFMSE603-2	IU-MSE8
	Takes anamnesis and performs a clinical examination of the patient.	IU-MFMSE603-3	IU-MSE14
	Recognizes leading signs and symptoms in internal medicine.	IU-MFMSE603-3	IU-MSE6 IU-MSE14
	Communicates with the patient, his family and members of the medical team appropriately.	IU-MFMSE603-5	IU-MSE9 IU-MSE16
	Explains basic differential diagnoses and basic diagnostic methods in internal medicine.	IU-MFMSE603-6	IU-MSE15 IU-MSE17
Prerequisites for course enrollment	In accordance with the regulation on integrated studies.		

Contents of the course	Week/Turnus	Theme
	Lectures	(P1) General propaedeutics, doctor's approach to the patient General propaedeutics. Physician approach to the patient. (P2) The role of science in medicine (P3) Medical error, medical secret, incurable patient. Clinical skills Medical errors, medical secret, Incurable patient. clinical skills, (P4) Evaluation of clinical data Evaluation of clinical data (P5) Meaning of propaedeutics. Clinical reasoning, Analysis of obtained findings, The meaning of propaedeutics. Clinical reasoning, Analysis of findings, (P6) Identifying problems and making decisions, Delicate topics, problem identification and decision making, Delicate topics (P7) Interpretation of findings as a possibility, Development of different hypotheses, Clinical decisio making algorithm, Hypothesis testing, Interpretation of findings as a possibility, Development of different hypotheses, Clinical decision making algorithm, Hypothesis testing (P8) Doctor-patient communication: approach to doctor-patient communication (P9) Comprehensive and focused anamnesis, taking anamnesis in special situations (P10) Examination techniques: inspection, palpation, percussion, auscultation Examination techniques: inspection, auscultation, palpation, percussion. (P11) Head and neck status Head examination. Neck examination. (P12) Chest status Thorax examination

		(P13) Abdominal status Abdominal examination (P14) Limb status Limbs examination, (P15) Examination of the external genitalia (P16) Propaedeutics of cardiovascular diseases (P17) Propaedeutics of respiratory tract Propaedeutics of Respiratory diseases, examination of thorax (P18) Propedeutics of gastroenterology, (P19) Propaedeutics of Liver diseases (P20) Propedeutics of pancreatic diseases (P21) Propaedeutics of nephrological diseases (P22) Propedeutics of immunological diseases (P23) Propedeutics of rheumatological diseases (P24) Propaedeutics of hematological patients (P25) Propaedeutics of Endocrine diseases (P26) Propaedeutics of Metabolic diseases (P27) Propedeutics of neurological diseases (P28) Laboratory diagnostics (P29) Diagnostic methods in internal medicine
	Seminars	(S1) Analysis of the electrocardiographic recording (S2) Chest pain - differential diagnosis (S3) Cough, expectoration, haemoptysis (S4) Urine analysis, lab tests in nephrology (S5) Bleeding from the digestive system (S6) Jaundice - differential diagnosis (S7) Diagnostics in immunological diseases (S8) Diagnostics of hematological diseases (S9) Diabetes mellitus (S10) Importance of arterial hypertension
	Exercises	(V1) medical history (V2) status (V3) heart sounds - auscultation (V4) Measurement of arterial pressure and pulse (V5) Monitoring of acid-base status (V6) central vein placement, brownie (V7) monitoring of central venous pressure (V8) Ecg (V9) Ergometry, coronary angiography (V10) placement of urinary catheter (V11) monitoring of patients in the intensive care unit (V12) Spirometry, bronchoscopy (V13) liver biopsy (V14) differential diagnosis of bleeding from the digestive tract, test for occult bleeding, digitorectal examination (V15) monitoring of patients in coronary intensive care (V16) glycemic status of the patient, endocrinological tests (V17) history and status of patients with myocardial infarction (V18) history and status of patients with angina pectoris (V19) history and status of patients with heart failure (V20) history and status of patients with arterial hypertension (V21) history and status of patients with COPD (V22) history and status of patients with asthma (V23) history and status of patients with pneumonia (V24) history and status of patients with lung tumors (V25) history and status of patients with gastrointestinal bleeding (V26) history and status of patients with liver cirrhosis (V27) history and status of patients with liver tumors (V28) history and status of patients with icterus (V29) history and status of patients with nephrotic syndrome (V30) history and status of patients with nephritic syndrome

		(V31) history and status of patients with pyelonephritis (V32) history and status of patients with diabetes (V33) history and status of patients with adrenal gland disease (V34) history and status of patients with thyroid disease (V35) history and status of patients with lymphomas (V36) history and status of patients with leukemia (V37) history and status of patients with anemia (V38) history and status of patients with rheumatoid arthritis (V39) history and status of patients with SLE (V40) history and status of Sy Sjogren's patients
Language	English language	
E-learning	Classes are conducted live. If necessary, lectures and seminars can take place combined (live and online) via e-learning platforms (Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Forms of knowledge verification (mark-Bold)							
Type of pre-exam requirement					type of exam		
midterm	seminar paper	essay/ paper	practical/project assignment	other	**written**	**oral**	**practical**

Allocation of ECTS points and share in the grade				
Students' obligations	Code of learning outcomes	Hours of workload	Share in ECTS	Share in the grade
Class attendance		110	3,6	0%
Pre-exam /Practical exam	IU- MFMSE603-3 IU- MFMSE603-5	20	0,7	33.33%
Pre-exam/ Written exam	IU- MFMSE603-1 IU- MFMSE603-2 IU- MFMSE603-4	20	0,7	33.33%
Final oral exam	IU- MFMSE603-1 IU- MFMSE603-2 IU- MFMSE603-4 IU- MFMSE603-6	30	1	33.34%
Total		180	6	100 %

Calculating the final grade

The final grade is obtained as the arithmetic mean of the grades from written exam, practical and the oral exam. A detailed description is given in the additional information about the subject.
According to the Study Regulations, the final grade is obtained as follows:
0-54% insufficient (1)
55-66% sufficient (2)
67-78% good (3)
79-90% very good (4)
91-100% excellent (5).

Literature	Title (title, author, year)	Edition		Language				Type of work			
		own	other	CRO	ENG	other	multilingual	book	article	script	other
Compulsory	Hozo I et al. Internal medicine propaedeutics. Clinical Examination and Communication Skills. Croatia		x	x	x			x			
Additional	Teaching materials		x	x	x			x			

Additional information about the course:

The teaching of clinical propaedeutics consists of 110 hours and is conducted over 4 weeks, including the post-teaching exam period. Teaching consists of lectures, seminars and tutorials.

Knowledge is continuously checked during classes, seminars and tutorials. Students who demonstrate exceptional knowledge at seminars and exercises will be awarded additional points (bonuses) that will be added to the points on the final exam.

To qualify for the oral part of the exam, a student must pass written and practical exam. To pass the test, you need 55% correct answers.

The practical exam consists of several tasks that test the acquired knowledge of history taking, clinical examination of the patient and differential diagnosis.

The oral exam includes parts from general and special clinical propaedeutics. The final exam requires integrative knowledge that is necessary to understand the entire subject, medical practice or to understand other subjects. The condition for taking the oral exam is passing the written test and the practical exam.

The final grade is calculated as the arithmetic mean of the grades achieved in the practical, written and oral part of the exam.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	3	Semester	VI			
Course title	PERSONALIZED MEDICINE AND BIOTECHNOLOGY	Course code	MFMSE604			
ECTS	1.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			10	10	10	0
Course objectives	The objectives of the Personalized medicine and biotechnology course are: - to provide the student with knowledge about the concepts of personalized medicine and the role of biotechnology, tools for diagnosis and the creation of treatment tailored to each patient; - to train the student to think critically about ethical, social and legal issues related to the use of biotechnology methods and the integration of personalized medicine into the healthcare system.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	- Describes and explains the types of biotechnology, with an emphasis on medical biotechnology and explains the main laboratory methodologies used in personalized medicine	IU- MFMSE604-1	IU-MSE2 IU-MSE5
	- Describes and analyses types of experiments for gain of function genes/proteins or loss of function and the basics of pharmacogenetics and pharmacogenomics	IU- MFMSE604-2	IU-MSE3 IU-MSE7
	- Explains the role of bioinformatics as a crucial tool for storing, analyzing, interpreting and translating data into clinical practice	IU- MFMSE604-3	IU-MSE1 IU-MSE7
	- Describes and analyses examples of personalized treatment for specific chronic diseases	IU- MFMSE604-4	IU-MSE6
	- Describes and explains the challenges related to the integration of personalized medicine into existing health systems, from the perspective of ethics, society and law	IU- MFMSE604-5	IU-MSE12

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	(P1) Introduction to biotechnology (P2) The main aspects of P4 medicine (personalized, predictive, preventive and participatory) (P3) Molecular diagnostics as basis - Laboratory methods for personalized medicine (P4) The basics of pharmacogenomics and pharmacogenetics (P5) Integration of personalized medicine into the existing healthcare system
	Seminars	(S1) The main aspects of medical biotechnology and personalized medicine (S2) Personalized medicine in oncology (S3) How to make a model - Loss and gain of function experiments (CRISPR/CAS, knock in/out…) (S4) Pharmacogenetics of phase I and II metabolism, transporters and drug targets Examples of personalized medicine based pharmacogenetics (S5) Problems of the integration of personalized medicine into the health care system from the ethical, social and legal aspects
	Exercises	(E1) Using animal models for drug development (E2) Ethics and genome (E3) Laboratory methods of personalized medicine (sequencing, isolation and analysis of DNA and RNA, cDNA synthesis, qPCR, gene expression

		analysis, SNP analysis, flow cytometry...) (E4) Systematic reviews on the topic of pharmacogenomics and pharmacogenetics (Cochrane database) (E5) Examples of personalized treatments for specific chronic conditions, Children and personalized medicine
Language	English	
E-learning	Classes are conducted in person. If necessary, lectures, seminars and part of the tutorials can be combined (in person and online) or completely online via e-learning platforms (Google Meet) up to max 20%.	
Teaching methods	Teaching, interactive and active-experiential	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance		30	1	
Seminar paper	IU- MFMSE604-1 IU- MFMSE604-4 IU- MFMSE604-5	6	0.2	10%
Pre-exam/Written exam	IU- MFMSE604-1 IU- MFMSE604-2 IU- MFMSE604-3 IU- MFMSE604-4 IU- MFMSE604-5	9	0.3	90%
In total		45	1.5	100%

Method of calculating the final grade

The final grade is obtained as weighting of the grades from the seminar paper (10% of the grade) and the written exam (90% of the grade).
According to the Study Regulations, the final grade is obtained as follows:
0-54% insufficient (1)
55-66% sufficient (2)
67-78% good (3)
79-90% very good (4)
91-100% excellent (5).

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Jain KK (2015) Textbook of Personalized Medicine, 2nd Edition, Springer.		x		x			x			
	Script Personalized medicine and biotechnology	x		x						x	
Additional	Hays P (2017) Advancing Healthcare Through Personalized Medicine 1st Edition, CRC Press, Taylor & Francis Group		x		x			x			

Additional course information

Students should prepare a seminar paper on a given topic using relevant scientific literature by searching PubMed base for the keywords: Personalized or precision medicine and Disease (ie specific disease/disorder). Also, students should briefly present interesting facts and examples from practice related to the pharmacogenetics of certain enzymes, and discuss the practical application and examples.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	3	Semester	VI			
Course title	SOCIAL MEDICINE	Course code	MFMSE605			
ECTS	2	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	7	8	0

Course objectives	• To provide a basic knowledge on a concept of population health, including all its biological, demographic and epidemiologic determinants, and within a context of influence of social factors (socio-economic) and environmental factors, as well as a knowledge on effects of health systems within a framework of its interactions; • To provide skills and attitudes to recognize the importance of health promotion and disease prevention in order to decrease the burden of disease within population, as well as understanding of major strategies for mentioned activities; • To obtain an understanding of outcome indicators during an evaluation of health system performance;		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Analyses and explains major and cornerstone determinants of health and disease within designated population (social-medical diagnostics)	IU-MFMSE605-1	IU-MSE4 IU-MSE5 IU-MSE21
	Explains the role of health system within processes of health protection and diseases treatment	IU-MFMSE605-2	IU-MSE13
	Recognizes and explains major strategies for health promotion or disease prevention	IU-MFMSE605-3	IU-MSE9
	Analyses health outcome indicators in clinical practice	IU-MFMSE605-4	IU-MSE11 IU-MSE21
	Understands and agrees with European concept on patients rights, such as informed consent for medical treatment etc.	IU-MFMSE605-5	IU-MSE12 IU-MSE16 IU-MSE17
	Understands the importance of data gathering and exchange within health statistics	IU-MFMSE605-6	IU-MSE18 IU-MSE19
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.		

Course content	Week / shift	Topic
	Lectures	L (1) Concept and scope of social medicine and public health L (2) Concept of health and disease L (3) Social medicine diagnostics L (4) Needs and demands of the population for health care L (5) Introduction to health system and health policy L (6) Health care measures L (7) Health institutions network and health care professionals L (8) Public health problems L (9) Introduction to health economics; correlation between payment mechanisms and motivations for health services delivery L (10) Analyses of costs and benefits within health care L (11) Issues of equality and equity in health care L (12) Health statistics and information system L (13) Primary health care based on the concept of family medical practice; impact on the health of the population L (14) Planning and programming in health care

		L (15) Rights and obligations of the patient in the healthcare system L (16) Status syndrome; how social position affects our health and longevity L (17) The concept of quality in health care; treatment outcomes L (18) Implementation of healthcare reform; content, context, actors and process
	Seminars	S (1) Health care needs and requirements S (2) Health promotion and disease prevention; results of a factor frequency study risk for chronic non-communicable diseases in the Federation of Bosnia and Herzegovina S (3) Composition and scope of work of the family medicine team S (4) Cost-effectiveness of screening programs in healthcare S (5) The concept of active health care in family medicine S (6) European Declaration on the Rights of Patients, WHO, 1994 S (7) Distribution of stress and lifestyles across social classes S (8) Implementation of the reform of family medicine in the Federation of Bosnia and Herzegovina
	Exercises	E (1) Knowledge, attitude and behavior regarding health and illness; calculation of cardiovascular risk E (2) Calculation of socio-medical indicators for a specific community E (3) Annual reports on the health status of the population E (4) Public health problem; definition of the problem, size of the problem, intervention measures (primary prevention, screening programs), therapy guide E (5) The impact of payment mechanisms of healthcare professionals on cost control, service quality and administration E (6) Evaluation of the work of family medicine teams; list of performance indicators in the FM team E (7) Treatment outcome indicators in family medicine
Language	English	
E-learning	Classes are conducted live. If necessary, lectures, seminars and part of the exercises can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching methods, demonstration, participatory and interactive methods, case analysis, problem solving	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	written exam	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes	/	35	1.1	/
Colloquium (midterm)	/	5	0.1	/
Pre-exam/Practical exam	IU-MFMSE605-1	10	0.4	30 %
Pre-exam/Oral final exam	IU-MFMSE605-2, 3, 4, 5, 6	10	0.4	70%
In total		60	2	100%

Method of calculating the final grade

According to the Study Regulations, the final grade is obtained by adding the points of the practical exam and the oral final exam as follows:

A = 91-100% 5 (excellent)

B = 79 to 90% 4 (very good)

C = 67 to 78% 3 (good)

D = 55 to 66% 2 (sufficient)

F = 0 to 54% 1 (insufficient)

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Detels R et al. Oxford Textbook of Public Health, 4th ed. Oxford 2002.		x		x			x			
	Hrabac, B., et al.: Social medicine. Textbook of the University of Mostar, (ISBN 978-9958-690-72-3), 2010, 225 p.	X		X				X			
Additional	Marmot, M.: Status syndrome; how social position affects our health and longevity. Algoritam, Zagreb, 2007, 359 pp. (ISBN 978-953-220-353-0)		X	X				X			

Additional course information

The course "Social Medicine" has a total of 35 hours of contact classes with students and is conducted over the course of one week. Therefore, it is not convenient to do a partial exam. It is recommended to continuously check knowledge, a colloquium from the exercises, a practical exam, and an oral final exam. The colloquium from exercises and attendance at classes are prerequisites for a student's access to the final exam. The final exam consists of a practical exam and an oral final exam. The practical exam involves solving tasks from the practical part of the class, such as social-medical indicators, treatment outcome indicators, evaluation of the work of the family medicine team, as well as determination of health care needs and requirements. After passing the practical exam, as well as fulfilling other obligations during classes, the student takes the oral final exam.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	4	Semester	VII			
Course title	NUCLEAR MEDICINE	Course code	MFMSE701			
ECTS	1.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			15	10	5	0
Course objectives	To acquire knowledge about nuclear medicine diagnostic and therapeutic procedures, indication for their application, specifics of working with unsealed sources of radiation and radiation protection principles as well.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains the principles of radio-pharmacy, knows and describes the most often used radiopharmaceuticals in nuclear medicine, their production, physical characteristics, biodistribution and their therapeutic effects.	IU-MFMSE701-1	IU-MSE1 IU-MSE10
	Describes and explains the principles of the nuclear medicine instrumentation and way of gamma camera creating planar and tomogram images. Describes the principles of SPECT and PET reconstruction process and clarifies additional benefit of hybrid techniques: SPECT-CT and PET-CT.	IU-MFMSE701-2	IU-MSE1
	Describes the most common nuclear medicine diagnostic imaging methods relating the characteristics of scintigrams to various organic systems disorders.	IU-MFMSE701-3	IU-MSE8
	Explains the role of nuclear medicine in diagnosis of emergency condition.	IU-MFMSE701-4	IU-MSE10
	Knows and describes the principles of work with open radiation sources, methods of protection against ionizing radiation and recognizes the fact that in nuclear medicine the patient is also a source of radiation.	IU-MFMSE701-5	IU-MSE11

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	(P1) Basic of Nuclear physics (P2) Basics of Nuclear medicine (P3) Radionuclide generator; Radiopharmaceuticals (P4) Radioimmunoassay (RIA) (P5) Nuclear medicine cardiology and pulmonology (P6) Nuclear medicine in hematology and gastroenterology (P7) Nuclear medicine in urology and nephrology (P8) Nuclear neurology (P9) Nuclear medicine in endocrinology I (P10) Nuclear medicine in endocrinology II (P11) Radiation protection (P12) Radionuclide therapy (P13) Hybrid methods SPECT-CT (P14) Hybrid methods PET-CT (P15) Nuclear medicine diagnostics of infection and inflammation
	Seminars	(S1) Nuclear medicine oncology I (S2) Nuclear medicine oncology II (S3) Nuclear medicine imaging of musculoskeletal system (S4) Nuclear medicine procedures in the diagnosis and therapy of thyroid disease

		(S5) Myocardial perfusion scintigraphy, RNV and radiocardiography
	Exercises	(V1) Gamma camera (V2) The role of computers in nuclear medicine (V3) Hot laboratory in nuclear medicine (V4) Radiation protection in nuclear medicine (V5) Thyroid ultrasound and FNA cytology (V6) Thyroid scintigraphy (V7) Cardiac SPECT imaging (V8) Static scintigraphy (V9) Dynamic scintigraphy (V10) Emergency nuclear medicine
Language	English	
E-learning	Classes are conducted in person (live). If necessary, lectures and seminars can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to maximum 20 %.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		30	1	0%
Pre-exam/Written exam	IU-MFMSE701-1 IU-MFMSE701-2 IU-MFMSE701-3 IU-MFMSE701-4 IU-MFMSE701-5	15	0,5	
In total		45	1,5	100%

Method of calculating the final grade
The final grade is obtained on the written exam. A detailed description is given in the additional information about the subject.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Sharp PF, Gemmell HG and Murray AD, eds. Practical Nuclear Medicine. 3rd ed. London: Springer-Verlag, 2005.		X		X			X			
Additional	Maher M. Basic Physics of Nuclear Medicine.2004		X		X						X
	Ziessman HA, O'Malley JP, Thrall JH and Fahey FH, eds. The Requisites. Nuclear Medicine 2014.		X		X			X			

Additional course information
The course of Nuclear medicine comprises 30 hours that are taken over one week**.** The teaching consists of lectures, seminars and exercises. **The written exam** is taken about a week after course completion. It consists of 40 test-questions with multiple choice answers (one of the five offered answers is always correct). To pass the exam (grade sufficient), the student must answer 60% of the questions correctly, i.e., must obtain at least 24 points. **The final grade** is result of written exam of nuclear medicine as follows: 60-69% correct answers correspond to (24-27 points) - sufficient (2)

70-79% correct answers correspond to (28-31 points) - good (3)
80-89% correct answers correspond to (32-35 points) - very good (4)
≥ 90% correct answers correspond to (36-40 points) – excellent (5).

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	4	Semester	VII			
Course title	RADIOLOGY	Course code	MFMSE702			
ECTS	6	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			35	49	16	-
Course objectives	The goals of this course are: that the medical student knows the basics of radiological anatomy, radiological equipment, is aware of and knows the basics of the biological effects of ionizing radiation, knows how to recommend and use protection of staff and patients from ionizing radiation, and is familiar with the most used radiological imaging methods.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Knows and describes the basics of X-ray physics and uses basic information about radiological contrast agents.	IU-MFMSE702-1	IU-MSE1 IU-MSE17
	Knows and describes the basics of the biological effect of radiation on the human body and knows and applies the principles and methods of protection against ionizing radiation.	IU-MFMSE702-2	IU-MSE10 IU-MSE17
	Interprets the basics of normal and pathological radiological findings of organic systems and can describe them through radiological findings (central nervous system, eye, ear, nasopharynx, larynx, maxillofacial area).	IU-MFMSE702-3	IU-MSE8
	Interprets the basics of normal and pathological radiological findings of organ systems and can describe them through radiological findings (thoracic organs, breast, heart and large blood vessels, musculoskeletal system).	IU-MFMSE702-4	IU-MSE8
	Interprets the basics of normal and pathological radiological findings of organic systems and can describe them through radiological findings (gastrointestinal, hepatobiliary system, pancreas and spleen, urinary system).	IU-MFMSE702-5	IU-MSE8
	Demonstrates and applies knowledge of newer diagnostic imaging techniques.	IU-MFMSE702-6	IU-MSE8 IU-MSE20

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	L1 X-ray tube structure, high-voltage and low-voltage generators, X-ray formation L2 Diagnostic X-ray devices L3 Special purpose X - ray devices L4 New imaging technologies and telemedicine L5 Radiation prevention and protection L6 Central nervous system L7 Eye, ear, nasopharynx, larynx, paranasal cavities L8 Osteoarticular system and trauma of the osteoarticular system L9 Thoracic organs (lungs, mediastinum) L10 Heart and great vessels L11 Radiological diagnosis of breast disease L12 Contrast agents in radiology L13 Gastrointestinal and hepatobiliary system L14 Urogenital system and adrenal glands

		L15 Vascular system radiology L16 Vessel doppler ultrasound L17 Interventional radiology
	Exercises	E1 X-ray tube structure, high-voltage and low-voltage generators, X-ray formation E2 Diagnostic X-ray devices E3 Special purpose X - ray devices E4 New imaging technologies E5 Radiation prevention and protection E6 Central nervous system E7 Eye, ear, nasopharynx, larynx, paranasal cavities E8 Osteoarticular system and trauma of the osteoarticular system E9 Thoracic organs (lungs, mediastinum) E10 Heart and great vessels E11 Radiological diagnosis of breast disease E12 Contrast agents in radiology E13 Gastrointestinal and hepatobiliary system E14 Urogenital system and adrenal glands E15 Vascular system radiology
	Seminars	S1 Cardiovascular system S2 Respiratory system S3 Osteoarticular system S4 Gastrointestinal system S5 Interventional radiology as a minimally invasive therapy: advantages over surgical methods of treatment S6 Central nervous system S7 Hepatobiliary system S8 Urogenital system
Language	English	
E-learning	Classes are conducted in person (live). If necessary, lectures and seminars can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		100	3,4	
Pre-exam/Practical exam	IU-MFMSE702-3, 4, 5	10	0,3	33,3%
Pre-exam/Written exam	IU-MFMSE702-1,2,3,4,5,6	30	1	33,3%
Seminars	IU-MFMSE702-3, 4, 5	10	0,3	0%
Oral (final) exam	IU-MFMSE702-3, 4, 5	30	1	33,3%
In total		180	6	

Method of calculating the final grade
The final grade is calculated as the arithmetic mean of the grades obtained on the written, practical and oral parts of the exam, that is: (Written + Practical + Oral)/3.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	Croatian	English	other	multilingual	book	article	script	other
Compulsory	Learning Radiology, Recognizing the Basics, 4th edition; William		X		X			X			

	Herring; 2020.										
Additional											

Additional course information

Lectures

All students are required to attend lectures regularly (as prescribed by the teaching regulations), and records will be kept about them.

All students who are absent from the same are obliged to pass the colloquium from the missed part of the material, as a prerequisite for taking the exam (all students will be informed in time about the date of taking the same).

All students are obliged to respect the schedule and space, come to lectures properly prepared and inform the teacher or head of the department if there are any ambiguities.

Exercises

All students are required to attend exercises (as prescribed by the rules of faculty), and records will be kept. All students who miss some of the exercises will be required to pass the colloquium from the missing part of the material, as a prerequisite for taking the exam (all students will be notified in a timely manner, considering this subject).

All students are required to attend the exercises properly dressed (white coat, appropriate clothing and footwear, mask according to current epidemic measures, pay attention to possible symptoms of respiratory infections and your body temperature), on time and in accordance with the schedule and agreement with the assistant who is in charge of exercises.

Seminars

Students are divided into 4 (four) seminar groups. Each group works on 2 (two) seminar topics (theme titles), jointly on searching the literature and making a presentation, and choose one representative who presents the work on the day of the seminar.

The seminars themselves are coordinated by teachers who can ask questions to the presenter and members of the seminar group (which is desirable, in order to determine the activity of the whole group).

When making presentations, use previously established rules (introduction, basics, pathology, radiology imaging...).

Written, practical and oral exam

The written exam contains 50 questions, which cover all areas covered by the curriculum. To pass the exam (grade sufficient), the student must answer 55% of the questions correctly, i.e., must obtain at least 28 points.

According to the Rulebook on studying at the University of Mostar, grades are assigned as follows:

0-54% insufficient (1);

55-66% sufficient (2);

67-78% good (3);

79-90% (very good 4);

91-100% excellent (5).

Pre-exam is to be held 8 or more days after the last day of classes.

The winter and summer exam periods are organized by mutual agreement of the teachers, student representatives and the service for the organization of classes, about which students will be informed in a timely manner. Everything related to the exam is regulated in accordance with all valid regulations.

The final grade is calculated as the arithmetic mean of the grades obtained on the written, practical and oral parts of the exam, that is: (Written + Practical + Oral)/3.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	4	Semester	VII			
Course title	INTERNAL MEDICINE	Course code	MFMSE703			
ECTS	19.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			65	195	80	0

Course objectives	- To train students for early detection, prevention and treatment of internal medicine diseases. - to achieve understanding of the etiological and pathogenetic processes that lead to internal diseases. - To learn the practical skills necessary for the clinical examination.

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains pathohistological and clinical characteristics of internal medicine diseases and how to usethem in the diagnosis and treatment of internal medicine patients.	IU-MFMSE703-1	IU-MSE6
	Discusses about clinical, laboratory, and imaging features of internal medicine diseases which lead to correct diagnosis.	IU-MFMSE703-2	IU-MSE8
	Evaluates and applies protocols and algorithms of preventive, diagnostic and therapeutic procedures according to current guidelines in the treatment of internal medicine diseases and health preservation.	IU-MFMSE703-3	IU-MSE10
	Makes decision regarding optimal therapy and safety of therapy in internal medicine patients based on knowledge and evidence that ensure effective medical care, treatment outcomes and health preservation.	IU-MFMSE703-4	IU-MSE11
	Completes history and physical examination, and integrates the obtained information into establishing a working and differential diagnosis.	IU-MFMSE703-5	IU-MSE14
	Creates a plan for management, inclusion and rational selection of laboratory and instrumental tests, interpretation of their results and implementation of interventions for the diagnosis and treatment of internal medicine diseases.	IU-MFMSE703-6	IU-MSE15
	Explains the content and obtain informed consent for diagnostic and therapeutic methods necessary for treatment procedures in internal medicine patients.	IU-MFMSE703-7	IU-MSE17

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar

Course content	Week / shift	Topic
	Lectures W1	L(1): Introduction to internal medicine. L(2): Laboratory tests. EF proteins. ABS. Urine. L(3):EKG (normal and pathologic). L(4): Congenital heart disease&valvular disease.
	W2	L(5): Coronary heart disease. L(6): Heart failure.
	W3	L(7): Peripheral vascular disease.
	W4	L(8): Pneumonias. L(9): Pulmonary embolism. L(10): Lung and bronchial tumors.
	W5	L(11): Espophageal, gastric and duodenal diseases.
	W6	L(12): Liver diseases. L(13): Peptic ulcer disease & GI bleeding.

	W7	L(14): Colorectal cancer.
	W8	L(15): Inflammatory Bowel Disease. L(16): Diverticular disease L(17): Viral hepatitis. L(18): Acute, chronic & AI pancreatitis. L(19): Biliary tract diseases.
	W9	L(20): Celiac disease. L(21): Anaemias.
	W10	L(21): Malignant disease of the myloid system. L(22): Malignant disease of the lymphatic system. L(23): Acute leukemias, diagnosisi, clinic presentation and tretment.
	W11	L(24): Thyroid gland disorders.
	W12	L(25): Diabetes.
	W13	L(26): Reproductive system disorders. L(27): Rheumatoid arthritis. L(28): Polymiositis, dermatomyositis. Vasculitis. L(29): SLE. Sy Sjogren.
	Seminars W1	S(1): Endocarditis, myocarditis, rheumatic fever.
	W2	S(2): Arrhytmias, sudden death.
	W3	S(3): Diagnostic procedures in cardiology. Heart electrophysiology. S(4): Cardiopulmonary resuscitation.Cardiogenic shock. S(5): Pericardial disease.
	W4	S(6): Respiratory insufficiency and emergincies S(7): Intestinal lung disease.
	W5	S(8): Bronchitis, asthma and pulmonary emphysema. S(9): Arterial hypertension S(10): Acute renal faillure S(11): Chronic renal failure S(12): Drugs and kidney.
	W6	S(13):Glomerulonephritis. S(14):Nephrolithiasis.
	W7	S(15): Endoscopic procedures. S(16): Tumors of the digestive system.
	W7	S (17): IBS.
	W8	S(18): Clostridium difficile infection. S(19): Anticoagulant and trombolytic therapy.
	W9	S(20): Hemorraghic syndrom and hemophilia. S(21): Chronic leukemias, diagnosisi, clinic presentation and tretment.
	W10	S(22): Granulocyte, monocyte and macrophage diseases. S(23): Hypercoagulabity. DIC.
	W11	S(24): Adrenal gland disorders.
	W12	S(25): Pituitary gland disorders. S(26):Parathyroid gland. S(27): Osteoporosis, Paget disease& hereditary connective tissue diseases . S(28): Obesity
	W13	S(29): Metabolic diseases. S(30): Multiple endocrine glands disorders. S(31): Seronegative spondyloarthritis. S(32): Sarcoidosis. Amyloidosis.
	Exercise/practical work: W1-W13	Exercises are held in all organizational units of the Department of Internal Medicine and follow the topics of lectures and seminars.
Language	English	
E-learning	The classes are performed in person. If necessary, lectures and seminars can be combined (live and online) up to max. 20%.	
Teaching methods	Teaching, participatory and interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/ report	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		340	11.3	0%
Seminar paper		15	0.5	0%
Pre-exam/practical	IU- MFMSE703-2 IU- MFMSE703-3 IU- MFMSE703-5	30	1	10%
Pre-exam/written	IU- MFMSE703-1 IU- MFMSE703-2 IU- MFMSE703-4 IU- MFMSE703-6	120	4	45%
Pre-exam/oral	IU- MFMSE703-1 IU- MFMSE703-2 IU- MFMSE703-4 IU- MFMSE703-6 IU- MFMSE703-7	80	2.7	45%
In total		585	19.5	100%

Method of calculating the final grade

The internal medicine exam consists of three parts: **written**, **practical** and **oral.**
The final grade is obtained as a weighting of the grades from the practical exam (10% of the grade), written exam (45% of the grade), and oral exam (45%).

The written exam consists of 50 test-questions with one correct answer. According to the Rulebook on Studying at the University of Mostar grades are assigned as follows:
0-54% insufficient (1);
55-66% sufficient (2);
67-78% good (3);
79- 90% (very good 4);
91-100% excellent (5).

After passing the written part, a practical exam follows. The practical exam consists of taking patient anamnesis and clinical status and determining the correct diagnostic and therapeutic algorithm.
After passing the practical exam, the oral part follows. The oral exam is based on the recommended literature.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Kumar and Clark's Clinical Medicine. 10th Edition. 2020.		X		X			X			
	Jameson JL et al. Harrison's Principles of Internal Medicine. 20thEdition, McGraw-HillProfessional, 2018.		X		X			X			
Additional	Steven Agabegi. Elizabeth Agabegi. Step up to medicine. 5th edition.		X		X			X			

Additional course information

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	4	Semester	VIII			
Course title	NEUROLOGY	Course code	MFMSE801			
ECTS	6	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			24	43	23	0
Course objectives	- To achieve knowledge of the basic principles of Neurology - To expand the knowledge and skills necessary for understanding the pathophysiological mechanisms, clinical symptoms, differential diagnostic conclusions, critical evaluation of laboratory findings and rational treatment of the most common neurological diseases.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and relates knowledge about the neuroanatomy and normal function of central and peripheral nervous system.	IU-MFMSE801-1	IU-MSE2
	Critically judges and explains pathophysiological mechanisms of the most common neurological diseases.	IU-MFMSE801-2	IU-MSE4
	Explains and interprets the etiological factors of clinical conditions in the most common neurological diseases.	IU-MFMSE801-3	IU-MSE5
	Connects and applies knowledge about clinical, laboratory and neuroimaging manifestations of the most common neurological diseases and interprets and concludes in terms of differential diagnosis.	IU-MFMSE801-4	IU-MSE8
	Evaluates and applies the protocols and algorithms of preventive, diagnostic and therapeutic procedures according to current guidelines for the treatment of neurological diseases.	IU-MFMSE801-5	IU-MSE10
	Conducts a medical interview, comprehensive history-taking and neurological examination to obtain information relevant for working and differential diagnosis.	IU-MFMSE801-6	IU-MSE14
	Develops an appropriate plan for management and rational selection of laboratory and instrumental examinations, interpretation of their results, and interventions for the diagnosis and treatment of the most common neurological diseases.	IU-MFMSE801-7	IU-MSE15
	Lists and classifies by importance emergency conditions in neurology and recommends a therapeutic approach.	IU-MFMSE801-8	IU-MSE8 IU-MSE14 IU-MSE15

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures (L)	(L1) Introduction to Neurology
		(L2) Functional neuroanatomy
		(L3) Cerebrovascular disorders
		(L4) Movement disorders
		(L5) Dementia
		(L6) Intensive care neurology
		(L7) Demyelinating disorders
		(L8) Comma and brain death
		(L9) Headache and cranial neuralgias
		(L10) Epilepsy and paroxysmal consciousness disorders
		(L11) Central nervous system tumors
		(L12) Neuromuscular disorders
	Seminars (S)	(S1) Case history of neurological patient
		(S2) Examination of neurological patient - Cranial nerves

		(S3) Examination of neurological patient - Motor system
		(S4) Examination of neurological patient - Sensory system
		(S5) Cerebrovascular disorders - clinical picture
		(S6) Ultrasound of the head and neck blood vessels
		(S7) Movement disorders - clinical picture
		(S8) Pain and pain syndromes. Low back pain.
		(S9) Clinical picture of patient with dementia
		(S10) Brain stem syndromes. Vertigo.
		(S11) Spinal disorders
		(S12) Genetics of neurological diseases
		(S13) Treatment of multiple sclerosis
		(S14) Diagnosis of cerebrospinal fluid
		(S15) Autonomic nervous system disorders - selected topics
		(S16) Emergency neurology
		(S17) Localisation in clinical neurology
		(S18) Epilepsy - clinical picture
		(S19) Electroencephalography
		(S20) Paraneoplastic neurologic syndromes
		(S21) Electromyoneurography
		(S22) CNS infections
		(S23) My hardest clinical case
	Exercises (E)	(E1) History and examination
		(E2) Motor system
		(E3) Sensation
		(E4) Cranial nerve I: Olfactory nerve
		(E5) Cranial nerves II, III, IV, VI: Eye
		(E6) Cranial nerves V and VII: The face
		(E7) Cranial nerve VIII: Auditory nerve
		(E8) Cranial nerves IX, X, XII: The mouth
		(E9) Cranial nerve XI: Accessory nerve
		(E10) Diagnostic methods in neurology: EMNG practicals
		(E11) Diagnostic methods in neurology: Ultrasound of the head and neck vessels
		(E12) Diagnostic methods in neurology: EEG practicals
		(E13) Gait
		(E14) Coordination
		(E15) The autonomic nervous system
		(E16) Speech
		(E17) Mental state, higher function
		(E18) Objective tests for evaluation of neurological deficit
		(E19) Summary of standard neurological examination
		(E20) Preliminary examination – practical exam
Language	English	
E-learning	Classes are conducted in person (live). If necessary, lectures and seminars can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to 20 % max.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate – **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	**oral exam**	**practical exam**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		90	3	
Pre-exam/Practical exam	IU- MFMSE801-4 IU- MFMSE801-5	20	0,67	33,33%

	IU- MFMSE801-6 IU- MFMSE801-7			
Pre-exam/Written exam	IU- MFMSE801-1 IU- MFMSE801-2 IU- MFMSE801-3 IU- MFMSE801-4 IU- MFMSE801-5 IU- MFMSE801-6 IU- MFMSE801-7 IU- MFMSE801-8	30	1	33,33%
Seminars	IU- MFMSE801-4 IU- MFMSE801-5 IU- MFMSE801-6 IU- MFMSE801-7	10	0,33	
Oral (final) exam	IU- MFMSE801-1 IU- MFMSE801-2 IU- MFMSE801-3 IU- MFMSE801-4 IU- MFMSE801-5 IU- MFMSE801-6 IU- MFMSE801-7 IU- MFMSE801-8	30	1	33,33%
In total		180	6	

Method of calculating the final grade

The final grade is calculated as the arithmetic mean of the grades obtained on the practical, written and oral parts of the exam, that is: (Written+Practical+Oral)/3.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Simon RP, Aminoff MJ, Greenberg DA. Clinical Neurology. 10th Edition. New York: Lange Medical Books/McGraw Hill, 2018.		X		X			X			
Additional	Mattle H. Mumenthaler M. Fundamentals of Neurology, An illustrated Guide, Second edition. Thieme, 2017.		X		X			X			
	Adams AC. Mayo Clinic Essential Neurology. Rochester (2nd edition): Mayo Foundation for Medical Education and Research, 2017.		X		X			X			
	Fuller G. Neurological Examination Made Easy. Sixth Edition. Elsevier, 2019.		X		X			X			

Additional course information

Lectures

All students are required to attend lectures regularly (as prescribed by the teaching regulations), and records will be kept about them. All students who are absent from the same are obliged to pass the colloquium from the missed part of the material, as a prerequisite for taking the exam. All students are obliged to respect the schedule and space, come to lectures properly prepared and inform the teacher or head of the department if there are any ambiguities.

Exercises

All students are required to attend exercises (as prescribed by the rules of faculty), and records will be kept. All students who miss some of the exercises will be required to pass the colloquium from the missing part of the material. All students are required to attend the exercises properly dressed (white coat, appropriate clothing and footwear) on time and in accordance with the schedule and agreement with the assistant who is in charge of exercises.

Seminars

All students are required to attend seminars regularly (as prescribed by the teaching regulations), and records will be kept about them. All students who miss some of the seminars will be required to pass the colloquium from the missing part of the material.

Practical, written and oral exam

Preliminary / practical exam (examination of the neurological patient) will be held on the last day of the Course and it is a prerequisite for approaching to written and oral exams.

The written exam contains 50 questions, which cover all areas covered by the curriculum. To pass the exam (grade sufficient), the student must answer 55% of the questions correctly, i.e. must obtain at least 28 points.

According to the Rulebook on studying at the University of Mostar, grades are assigned as follows:

0-54% - insufficient (1);
55-66% - sufficient (2);
67-78% - good (3);
79-90% - very good (4);
91-100% - excellent (5).

The condition for taking the oral exam is that the student has passed practical and written exams.

The winter and summer exam periods are organized by mutual agreement of the teachers, student representatives and the service for the organization of classes, about which students will be informed in a timely manner.

The final grade is calculated as the arithmetic mean of the grades obtained on the practical, written and oral parts of the exam, that is: (Written+Practical+Oral)/3.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	4	Semester	VIII			
Course title	DERMATOVENEROLOGY	Course code	MFMSE802			
ECTS	5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			30	25	15	0

Course objectives	- to provide students with the basic knowledge of dermatovenerology, - to train students to conduct dermatological clinical examination, as well as to aplly local and systemic treatment and to conduct physical treatment procedures in daily practice with hospital and outpatient patients, - to train students to be able to understand the conditions that lead to inflammatory, infectious, autoimmune, oncological and sexually transmitted diseases of the skin, visible mucous membranes and skin appendages.

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains the basic anatomical and functional features of the skin.	IU-MFMSE802-01	IU-MSE1 IU-MSE2
	Describes and explains the basic functional features of skin lesions (eflorescences) on the skin, interprets the methods of dermatovenerological propaedeutics and the basic principles of dermatological diagnostic procedures and therapy.	IU-MFMSE802-02	IU-MSE4 IU-MSE6 IU-MSE20
	Performs complete history taking (anamnesis) and basic clinical examination of the dermatological patient and integrates the obtained information in establishing a working diagnosis and considering treatment options.	IU-MFMSE802-03	IU-MSE14 IU-MSE15
	Describes various causes of dermatovenerological diseases (infectious, allergic, genetic, autoimmune, degenerative, oncological) and interprets the mechanism of their effect on the skin and skin functions.	IU-MFMSE802-04	IU-MSE5
	Integrates and applies knowledge about clinical, laboratory and imaging features of dermatological and venereal diseases, as well as differential diagnostic thinking and conclusions.	IU-MFMSE802-05	IU-MSE8

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.

Course content	Week / shift	Topic
	Lectures:	(L1) Structure and function of the skin. (L2) Principles of dermatologic diagnosis. (L3) Principles of dermatologic therapy. (L4) Sexually transmitted diseases – Syphilis. (L5) Sexually transmitted diseases – Gonorrhoea, Ulcus molle, LG, Donovanosis (L6) Sexually transmitted diseases – HPV, Nongonorrheic genital infecitions, HIV (L7) Hereditary bullous diseases (L8) Autoimmune bullous diseases (L9) Pustular dermatoses (L10) Acne vulgaris, Acne fulminans (L11) Seborrhoea, Dermatitis seborrhoica, Rosacea (L12) Hidradenitis suppurativa (L13) Erythematous dermatoses (L14) Papular dermatoses

		(L15) Chronic venous disorders (L16) Disorders of pigmentation (L17) Panniculitis (L18) Papulosquamous dermatoses (L19) Psoriasis (L20) Parapsoriasis (L21) Erythrodermas (L22) Dermatologic oncology (BCC, SCC) (L23) Dermatologic oncology (Melanoma, Lymphoma) (L24) Benign skin tumors (L25) Bacterial infection of skin and mucosa (L27) Viral infections of skin and mucosa (L28) Dermatomycoses (L29) Parasitic disorders (L30) Most common allergic diseases in dermatology
	Seminars:	(S1) Approach to patients with different type of lesions (S2) Inherited connective tissue diseases (S3) Morphea (sclerodermia circumscripta) and cutaneous aspects of systemic sclerosis (S4) Pseudosclerodermas (S5) Lupus erythematosus (S6) Dermatomyositis (S7) Hair disorders (S8) Nail disorders (S9) Atopic dermatitis (S10) Urticaria (S11) In vivo and in vitro tests in diagnosis of allergic diseases (S12) Case-based approach to patients with facial dermatoses (S13) Case-based approach to patients with blisters (S14) Case-based approach to patients with papulosquamous dermatoses (S15) Case-based approach to patients with sexually transmitted disorders
	Exercises:	(E1) Dermatological propaedeutics. (E2) Taking history in dermatological patients. (E3) Dermatological status. (E4) Approach to the patient with acne (E5) Approach to the patient with rosacea (E6) Approach to the patient with psoriasis (E7) Basic principles of local and systemic dermatological therapy. (E8) Approach to the patient with lupus erythematosus (E9) Approach to the patient with pigmented skin lesions (E10) Dermatoscopy (E11) Approach to the patient with epidermal skin tumors (BCC, SCC). (E12) Native mycological preparations. Wood's lamp. (E13) Approach to the patient with infectious skin diseases (E14) Cryotherapy – application of liquid nitrogen in dermatology. (E15) Small procedures in dermatology: excochleation, electrocauterization. (E16) Phototherapy. (E17) PUVA – therapy. (E18) Allergological diagnostics, types of tests. (E19) Intradermal, prick, scarification. (E20) Epicutaneous test (Patch). (E21) Approach to the patient with sexually transmitted disease – history taking. (E22) Approach to the patient with sexually transmitted disease – diagnostic procedures. (E23) Approach to the patient with leg ulcers. (E24) Diagnostic and therapeutic guidelines for the most common

		dermatoses in childhood. (E25) Specificities of diagnostic and therapeutic procedures in pregnancy dermatoses.
E-learning	Classes are conducted live. If necessary, lectures and seminars can be combined (live and online) or completely online via e-learning platforms (Google-Meet) up to max 20%.	
Teaching methods	Teaching, interactive and active (with patients and in lab).	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		70	2.33	
Seminar paper		10	0.33	
Pre-exam/Written exam	IU- MFMSE802-01 IU- MFMSE802-02	30	1.0	50%
Pre-exam/Final oral exam	IU- MFMSE802-03 IU- MFMSE802-04 IU- MFMSE802-05	40	1.34	50%
In total		150	5	100%

Method of calculating the final grade
The final grade is calculated as the arithmetic mean of the grades obtained on the written and oral exam, that is: (W+O)/2.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Šitum M, Goren A. Dermatovenereology, textbook and atlas. Medicinska naklada Zagreb, 2021		x		x			x			
Additional	Prohic A, Doss N. Skin infections, Publisher : Faculty of Medicine - University of Sarajevo, 2019.		x		x			x			

Additional course information

The Dermatovenerology course consists of 70 hours divided into 15 teaching units, and is conducted during approximately 2 to 3 weeks. Each unit consists of 1-2 hours of lectures, 1 hour of seminar to check and determine knowledge and 2 hours of exercises with assistants for practical application of acquired knowledge through patient examinations in outpatient clinics. At the seminars, students actively participate and critically discuss the thematic unit for which they should prepare in advance through the preparation of a seminar paper, in teams of 3-5 students (depending on the number of students and the intended topics of the seminar), in the form of a structured PowerPoint presentation.

The written exam is performed early after the dermatovenerology course. It consists of 50 test-questions with multiple choice of answers (one of the five offered answers is always correct). To pass the exam (grade sufficient), the student must answer 55% of the questions correctly, i.e. must obtain at least 28 points.

According to the Rulebook on studying at the University of Mostar, grades are assigned as follows:

0-54% insufficient (1);

55-66% sufficient (2);

67-78% good (3);

79- 90% (very good 4);

91-100% excellent (5).

The oral exam includes the most important, integrative units of dermatovenerology. Through 4 questions, integrative knowledge is tested, which is essential for understanding the entire subject and is the basis for good medical practice. The condition for taking the oral exam is that the student participated in the preparation of the seminar paper and passed the written exam.

The final grade is calculated as the arithmetic mean of the grades obtained on the written and oral exam, that is: (W+O)/2.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	4	Semester	VIII			
Course title	ANESTHESIOLOGY AND INTENSIVE MEDICINE	Course code	MFMSE803			
ECTS	4.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	40	0	0
Course objectives	Course objectives are: To provide students with theoretical and practical knowledge about regional and general anesthesia, and resuscitation of critically ill patients.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Applies valuable knowledge and skills in diagnosis and treatment of patients in need of emergent resuscitation (airway, breathing, and circulation)	IU-MFMSE803-1	IU-MSE10
	Describes and recognizes the signs of sudden cardiac arrest, provides the basic and advanced measures of cardiopulmonary resuscitation (CPR) according to current guidelines and applies practical skills on medical simulation mannequins (start IVs, intubation techniques, nasogastric tube insertion, urethral catheterization etc.)	IU-MFMSE803-2	IU-MSE1 IU-MSE4 IU-MSE5 IU-MSE10
	Explains the anatomy of airway, confidently secures airway and has a knowledge of maneuvers and equipment necessary for advanced airway management	IU-MFMSE803-3	IU-MSE2 IU-MSE10
	Explains basic principles and techniques of general and regional anesthesia, including risks and benefits of various techniques and distinguishes between methods of anesthesia as clearly as its effects on underlying physiology and undergoing surgery procedure	IU-MFMSE803-4	IU-MSE1 IU-MSE3 IU-MSE11
	Classifies the specific agents used for induction and maintenance of anesthesia and analyzes their advantages and disadvantages (IV agents, inhalational agents, neuromuscular blocking agents and opioids)	IU-MFMSE803-5	IU-MSE11 IU-MSE15
	Shows and explains monitoring techniques both non-invasive (ECG, BP, Pulse Oximetry) and invasive	IU-MFMSE803-6	IU-MSE8 IU-MSE10 IU-MSE15
	Shows critical thinking in assessment and recognition of critically ill patients including different types of shock and explains management of critical patient in outpatient and hospital settings	IU-MFMSE803-7	IU-MSE6 IU-MSE10

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Week 1	Basic Life Support
		Algorithm of Advanced Life Support
		Pediatric Basic Life Support and Resuscitation of Newborn
		Complications of CPR
		Post resuscitation syndrome
		Brain death
		Anaphylaxis and other emergency situation in anesthesia
		Anesthetic Monitoring
		Establishing vascular access in anesthesiology

	Anesthesiology and ventilator Machine
	Intravenous Anesthetics
	Inhalational Anesthetics
	Other pharmacological agents in anesthesiology
	Familiarization with the types of shock and therapy
	Regional Anesthesia and Pain
Language	English
E-learning	Classes are conducted live. If necessary, lectures and seminars can be held combined (live and online) or completely online via e-learning platforms (Google-Meet) up to max 20 %.
Teaching methods	Teaching, interactive active-experiential.

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance and engagement		60	2	0%
Pre-exam/Practical exam	IU-MFMSE803-3 IU-MFMSE803-4	15	0.5	0%
Pre-exam/Written exam	IU-MFMSE803-1 IU-MFMSE803-2 IU-MFMSE803-5	30	1	50%
Pre-exam/Oral exam	IU-MFMSE803-3 IU-MFMSE803-4 IU-MFMSE803-6 IU-MFMSE803-7	30	1	50%
In total		135	4.5	100%

Method of calculating the final grade

Practical part of exam is precondition for written and oral part of exam. The final grade is the average of the written and oral exam grades. According to the Rulebook on Studying final grade is obtained as follows:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Literature (indicate)	Title (Title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Morgan & Mikhail's Clinical Anesthesiology, 7e John F. Butterworth IV, David C. Mackey, John D. Wasnick		x		x			x			
Additional	Clinical Anesthesia, 8e by Paul G. Barash (Author), Michael K. Cahalan MD (Author), Bruce F. Cullen MD (Author)		x		x			x			

	Textbook of Critical Care English edition by Jean-Louis Vincent MD PhD, Frederick A. Moore MD MCCM		x		x			x			

Additional course information

Students are obliged to regularly attend and actively participate in all forms of classes.
The exam in Anesthesiology and Intensive medicine is taken after the class and consists of a written, practical (patient examination with interpretation) and oral part.
The written and practical exam in Anesthesiology and Intensive medicine is mandatory and qualifying for the oral exam.
To pass the exam (grade sufficient), the student must answer 55% of the questions correctly.
The practical exam consists of patient examination and applying knowledge for anesthesia induction and airway management.
The oral part of the exam consists of four different areas: 1. practical anesthesiology (airway management, iv access, basic monitoring), 2. Intensive medicine (recognition and management of shock), 3. CPR algorithm (applying BLS and ALS), 4. Type of anesthesia (agents explained and used in anesthesiology).
The final grade is the average of the written and oral exam grades.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	4	Semester	VIII			
Course title	INFECTOLOGY WITH CLINICAL MICROBIOLOGY	Course code	MFMSE804			
ECTS	8	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	65	35	-
Course objectives	- to achieve students' understanding of the clinical, diagnostic and epidemiological features of the most important infectious diseases; - to train students to recognize general and special symptoms of infectious diseases and differential diagnostic reasoning; - to expand students' knowledge about critical assessment of laboratory and microbiological findings and rational treatment; - to train students about collecting and transporting of biological samples for microbiological analysis - to achieve students' understanding of the measures for preventing infectious diseases, as well as the importance of protecting medical workers from infection.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains the conditions of occurrence and characteristics of infectious diseases.	IU-MFMSE804-1	IU-MSE4 IU-MSE5
	Analyzes and classifies the etiology of infectious diseases of different organ systems.	IU-MFMSE804-2	IU-MSE4 IU-MSE5 IU-MSE6
	Presents and explains the diagnostic and therapeutic approach in the treatment of infectious diseases.	IU-MFMSE804-3	IU-MSE6 IU-MSE8 IU-MSE10
	Explains and interprets the principles of antimicrobial stewardship.	IU-MFMSE804-4	IU-MSE11
	Lists and classifies emergency conditions in infectious diseases and recommends a therapeutic approach.	IU-MFMSE804-5	IU-MSE8
	Explains infectious disease prevention measures: general and special (chemoprophylaxis and immunoprophylaxis).	IU-MFMSE804-6	IU-MSE10 IU-MSE11
	Understands and emphasizes the significance and importance of vaccination.	IU-MFMSE804-7	IU-MSE10 IU-MSE11
	Presents and interprets the applicability of different methods of microbiological diagnostics.	IU-MFMSE804-8	IU-MSE10
	Emphasizes and differentiates basic terms related to the type, method of collecting and transporting biological samples for microbiological analysis.	IU-MFMSE804-9	IU-MSE5

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	1st week	Introduction and general infectology

		Symptomatic treatment Streptococcal and staphylococcal infections Tonsillopharyngitis Acute respiratory infections Pneumonia COVID-19 Case report
	2nd week	Gastrointestinal infections Urinary tract infections Central nervous system infections Sepsis Enteroviral infections Herpesviral infections Exathematous diseases Skin and soft tissues infections Case report
	3rd week	Tetanus and botulism Zoonoses Snake and black widow spider bite Viral hepatitis HIV/AIDS Parasitic diseases Case report
	4th week	Immunization / vaccination Principles opf antimicrobial therapy Hospital-aquired infections Principles of diagnostic of infectious diseases Applicability of different methods of microbiological diagnostics and critical judgment of microbiological findings
Language	English	
E-learning	Classes are held live. If necessary, lectures and seminars can be held in combination (live and online) or completely online through e-learning platforms (Google Meet) up to max 20%.	
Teaching methods	Lecture, interactive and active experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	oral exam	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance and engagement in class		120	4	0%
Midterm/Colloquium in general infectology	IU-MFMSE804-1 IU-MFMSE804-2	30	1	0%
Pre-exam/Practical exam	IU-MFMSE804-5 IU-MFMSE804-9	30	1	30%
Pre-exam/Oral exam	IU-MFMSE804-3 IU-MFMSE804-4 IU-MFMSE804-5 IU-MFMSE804-6 IU-MFMSE804-7 IU-MFMSE804-8 IU-MFMSE804-9	60	2	70%
In total		240	8	100%

Method of calculating the final grade
- The condition for taking the practical and oral part of the exam is passing the exam in general infectology. - The exam in general infectology consists of a test of 30 questions, and the student is obliged to explain the conditions of

occurrence and characteristics of infectious diseases and to classify the etiology of infectious diseases.

- The final grade is obtained as a weighted arithmetic mean of the grades obtained from the practical and oral exam (P×0,3+O×0,7)/2.

According to the Rulebook on Studying at the University of Mostar grades are assigned as follows:
0-54% insufficient (1);
55-66% sufficient (2);
67-78% good (3);
79- 90% (very good 4);
91-100% excellent (5).

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Southwick F. Infectious diseases: a clinical short course. 4th edition, McGraw – Hill, 2020.		x		x			x			
Additional	Wright W. Essentials of clinical infectious diseases. 2nd edition, demosMEDICAL, 2018.		x		x			x			
	Mertz D, Smaill F, Daneman N. Evidence-based infectious diseases. 3rd edition, Wiley Blackwell, 2018.		x		x			x			
	Cho J. Infectious diseases. Case study approach, McGraw-Hill, 2020.		x		x			x			
	Medical microbiology. Laboratory manual for medical students, Jakovac S et al, Pressum, 2022.	x		x	x					x	

Additional course information

- Students are obliged to regularly attend and actively participate in all forms of classes.
- The exam in Infectology with clinical microbiology is held after the course and consists of a practical (clinical examination of a patient with interpretation) and an oral part.
- The oral part of the exam consists of four different chapters:
  1. Bacterial diseases,
  2. Viral diseases,
  3. Zoonoses,
  4. Other important syndromes and entities in infectology (cards with four groups of exam questions).
- The final grade is obtained as a weighted arithmetic mean of the grades obtained from the practical and oral exam (P×0,3+O×0,7)/2.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	4	Semester	VIII			
Course title	CLINICAL BIOCHEMISTRY	Course code	MFMSE805			
ECTS	1.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			10	5	15	-
Course objectives	- To achieve students' understanding of the functioning of the organism at the molecular level, which is reflected in the normal function of the organs as well as in the pathological biochemical processes in the organism. - To achieve students' understanding of the role of natural biomolecules in the body. - To achieve students' understanding of the dynamics of synthesis and degradation of natural biomolecules: hormones, tumor markers, vitamins, trace elements. - To achieve students' understanding of the influence of hormones on the function of the main organ systems.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Interprets results of laboratory analyzes in various diseases.	IU-MFMSE805-1	IU-MSE8
	Describes genetic, developmental, degenerative and toxic causes of disease and disease mechanisms.	IU-MFMSE805-2	IU-MSE5
	Describes and explains interferences in laboratory analyzes and in interpretation of falsely increased/decreased results.	IU-MFMSE805-3	IU-MSE15

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures:	(L1) Electrolytes and body fluids (L2) Acid-base balance (L3) Trace elements (L4) Molecular genetics and diagnosis of hereditary disease (L5) Laboratory diagnosis of kidney disease (L6) Laboratory diagnosis of allergies (L7) Clinical toxicology (L8) Clinical Biochemistry od diabetes (L9) Laboratory diagnosis of cardiovascular disease
	Seminars:	At the seminars, students will solve some tasks about specific topics. They will make presentations about seminar topic given by teacher. (S1) Clinical diagnosis of thyroid hormone and steroids hormone (S2) Laboratory diagnosis of katecolamine (S3) Serum markers of tumor growth (S4) Laboratory diagnosis of calcium, PTH, Vitamine D (S5) Point-of-care testing (S6) Laboratory diagnostics of neurological

		diseases
	Exercises:	(E1) Acquaintance with the creation of laboratory findings on automatic analyzers (E2) Determination of vitamin and hormone concentrations from biological samples in a medical biochemical laboratory
Language	English	
E-learning	Classes are taken in person. If necessary, lectures and seminars can take place combined (live and online) or completely online via e-learning platforms (Google Meet) up to max 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		30	1	0%
Seminar		5	0,2	0%
Pre-exam/Written exam	IU- MFMSE805-1 IU- MFMSE805-2 IU- MFMSE805-3	10	0,3	100%
In total		45	1,5	100%

Method of calculating the final grade

The final grade is a grade from the written exam. A detailed description is provided in additional information about the course.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Tietz, Fundametals of Clinical chemistry, Fifth Edition, 2001		x		x			x			
	Teaching materials	x			x						x
Additional	Scientific papers for seminars, different authors		x		x					x	

Additional course information

As it is a basic course in a specific area of biochemistry, in addition to theoretical classes, by processing selected different seminar topics, the student further expands his knowledge and can demonstrate the ability to think critically and recognize the essential elements of a certain educational issue.
The course in clinical biochemistry contains 30 hours and is taken during one week, which includes the post-class exam period (preliminary). The course consists of lectures, seminars and exercises.
In order to take the exam, the student is obliged to fulfill all the other following obligations: attend classes regularly, create and present a seminar essay on the given topic, do exercises in the practical part of the class.
To pass the preliminary/written exam (grade sufficient), the student must answer 55% of the questions correctly.

According to the Rulebook on studying at the University of Mostar, grades are assigned as follows:
0-54% insufficient (1);
55-66% sufficient (2);
67-78% good (3);
79- 90% (very good 4);
91-100% excellent (5).

The final grade is the result of the written exam.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	4	Semester	VIII			
Course title	PSYCHIATRY	Course code	MFMSE806			
ECTS	5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			40	30	30	0

Course objectives	- introduction to determinants of mental health and mental disorders - understanding mental diseases within the biopsychosocial concept - recognition of clinical course and differential diagnoses of mental disorders - getting acquainted with the organizational possibilities of mental health care - introduction to the options of treatment of mild mental health disorders - mastering basic therapeutic algorithms

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Will be able to plan independent learning through studying a way of critical and self-critical questioning of scientific truths.	IU-MFMSE806-1	IU-MSE1
	Demonstrates personal qualities including teamwork skills, active listening and building positive relationships with members of a multidisciplinary and interdisciplinary professional team.	IU-MFMSE806-2	IU-MSE9
	Understands the basics of psychiatry, psychiatric diseases and disorders as well as intellectual disabilities.	IU-MFMSE806-3	IU-MSE6
	Will be able to perform mental status assessment and psychiatric evaluation trough examining patients in primary health care.	IU-MFMSE806-4	IU-MSE14
	Is able to utilize diagnostic criteria to arrive at an appropriate diagnosis and to develop an appropriate list of differential diagnoses.	IU-MFMSE806-5	IU-MSE8
	Is able to apply appropriate psychopharmacological and psychosocial methods of treatment.	IU-MFMSE806-6	IU-MSE15 IU-MSE10
	Is able to recognize urgent psychiatric conditions and apply therapy accordingly in primary health care setting.	IU-MFMSE806-7	IU-MSE15 IU-MSE10
	Is able to recognize psychiatric disorders that demand complex work up and/or hospital treatment and is able to referee patient to appropriate psychiatric unit.	IU-MFMSE806-8	IU-MSE15 IU-MSE10
	Analyses application of therapy for complex and chronical mental disorders under specialized psychiatric care supervision.	IU-MFMSE806-9	IU-MSE15 IU-MSE10

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures 1-30	Neural Sciences Examination and Diagnosis of the Psychiatric Patient Contributions of the Psychosocial and Sociocultural Sciences Schizophrenia Spectrum and Other Psychotic Disorders Mood Disorders Anxiety Disorders Obsessive-Compulsive and Related Disorders Trauma-Related Disorders, Dissociative disorders Feeding and Eating Disorders Substance Use and Addictive Disorders Neurocognitive Disorders Personality Disorders Treatment in Psychiatry

		Public Psychiatry, Geriatric Psychiatry, End-of-Life Issues Child Psychiatry Forensic Psychiatry and Ethics in Psychiatry
	S1-S30	Neurobiological contributions to the etiology of mental disorders Side effects of psychopharmaceuticals and possible complications during treatment Neurodevelopmental disorders - autism spectrum disorders and tic disorders Neurodevelopmental disorders - attention deficit, specific learning disorders and motor disorders Disruptive disorder, urge control disorder and behavioral disorder Suicides and suicidal behavior Normal and pathological mourning Eating Disorders Sleep-wake disorders Community psychiatry Permanent personality changes after catastrophic experiences Adjustment disorder Psychiatric disorders in palliative care Psychosocial approach in the treatment and rehabilitation of alcoholics Teamwork in psychiatry Scientific research in psychiatry Sexual dysfunction Paraphilic disorders Diagnostic procedures in psychiatry Crisis situations Organically conditioned / symptomatic mental disorders (acute brain syndrome) Chronic brain syndrome / dementia Specific psychiatric disorders in women Family and mental health General principles of treatment of patients with mental disorders Liaison psychiatry and psychosomatic medicine Psychiatric comorbidity Rehabilitation in psychiatry Socio-therapeutic methods in the treatment and rehabilitation of the mental disorders Mental disorders and stigma
	P1-P30	Anamnesis and hetero-anamnesis Mental status Tests in psychiatry Medical documentation Protection of patients with mental disorders Triage of patients Acute conditions in psychiatry Intensive care of the mentally ill patients Neurotic patient Therapeutic approach to the neurotic patient Depressed patient Therapeutic approach to the depressed patient Schizophrenia Therapeutic approach to a schizophrenic patient Organic mental disorder Therapeutic approach to organic mental disorder PTSD Therapeutic approach to trauma-induced disorders Addiction diseases Therapeutic approach to addiction diseases Adolescent mental disorders

		Therapeutic approach to developmental disorders Socio-therapeutic methods of treatment Therapeutic community The role of teamwork in psychiatry
Language	English	
E-learning	Classes are conducted live. If necessary, lectures and seminars can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	**essay/report**	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending and engaging in classes		100	3,4	5%
Seminar work	IU-MFMSE806-1-9	10	0,3	10%
Midterm/Colloquiums	IU-MFMSE806-1-9	10	0,3	20%
Pre-exam/Written exam	IU-MFMSE806-1-9	10	0,3	30%
Pre-exam/Practical exam	IU-MFMSE806-1-9	5	0,2	10%
Oral exam	IU-MFMSE806-1-9	15	0,5	30%
In total		150	5	100%

Method of calculating the final grade

Students' engagement in classes is valued during classes and in final exam. During classes there will be seminar work organized as well as four knowledge tests: general psychopathology colloquium, casuistic representation test and two knowledge tests in seminars.

Attending classes (lectures, clinical practices, seminars) will be valued by maximum of 5 points at the end of all successfully finished knowledge tests. These points can affect the final grade, but not the basic points needed for passing the exam.

- 5 points – 100% attendance in all forms of classes (lectures, seminars, clinical practices)
- 4 points –absence from any type of the lecture
- 3 points – two absences
- 1 point – three absences
- 0 points – four absences

Seminar paper includes writing work and presentation. Seminar validation will be done by Study regulations, i.e. writing work will be valued 70% of the grade and presentation 30% of the grade.

Writing exam:

- The paper is exhaustive, grammatically and orthographically correct – excellent (5).
- The paper is formally and substantively satisfactory, but there are smaller grammatic and orthographic mistakes – very good (4).
- Paper satisfies formally and substantively, but major grammatical and spelling errors were noticed - good (3).
- Paper meets the formal criteria, but major deficiencies have been identified in terms of content - sufficient (2).
- The paper is not written, plagiarism is present or it does not meet the formal criteria - insufficient (1).

Presentation:

- Excellently presented work, almost without language errors, excellent cooperation and relationship with listeners - excellent (5).
- The work is very well presented, grammatical or pronunciation errors are rare, very good relationship with the listeners – very good (4).
- The paper is solidly presented, occasional errors in pronunciation or grammar - good (3)
- The paper is presented with quite frequent errors in pronunciation and grammar - sufficient (2).
- The paper is not presented or is presented with a lot of errors in grammar, pronunciation, in distinct address - insufficient (1).

This partial check lasts a total of 45 minutes and is evaluated with a maximum of 10 points.

- excellent (5) - 10 points
- very good (4) - 8.5 points
- good (3) - 7.0 points
- sufficient (2) - 5.5 points
- Insufficient (1) - 0 points.

Two colloquia (general psychopathology and a test in the form of a casuistic presentation) are taken by students in exercises.
Test of knowledge in general psychopathology will be organized at the 14th exercise. The test will be in the form of a 25-question test with 5 answers offered (the correct answer carries 0.2 points). This test lasts a total of 30 minutes and the evaluation of the test will be performed according to the Rulebook on Study:
91-100% correct answers - excellent (5),
79-90% - very good (4),
67-78% - good (3),
55 -66% - sufficient (2),
0 to 55% - insufficient (1).
The maximum number of points is 5, and the minimum number of points for passing is 2.75.

The test in the form of a casuistic presentation is done on the penultimate exercise (V27, V28) and consists of the presentation of patients in the way it is presented to the doctor in the first meeting. Based on the data in the test, the student considers the differential diagnostic orientations and clinical procedures that need to be undertaken (work diagnosis, diagnostic guidelines, differential diagnostic options, therapeutic guidelines and emphases).
This partial check lasts a total of 30 minutes and is evaluated with a maximum of 5 points.
- excellent (5) - 5 points
- very good (4) - 4 points
- good (3) - 3 points
- sufficient (2) - 2 points
- Insufficient (1) - 0 points.

At the end of the seminar (S30) there will be a test of knowledge from the material covered by the seminars. The test will be performed with a test that will consist of 40 questions with 4 and 5 offered answers (correct answer carries 0.25 points). This test lasts a total of 45 minutes and the test will be evaluated according to the Study Regulations:
91-100% correct answers - excellent (5),
79-90% - very good (4),
67-78% - good (3),
55-66% - sufficient (2),
0 to 55% - insufficient (1).
The maximum number of points is 10, and the minimum number of points for passing is 5.5.

The final exam consists of a written, practical and oral part. Students who have duly attended classes according to the Faculty Regulations have the right to take the final exam.
The written exam will be in the form of a test with 100 questions with 4 or 5 answers offered, and will last 90 minutes (the correct answer carries 0.3 points). The questions will cover the entire material from psychiatry, and the evaluation of the test will be done according to the Study regulations:
91-100% of correct answers - 5 (excellent),
79-90% - 4 (very good),
67-78% - 3 (good),
55-66% - 2 (sufficient),
0 to 54% - 1 (insufficient).
The written exam is evaluated with a maximum of 30 points, and the minimum number of points for passing is 16.5.

-Attendance at classes (lectures, exercises, seminars) - 1 - 5 points (can be obtained when a student collects 55 or more points through the passed teaching material).

The oral part of the exam is evaluated with a maximum of 30 points. Students draw five-question cards from the entire psychiatry curriculum.
- excellent (5) - 30 points
- very good (4) - 26 points
- good (3) - 22 points

- sufficient (2) - 18 points
- insufficient (1) - 0 points.

Final grade:
The final grade is formed by the sum of points from all weights.
- Colloquium in general psychopathology (test) - 2.75 - 5 points
- Test in the form of a casuistic case report - 2 - 5 points
- Seminar paper - 5.5 - 10 points
- Test from the seminar material - 5.5 - 10
- Final written exam - 16.5 - 30 points
- Practical part of the exam - 5 - 10 points
- Oral part of the exam - 18 - 30 points

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Sadock BJ, Sadock VA, Ruiz P. Kaplan and Sadock's Concise Textbook of Clinical Psychiatry. 4. ed. Philadelphia: Wolters Kluwer; 2017.		x		x			x			
Additional	Sadock BJ, Sadock VA, Ruiz P. Kaplan & Sadock's Synopsis of Psychiatry, Behavioral Sciences/Clinical Psychiatry. 11. ed. Philadelphia: Wolters Kluwer; 2015.		x		x			x			
	Teaching materials	x			x						x

Additional course information

Method of monitoring the quality of teaching:
Student survey
Analysis of the quality of teaching by students and teachers
Analysis of passing exams
Report of the Office for Teaching Quality
Self-evaluation and non-institutional evaluation (visit of quality control teams)

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	IX			
Course title	SURGERY	Course code	MFMSE901			
ECTS	12	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			50	100	50	-

Course objectives	Course objectives are: • To acquaint students with surgical diseases and techniques. • To teach basic surgical techniques usable in a primary care setting and to serve as a base for further surgical education.		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Recognizes conditions that require a surgical approach and treatment	IU- MFMSE901-1	IU-MSE4
	Is able to describe and use basic surgical techniques and the principles of asepsis and antisepsis used in the treatment of surgical patients.	IU- MFMSE901-2	IU-MSE1
	Is skilled to take patient's history and perform physical examination and can critically analyze and argue differential diagnosis regarding clinical and diagnostic tests findings.	IU- MFMSE901-3	IU-MSE14
	Is able to describe preoperative and postoperative management and surgical treatment for elective surgery patients in consultation with a specialist	IU- MFMSE901-4	IU-MSE17
	Can recognize and assess the order of urgency and ensure vital functions in polytraumatized patients.	IU- MFMSE901-5	IU-MSE10
	Recognizes postoperative complications and is able to analyze and apply the appropriate treatment modality.	IU- MFMSE901-6	IU-MSE11

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Week 1	Approach to the Surgical Patient, Power Sources in Surgery L(2h) Preoperative Preparation S(2h) Postoperative Care S(2h) Postoperative Complications L(2h) Shock & Acute Pulmonary Failure in Surgical Patients S(2h) Wound Healing L(2h) Inflammation, Infection, & Antimicrobial Therapy in Surgery S(2h) Management of the Injured Patient L(2h) Abdominal trauma S(1h) Fluid, Electrolyte, & Acid-Base Disorders S(1h)
	Week 2	Surgical Metabolism & Nutrition L(2h) Burns & Other Thermal Injuries S(2h) Breast Disorders L(2h) Diseases of the thoracic wall and mediastinum S(2h) Diseases of the lungs L(2h) Diseases of the pleura S(2h) Mechanical circulatory support L(1h) Coronary artery disease L(2h) Valvular heart disease S(2h) Congenital heart disease L(2h) Thoracic aorta S(1h) Heart transplantation S(1h)

	Week 3	The acute abdomen L(2h) Surgery of the oesophagus Liver, Surgical anatomy, diseases and disorders of the liver L(2h) Portal hypertension S(1h) Organ Transplantation S(1h) Surgical diseases of bile ducts L(2h) Surgical diseases of pancreas S(2h) Appendix L(1h) Diseases of the peritoneum S(1h) Bowel obstruction S(1h) Diaphragmatic hernia L(2h) Surgery of the oesophagus S(2h) Surgery of stomach and duodenum L(2h) Small bowel surgery S(2h)
	Week 4	Surgical diseases of colon and rectum L(2h) Inflamatory bowel disease S(2h) Diseases of the anus and the anorectal region L(2h) Diseases of the anus and the anorectal region S(2h) Spleen L(2h) Hernias & Other Lesions of the Abdominal Wall S(2h) Arterial occlusive disease L(2h) Lower extremity amputations S(1h) Vasoconstrictive disorders, Thoracic outlet syndrome Arteriovenous fistulas S(1h) Arterial aneurysms, Abdominal aortic aneurysms, Iliac aneurysms, Suprarenal aortic aneurysms, Ruptured aortic aneurysms L(2h) Inflamatory aneurysms, Infected aneurysms. Peripheral arterial aneurysms. Upper extremity aneurysms, Visceral artery aneurysms S(2h)
	Week 5	Cerebrovascular disease, Renovascular hypertension, Mesenteric ischemia syndromes L(2h) Veins and lymphatics disorders S(2h) Grafts and flaps and Principles of wound care L(2h) Disorders of scaring. Benign and premalignant skin lesion S(2h) Malignant skin lesion. Melanoma. L(2h) Breast reconstruction Lower extremity reconstruction Pressure sores S(2h) Hand surgery L(2h) Aesthetic surgery S(2h) Minimal invasive surgery – laparoscopy S(2h) Minimal invasive surgery – VATS L(2h)
Language	English	
E-learning	Classes are conducted live. If necessary, lectures and seminars can be held combined (live and online) up to a maximum of 20%.	
Teaching methods	Teaching, participatory and interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending course		200	6,7	0 %
Seminar paper		15	0,5	0 %
Pre-exam/Practical exam	IU- MFMSE901-3	15	0,5	10%
Pre-exam/Written exam	IU- MFMSE901-1 IU- MFMSE901-2 IU- MFMSE901-5	60	2	50 %
Pre-exam/Oral exam	IU- MFMSE901-1 IU- MFMSE901-4	70	2,3	40 %

	IU- MFMSE901-5 IU- MFMSE901-6			
In total		360	12	100%

Method of calculating the final grade

Practical exam consists of taking medical history and performing clinical examination of the patient with emphasis on differential diagnosis, diagnostic procedures and treatment options. **Practical exam makes 10% of the grade (PG).**

Written exam – 100 multiple choice questions (one correct answer) with no negative points. Written exam makes 50% of the grade (WG).

The assessment of the written exam is carried out according to the Regulation of Studies of the University of Mostar and applies to all study groups. According to the Rulebook on Studying final grade is obtained as follows:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Oral exam – cards with questions from teaching units. Cards with questions for the oral exam will be available to the students during the course. **Oral exam makes 40% of the grade (OG).**

Final grade (FG) is calculated through formula:

FG = WG*0,5+PG*0,1+OG*0,4

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Doherty, G. M. (2020). Current Diagnosis and Treatment Surgery, 15th Edition, McGraw-Hill Education.		x		x			x			
Additional	Townsend, C. M. (2021). Sabiston Textbook of Surgery E-Book: The Biological Basis of Modern Surgical Practice, Elsevier Health Sciences.		x		x			x			

Additional course information

- The course consists of **lectures** (45 hours), **seminars** (50 hours), and **clinical exercises** (100 hours).
- Attending all forms of teaching ***is mandatory,*** which will be recorded.
- **Lectures and seminars will be held at Medical School.**
- Students must be prepared for seminars.
- **Clinical exercises will be organised from 8,15 – 11:15 according to schedule at Surgical Clinic (except for the first day)**
- Schedule for clinical exercises will be posted with assigned teaching assistant.
- For clinical exercises students are required to have: white coat, stethoscope, notepad, pencil and booklet of clinical skills.
- Students are required to report to appointed teaching assistant at the Department at the beginning of clinical exercises.
- As a part of clinical exercises students are required to do four to five "on duty" shifts, in time from 16:00 h to 20:30 h.

Study programme	MEDICAL STUDIES IN ENGLISH						
Cycle	INTEGRATED	Type	UNIVERSITY				
Study track	-	Module	-				
Year of study	5	Semester	IX				
Course title	NEUROSURGERY	Course code	MFMSE902				
ECTS	1	Status	OBLIGATORY				
Teaching hours			Lectures	Exercises	Seminars	Practice	
			7	6	7	0	
Course objectives	The aim of the neurosurgery course is: to acquire knowledge about the clinical examination of the neurosurgical patient, about diagnostic and therapeutic procedures for patients with injuries and/or diseases of the central and/or peripheral nervous system, about the degree of urgency when applying neurosurgical operations, about the types of neurosurgical operations and their success and complications in neurosurgery.						
Course learning outcomes	Learning outcome (LO) Student:				Course learning outcome code	LO code at the study program level	
	Recognizes conditions that require a neurosurgical approach and procedure.				IU-MFMSE902-1	IU-MSE4	
	Capable of assessing the urgency of the necessary measures (ABCD), and classifying craniocerebral injuries according to severity (GCS).				IU-MFMSE902-2	IU-MSE6	
	Recognizes and can evaluate diseases and injuries of the central nervous system (CNS) on radiographs and CT scans.				IU-MFMSE902-3	IU-MSE10 IU-MSE20	
	Describes measures against increased intracranial pressure, and procedures for subarachnoid hemorrhage after intracranial aneurysm rupture.				IU-MFMSE902-4	IU-MSE8	
	Recognizes possible early postoperative complications in the treatment of the most common neurosurgical diseases and injuries (infection, dehiscence of the operative wound, as well as respiratory and urinary complications), and is able to analyze the appropriate treatment modality.				IU-MFMSE902-5	IU-MSE11 IU-MSE15	
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.						
Course content	Week / shift	Topic					
	Lectures	(L1) Neurosurgical propaedeutics (L2, L3) Neurotraumatology (L4, L5) Neuro-oncology (L6) Spinal neurosurgery (L7) Vascular neurosurgery					
	Seminars	(S1, S2) Peripheral and autonomic nervous system surgery (S3) Pain surgery (S4, S5) Pediatric neurosurgery (S6, S7) Infections in neurosurgery					
	Exercises	(E1 – E6) Assisting in surgical interventions. Work in the ward and clinic.					
Language	English						
E-learning	Classes are conducted live. If necessary, lectures and seminars can take place combined (live and online) via e-learning platforms (Google Meet) up to a maximum of 20%.						
Teaching methods	Teaching, participatory and interactive and active-experiential.						
Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	**oral exam**	practical
Allocation of ECTS credits and share in the grade							

Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		20	0.8	0%
Pre-exam/written exam	IU-MFMSE902-1 IU-MFMSE902-2 IU-MFMSE902-5	5	0.1	50%
Pre-exam/oral exam	IU-MFMSE902-1 IU-MFMSE902-3 IU-MFMSE902-4 IU-MFMSE902-5	5	0.1	50%
In total		30	1	100%

Method of calculating the final grade

The final grade is obtained as the arithmetic mean of the grades from the written exam and the oral part of the exam.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Handouts	x			x						x
Additional	Josip Paladino: Kompendij neurokirurgije. Zagreb: Naklada Ljevak; 2004.	x		x				x			

Additional course information

Neurosurgery classes last 20 hours, of which 7 hours are lectures, 7 hours are seminars and 6 hours are exercises. It is listened to during one week. Students are divided into practice groups. Each group is assigned an assistant. The assistant trains a group of students in the neurosurgical skills of taking the history and status of neurosurgical patients, as well as the basic techniques of everyday neurosurgical practice. During the exercises, all students have access to operating rooms, where they learn to behave according to the rules of asepsis.

The practical part of the classes is therefore usually held in the morning hours so that students have access to inpatient and outpatient work at the Clinic for Neurosurgery.

Lectures and seminars include neurosurgical propaedeutics, clinical traumatology of the endocranium and spine, neurooncology, vascular neurosurgery, pediatric neurosurgery, spinal neurosurgery, infections in neurosurgery and pain surgery.

Five days after the class, students will have an exam, which consists of two parts. The written exam consists of 30 test-questions (one of the five offered answers is always correct). After passing the written part of the exam, the student has a prerequisite for the oral exam.

The final grade is obtained as the arithmetic mean of the grades from the written exam and the oral part of the exam.

According to the Rulebook on Studying at the University of Mostar grades are assigned as follows:

0-54% insufficient (1);
55-66% sufficient (2);
67-78% good (3);
79- 90% (very good 4);
91-100% excellent (5).

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	IX			
Course title	TRANSFUSIOLOGY AND TRANSPLANTOLOGY	Course code	MFMSE903			
ECTS	1	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			7	8	5	0
Course objectives	- To provide students with knowledge regarding transfusion medicine and transplantation biology - To provide students with knowledge regarding blood groups, blood products and the specifics of transfusion medicine in terms of care for pregnant women, newborns and pre/post-transplant patients					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	- recognizes and defines the importance of transfusion medicine as a specific health activity. Defines and enumerates blood groups and other blood systems in transfusion medicine, blood products and methods of their production, storage and distribution.	IU-MFMSE903-1	IU-MSE-1 IU-MSE-8
	- describes the specifics of transfusion medicine in terms of care for pregnant women, newborns and pre/post-transplant patients.	IU-MFMSE903-2	IU-MSE-2 IU-MSE-3 IU-MSE-8
	- defines and analyzes the choice and application of blood products, recognizes early and late post-transfusion reactions with diagnostic confirmation.	IU-MFMSE903-3	IU-MSE-6 IU-MSE-10 IU-MSE-11
	- classifies the risk of bloodborne diseases transmission, describes the importance describes the importance of the awareness of bloodborne diseases, as well as the importance of immunohematological testing during pregnancy for mother and child	IU-MFMSE903-4	IU-MSE-4 IU-MSE-8
	- explains the transplant protocol, HLA typing, anti-HLA antibodies, and pre- and post-transplant treatment and care.	IU-MFMSE903-5	IU-MSE4 IU-MSE-8 IU-MSE-9 IU-MSE-15 IU-MSE-16

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lecture	(L1) Introduction to the subject and historical review; General principles of blood donation. (L2) Production of blood products; Quality system in transfusion medicine. (L3) Erythrocyte blood groups; Other blood groups; HLA system; importance in Transplantology. (L4) Transfusion treatment (L5) Transfusion reactions; Systematic supervision of transfusion and post-transplantation treatment; (L6) Quality control in laboratory diagnostics of transplanted patients (L7) Laboratory diagnosis of hemostasis disorders
	Seminar	(S1) Blood-borne diseases (S2) Bone marrow and stem cell donor registries (S3) Histocompatibility and immunogenetics

		(S4) Hemolytic disease of the newborn (S5) Hemovigilance
	Exercises	E1) Examination of blood donors (E2) Determination of blood groups (E3) Production of blood products (E4) Issuance of blood products (E5) Prenatal testing (KG and ICT) (E6) HLA typing, molecular diagnostics (E7) Dispensing blood products and monitoring the occurrence of harmful reagents and events (E8) Recruitment of bone marrow stem cell donors
Language	English	
E-learning	Classes are conducted live. If necessary, lectures and seminars can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching methods, participatory and interactive methods.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/ report	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		20	0.66	0%
Pre-exam/Written exam	IU-MFMSE903-1 IU-MFMSE903-2 IU-MFMSE903-3 IU-MFMSE903-4 IU-MFMSE903-5	10	0.34	100%
In total		30	1	100%

Method of calculating the final grade

The exam is performed as a written exam. According to the Rulebook on the Integrated Studies at the School of Medicine grades are assigned as follows:
0-54% insufficient (1),
55-66 % sufficient (2),
67-78 % good (3),
79- 90% (very good 4),
91-100% excellent (5).

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Harmening DM. Modern Blood Banking & Transfusion Practice. F.A.Davis Company 2018, VII edition.		x		x			x			
	Materials/notes from classes	x	x		x						
Additional											

Additional course information

The Transfusiology and Transplantology course contains 20 hours of classes which are conducted during the period of 1 week, including also the pre-exam.
Teaching consists of lectures, seminars and exercises. It is possible to organize consultations during the course. During the seminars, the teacher discusses specific topics in transfusion medicine with the students. At the end of the course, a written exam will be performed. By completing all the teaching activities and passing the written exam, the student acquires 1 ECTS point.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	IX			
Course title	UROLOGY	Course code	MFMSE904			
ECTS	1.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			10	10	10	-
Course objectives	To achieve student's knowledge of the basic principles in urology. Expand the knowledge and skills necessary for understanding the pathophysiological basis, recognition of clinical symptoms, critical judgment, rational treatment of the most common urological diseases, oncological and emergency conditions					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Presents and interprets history and clinical examination of a urological patient and knows anatomy of the male and female urogenital tract.	IU-MFMSE904-1	IU-MSE2 IU-MSE4 IU-MSE5 IU-MSE14
	Critically assesses and explains pathophysiological mechanisms, clinical and laboratory features, treatment and prevention of the most common urological diseases	IU-MFMSE904-2	IU-MSE4 IU-MSE8 IU-MSE9 IU-MSE10 IU-MSE11 IU-MSE15
	Describes and explains the etiopathogenetic mechanisms of diseases in urological oncology, and presents diagnostic tools and modern methods of surgical treatment.	IU-MFMSE904-3	IU-MSE4 IU-MSE5 IU-MSE6 IU-MSE9 IU-MSE10 IU-MSE11 IU-MSE15 IU-MSE16 IU-MSE17
	Explains and interprets the basic and ethical principles of kidney transplantation.	IU-MFMSE904-4	IU-MSE2 IU-MSE3 IU-MSE5 IU-MSE7 IU-MSE9 IU-MSE12 IU-MSE17
	Critically analyzes and explains pathophysiological mechanisms, clinical and laboratory features of emergency conditions in urology, recommends classification and therapeutic approaches.	IU-MFMSE904-5	IU-MSE4 IU-MSE8 IU-MSE11
	Lists and explains minimally invasive endourological procedures in modern urology.	IU-MFMSE904-6	IU-MSE4 IU-MSE15 IU-MSE17 IU-MSE19

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	1st day	Introduction to the subject and historical review Anamnesis, Clinical examination Basic laboratory and diagnostic tests Urinary disorders and neurophysiology of urination, Neurogenic bladder, Urinary incontinence, diagnosis and treatment
	2nd day	Obstructive uropathy, diagnosis and treatment

		Urolithiasis, diagnosis and treatment Infections of the urogenital tract, diagnosis and treatment
	3rd day	Emergency situations in urology Urogenital trauma Benign prostate enlargement - Benign prostatic hyperplasia Kidney transplantation, Minimally invasive surgical procedures in the treatment of urological patients
	4th day	Kidney and adrenal tumors Tumors of the bladder, upper urothelial and ureteral tumors and urethral tumors Tumors of the penis and testicles
	5th day	Prostate cancer, diagnosis and surgical treatment
Language	English	
E-learning	Classes are conducted live. If is necessary, lectures and seminars can be held combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching, interactive and active- experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance and engagement		30	1	-
Pre-exam/ Final exam	IU-MFMSE904-1 IU-MFMSE904-2 IU-MFMSE904-3 IU-MFMSE904-4 IU-MFMSE904-5 IU-MFMSE904-6	15	0.5	100%
In total		45	1.5	100%

Method of calculating the final grade

The final grade is obtained on the written exam if the student is satisfied with the grade, and if he/she wants to answer for a higher grade, then he/she takes the oral exam where the final grade is the average of the grade of the written and oral exam.
According to the Rulebook on Studying at the University of Mostar grades are assigned as follows:
0-54% insufficient (1); 55-66% sufficient (2); 67-78% good (3); 79- 90% (very good 4); 91-100% excellent (5).

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Urology for Medical students and junior doctors, Ricky Ellis 2020	x			x			x			
Additional	Selected chapters of Smith's Urology 19 th Edition, McGraw Hill 2019										

Additional course information

Students are obliged to regularly attend and actively participate in all forms of classes. The exam in urology is taken in pre-exam after the class and consists of a written exam. If the student is not satisfied with the grade on the written exam and wants a higher grade after the written exam, the oral exam is taken. After that, the average of the written and oral exam grades is used to calculate the final grade (arithmetic mean).
To pass the exam and obtain sufficient grade, the student must answer 55% of the questions correctly.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	IX			
Course title	PEDIATRIC SURGERY	Course code	MFMSE905			
ECTS	1.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	5	5	-
Course objectives	The goal of pediatric surgery classes is to acquire basic knowledge and skills in the field of pediatric surgery necessary for a doctor of medicine. To train students for recognition, early detection, initial treatment of surgical diseases in children necessary for primary practice.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Recognizes conditions that require a surgical approach and procedure.	IU-MFMSE905-1	IU-MSE4
	Describes basic knowledge about childhood diseases, injuries and conditions that require surgical treatment, the basics of surgical treatment and the conditions necessary for safe surgical work.	IU-MFMSE905-2	IU-MSE1
	Has the skill of taking anamnesis and hetero-anamnesis and the patient's status, and he can critically analyze and argue the working diagnosis from the clinical picture and the results of diagnostic tests.	IU-MFMSE905-3	IU-MSE14
	Performs skills in the field of clinical examination of patients, to become familiar with the most common surgical pathology such as esophageal atresia, duodenal ileus, appendicitis, intussusception.	IU-MFMSE905-4	IU-MSE17
	Describes treatment process for omphalocele, gastroschisis, epiphyseal bone fractures, inguinal hernia, knows the most common childhood tumors, as well as the diagnostic and treatment process for suspected vesicoureteral reflux, recognizes hypospadias and assess the degree of burns and basic procedures in the care of all mentioned	IU-MFMSE905-5	IU-MSE10 IU-MSE8 IU-MSE11

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar	
Course content	Week / shift	Topic
	Lectures	(L1) Historical development of pediatric surgery (L2) Anomalies of the head and neck

		(L3,4) Esophageal atresia (L5,6) Duodenal ileus (L7) Congenital diaphragmatic hernias Hypertrophic stenosis of the pylorus (L8) Types of intestinal atresia, Appendicitis of childhood (L9) Intussusception (10) Abdominal trauma (L11) Childhood tumors (L12) Omphalocele (L13) Gastroschisis (L14) Hydronephrosis, Anomaly of the number and position of the kidneys (L15) Vesicoureteral reflux (L16) Hypospadias (L17) Meconium ileus (L18) Epiphyseal bone fractures (L19) Congenital megacolon. (L20) Rectal and anal atresia.
	Seminars	(S1) Umbilical hernia (S2) Inguinal hernia (S3) Cryptorchidism (S4) Phimosis (S5) Burns in children
	Exercises	(E1 – E5) Assisting in surgical interventions. Work in the ward and clinic.
Language	English	
E-learning	Classes are conducted live. If necessary, lectures and seminars can take place combined (live and online) up to max 20 %.	
Teaching methods	Teaching, participatory and interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/ report	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade

Attending classes		30	1	0 %
Pre-exam/Practical	IU-MFMSE905-3	5	0,16	0 %
Pre-exam/Written exam	IU-MFMSE905-1 IU-MFMSE905-2 IU-MFMSE905-5	5	0,17	50 %
Pre-exam/Oral exam	IU-MFMSE905-1 IU-MFMSE905-4 IU-MFMSE905-5	5	0,17	50 %
In total		45	1,5	100%

Method of calculating the final grade

The final grade is obtained as the arithmetic mean of the grades from the written exam and the oral part of the exam. According to the Rulebook on Studying at the University of Mostar grades are assigned as follows: 0-54% insufficient (1); 55-66% sufficient (2); 67-78% good (3); 79- 90% (very good 4); 91-100% excellent (5).

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	O'Neill JA, Rowe MI, Grosfeld JL, Fonkalsrud EW, Coran AG. Pediatric surgery. St Louis, Baltimore, Boston, Mosby Co, 1999		x		x			x			
	Rockwood Ch, Green D. Fractures in children. Philadelphia, London, Mexico City, New York, Lipping Co, 1984		x		x			x			
	Prem Puri, Pediatric Surgery (Springer Surgery Atlas) 2nd Edition, Springer Surgery Atlas, 2006.										atlas
Additional											

Additional course information:

Classes in pediatric surgery last 30 hours, of which 5 hours are exercises. Students are divided into smaller practice groups and each group is assigned an assistant. The assistant trains a group of students in the clinical skills of taking an anamnesis and the status of surgical patients, as well as in the basic techniques of suturing a surgical wound. During the exercises, all students have access to operating rooms, where they learn to behave according to the rules of asepsis. The practical part of the classes is therefore usually held in the morning hours so that students have access to inpatient and outpatient work.
Seminars are a pre-examination obligation for students, which they must prepare in cooperation with the teacher.
Lectures include the general and special part of pediatric surgery. The special part consists of neonatal, abdominal, thoracic surgery, urology and pediatric traumatology.
One week after the class, students have an exam, which consists of two parts. The written exam consists of 30 questions. Passing the written part of the exam is a prerequisite for the oral exam.
The final grade is obtained as the arithmetic mean of the grades from the written exam and the oral part of the exam.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	IX			
Course title	CLINICAL ONCOLOGY	Course code	MFMSE906			
ECTS	2	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			5	35	10	0
Course objectives	To teach students the basics of tumor etiology, general and specific diagnostic and therapeutic procedures with an emphasis on modern treatment of solid tumors. To train students to recognize oncological emergencies, as well as side effects of oncology therapy. Achieve students' understanding of the importance of a holistic approach to oncology patient care, as well as the role of the family physician in the care of these patients.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains the basic concepts of biology, etiology and epidemiology of cancer.	IU-MFMSE906-1	IU-MSE1 IU-MSE5
	Lists and describes the types of primary prevention, secondary prevention and screening methods for certain malignant diseases.	IU-MFMSE906-2	IU-MSE1 IU-MSE10
	Describes a multidisciplinary approach to cancer treatment and types of diagnostics (molecular and laboratory, pathological and cytological).	IU-MFMSE906-3	IU-MSE6 IU-MSE9 IU-MSE10
	Describes the psychosocial approach to the patient with a malignant disease and the role of the family medicine doctor in the comprehensive approach to the oncology patient.	IU-MFMSE906-4	IU-MSE13
	Analyzes and explains the differences between adjuvant treatment, treatment of metastatic disease, treatment of relapse and patients in the terminal phase, and explains the basics of radiotherapy, chemotherapy, hormone therapy, immunotherapy, targeted therapy and other forms of oncology therapy and lists their forms, methods of application, goals and unwanted effects.	IU-MFMSE906-5	IU-MSE1 IU-MSE10
	Lists and classifies the most common side effects of oncology treatment, including emergencies caused by oncology treatment.	IU-MFMSE906-6	IU-MSE4
	Lists and describes the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis in cancer of various organ sites (breast cancer, lung cancer, skin cancer - with special reference to melanomas, tumors of the central nervous system, tumors of the gastrointestinal system, urogenital tumors, gynecological tumors, head and neck tumors).	IU-MFMSE906-7	IU-MSE4 IU-MSE5 IU-MSE6 IU-MSE10 IU-MSE14

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	L1 Introduction to oncology. Tumor biology
		L2 Tumor etiology. Tumor epidemiology. Chemical, physical and biological carcinogenesis.
		L3 Prevention and early diagnosis of malignant tumors. Psychosocial aspects of oncology patients.
		L4 Cytostatic therapy. Radiotherapy. Side effects of oncological treatment.
		L5 Hormonal therapy. Immunotherapy. Other forms of therapy: targeted therapy, gene therapy, photodynamic therapy, hyperthermia, antiangiogenic therapy.
	Seminars	S1 Breast cancer
		S2 Lung cancer

		S3 Skin cancer. Melanoma.
		S4 Tumors of central nervous system
		S5 Gastrointestinal tumors (Part I)
		S6 Head and neck tumors
		S7 Urogenital tumors (Part I)
		S8 Gastrointestinal tumors (Part II)
		S9 Gynecological tumors
		S10 Urogenital tumors (Part II)
	Exercises	E1-E35 Anamnesis and examination in oncology. Approach to the oncology patient depending on tumor location and diagnosis. Work in the ward and clinic. Work in a day hospital (types of oncology therapy, methods of application). Work in the radiotherapy department (process of patient preparation for radiotherapy; CT simulation, contouring of tumor volume and organs at risk, preparation of radiation plan and radiotherapy process, brachyradiotherapy process). Participation in multidisciplinary teams and oncological councils. Psychosocial and nutritional approach to oncology patients. Management of emergency conditions in oncology.
Language	English	
E-learning	Classes are conducted live. If necessary, lectures and seminars can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to max of 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)								
Type of pre-examination obligation						Type of exam		
midterm	seminar paper	essay/report	practical/project task		other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		50	1.6	0%
Pre-exam/Written exam	IU- MFMSE906-1 IU- MFMSE906-2 IU- MFMSE906-3 IU- MFMSE906-4 IU- MFMSE906-5 IU- MFMSE906-6 IU- MFMSE906-7	10	0.4	100%
In total		60	2	100%

Method of calculating the final grade

The assessment of the written part of the test is done as follows:
A = 91-100% 5 (excellent)
B = 79 to 90% 4 (very good)
C = 67 to 78% 3 (good)
D = 55 to 66% 2 (sufficient)
F = 0 to 54% 1 (insufficient)

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Clinical Oncology, editors Anthony J Neal and Peter J Hoskin, 4th edition; 2012. by Taylor and Francis Group		x		x			x			
	Written materials provided by teachers	x			x						x
Additional	Klinička onkologija, izdavači Vrdoljak E, Belac Lovasić I, Kusić		x	x				x			

	Z, Gugić D, Juretić A; 2018. by Medicinska naklada										
	Cancer: Principles and Practice of Oncology, editors DeVita VT, Rosenberg SA, Lawrence TS, 11th edition, 2018. by Lippincott Williams and Wilkins;		x		x			x			
	Perez and Brady's Principles and Practice of Radiation Oncology, editors Halperin EC, Perez CA, Brady LW, Waser DE, 7th edition, 2018. by Lippincott Williams and Wilkins		x		x			x			

Additional course information

Teaching in Clinical Oncology consists of 50 hours (5 hours of lectures, 10 hours of seminars and 35 hours of exercises). Teaching is conducted in the form of lectures, seminars and exercises during which the teacher explains the topic and encourages active and critical thinking of the students and participation in the discussion. Teachers and students discuss the specifics and problems within each topic covered. At the seminars, students actively participate and critically discuss the thematic unit for which they should prepare in advance through the preparation of a seminar paper, in teams of several students, in the form of a structured PowerPoint presentation.
During the exercises, students, with the help of assistants, apply the acquired knowledge practically through work in the clinic, ward, radiotherapy department and participation in multidisciplinary teams and oncology councils.

Attendance records are made for each student.

At the end of the class, there is a mandatory written final exam with multiple choice of answers (one of the five offered answers is always correct).
The assessment of the written part of the test is done as follows:
A = 91-100% 5 (excellent)
B = 79 to 90% 4 (very good)
C = 67 to 78% 3 (good)
D = 55 to 66% 2 (sufficient)
F = 0 to 54% 1 (insufficient)

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	IX			
Course title	GYNECOLOGY AND OBSTETRICS	Course code	MFMSE907			
ECTS	11	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			70	70	60	0
Course objectives	Course objectives are: To achieve knowledge of the basic principles of gynecology and obstetrics. Expand the knowledge and skills necessary for understanding the pathophysiological mechanisms, clinical symptoms, differential diagnostic conclusions, critical evaluation of laboratory findings and rational treatment of the most common gynecological diseases and complications of pregnancy.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Explains and interprets the anatomy of the pelvis and female genital organs	IU-MFMSE907-1	IU-MSE2
	Presents and interprets the normal function of the menstrual cycle and connects the mutual physiological mechanisms by which individual organ systems participate in the hypothalamus-pituitary-ovary axis	IU-MFMSE907-2	IU-MSE2 IU-MSE3
	Critically judges and explains pathophysiological mechanisms, clinical and laboratory features, treatment and prevention of the most common gynecological diseases	IU-MFMSE907-3	IU-MSE4 IU-MSE10
	Explains and interprets the etiological factors of clinical conditions in human reproduction, and lists modern methods of assisted reproductive technology	IU-MFMSE907-4	IU-MSE4 IU-MSE5 IU-MSE10
	Lists and distinguishes between methods of family planning and contraception, explains basic physiological changes and therapeutic options for menopausal changes	IU-MFMSE907-5	IU-MSE5
	Explains and interprets the etiopathogenetic mechanisms of most common disease in gynecological oncology, and presents diagnostic options and modern methods of therapy	IU-MFMSE907-6	IU-MSE2 IU-MSE10
	Presents and explains physiological changes during normal pregnancy, childbirth and puerperium as well as basic events in the newborn age	IU-MFMSE907-7	IU-MSE2
	Critically analyzes and explains pathophysiological mechanisms, clinical and laboratory findings, treatment and prevention of the most common complications of pregnancy, childbirth and puerperium	IU-MFMSE907-8	IU-MSE4
	Lists and classifies by importance emergency conditions in obstetrics and recommends a therapeutic approach	IU-MFMSE907-9	IU-MSE4

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar	
Course content	Week / shift	Topic
	Week 1	Introduction to the course and historical review
		Pelvic and perineum anatomy.
		Gynecological-obstetrics propedeutics
		Fertilization and implantation. Embryology
		Early diagnosis of pregnancy, Development and function of placenta, Physiology and pathology of amniotic fluid.
		Fetal growth and development. Restricted and accelerated fetal growth.

		Physiological changes during pregnancy
	Week 2	Reproductive physiology-normal menstrual cycle
		Antenatal care and monitoring of normal pregnancy
		Diabetes and pregnancy
		Hypertension in pregnancy
		Hereditary diseases and pregnancies, biochemical screening tests, invasive prenatal diagnosis
		Rh immunization and fetal hydrops. Intrahepatic cholestasis in pregnancy.
		Premature labor. Post term pregnancy.
		Multiple pregnancy. Metabolism and nutrition in pregnancy.
	Week 3	Newborn.
		Bleeding in the second half of pregnancy and during delivery. Blood clotting disorders in pregnancy and puerperium.
		Urinary tract infections and TORCH during pregnancy. Intraamniotic infections.
		The mechanism of normal labor. Fetal surveillance in late pregnancy and during labor
		Physiology and pathology of the third and fourth stages of labor. Labor analgesia and anesthesia.
		Puerperium physiology and pathology
		Pathology of labor (anomaly of position and presentation, dystocia, c/p disproportion). Obstetrics surgery.
	Week 4	Ovarian and fallopian tube cancer
		Premalignant and malignant disorders of the vulva and vagina
		Uterine cancer
		Premalignant and malignant disorders of the cervix
		Abnormal (Dysfunctional) uterine bleeding
		Minimally invasive and major surgical procedures in gynecology, preoperative and postoperative care. Uterine fibroids treatment.
		Miscarriage and recurrent miscarriage. Trophoblastic disease
	Week 5	Puberty and menarche. Pediatric and adolescent gynecology.
		. Ectopic Pregnancy
		Family planning. Contraception.
		Urinary incontinence. Pelvic floor defects.
		Endometriosis
		Inflammation of the lower part of the genital tract and pelvic inflammatory disease
		Perimenopause and Postemenopause.
		Amenorrhea and chronic anovulation
		Infertility: diagnosis and treatment.
		Basic principles of assisted reproductive technology
Language	English	
E-learning	Classes are conducted live. If necessary, lectures and seminars can be held combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance and engagement		200	6.6	-
Seminar paper		10	0.4	-
Practical exam	IU-MFMSE907-3 IU-MFMSE907-8	10	0.4	-

	IU-MFMSE907-9			
Pre-exam/Written exam	IU-MFMSE907-1 IU-MFMSE907-2 IU-MFMSE907-3 IU-MFMSE907-7	50	1.6	50%
Pre-exam/Oral exam	IU-MFMSE907-3 IU-MFMSE907-4 IU-MFMSE907-5 IU-MFMSE907-6 IU-MFMSE907-7 IU-MFMSE907-8	60	2	50%
In total		330	11	100%

Method of calculating the final grade

The final grade is the average of the written and oral exam grades.
According to the Rulebook on Studying at the University of Mostar grades are assigned as follows:
0-54% insufficient (1);
55-66% sufficient (2);
67-78% good (3);
79- 90% (very good 4);
91-100% excellent (5).

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Obstetrics and Gynaecology. The Essentials of Clinical Care. E. A. Reece and R. L. Barbieri.: Stuttgart & New York: Thieme, 2010.		x		x			x			
Additional	Obstetrics. 26th Edition. F. Gary Cunningham, et al. Williams. Mc Graw-Hill Companies, 2022.		x		x			x			
	Essentials of Obstetrics & Gynecology. 6th Edition N.F. Hacker, et al. Elsevier, 2016.		x		x			x			

Additional course information

Students are obliged to regularly attend and actively participate in all forms of classes.
The exam in Gynecology and Obstetrics is taken after the class and consists of a written, practical (patient examination with interpretation) and oral part.
The written exam in Gynecology and Obstetrics is mandatory and qualifying for the oral exam. To pass the exam (grade sufficient), the student must answer 55% of the questions correctly.
The oral part of the exam consists of four different areas: 1. practical obstetrics (delivery and puerperium), 2. perinatology (pregnancy, fetus and the newborn), 3. general gynecology with gynecological oncology and urology, 4. human reproduction and gynecological endocrinology (four question-card groups).
The final grade is the average of the grade of the written and oral exam.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	X			
Course title	OTORHINOLARYNGOLOGY - HEAD AND NECK SURGERY	Course code	MFMSE1001			
ECTS	6	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			25	40	10	0
Course objectives	- To accomplish that the undergraduate medical student gains adequate knowledge about causes, clinical features, diagnostics and treatment of the pathological conditions of the ear, nose and paranasal sinuses, oral cavity, pharynx, oesophagus, larynx, trachea, thyroid and parathyroid glands, major salivary glands, and other regions of the face and neck which are an otorhinolaryngologist's area of interest. - To train the medical student to establish diagnosis and provide independently first aid and basic treatment of some otorhinolaryngological problems at the level of primary practice. - To accomplish that student gains positive attitudes that are important for communication with patients, colleagues and co-workers in the medical field.					
Course learning outcomes	Learning outcome (LO) Student:				Course learning outcome code	LO code at the study program level
	Describes and explains applied surgical anatomy of the organs and regions of the head and neck which are an otorhinolaryngologist's area of interest, and uses this knowledge for understanding of the basics of the ENT surgical procedures.				IU-MFMSE1001-1	IU-MSE1
	Describes and explains applied clinical physiology, embryology and histology and uses this knowledge for explanation of pathological conditions of the head and neck which are an otorhinolaryngologist's area of interest.				IU-MFMSE1001-2	IU-MSE1 IU-MSE5 IU-MSE6
	Recognizes, describes and uses independently specific instruments and aids for basic diagnostic procedures to determine the state of the organs of the head and neck dealing with otorhinolaryngology.				IU-MFMSE1001-3	IU-MSE14
	Describes and performs independently management of ENT disorders at the level required for the work of a doctor in primary practice based on the acquired knowledge about etiopathogenesis, clinical picture, and diagnostics in otorhinolaryngology.				IU-MFMSE1001-4	IU-MSE8 IU-MSE10 IU-MSE14 IU-MSE15
	Demonstrates, explains and carries out the transfer of knowledge, prevention and treatment of diseases in areas of otorhinolaryngology at the level of primary practice.				IU-MFMSE1001-5	IU-MSE18 IU-MSE20
	Recognizes and describes ENT emergencies, performs independently basic diagnostics, describes and explains basic management, and provides first aid.				IU-MFMSE1001-6	IU-MSE8 IU-MSE14 IU-MSE15
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.					
Course content	Week / shift	Topic				
	Lectures	(L1) Introduction to ENT & Head and neck surgery. Applied anatomy of the ear. (L2) Physiology of hearing. Assessment of hearing. (L3) Hearing impairment. Tinnitus. (L4) Physiology of vestibular system. Assessment of vestibular system. Vestibular disorders. (L5) Ménière's disease. Vestibular neuronitis. Ear barotrauma. (L6) Inflammation of external ear. Inflammation of middle ear.				

		Inflammation of inner ear. (L7) Complications of otitis. Tumors of the ear and temporal bone. (L8) Ear surgery. Cochlear implants. (L9) Nose and paranasal sinuses: applied embryology, anatomy, physiology. Deformations of the nasal septum and pyramid. Septoplasty, rinoplasty. (L10) Methods of assessment of the nose and paranasal sinuses. Radiologic assessment of the nose and paranasal sinuses. Cutaneous lesions of the external nose; surgical treatment. Tumors of the nasal cavity, paranasal sinuses end nasopharynx. (L11) Injuries of the nose. Foreign bodies in the nose. Inflammation of nasal skin. (L12) Epistaxis. Infectious rhinitis. Non infectious rhinitis. (L13) Acute rhinosinusitis. Chronic rhinosinusitis. Nasal polypi. Antrochoanal polyp. (L14) The mouth and pharynx: applied anatomy and physiology. Waldeyer ring. (L15) Inflammatory diseases of the mouth and pharynx. Laryngopharyngeal reflux. (L16) Complications of tonsillitis. (L17) Tonsil problem. Tonsillectomy, adenoidectomy: indications, basic principles of surgery. (L18) Tumors of the mouth and pharynx. Classification of neck lymph nodes. Neck dissections. (L19) Diseases of major salivary glands (sialoadenitis, sialolithiasis, tumors). Basic principles of surgical treatment (L20) The larynx: applied anatomy and physiology. (L21) Inflammations of the larynx. (L22) Tumors of the larynx. (L23) Malignant laryngeal tumors: basic principles of surgical treatment. Voice and speech rehabilitation following total laryngectomy (L24) A neck lump. (L25) Surgical treatment of the thyroid and the parathyroid gland
	Seminars	(S1) Acute acoustic trauma. Chronic noise trauma. (S2) Emergency conditions in rhinology. (S3) 1. EP3OS- European Position Paper on the Primary Care Diagnosis and Management of Rhinosinusitis and Nasal Polyps. 2. ARIA guidelines. (S4) Inspiratory stridor: differential diagnosis, treatment. Coniotomy, tracheostomy. (S5) The European Society for Clinical Microbiology and Infectious Diseases: Guideline for the management of acute sore throat. (S6) Foreign body in the larynx, trachea, bronchus, and oesophagus. (S7) Ear wax. Foreign body in the ear. (S8) Congenital anomalies of the larynx. (S9) Metastatic neck tumors of unknown primary origin. (S10) Esthetic surgery in otorhinolaryngology: auriculoplasty, rhytidectomy, blepharoplasty, rhinoplasty.
	Exercises (clinical)	(E1) ENT working place. Use of a head mirror and head light. (E2) Instruments for head and neck examination. (E3) Otoscopy. Ear toilet procedure. (E4) Anterior rhinoscopy. (E5) Posterior rhinoscopy. Epistaxis: instruments and materials for anterior and posterior nasal packing. (E6) Oropharyngoscopy. (E7) Indirect laryngoscopy procedure. (E8) Anamnesis in otology, work in the ENT office. (2 hours) (E9) Anamnesis in rhinology, work in the ENT office. (2 hours) (E10) Anamnesis in pharyngology, work in the ENT office. (2 hours)

		(E11) Neck palpation. Anamnesis in laryngology, work in the ENT office. (2 hours) (E12) Acumetry. Hearing aids. Legal rights of hearing-impaired patients. (E13) Audiology Unit. Pure tone audiometry. Tympanometry. Early detection of deafness. (E14) Vestibulology Unit. Vestibulometry (caloric test, rotational test). (E15) Unit for ENT endoscopy. Rigid and flexible endoscopes in ENT. Otomicroscopy. (E16) Work in the ENT ward and Wound Care Unit. (9hours) (E17) Tracheal cannula: types, toilet, change. Care of patient with tracheostomy tube. (E18) Imaging in ENT: Ultrasound, X-rays, CT, MRI. A presentation of normal and pathologic radiographs. (E19) Specificities of the ENT operating theater. Equipment for microlaryngoscopy, rigid esophagoscopy, and tracheobronchoscopy. Work in the ENT operating theater. (5 hours) (E20) Midterm exam - assessment of student's competencies adopted in the clinical practicals/exercises (written test, performance of ENT clinical skills, interpretation of plain radiographs, solving a problem in the imaginary ENT scenario). (5 hours)
Language	English	
E-learning	Classes are performed using traditional classroom teaching. In a case of need, lectures and seminars could be performed using a hybrid model (mix of offline and live online) of teaching or using only live online teaching via platforms for e-learning (Google Meet) up to a maximum of 20%.	
Teaching methods	Lecture method/Teacher-centered methods, interactive/participative methods, clinical teaching on the wards and in the clinic.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	Practical/project task	other	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance and participation		75	2.5	0%
Seminar work		10	0.3	0%
Midterm exam - assessment of student's competencies adopted in the clinical practicals (1. Written test from ENT propedeutics, 2. Independent performance of ENT clinical skills, 3. Interpretation of plain radiographs, 4. Solving a problem in the imaginary ENT scenario).	IU-MFMSE1001-3 IU-MFMSE1001-4 IU-MFMSE1001-6	10	0.3	0%
Pre-exam/Final exam	IU-MFMSE1001-1 IU-MFMSE1001-2 IU-MFMSE1001-4 IU-MFMSE1001-5 IU-MFMSE1001-6	85	2.9	100%
In total		180	6	100%

Method of calculating the final grade
The final grade is obtained on the basis of the final written or oral exam. A detailed description is given in the additional information about the subject.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Becker W, Naumann HH, Pfaltz CR, Behrbohm H.		x		x			x			

	Ear, nose, and throat diseases with head and neck surgery. 3rd edition. Stuttgart, New York: Thieme, 2009.										
Additional	Scholes MA, Ramakrishnan VR. ENT Secrets, 4th edition. Philadelphia: Elsevier, 2016.		x		x			x			
	ESCMIDSore Throat Guideline Group, Pelucchi C, Grigoryan L, Galeone C, et al. Guideline for the management ofacute sore throat. Clin Microbiol Infect. 2012; Suppl 1:1-28.		x		x				x		
	Thomas M, Yawn BP, Price D, Lund V, Mullol J, Fokkens W; European Position Paper on Rhinosinusitis and Nasal Polyps Group. EPOS Primary Care Guidelines: European Position Paper on the Primary Care Diagnosis and Management of Rhinosinusitis and Nasal Polyps 2007 - a summary. Prim Care Respir J.2008;17:79-89.		x		x				x		
	Brożek JL, Bousquet J, Agache I, Agarwal A, Bachert C, Bosnic-Anticevich S, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines-2016 revision. J Allergy Clin Immunol. 2017;140:950-8.		x		x				x		
	- Presentations of lectures are available to students. - Video presentations of skills performed on education medical models are available to students at the course website	x	x		x						x
Additional course information											
Remarks about classes - The working day starts with lectures, followed by seminars and ends with clinical exercises. At seminar, the student presents an ENT topic or problem. Clinical exercises are coordinated with the lectures, and after the topic is elaborated at the lecture, it should be demonstrated and practiced during the consecutive practical. At special clinical exercises, the student learns about the instruments and devices used to diagnose and treat ENT diseases. The students train first on each other in order to learn how to use safely these tools and comprehend a normal appearance of investigated organs. Afterwards, students use adopted clinical skills to examine the patients. In practices and offices of the Polyclinic and hospital infirmaries, the student assists the specialist or independently performs diagnostic procedures or therapeutic interventions with the supervision and assistance of the ENT specialist. In operating rooms, the student is acquainted with materials, instruments, devices and procedures that are specific to otorhinolaryngology and head and neck surgery. The students monitor and assist during head and neck surgical procedures, and work independently on primary treatment of minor wounds with specialist supervision.										

Midterm exam (written, practical, oral) – The last day of teaching is reserved for an assessment of student's competencies adopted in the clinical exercises. The student:
1. Performs ENT propedeutics written test,
2. Performs independently ENT clinical skills,
3. Interpretates plain radiographs,
4. Solves a problem in the imaginary ENT scenario.

A record in a student dossier is: passed/not passed. The practical part of the exam is recognized during the current academic year.

Regular attendance on clinical exercises (minimum 80%) and passing the midterm practical exam are prerequisite for taking the final exam. Absence from exercises must be compensated. Student missing more than 20% of exercises will have to work at the ENT Polyclinic of the Department of Otorhinolaryngology of the University Hospital in Mostar and approach an exam with a certificate of attendance signed by an ENT specialist.

Final exam:

- 1st term exam is in the form of written test (54 questions, multiple choices, one correct answer)

GRADE	CORRECT ANSWERS
excellent (5 - A)	49 - 54
very good (4 -B)	43 - 48
good (3 - C)	37 – 42
sufficient (2 - D)	30 - 36
insufficient (1-F)	≤ 29

- Next (2nd, 3rd, and 4th term exam) is in the form of oral exam only (a list containing examination questions is available at the course website).

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	X			
Course title	MAXILLOFACIAL SURGERY	Course code	MFMSE1002			
ECTS	1.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			8	10	7	0
Course objectives	To achieve adequate knowledge about the causes, clinical finding, diagnosis and treatment of most pathological conditions in the area of the face, jaw, oral cavity, paranasal sinuses, large salivary glands and neck, which are in the area of work of the maxillofacial surgeon. To acquire the appropriate skills that enable diagnosis, first aid and problem solving in the field of maxillofacial surgery at the level of general practice.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains the surgical anatomy of the organs and regions of the head and neck	IU-MFMSE1002-1	IU-MSE1
	Analyzes the basics of clinical physiology, embryology and histology to explain the pathological conditions of the head and neck region	IU-MFMSE1002-2	IU-MSE2
	Performs diagnostics and treatment at the level required for the work of a doctor of medicine in general practice	IU-MFMSE1002-3	IU-MSE6
	Uses specific instruments for basic diagnostic procedures in the head and neck region	IU-MFMSE1002-4	IU-MSE10 IU -MSE11
	Diagnoses and provides first aid in emergency situations of the head and neck region, especially facial and jaw bone fractures and soft tissue injuries	IU-MFMSE1002-5	IU-MSE10 IU-MSE11

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	lectures	L1 Introduction to the maxillofacial surgery L2 Introduction to the dental medicine L3 Facial bones traumatology L4 Facial and jaw deformities L5 Head and neck tumors L6 Inflammation in the head and neck region L7 Malformations of the head and neck L8 Plastic and reconstructive surgery of the head and neck
	seminars	S1 Classification of the skin flaps S2 Reconstruction and aesthetic surgery of the head and neck S3 Odontogenic inflammations - principles of treatment S4 Osteosynthesis of the mandible and maxilla – principles of treatment S5 Neck dissections - classification S6 Cleft lip and palate - surgical techniques S7 Preoperative planning in the orthognathic surgery
	exercises	E1 Clinical examination of the patient E2 Suturing materials - basic division E3 Suturing the wound on the model E4 IMF setting E5 Osteosynthesis of the lower jaw E6 Osteosynthesis of the midface

		E7 Local flaps in the head and neck region E8 Postoperative patient care E9 X-ray analysis in the facial bone fractures E10 Dental models, clinical photographs and x-rays analysis in the head and neck deformities
Language	English	
E-learning	Classes are conducted live. If necessary, lectures and seminars can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20%.	
Teaching methods	Teaching lectures, interactive and clinical-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
attending classes		25	0,9	0%
midterm	IU-MFMSE1002-3 IU-MFMSE1002-4	5	0,1	0%
Pre-exam /final exam	IU-MFMSE1002-1 IU-MFMSE1002-2 IU-MFMSE1002-5	15	0,5	100%
In total		45	1,5	100%

Method of calculating the final grade

The final grade is obtained on the basis of the final written or oral exam. A detailed description is given in the additional information about the subject.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Lukšić at colleagues: Maxillofacial surgery, "Naklada Ljevak" University of Zagreb, 2023.		x	x	x			x			
Additional											

Additional course information

Teaching in maxillofacial surgery consists of 25 hours and is taken over four days. Teaching consists of lectures, seminars and exercises. Each day begins with a lecture, continues with seminar groups where students present and analyze the topics of the prescribed seminars. After the seminar, students attend exercises in groups in the patient ward, outpatient department and operating room. The knowledge check before the final written exam will be carried out through a mid-term at the end of the class. Mid-term - includes verification of acquired clinical skills and is conducted as a written test and a test of performing clinical skills - interpretation of patient findings (radiological, laboratory, pathohistological). Participation in classes (minimum 80%) and passing the mid-term are the conditions for taking the final exam. The final exam (preliminary term/first exam term) is conducted exclusively by written test (30 questions, multiple choice, one correct answer).

EVALUATION POINTS

Excellent (5) 28-30
Very good (4) 25-27
Good (3) 20-24
Sufficient (2) 17-19
Insufficient (1) 0-16

All subsequent deadlines for students who did not take the exam, did not pass the exam or want a higher grade is oral. The exam consists of 4 questions (traumatology, malformations and deformities, tumors, inflammatory diseases of the head and neck).

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	X			
Course title	OPHTHALMOLOGY	Course code	MFMSE1003			
ECTS	5.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	30	15	-

Course objectives	The goals of this course are: -to extend student's knowledge about the structure and function of the healthy eye -to train the students in recognition of frequent disorders and diseases of the eye, as well as enable them to perform the basic clinical examination and diagnostic procedures -to achieve student's understanding about basic principles of treatment in ophthalmology		
Course learning outcomes	Learning outcome (LO)	Course learning outcome code	LO code at the study program level
	Describes the basics of anatomical and functional features of the vision organ	IU-MFMSE1003-1	IU-MSE2
	Analyses the structural and functional disorders of the eye and connects them with the first signs and symptoms of the disease	IU-MFMSE1003-2	IU-MSE4
	Describes different causes of eye diseases (genetic, metabolic, autoimmune, degenerative, and microbiological) and interprets the mechanism of their effect on the eye and visual function	IU-MFMSE1003-3	IU-MSE5
	Connects and applies the knowledge about clinical, laboratory and imaging features of an eye disease and performs differential diagnostic considerations and conclusions	IU-MFMSE1003-4	IU-MSE8
	Takes the complete history and performs basic clinical examination of ophthalmological patient, integrates obtained information in establishing current diagnosis and suggests treatment options	IU-MFMSE1003-5	IU-MSE14
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.		
Course content	Week / shift	Topic	
	Lectures	L1 Introduction to ophthalmology, anatomy, and physiology of the eye L2 Symptoms, clinical examination, and diagnostic procedures in ophthalmology L3 The refraction of the eye L4 Eyelids and lacrimal system L5 Orbit L6 Conjunctiva L7 Cornea and sclera L8 Uvea L9 Lens L10 Glaucoma L11 Neuroophthalmology L12 Pediatric ophthalmology L13 Vascular disorders of the retina	

		L14 Vitreous body and degenerative retinal diseases L15 Macula L16 Ocular tumors L17 Ocular trauma L18 Emergencies in ophthalmology L19 Ocular manifestations of the systemic diseases L20 Visual rehabilitation
	Exercises	E1 History and clinical examination in ophthalmology E2 Correction of the refractive errors, slit lamp examination E3 Slit lamp examination, corneal tests and tear film tests E4 Slit lamp examination, diagnostic procedures in glaucoma patients E5 Ophthalmological examination in children E6 Visual field-perimetry, pupillary reactions, ophthalmoloscopy E7 Ophthalmoloscopy, OCT, FA, color vision E8 Ophthalmoloscopy, OCT, FA, ultrasound of the eye E9 Slit lamp examination, ophthalmoloscopy E10 Laboratory and radiological procedures in ophthalmology
	Seminars	S1 Refractive errors S2 Dry eye - epiphora S3 Orbital diseases S4 Conjunctivitis-keratitis S5 Cornea-transplantation and refractive surgery S6 Specific immune reaction of the eye S7 Uveitis-endophthalmitis S8 Cataract S9 Acute attack of angle closure and neovascular glaucoma S10 Optic neuritis-Optic neuropathy S11 Strabismus and amblyopia S12 Retinopathy-maculopathy S13 Specific therapeutic approaches in ophthalmology S14 Differential diagnosis of the red eye S15 Differential diagnosis of visual impairment
Language	English	
E-learning	Classes are conducted in person (live). If necessary, lectures and seminars can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to max 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/ report	practical/project task	other	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		65	2.1	
Pre-exam/Written exam	IU-MFMSE1003-1 IU-MFMSE1003-2 IU-MFMSE1003-3 IU-MFMSE1003-4	45	1.5	50%
Seminar paper	IU-MFMSE1003-2 IU-MFMSE1003-3	15	0.5	0%
Pre-exam/Oral exam	IU-MFMSE1003-2 IU-MFMSE1003-3	40	1.4	50%

	IU-MFMSE1003-4 IU-MFMSE1003-5			
In total		165	5.5	100%

Method of calculating the final grade

The final grade is calculated as the arithmetic mean of the grades obtained on the written and oral parts of the exam, that is: (Written + Oral)/2.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	Croatian	English	other	multilingual	book	article	script	other
Compulsory	Ophthalmology, G.K. Lang, Thieme, 2016.		x		x			x			
Additional	Lecture notes	x			x						x

Additional course information

Teaching:

The course is taken over 65 hours or 2 weeks and consists of 15 teaching units. Each unit has 1-2 hours of lectures, 1 hour of seminars for verification and determination of the knowledge and 2 hours of exercises with assistants for practical application of acquired knowledge during the examination of ophthalmological patients. At seminars students will actively participate and discuss about given thematic unit, for which they have to be prepared through the seminar presentation. They will be divided in groups of 3-5 students and required to make their presentation in PowerPoint module.

Written exam

The written exam will be held in pre-exam after ophthalmology lectures have been done. It contains 50 questions with multiple choice of answers (only one of them is correct). To pass the exam (grade sufficient), the student must answer 55% of the questions correctly, i.e., must obtain at least 28 points.
According to the Rulebook on studying at the University of Mostar, grades are assigned as follows:
0-54% insufficient (1);
55-66% sufficient (2);
67-78% good (3);
79-90% (very good 4);
91-100% excellent (5).

Pre-exam is to be held several days after the last day of classes.

Oral exam contains the most important parts of ophthalmology. Through 3-4 questions the integrative knowledge will be tested, which is important for understanding a whole unit of lectures and is a sufficient basis for medical practice.
Condition for accession to oral exam is: that student has successfully passed written exam and has participated in the seminar production.

Final evaluation is calculated as arithmetic mean of the grades obtained in the written and oral exam, respectively: (W+O)/2.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	X			
Course title	ORTHOPAEDICS AND TRAUMATOLOGY	Course code	MFMSE1004			
ECTS	6	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	40	15	0
Course objectives	To enable the students to learn about congenital and developmental diseases of the locomotor system, inflammatory and degenerative diseases, circulatory diseases, tumors, injuries, amputations and prosthetics, joint arthroplasty. The classes cover the knowledge in basic medical subjects with emphasis on functional anatomy of the locomotor system. Furthermore, they cover the acquired knowledge in clinical subjects, especially internal medicine with emphasis on clinical immunology and rheumatology, neurology and partly paediatrics.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	IU code at the study program level
	Understands anatomy, function and biomechanics of osteomuscular system.	IU-MFMSE1004-1	IU-MSE2
	Learns and comprehends main diagnostic procedures of injuries and diseases of osteomuscular system.	IU-MFMSE1004-2	IU-MSE8
	Describes and explains the basics of orthopedic diseases as well as injuries, etiology, clinical features, diagnostics and treatment of orthopedic patients.	IU-MFMSE1004-3	IU-MSE8
	Acquires and demonstrates the skills in diagnostic and therapeutic procedures.	IU-MFMSE1004-4	IU-MSE8
	Describes and applies the preventive measures in a timely manner.	IU-MFMSE1004-5	IU-MSE10

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Teaching units	(T1) Introduction – orthopedics through history, morphology and function of LMS, clinical features and methods of treatment. Orthopedic procedures in general (conservative and surgical). Orthopedic examination, radiology diagnostics. Working at the clinic and department. Working in the operating room (T2) General disorders of muscle-skeletal system. Bone dysplasions – achondroplasia, mucopolysaccharidosis, osteogenesis imperfecta, arthrogryposis, metabolic and hormonal diseases – osteoporosis, Paget disease, gout, rickets. (T3) Juvenile osteochondrosis, bone circulation disorders and epiphyseal/apophyseal ossification disorders. Postural deformations. Clinical cases – juvenile osteochondrosis, aseptic femur head necrosis (T4) Bones and joints of the lower limb – pelvis and hip. Degenerative joint diseases. (T5) Clinical cases – degenerative joint diseases, osteoarthritis, intervertebral disc hernia. (T6) Inflammatory diseases of the musce-skeletal system – specific and nonspecific osteomyelitis, infective arthritis, rheumatoid arthritis.
		(T7) Scoliosis. Orthopedic technique. Congenital hip dislocation – diagnosis and treatment. Plaster – conservative treatment. Tumors of the musculosceletal system. Palsies. Sympathetic reflex dystrophy – Sudeck

		disease.
		(T8) Vertebral column – congenital and developmental disorders. Thorax. (T9) Shoulder girdle. Arm. (T10) Pelvic girdle. Hip and upper leg – arthroplasty, epiphyseolisis of femoral head, Legg-Calve-Perthes disease. Knee. (T11) Lower leg, foot. Canalicular syndromes. Immobilization of bone fractures. Osteosynthetic materials. Fracture reduction. Monitoring of treatement of fractures and luxations (T12) Introduction – approach to the injured person. LMS injuries in general. Basic principles of fractures and fracture management and joint luxations. Clinical cases – surgical and conservative management of bone fractures and joint luxations. (T13) LMS injuries in children. Vertebral column, thorax and pelvis injuries. Clinical features of LMS injuries in children. (T14) Upper limb fractures. Pseudoarthrosis. (T15) Upper limb fractures.
Language	English	
E-learning	Classes are held in person. If needed, lectures and seminars can be held combined (in person and online) or fully online over the E-learning platforms (Google Meet) up to max of 20%.	
Teaching methods	Lecturing, interactive and experience based.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance and participation		75	2.5	0 %
Seminar paper	IU-MFMSE1004-3	10	0.3	0 %
Pre-exam/Written exam	IU-MFMSE1004-1 IU-MFMSE1004-2	40	1.3	50 %
Pre-exam/Practical exam	IU-MFMSE1004-4 IU-MFMSE1004-5	15	0.5	0 %
Pre-exam/Oral exam	IU-MFMSE1004-1 IU-MFMSE1004-2 IU-MFMSE1004-3 IU-MFMSE1004-5	40	1.4	50%
In total		180	6	100%

Method of calculating the final grade

Orthopedic surgery and traumatology exam consists of three parts: written, practical and oral exam.

Written exam consists of 50 multiple-choice questions. Based on the number of correct answers the exam is graded as following:
45-50 points = grade 5
40-44 points = grade 4
35-39 points = grade 3
30-34 points = grade 2
Once passed, the written exam is valid throughout the full academic year and that part of the course won't have to be retaken.
In the practical exam, student is assigned one patient at the Orthopedic surgery clinic. The student has to examine the patient and suggest treatment. The practical exam is graded either as a pass or fail.
Oral exam is taken after passing the practical exam. In an oral exam student draws 4 cards with questions divided in the same number of categories. Student needs to demonstrate the basic knowledge in all drawn topics in order to pass the exam.
The final grade is the average of grades obtained in written and oral exam.

Students are able to take the exam in regular summer and autumn exam periods.											
Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Blom A, Warwick D, Whitehouse M: Apley & Solomon's System of Orthopaedics and Trauma, CRC Press, 2017.		X		X			X			
Additional	Canale et al: Campbell's Operative Orthopaedics, Elsevier, 2016		X		X			X			
Additional course information											
Course quality assessment: - Student questionnaire - Quality analysis from students and teachers - Analysis of exam results - Report of office for teaching control - External evaluation (visit of quality control team)											

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	X			
Course title	PHYSICAL AND REHABILITATION MEDICINE	Course code	MFMSE1005			
ECTS	2	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			10	20	10	0
Course objectives	- Acquisition of basic knowledge and skills in the fields of medical history, clinical examination, diagnostics and treatment in physical and rehabilitation medicine - Understanding the basic principles of rehabilitation in modern society, with special reference to the importance of the biopsychosocial approach in teamwork in the rehabilitation process					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Explains the role, relationship and basic principles, and applies the procedures of physical medicine and rehabilitation in the treatment of patients.	IU-MFMSE1005-1	IU-MSE1 IU-MSE2
	Analyses and differentiates rehabilitation categories according to World Health Organization criteria.	IU-MFMSE1005-2	IU-MSE10
	Independently demonstrates taking a medical history and performing a clinical examination using the physiatry-rheumatology propaedeutics principles.	IU-MFMSE1005-3	IU-MSE6 IU-MSE10 IU-MSE14
	Creates a rehabilitation approach, recognizes indications and contraindications for physical therapy.	IU-MFMSE1005-4	IU-MSE6 IU-MSE10 IU-MSE11
	Presents the basic modalities of diagnosis and treatment in physical rehabilitation medicine, recognizes the importance of the biopsychosocial approach in the processing and treatment of patients.	IU-MFMSE1005-5	IU-MSE9 IU-MSE11

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	(L1) – Introduction to physical medicine and rehabilitation. The role and significance of rehabilitation. Determining the goal and rehabilitation plan.
		(L2) – Principles and forms of rehabilitation of the locomotor system diseases and injuries. Rehabilitation after placement of artificial joints.
		(L3) – Types of physical therapy procedures in treatment
		(L4) – Deformities of the spine. Hip deformities. Physical therapy, electrotherapy.
		(L5) – Principles and forms of rehabilitation of diseases and injuries of the central and peripheral motor neuron
		(L6) – Habilitation and rehabilitation of children with cerebral damage. Bobath therapy.
		(L7) – Rehabilitation of people with limb amputations
		(L8) – Principles and forms of rehabilitation of inflammatory rheumatic diseases and degenerative joint diseases
	Seminars	(S1) – Orthoses and orthotics
		(S2) – Amputations and prosthetics. Principles of amputee rehabilitation
		(S3) – Rehabilitation principles in musculoskeletal injuries

		(S4) – Functional anatomy of walking and posture
		(S5) – Pharmacological and non-pharmacological methods of treatment and rehabilitation
	Exercises	(E1) – Types of physical therapy and their application
		(E2) – Rehabilitation of children with special needs
		(E3) – Rehabilitation of children with cerebral damage
		(E4) – Rehabilitation of neurological and rheumatic patients
		(E5) - Rehabilitation of patients with degenerative diseases and locomotor system trauma
Language	English	
E-learning	If necessary, lectures and seminars can be held online (with Google Meet application) up to max of 20%.	
Teaching methods	Teaching methods, participatory and interactive methods.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	written exam	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attendance		40	1.3	5 %
Pre-exam/Practical exam	IU-MFMSE1005-3	6	0.2	10 %
Pre-exam/Oral exam	IU-MFMSE1005-1 IU-MFMSE1005-2 IU-MFMSE1005-4 IU-MFMSE1005-5	14	0.5	85 %
In total		60	2	100 %

Method of calculating the final grade

The final grade is the sum of = attendance 5 % + practical exam 10 % + final oral exam 85 %. Details are explained below in additional course information.
According to the Rulebook on studying at the University of Mostar, the final grade is assigned as follows:
0-54%, insufficient (1);
55-66%, sufficient (2);
67-78%, good (3);
79- 90%, very good (4);
91-100%, excellent (5).

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	Croatian	English	other	multilingual	book	article	script	oth.
Compulsory	Cameron M.H. Physical Agents in Rehabilitation. From Research to Practice, fourth edition. Elsevier Saunders, 2013. Missouri.		x		x			x			
Additional	Sivan M., Phillips M., Baguley I., Nott M. Oxford handbook of rehabilitation medicine. Oxford University Press, 2019. New York.		x		x			x			

Additional course information

Teaching is conducted in the form of lectures, seminars and exercises. Lectures and seminars are held at the School of Medicine of the University of Mostar, while exercises are conducted at the Clinic for Physical Medicine and Rehabilitation and the Clinic for Children's Diseases of the University Clinical Hospital Mostar. Students are mandatory to regularly attend and participate in lectures, seminars and exercises.

Attendance at all classes is checked. Attendance at classes (lectures, seminars, exercises) will be evaluated with a maximum of 5 points.

5 points - 100% attendance at all classes (lectures, seminars, exercises)
4.25 points - one absence from any form of teaching
3.5 points - two absences
2.75 points - three absences
0 points - four absences

The final exam consists of a practical and theoretical part.

Practical part of the exam is practical examination with a patient. The practical part of the exam is worth 10 points. Passing the practical part of the exam is a condition for accessing the theoretical part of the final exam, and as such is valid for the entire academic year.

10 points - excellent (5)
8.5 points - very good (4)
7.0 points - good (3)
5.5 points - sufficient (2)
0 points - insufficient (1)

The oral theoretical part of the exam includes a test of knowledge from the entire material and the ability to conclude and connect the theoretical knowledge as a whole. It is evaluated with 85 points.

85 points - excellent (5)
72.25 points - very good (4)
59.5 points - good (3)
46.75 points - sufficient (2)
0 points - insufficient (1)

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	X			
Course title	ENVIRONMENTAL AND OCCUPATIONAL HEALTH	Course code	MFMSE1006			
ECTS	3	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	20	20	-
Course objectives	The objectives of this course are: to familiarize students with chemical, biological and physical factors of the immediate living and working environment, methods of monitoring and risk assessment, health effects and temporary or permanent consequences of exposure, including emergency situations that can negatively affect human health. To acquaint students with global health and environmental problems, the basics of health aspects of urbanization and housing, the public health significance of nutrition, nutritional supplements, laboratory testing and monitoring, methods of monitoring exposure to harmful environmental factors and assessment of health effects. Through the basics of work physiology and psychology, students will expand their knowledge in these areas and acquire basic skills in occupational health and occupational health protection. Knowledge of the field of occupational health also includes a part of clinical medicine, and students will be trained to apply the acquired clinical knowledge in the assessment of work ability, and will expand their knowledge in the differential diagnosis of health disorders and determining the etiology of the clinical presentation of the disease, as well as to recognize, detect early, and prevent diseases caused or aggravated by work and exposure to harmful environmental factors.					
Course learning outcomes	Learning outcome (LO) Student:			Course learning outcome code	LO code at the study program level	
	Assesses the adverse health effects of environmental factors, conditions and work methods;			IU-MFMSE1006-1	IU-MSE5	
	Explains the causes and prevention of injuries at work, occupational diseases, work-related diseases, and other acute or chronic diseases and conditions important for the morbidity of workers that cause temporary or permanent incapacity for work;			IU-MFMSE1006-2	IU-MSE8	
	Participates in the work of multidisciplinary professional teams, by applying acquired knowledge and skills;			IU-MFMSE1006-3	IU-MSE9	
	Assesses the urgency and need to act in accordance with standard procedures in case of poisoning and accidents at work, if the conditions allow it;			IU-MFMSE1006-4	IU-MSE11	
	Clarifies the dependence of health and disease on chemical, biological and physical factors related to the immediate living and working environment, including emergency situations;			IU-MFMSE1006-5	IU-MSE13	
	Takes occupational anamnesis;			IU-MFMSE1006-6	IU-MSE14	
	Proposes measures to prevent and mitigate environmental disasters;			IU-MFMSE1006-7	IU-MSE15	
	Argues positions on the benefits of a multidisciplinary approach in solving the complex relationship between living and working conditions;			IU-MFMSE1006-8	IU-MSE18	
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.					
	Week / shift	Topic				

Course content	Lectures	(L1) History of environmental health (L2) Environmental factors (L3) Environment, work and health (L4) Health effects of air pollution. Risk management (L5) Principles of occupational health (L6) Principles of health risk assessment (L7) Risk assessment in environmental health and occupational health (L8) Risk management in environmental health and occupational health (L9) Determination of individual and population exposure (L10) Physical factors in the general and working environment (L11) Biological factors in the general and working environment (L12) Chemical factors in the general and working environment (L13) Global health and environmental problems (L14) Health aspects of housing and urbanization (L15) Water and health (L10) Nutrition and health (L11) Laboratory testing and monitoring (L12) Occupational physiology and psychology (L13) Protection against the effects of work environment factors (L14) Occupational diseases, work-related diseases and work-related injuries
	Seminars	(S1) Global environmental problems and health (S2) Threat assessment and exposure control (S3) Water and health (S4) Occupational health in practice (S5) Protection against the effects of work environment factors (S6) Measurement of physical factors on site and interpretation of measurement results (S7) Threat assessment and prevention of exposure to chemical factors at the workplace and in the environment (S8) Risk assessment and prevention of exposure to physical factors at the workplace and in the environment (S9) Exposure to ionizing and non-ionizing radiation (S10) Disinfection, disinfestation and pest control (S11) Occupational and work-related diseases (S12) Workplace and cancer (S13) Injuries at work (S14) Assessment of work capacity
	Exercises	(E1) Occupational health clinic (E2) Supervision of food and water safety (E3) Contaminants in foodstuffs (E4) Water supply and waste water disposal (E5) Disinfection, disinfestation and pest control (E6) Chemical factors at the workplace (E7) Monitoring of chemical pollution at the workplace and in the environment (E8) Epidemiological methods in hazard identification (E9) Overcoming risks and measures of protecting the health from environmental factors (E10) Conduct in emergency circumstances (E11) Risk assessment and prevention of exposure to chemical and physical factors at the workplace and in the environment
Language	English	
E-learning	Up to 20% (Lectures and seminars only).	
Teaching methods	lecturing methods (lecture, presentation, demonstration) participatory and interactive methods (free and guided conversation, dialogue, discussion, debate, negotiation, mediation) research methods (project, case analysis, interview, survey, questionnaire, field work, brainstorming)	
Types of assessment (indicate - **Bold**)		

Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance and participation		60	2	0 %
Seminar paper		5	0.15	0 %
Pre-exam/Written exam	IU-MFMSE1006-1 IU-MFMSE1006-2 IU-MFMSE1006-4 IU-MFMSE1006-5 IU-MFMSE1006-7	15	0.5	50 %
Oral exam	IU-MFMSE1006-1 IU-MFMSE1006-2 IU-MFMSE1006-3 IU-MFMSE1006-5 IU-MFMSE1006-6 IU-MFMSE1006-8	10	0.35	50 %
In total		90	3.0	100 %

Method of calculating the final grade

The subject exam is written and oral.
Written test (full written test 50 % of the grade)
All those who regularly attended classes have the right to take the written part. Also, the written exam can be taken by students who have passed the pre-final exams of the teaching units during which they were not in class (20 %). The written exam contains 50 questions.
Passing the written exam is a prerequisite for taking the oral exam. The final grade entered in the student grade book (index) is the average grade of the written and oral part of the exam.
According to the Study Regulations, the final grade is obtained by the arithmetic mean of the grades on the written and oral parts of the exam, while the grade of the written part of the exam is determined as follows:
A = 91-100 % 5 (Excellent)
B = 79 to 90 % 4 (Very good)
C = 67 to 78 % 3 (Good)
D = 55 to 66 % 2 (Pass)
F = 0 to 54 % 1 (Fail)

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Current Diagnosis and Treatment Occupational and Environmental Medicine, 6th Edition. LaDou J, Harrison R. McGraw Hill 2022		x		x			x			
Additional	Zdravstvena ekologija i medicina rada, Capak K. Bubaš M, Medicinski fakultet, Mostar, 2022	x		x						x	

Additional course information

The class of the Environmental and Occupational Health consists of 14 thematic units. Each unit comprises: 1-2 hours of lectures, 1-3 hours of seminars and 1-3 hours of exercises.
Class quality monitoring methods:
- Student survey
- Analysis of teaching quality by students and teachers
- Analysis of exam passing rate
- Report by the Office for Teaching Quality
- Self-evaluation and extra-institutional evaluation (visit of teams for quality control)

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	5	Semester	X			
Course title	EPIDEMIOLOGY WITH CLINICAL ROTATION	Course code	MFMSE1007			
ECTS	3	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			20	30	20	0
Course objectives	Understanding the mechanisms of the origin, spread and distribution of diseases in the population, and ways to suppress the spread of epidemics of infectious diseases, as well as ways to fight against chronic non-infectious diseases.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Plans and defines epidemiological research, analyzes epidemiological data.	IU-MFMSE1007-1	IU-MSE1
	Evaluates the application of epidemiological research methods.	IU-MFMSE1007-2	IU-MSE8
	Solves problem tasks with basic measures of frequency (incidence, prevalence, mortality and lethality).	IU-MFMSE1007-3	IU-MSE10
	Analyzes the current situation of the epidemic in Bosnia and Herzegovina and the surrounding area.	IU-MFMSE1007-4	IU-MSE5
	Implements current epidemiological measures to control and prevent infectious and non-infectious diseases.	IU-MFMSE1007-5	IU-MSE10
	Explains models of surveillance of infectious and mass non-infectious diseases, and discusses the importance of immunization.	IU-MFMSE1007-6	IU-MSE18

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	LECTURES	(L1) Basic definitions, disease models and division of epidemiology. (L2) Epidemiological methods: natural course of infectious and non-infectious diseases, epidemiological variables, epidemiological research, epidemiological measurements. (L3) Causes of disease-risk factors: physical, chemical, biotic and psychosocial. (L4) The role of persons and causative agents. (L5) Vogralik's chain. (L6) Prevention (primary, secondary and tertiary) of infectious and chronic non-infectious diseases. (L7) Epidemiology of droplet, intestinal, blood-borne diseases. Anthropozoonosis. (L8) Vaccination. (L9) Military epidemiology. (L10) Communications in epidemiology. (L11) Hospital infections. Naturally-focal infections. (L12) Surveillance of infectious diseases. Chronic non-infectious diseases. (L13) Threatening infectious diseases. (L14) Prevalence of tuberculosis.
	SEMINARS	(S1) Comparison of measurements from three or more independent samples, categorical data analysis, numerical data association analysis (S2) Health statistics, vital statistics, demographic statistics (S3) Analytical, experimental and meta analysis (S4) Types of epidemiological measures, frequencies and associations.

		(S5) Epidemiology of mass non-infectious diseases, measures of incidence, associations and potential impact. (S6) Blood-borne diseases, techniques of epidemiological surveillance of hospital infections. (S7) Planning mandatory vaccinations, optional vaccines, vaccinations under certain epidemiological circumstances, and the importance of vaccines. (S8) DDD in infectious disease surveillance (S9) Intestinal infectious diseases, anthropozoonosis, preventable infectious diseases. (S10) Epidemiology of infectious diseases transmitted by insects
	EXERCISES	(E1) Descriptive epidemiology (E2) Calculation of incidence, prevalence, mortality rate. (E3) Calculation of sensitivity, specificity, positive and negative predictive value of the diagnostic test. Epidemiological indicators of health status (E4) Law on the Protection of the Population from Infectious Diseases. (E5) Familiarization with the work of the epidemiological service.
Language	English	
E-learning	Classes are conducted live. If necessary, lectures and seminars can take place in combination or completely online through the e-learning system up to a maximum of 20%.	
Teaching methods	Teaching methods and participatory and interactive methods.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		70	2.3	10%
Pre-exam/written exam	IU- MFMSE1007-1,2,3,4,5,6	14	0.5	80%
Final oral exam	IU- MFMSE1007-1,2,3,4,5,6	6	0.2	10%
In total		90	3	100%

Method of calculating the final grade

Final exam (maximum 32 points)

The final exam tests key, specific competencies.

The final test has 32 questions. A student who correctly solves less than 18 questions (55%) of the final test does not receive a grade higher than F.

Final grade

is the sum of ECTS grades achieved during classes and on the final exam, and is determined based on the absolute distribution according to the Rulebook on studying at the University of Mostar:

A = 91-100% 5 (excellent)
B = 79 to 90% 4 (very good)
C = 67 to 78% 3 (good)
D = 55 to 66% 2 (sufficient)
F = 0 to 54% 1 (insufficient)

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Gordis L. Epidemiology, 3rd ed. WB SANDESS Company PHILADELPHIA,2004.		x		x			x			
	Gamulin S. Clinical research clinical epidemiology. Medicinska naklada		x		x			x			

	2012.										
Additional	David L Heyman,MD Editor.Control of communicable diseases. American Public Health Association 2022.		x		x			x			
Additional course information											
Students are obliged to regularly attend and actively participate in all forms of classes. In the case of being prevented from attending classes, students should have proof of a justified reason.											

Study program	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XI			
Course title	MEDICAL STATISTICS	Course code	MFMSE1101			
ECTS	1.5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			5	20	5	0
Course objectives	To acquaint students with basic statistical principles, research methods in biomedicine, and the application of acquired knowledge in clinical practice.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Searches scientific literature, applies biostatistical methods, analyzes results and critically evaluates conclusions.	IU-MFMSE1101-1	IU-MSE1
	Student applies research results to patient care in terms of choosing the best diagnostic and therapeutic methods.	IU-MFMSE1101-2	IU-MSE1
	Interprets parameters of vital statistics and recognizes epidemiological problems.	IU-MFMSE1101-3	IU-MSE1
	Interprets information about drugs and medical equipment published in journals.	IU-MFMSE1101-4	IU-MSE11
	Interprets the sensitivity and specificity of diagnostic tests in making patient care decisions.	IU-MFMSE1101-5	IU-MSE15
	Evaluates and applies a critical approach to different forms of guidelines, especially in terms of recognizing whether they are based on evidence or are the result of the collective opinion of experts.	IU-MFMSE1101-6	IU-MSE10
	Evaluates research protocols and scientific articles as part of the peer review process.	IU-MFMSE1101-7	IU-MSE1 IU-MSE7 IU-MSE21
	Participates and coordinates in research projects based on acquired knowledge of biostatistics and research methods.	IU-MFMSE1101-8	IU-MSE9

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures (L1-L5)	Types of biomedical research Probability and related topics for making inferences about data Methods of evidence-based medicine and decision analysis
	Exercises (E1-E20)	Summarizing and displaying data in tables and graphs Research questions related to one group of respondents Research questions related to two separate groups Research questions related to three or more separate groups Research questions about the relationship between variables
	Seminars (S1-S5)	Analyzing research questions about survival Statistical methods for multiple variables Survey research Reading medical literature Vital statistics parameters and probability indices
Language	English	
E-learning	Classes are conducted live. If necessary, lectures and part of the exercises can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to max of 20%.	
Teaching	Teaching, interactive and active-experiential.	

methods	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	oral exam	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance and active participation with preparation for the practical exam	IU-MFMSE1101-1 IU-MFMSE1101-2 IU-MFMSE1101-3 IU-MFMSE1101-4 IU-MFMSE1101-5 IU-MFMSE1101-6 IU-MFMSE1101-7 IU-MFMSE1101-8	30	1	30 %
Pre-exam/Written exam	IU-MFMSE1101-1 IU-MFMSE1101-2 IU-MFMSE1101-3 IU-MFMSE1101-4 IU-MFMSE1101-5 IU-MFMSE1101-6 IU-MFMSE1101-7 IU-MFMSE1101-8	15	0.5	70 %
In total		45	1.5	100 %

Method of calculating the final grade

The final grade is calculated according to the Rulebook on studying at the University of Mostar and applies to all study groups, it is obtained as follows:

A = 91 to 100% 5 (excellent)
B = 79 to 90% 4 (very good)
C = 67 to 78% 3 (good)
D = 55 to 66% 2 (sufficient)
F = 0 to 54% 1 (insufficient)

The final grade is the sum of weights = practical part of the exam 30% + written part of the exam 70%

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Dawson B, Trapp RG. Basic & Clinical Biostatistics. 4th ed. New York: Lange Medical Books/McGraw-Hill; 2004.		x		x			x			
Additional	Teaching materials	x			x						x

Additional course information

Students are obliged to regularly attend and actively participate in all forms of classes. Students must complete all classes or excused absences up to the limit prescribed by the Rulebook of the School of Medicine.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XI			
Course title	PEDIATRICS	Course code	MFMSE1102			
ECTS	12	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			50	90	60	0
Course objectives	- to train the student to be able to understand the basics of pediatrics as a discipline that deals with children from birth to adulthood - to provide the student with the basic skills needed to work with children in the environment of primary medical care					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains the basics of pediatrics and applies a scientific approach in solving professional medical issues in the pediatric population.	IU-MFMSE1102-01	IU-MSE1
	Describes and explains the basic features related to children of different ages (infant, toddler, adolescent) as an object of interest in pediatrics.	IU-MFMSE1102-02	IU-MSE2 IU-MSE3
	Describes and applies measures of disease prevention and treatment, as well as rehabilitation of sick children.	IU-MFMSE1102-03	IU-MSE6 IU-MSE10
	Explains the need for the normal growth and development of children, as well as the need for supervision of the aforementioned.	IU-MFMSE1102-04	IU-MSE3
	Explains and describes the importance of vital statistics and basic aspects of the organization of health care for mothers and children.	IU-MFMSE1102-05	IU-MSE9 IU-MSE10 IU-MSE11
	Describes and explains the implementation of newborn screening and vaccination and other measures of prevention and preservation of children's health.	IU-MFMSE1102-06	IU-MSE9 IU-MSE10 IU-MSE11
	Explains, defines, and classifies the casuistry of special pediatrics according to the functions and diseases of the main organ systems.	IU-MFMSE1102-07	IU-MSE5 IU-MSE6 IU-MSE8
	Explains and describes the most common acute and chronic diseases of childhood so that students, as future doctors of general medicine, can independently recognize and solve the problems of sick children at the level of outpatient work in the primary health care.	IU-MFMSE1102-08	IU-MSE9 IU-MSE10 IU-MSE11 IU-MSE14
	It offers a solution for the most common emergencies in pediatric medicine.	IU-MFMSE1102-09	IU-MSE10 IU-MSE11 IU-MSE14

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures Seminars Exercises	The teaching of the pediatrics course consists of 200 school hours in which the teaching units are covered through lectures, seminars and exercises, namely: 1) Social medicine 2) Growth and development of the child 3) Medical psychology 4) Hereditary diseases, nutrition and eating disorders 5) Disorder of water, electrolytes, minerals, and ABS 6) Neonatology 7) Immunology

		8) Allergology 9) Rheumatology 10) Infectious diseases 11) Vaccination 12) Hematology and oncology 13) Nephrology 14) Cardiology 15) Pulmonology 16) Endocrinology 17) Gastroenterology and hepatology 18) Neurology 19) Children's orthopedics 20) An acutely endangered child 21) Symptomatic treatment of children
Language	English	
E-learning	Classes are conducted in person. If necessary, lectures and seminars can be taken combined (in person and online) or completely online through e-learning platforms (Google Meet), up to max 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		200	6.7	0%
Pre-exam/Practical exam	IU-MFMSE1102-08 IU-MFMSE1102-09	40	1.3	0%
Pre-exam/Written exam	IU-MFMSE1102-01 IU-MFMSE1102-02 IU-MFMSE1102-03 IU-MFMSE1102-04	60	2	50%
Pre-exam/Oral exam	IU-MFMSE1102-05 IU-MFMSE1102-06 IU-MFMSE1102-07	60	2	50%
In total		360	12	100%

Method of calculating the final grade

The final grade is obtained as the arithmetic mean of the grades from the written exam and the oral exam, that is: (Written + Oral)/2. A detailed description is given in the additional information about the subject.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Marcdante K, Kliegman RM, Schuh AM, eds. Nelson Essentials of Pediatrics, 9th edition, Elsevier, 2022.		x		x			x			
	Lissauer T, Carroll W, eds. Illustrated Textbook of Paediatrics, 6th edition, Elsevier, 2021.		x		x			x			
Additional	Selected chapters from Nelson's		x		x			x			

	Textbook of Pediatrics, 21st ed. Elsevier, 2019.										
	Selected papers from medical journals		x		x				x		

Additional course information

Final exam has three parts: written, practical and oral exam.

The written exam consists of 50 test-questions with multiple choice of answers (one of the five offered answers is always correct). To pass the exam (grade sufficient), the student must answer 55% of the questions correctly, i.e., must obtain at least 28 points.

According to the Rulebook on Studying at the University of Mostar grades are assigned as follows:
0-54% insufficient (1);
55-66 % sufficient (2);
67-78 % good (3);
79- 90 % (very good 4);
91-100 % excellent (5).

During the practical exam, the assistant evaluates the student's practical skills in pediatrics. The practical exam begins with an interview with a patient, and his parents. History taking and performing physical exam of the patient, beside interpretation and evaluation of the clinical and laboratory data, is of outmost importance for the assessment of student's clinical performance.

In order to take the oral exam, it is necessary to pass both the practical exam, and the written exam.

The oral exam includes the most important, integrative units of pediatrics. Throughout 5 questions, integrative knowledge is examined, which is essential for understanding the whole subject and is the basis for good medical practice.

The final grade is the average of the grade of the written and oral exam, that is: (Written + Oral)/2.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XI			
Course title	FAMILY MEDICINE WITH CLINICAL ROTATION	Course code	MFMSE1103			
ECTS	9	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			22	114	44	-
Course objectives	The main goals are to familiarize students with the organization of primary health care in Bosnia and Herzegovina, to familiarize them with the basic characteristics and competencies of family medicine doctors as well as with the specific approach to patients in daily clinical practice.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains the value of teamwork in primary patient care, the cooperation of different health services at the primary level as well as at other levels of health care. Evaluates and applies protocols and algorithms of preventive, diagnostic and therapeutic procedures in the most common diseases in family medicine according to current guidelines in the treatment of diseases and health preservation.	IU-MFMSE1103-1	IU-MSE10
	Defines family medicine basic principles of family medicine: comprehensive care, contextual care, continuity of care, coordination/complexity of care. Describes care for the individual in the community using a holistic approach.	IU-MFMSE1103-2	IU-MSE11
	Applies a targeted anamnesis and a targeted clinical examination of the patient in the clinic and independently analyzes and argues the working diagnosis from the clinical picture and from the results of diagnostic tests. Applies clinical examination skills on the model in the clinical skills cabinet. Apples management of medical documentation, fills in referrals and travel orders, and assesses temporary incapacity for work.	IU-MFMSE1103-3	IU-MSE14
	Create a suitable plan for rational selection of laboratory tests, radiograms, electrocardiograms, spirometry, blood pressure CNAP, interpretation of their results and implementation of interventions for diagnosis and treatment of diseases. Apply rational treatment with supervision and minimization of polypharmacy. Apply the correct prescription of prescription drugs and administration of parenteral therapy	IU-MFMSE1103-4	IU-MSE15
	Applies basic communication skills in contact with the patient. Adapts the method of presentation and clarification of medical information to outpatients according to the level of health literacy of the patient and family members with the patient's consent. Practices breaking the bad news to the patient and find sources of help. Applies counseling to patients and family members in various areas of promoting healthy lifestyles, prevention, as well as treatment and monitoring of patients. Also applies group counseling in the clinic and in the community.	IU-MFMSE1103-5	IU-MSE16
	Presents and explains medical information about the disease/diagnosis to other health and non-health professionals within primary health care, secondary and tertiary health care, cooperates with patient associations and provides education on the most common diseases in the community.	IU-MFMSE1105-6	IU-MSE18

Prerequisites for the course	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.

enrolment		
Course content	Week / shift	Topic
	Lectures	L1 Introductory lecture
		L2 Family Medicine as a medical discipline
		L3 Patient oriented medicine.
		L4 Sickness and disease
		L5 Communication in Medicine
		L6 Doctor - patient communication
		L7, L8 Women's health - cancer prevention
		L8 Women's health - Cardiovascular risk assessment and mental health. The problem of the elderly
		L9, L10 Emergency interventions in the family medicine doctor's office
		L11 Health problem of the elder population
		L12 Polypharmacy
		L13, L14 Men's health: prevention and treatment most common health issues
		L15 Ankle and knee injuries
		L16 Elbow and shoulder injuries
		L17 Cardiovascular risk assessment
		L18 Cardiovascular disease prevention
		L19 Health promotion and prevention in the community
		L20 Health promotion and media
		L21 Violence against women
		L22 Violence against children and elder
	Seminars	S1, S2 Family medicine practice: organization and work
		S3, S4 Difficult patient – treatment. Breaking bad news
		S5, S6 Diagnosis and treatment of anemia
		S7, S8 School children in Family medicine practice .Preschool health care
		S9, S10 Clinical skills through case report
		S11, S12 COPD and asthma
		S13, S14 Rational use of medicines. Rational referral to hospital
		S15, S16 Addiction treatment. Alcohol and drug abuse
		S17, S18 Diabetic patient in family medicine practice
		S19, S20 How to quit smoking
		S21, S22 Headache differential diagnosis and treatment
		S23, S24 Hypertension diagnosis and treatment
		S25, S26 Arthritis in the family medicine practice
		S27, S28 Anxiety and depression
		S29, S30 Chest pain evaluation in the family medicine practice
		S31, S32 Acute respiratory infection in the family medicine practice
		S33, S34 Thyroid problems in the family medicine practice
		S35, S36 Patient with renal disease in the family medicine practice
		S37, S38 Vertigo
		S39, S40 Patient with abdominal pain
		S41, S42 Dermatological problem in the family medicine practice
		S43, S44 Patient with gastrointestinal problems
	Exercises	E1-E100 work in the family medicine practice
		E101-E114 work on models in the skill cabinet
Language	English	
E-learning	Classes are conducted in person (live). If necessary, lectures and seminars can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to max of 20%.	
Teaching methods	Teaching, participatory-interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	**oral exam**	Practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		180	6	0%
Seminar	IU-MSMSE1103-5	15	0.5	0%
Midterm/Colloquium from exercises	IU-MSMSE1103-3	15	0.5	0%
Pre-exam/Written exam	IU-MFMSE1103-1 IU-MSMSE1103-2 IU-MSMSE1103-5	30	1	50%
Pre-exam/Oral exam	IU-MFMSE1103-1 IU-MFMSE1103-4 IU-MFMSE1103-5 IU-MFMSE1103-6	30	1	50%
In total		270	9	100%

Method of calculating the final grade

According to the Rulebook on Studying at the University of Mostar grades are assigned as follows:
0-54% insufficient (1);
55-66% sufficient (2);
67-78% good (3);
79-90 very good (4);
91-100% excellent (5).

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	Article	script	Other
Compulsory	Rakel Textbook of Family medicine Zagreb, Medicinska naklada 2005		x		x			x			
	Katić M, Švab I, and associates. Family medicine Zagreb, Medicinska naklada: 2017.		x		x			x			
Additional	Lecture notes	x			x						x

Additional course information

Classes in family medicine last 180 hours, of which 114 hours are exercises. Students are divided into smaller practice groups and each group is assigned an assistant. The assistant trains a group of students in the clinical skills of taking anamnesis and status, making clinical decision, as well as in communication skills. Classes take place in clinic in both urban and rural area.

Seminars are a pre-examination obligation for students, which they must prepare in cooperation with teacher. The seminar work also includes a letter to the patient, in which the student conducts the patient's health education in writing.

Lectures cover all the topics covered during the course and are based on a presentation of a case from clinical practice.

Colloquium from exercises consists of 12 OSCE stations on models or on a standardized patient.
OSCE (Objective structured clinical examination)

The exam consists of two parts.

The written exam consists of 60 multiple-choice questions, one of which is correct.

The oral exam consists of three questions. One is from the general part, and two are from the special part and in the form of solving a clinical example.

The final grade is obtained as the arithmetic mean of the grades from the written exam and the oral part of exam.
According to the Rulebook on Studying at the University of Mostar grades are assigned as follows:
0-54% insufficient (1); 55-66% sufficient (2); 67-78% good (3); 79-90 very good (4); 91-100% excellent (5).

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XI			
Course title	FORENSIC MEDICINE	Course code	MFMSE1104			
ECTS	3	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			17	16	17	0
Course objectives	The aim of the course is to introduce students to the role of forensic medicine in medical practice, proper scene and body investigations needed in cases of evident or suspected traumatic deaths (homicides, suicides, accidents), types and tasks of forensic medical examination, issues regarding examination of living persons as well as corpses and human remains and the applied methodology.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	- describes and explains basic theoretical principles from the field of forensic medicine, including the issues of thanatology, forensic traumatology, expert opinion making and medical law.	IU-MFMSE1104-1	IU- MSE1 IU- MSE2
	- performs external examination of a dead body, recognize signs of death and assesses whether the autopsy is required in order to properly record the fact of death (fill in the death certificate)	IU-MFMSE1104-2	IU- MSE3 IU- MSE5
	- identifies, describes and names injuries on the body	IU-MFMSE1104-3	IU- MSE4 IU- MSE14
	- recognizes the cases of suspicious and non-natural death and is able to explain medical information on the disease/injury/death to other healthcare and non-healthcare professionals, regulatory agencies, and the interested public in an appropriate manner and in compliance with applicable regulations	IU-MFMSE1104-4	IU- MSE5 IU- MSE18
	- describes and explains knowledge on proper sampling for toxicology analysis	IU-MFMSE1104-5	IU- MSE8 IU- MSE10

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	(L1) Introduction to Forensic Medicine (L2) Thanatology (L3) Blunt force trauma (L4) Sharp force trauma (L5) Gunshot injuries (L6) Asphyxia (L7) Drowning (L8) Physical injuries (L9) Sudden natural death (L10) Human identification in mass disasters (L11) Forensic toxicology (L12) Pregnancy – related deaths, Infanticide
	Seminars	(S1) Medicolegal death investigation (S2) Crime scene investigation (S3) PMI assessment (S4) Injury assessment (S5) Traffic accidents analysis (S6) Forensic anthropology (S7) Forensic genetics (S8) Complication of injuries (S9) SIDS

		(S10) Suicide vs. Homicide
	Exercises	(E1) Examination of the dead body/autopsy (E2) Forensic medical examination of living persons (E3) Death certificate and burial permit (E4) Forensic anthropology (E5) Medical documentation (E6) Expert opinion making
Language	English	
E-learning	Classes are conducted in person (live). If necessary, lectures and seminars can take place in combination (in person and online) or completely online through e-learning platforms (Google Meet) up to max of 20%.	
Teaching methods	Teaching, interactive and active-experiential.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		50	1,67	0%
Pre-exam/Written exam	IU-MFMSE1104-1, 2, 3, 4, 5	20	0,66	50%
Pre-exam/Oral exam	IU-MFMSE1104-1, 2, 3, 4, 5	20	0,66	50%
In total		90	3	100%

Method of calculating the final grade

The written exam

The written exam contains 40 questions, which cover all areas covered by the curriculum. To pass the exam (grade sufficient), the student must answer 55% of the questions correctly. According to the Rulebook on studying at the University of Mostar, grades are assigned as follows: 0-54% insufficient (1); 55-66% sufficient (2); 67-78% good (3); 79-90% very good (4); 91-100% excellent (5).

The oral exam

All chapters of forensic medicine will be covered by the oral exam, especially in those parts that are essential in the daily work of a doctor. Integrative knowledge and forensic reasoning skills will be required. The exam will consist of four questions that student will receive on a card. The condition for taking the oral exam is that the student has passed the written exam.

The final grade

The final grade will be calculated as the arithmetic mean of the grade of the written and oral exam grade.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Payne-James J, Jones R, Karach Steven B, Manlove J. Simpson's Forensic Medicine. 13th ed. London Arnold Publishers 2011		X		X			X			
Additional	Dettmeyer RB, Vehoff MA, Schütz HF. Forensic Medicine Fundamentals and Perspectives. 1st ed. Springer Berlin, Heidelberg, 2014		X		X			X			

Additional course information

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XI			
Course title	PALLIATIVE MEDICINE	Course code	MFMSE1105			
ECTS	1	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			8	10	7	0

Course objectives	The goals of the Palliative medicine course are: -to teach students about the concept and organization of palliative care, the role of palliative medicine in patient care and care for leading symptom of palliative patient – pain, but also other symptoms that may appear. -train students to communicate with terminally ill patients and their family members -train students for responsible decision making within ethical frameworks		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Defines palliative care and recognizes terminal phase of the disease in patients.	IU- MFMSE1105-1	IU-MSE1
	Knows and explains the treatment of pain, which is a leading symptom of the terminal illness, but also other symptoms that accompany terminal stage of the illness (vomiting, nausea, hiccups, diarrhea, constipation, decubitus, etc.).	IU- MFMSE1105-2	IU-MSE11 IU-MSE15
	Communicates with terminally ill patients and their family members.	IU- MFMSE1105-3	IU-MSE16 IU-MSE17
	Analyzes other needs of the terminally ill patient (psychological, social, religious, …) and possibilities of solving them within ethical frameworks.	IU- MFMSE1105-4	IU-MSE9 IU-MSE10
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.		

Course content	Week / shift	Topic
	Lectures	(P1) Definition of palliative medicine and concepts in palliative medicine. Models of organization within palliative care (P2) Levels of palliative care. Palliative care team. (P3) Assistance in meeting the needs of palliative patient (P4 Communication with the palliative patient and his family, barriers in communication (P5) Ethical issues
	Seminars	(S1) Who needs palliative care? (S2) When to start palliative care? (S3) Emotional needs of terminally ill patients and their family members (S4) Breaking bad news to patient?
	Exercises	(V1) Breaking bad news to patient? (V2) Communication with terminally ill patient and his family (V3) The needs of patients in terminal phase (V4) Pharmacological and non-pharmacological treatment options for terminal patients (V5) Ethical doubts and questions
Language	English	
E-learning	Classes are conducted in person (live). If necessary, lectures and seminars can be taken combined (live and online) or completely online via e-learning platforms (Google Meet) up to a maximum of 20%.	

Teaching methods	Teaching, interactive and active-experiential.

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes and preparing for the colloquium/midterm	IU- MFMSE1105-2 IU- MFMSE1105-3	25	0,8	
Pre-exam/Final written exam	IU- MFMSE1105-1 IU- MFMSE1105-2 IU- MFMSE1105-3 IU- MFMSE1105-4	5	0,2	100%
In total		30	1	100%

Method of calculating the final grade
The final grade is given based on the written exam. Additional points that are earned through active participation and demonstrated knowledge in seminars and exercises may be added. The details are given in section: Additional course information section.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	Croatian	English	other	multilingual	book	article	script	other
Compulsory	Cherny N, Fallon M, Kaasa S, Portenoy R, Currow DC,eds. Oxford Textbook of Palliative medicine. 2015. Fifth edition. Oxford University Press. Available: https://hamdir.ir/wp-content/uploads/2019/09/Oxford-Textbook-of-Palliative-Medicine-N-Cherny-M-Fallon-S-Kaasa-R-K-Portenoy-D-C-Currow-eds.-Oxford-Textbook-of-Palliative-Medicine-2015-Oxford-University-Press.pdf		x		x			x			
Additional											

Additional course information
The Palliative Medicine course consists of 25 hours, of which 8 hours are lectures, 7 hours are seminars and 10 hours are exercises. It is taken in one week period. Basic topics, definitions, levels of care, dilemmas in palliative care, pharmacological and non-pharmacological treatment of patients, and the basics of communication will be covered through lectures. Communication with palliative patients and their family members will be the subject of both seminars and exercises, as well as ways to resolve symptoms in palliative patients that negatively affect their quality of life. Through **class activities** in the form of active participation and demonstrated knowledge in seminars and exercises, students can earn additional points that are added to the points on the final written exam, but only for those who pass the final exam, that is, it is necessary to achieve a minimum of 60% points on the final written exam. A maximum of 3 additional points can be obtained through classes. **Colloquium**- During the exercises, each student will give an oral case report presentation (a brief case report that student has solved /will solve on his own). The presented cases will include communication skills with palliative patient or his family members, communicating bad news, recommending pain therapy or solving conditions and situations characteristic for palliative patients. **The final exam** is in written form and the maximum number of points is 20**.** **The final grade** is formed based on the sum of the points of passed test and additional points (if student has achieved them) as follows: 60% -69% grade 2; 70%-79% grade 3; 80%-89% grade 4; 90%-100% grade 5.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XI			
Course title	HEALTH CARE ORGANIZATION AND HEALTH ECONOMICS	Course code	MFMSE1106			
ECTS	2	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			30	5	10	0
Course objectives	- to extend student's knowledge about the organization of health systems and the organization of health care; - to train the students to understand the basics of health economics and methods of financing health systems; - to achieve an active approach for students to acquire management skills, teamwork and planning at different levels of the health system.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Evaluates the method and content of integration of different levels of health care, evaluates the significance and importance of multidisciplinary teams in health care.	IU-MFMSE1106-1	IU-MSE9
	Assesses the economic parameters that ensure efficiency in the health care system, valorizes the treatment outcomes and the quality of health care.	IU-MFMSE1106-2	IU-MSE11
	Critically assesses the socioeconomic factors that affect the stability and functionality of the health system.	IU-MFMSE1106-3	IU-MSE13

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	L1 Health systems L2 Elements of the health care system, institution and organization L3 Health policies L4 Management in the healthcare system L5 Health care organization L6 Primary health care L7 Hospital healthcare L8 Integration of health care L9 Health financing L10 Health insurance L11 Health economics L12 Strategic planning in healthcare L13 Standards and norms in healthcare L14 Quality assessment in the healthcare system L15 Role and position of the patient in the healthcare system
	Exercises	E1 SWOT analysis of the selected health institution
	Seminars	S1 Health system reforms S2 Assessment of the population health status and selection of health protection measures S3 Organization of emergency medical services and healthcare in emergency situations S4 Public and private healthcare S5 Methods of paying for health services and evaluation of treatment outcomes

Language	English
E-learning	Classes are conducted in person (live). If necessary, lectures and seminars can be combined (live and online) or completely online via e-learning platforms (Google Meet) up to maximum of 20 %.
Teaching methods	Teaching, interactive and active-experiential

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		45	1.5	
Seminars	IU-MFMSE1106-1 IU-MFMSE1106-2 IU-MFMSE1106-3	5	0.15	
Pre-exam/Written exam	IU-MFMSE1106-1 IU-MFMSE1106-2 IU-MFMSE1106-3	10	0.35	100%
In total		60	2	100%

Method of calculating the final grade

The final grade is the success achieved in the written exam.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Health Care Economics, J. B. Davis and R. McMaster, 2017.		x		x			x			
Additional	Lecture notes	x			x						x

Additional course information

The lectures in Health care organization and health economics contain 45 hours and consist of 15 teaching units. Each unit has 2 hours of lectures, 1 hour of seminars to check and determine the knowledge and exercises for the practical application of acquired knowledge through the presentation of a SWOT analysis of the selected health institution.

During **seminars,** students will actively participate and discuss about given thematic unit, for which they have to be prepared through the seminar presentation. They will be divided in groups of 3-5 students and will have to make their presentation in the PowerPoint module.

The written exam will be held in pre-exam after Health care organization and health economics lectures have been done. It contains 50 questions with multiple choice answers (only one of them is always correct). To pass the exam (grade sufficient), the student must answer 55% of the questions correctly, i.e., must obtain at least 28 points.
According to the Rulebook on studying at the University of Mostar, grades are assigned as following:
0-54% insufficient (1);
55-66% sufficient (2);
67-78% good (3);
79-90% (very good 4);
91-100% excellent (5).

The final grade represents the success achieved in the written exam.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XII			
Course title	CLINICAL PHARMACOLOGY	Course code	MFMSE1201			
ECTS	2	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			10	15	15	0
Course objectives	The goal of this course is for medical students to acquire basic knowledge about the process of discovering and developing new drugs and the rational use of drugs. The rational use of drugs implies the use of the drug in the accepted indication, at the right time, during the appropriate period, with an acceptable ratio of effectiveness and harm, quality and pharmacoeconomic aspects (not only prices).					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and explains the process of development and research of new drugs.	IU-MFMSE1201-1	IU-MSE1 IU-MSE7 IU-MSE12
	Describes and explains the general principles of drug action (pharmacodynamics), the fate of the drug in the body (pharmacokinetics), the basics of biotransformation and list and describe the most important side effects and interactions.	IU-MFMSE1201-2	IU-MSE1 IU-MSE5 IU-MSE7 IU-MSE11 IU-MSE13
	Explains the basics of pharmacoeconomics and pharmacoepidemiology.	IU-MFMSE1201-3	IU-MSE7 IU-MSE12 IU-MSE13
	Lists and describes the use of dietary supplements and herbal preparations and explains the basics of toxicology.	IU-MFMSE1201-4	IU-MSE1 IU-MSE5 IU-MSE6 IU-MSE11 IU-MSE13
	Describes and explains individualized treatment and the use of drugs in special groups	IU-MFMSE1201-5	IU-MSE1 IU-MSE5 IU-MSE11 IU-MSE12 IU-MSE13
	Describes and explains the basics of evidence-based medicine and describe the guideline writing process.	IU-MFMSE1201-6	IU-MSE7 IU-MSE9 IU-MSE10 IU-MSE11 IU-MSE12 IU-MSE13 IU-MSE21
	States and describes the principles of treatment of selected clinical conditions.	IU-MFMSE1201-7	IU-MSE1 IU-MSE5 IU-MSE6 IU-MSE10 IU-MSE11 IU-MSE12 IU-MSE13

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar	
Course content	Week / shift	Topic
	Week 1	Drug development and regulation, Clinical pharmacokinetics, Pharmacodynamics, Pharmacoeconomics,

		Pharmacoepidemiology, Drug biotransformation, Adverse drug reactions and interactions, Individualization of drug therapy, Dietary and herbal supplements, Generic and OTC drugs, Biological drugs, Basics of toxicology, Evidence-based medicine and clinical guidelines, Common pediatric conditions, Antimicrobial drugs, Agents Used in Cardiac Arrhythmias, Treatment of hypertension, Treatment of ischemic heart disease, Antiplatelet and anticoagulant therapy, Treatment of heart failure, Hypolipemic drugs and treatment of peripheral arterial disease, Treatment of diabetes, Treatment of asthma, Treatment of anaphylaxis, Treatment of gastrointestinal diseases, Anxiolytics and hypnotics
	Week 2	Treatment of depressive disorders, Treatment of schizophrenia and other psychotic disorders, Treatment of common neurologic conditions, Pain treatment, Glucocorticoids, Hormone replacement therapy, Osteoporosis treatment, Supportive care in oncology, Medical research, Health and medicine databases
Language	English	
E-learning	Classes are taken in person. If necessary, lectures, seminars and part of the exercises can take place combined (live and online) or completely online via e-learning platforms (Google-Meet) up to a maximum of 20%.	
Teaching methods	Teaching, participatory and interactive	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance and engagement		40	1,3	
Pre-exam/Written exam	IU-MFMSE1201-1 IU-MFMSE1201-2 IU-MFMSE1201-3 IU-MFMSE1201-4 IU-MFMSE1201-5 IU-MFMSE1201-6 IU-MFMSE1201-7	20	0,7	100%
In total		60	2	100%

Method of calculating the final grade
The exam is written. According to the Regulations on studying at the University of Mostar, grades are assigned as follows: 0-54% insufficient (1) 55-66% sufficient (2)

67-78% good (3)
79- 90% (very good 4)
91-100% excellent (5)

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Bertram G. Katzung: Basic and Clinical Pharmacology, 14th edition.		x		x			x			
Additional	Lecture notes		x		x						x

Additional course information

All students are required to attend lectures regularly (as prescribed by the teaching regulations), and records will be kept about them.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XII			
Course title	CLINICAL ROTATION: INTERNAL MEDICINE	Course code	MFMSE1202			
ECTS	5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			0	100	20	-
Course objectives	Course objectives are: - to provide the medical students with adequate knowledge about causes, clinical picture, diagnostics and treating internal diseases. - to promote positive attitudes that are important for medical students in communication with patients, colleagues and co-workers in the medical field.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes and relates knowledge about pathological and clinical manifestations of internal diseases and applies it in the diagnosis and treatment of diseases.	IU-MFMSE1202- 1	IU-MSE6
	Describes and differentiates specific internal conditions such as cardiovascular resuscitation, acute chest pain, endocrine system diseases, dyspnea, gastrointestinal bleeding, renal failure, liver failure, poisoning, hematological and immunological diseases, and suggests the algorithm for their management and referral.	IU-MFMSE1202- 2	IU-MSE5 IU-MSE10 IU-MSE11 IU-MSE15
	Describes and applies the protocols and algorithms of the procedures and examinations that are warranted for the integration of a differential diagnosis, as well as for the treatment of the patients.	IU-MFMSE1202- 3	IU-MSE10
	Demonstrates the skill of presenting the case of internal medicine patients to superiors and the ability to work in a team with other medical and non-medical personnel.	IU-MFMSE1202- 4	IU-MSE14 IU-MSE17 IU-MSE18 IU-MSE19
	Describes and applies knowledge about emergency conditions, their treatment and the approach to patients.	IU-MFMSE1202- 5	IU-MSE10 IU-MSE11 IU-MSE12

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.

Course content	Week / shift	Topic
	Seminars	(S1) Cardiopulmonary resuscitation. Emergency patient access
		(S2) Acute coronary syndrome
		(S3) Hypertension crisis
		(S4) Cardiac insufficiency
		(S5) Diabetes mellitus with acute and chronic complications
		(S6) Thyroid diseases
		(S7) Acute and chronic renal insufficiency
		(S8) Gastrointestinal bleeding
		(S9) Liver cirrhosis and complications
		(S10) Pancreatitis
		(S11) Liver failure
		(S12) Pulmonary embolism
		(S13) Respiratory insufficiency and gas analysis

		(S14) Approach to a hematology patient
		(S15) Anemia
		(S14) Fever
		(S15) SLE
		(S16) Intestinal infections
		(S17) CVI
		(S18) Approach to a patient with cancer
		(S20) Poisoning
	Exercises	Practical work with patients under supervision in different organizational units at Department for Internal Diseases and other departments of "internalist professions".
Language	English	
E-learning	Not applicable.	
Teaching methods	Teaching, interactive and active-experiential	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	**seminar paper**	essay/report	practical/project task	other	**written exam**	oral exam	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes	IU-MFMSE1202- 4	120	4	0%
Seminar paper	IU-MFMSE1202- 1 IU-MFMSE1202- 2 IU-MFMSE1202- 3 IU-MFMSE1202- 4 IU-MFMSE1202- 5	10	0,33	50%
Pre-exam/Written exam	IU-MFMSE1202- 1 IU-MFMSE1202- 2 IU-MFMSE1202- 3 IU-MFMSE1202- 4 IU-MFMSE1202- 5	20	0,67	50%
In total		150	5	100%

Method of calculating the final grade
Evaluation is descriptive.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Jameson JL et al. Harrison's Priciples of Internal Medicine.20 th Edition, McGraw-Hillprofessional, 2018.		x		x			x			
	Southwick F. Infectious diseases: a clinical short course. 4 th edition, McGraw-Hill 2020.		x		x			x			
	Simon RP,Aminoff MJ, Greenberg DA. Clinical Neurology. 10th Edition. New York: Lange Medical		x		x			x			

	Books/McGraw Hill, 2018.course. 4 th edition, McGraw-Hill 2020.										
Additional	Power Point presentations and handouts	x			x						x
Additional course information											
The course Clinical Rotation: Internal Medicine contains 120 hours and is taken over 3 weeks. The exam consists of two parts: seminar work and written exam. Condition that should be fulfilled in order to take the exam is a certificate of regular attendance (exercises and seminars), 20% of absence is allowed. Students must submit a seminar in a written form and give an oral presentation during the course. The Written exam consists of five described topics addressed at seminars. The result of the exam is recorded descriptively (as passed or failed).											

Study programme	MEDICAL STUDIES IN ENGLISH						
Cycle	INTEGRATED	Type	UNIVERSITY				
Study track	-	Module	-				
Year of study	6	Semester	XII				
Course title	CLINICAL ROTATION: SURGERY	Course code	MFMSE1203				
ECTS	5	Status	OBLIGATORY				
Teaching hours			Lectures	Exercises	Seminars	Practice	
			0	100	20		

Course objectives	The aims of the course are: - train students to recognize emergency surgical conditions - acquaint students how of prepare a patient for emergency surgical procedure - acquaint students with emergency surgical techniques and wound treatment		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Knows the structure of the Clinic for Surgery, the principles of work in the polyclinic, in specialist outpatient clinics, in the department, in sterilization and in the operating room.	IU-MFMSE1203-1	IU-MSE9 IU-MSE12
	Adequately takes the medical history and status of a surgical patient and performs surgical triage.	IU-MFMSE1203-2	IU-MSE6
	With supervision, performs work at emergency surgical admission, in the surgical clinic and assists in surgical procedures.	IU-MFMSE1203-3	IU-MSE5 IU-MSE6 IU-MSE7 IU-MSE9 IU-MSE10
	Treats the wound primarily and secondarily.	IU-MFMSE1203-4	IU-MSE10
	Sets an immobilization and plaster bandage, places urinary catheter, intravenous catheter, thoracic drain and nasogastric probe.	IU-MFMSE1203-5	IU-MSE10 IU-MSE11
	Knows the basic surgical techniques and principles in orthopedics and traumatology, neurosurgery, otorhinolaryngology and ophthalmology.	IU-MFMSE1203-6	IU-MSE10 IU-MSE11 IU-MSE14
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.		
Course content	Week / shift	Topic	
	Seminars	Acute abdomen	
		Primary wound closure	
		Emergencies in abdominal surgery	
		Emergencies in thoracis surgery	
		Emergencies in vascular surgery	
		Buras and frostbites	
		Polytrauma	
		Emergencies in orthopedic surgery	
		Emergencies in neurosurgery	
		ORL emergencies	
	Exercises	Practical work in the emergency department and walk-in clinics	
Language	English		
E-learning	Classes are taken in person, e-learning is not applicable.		
Teaching methods	Teaching, practical work		

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	written exam	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending seminars with engagement	IU- MFMSE1203-1 IU- MFMSE1203-2 IU- MFMSE1203-6	20	0,7	0%
Attending practice with practical work under supervision	IU- MFMSE1203-1 IU- MFMSE1203-2 IU- MFMSE1203-3 IU- MFMSE1203-4 IU- MFMSE1203-5 IU- MFMSE1203-6	100	3,3	0%
Pre-exam/Final oral exam	IU- MFMSE1203-1 IU- MFMSE1203-2 IU- MFMSE1203-3 IU- MFMSE1203-4 IU- MFMSE1203-5 IU- MFMSE1203-6	30	1	100%
In total		150	5	100%

Method of calculating the final grade
Final exam is oral. Evaluation is descriptive. 80% attendance of scheduled course matter is mandatory.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Doherty, G. M. (2020). Current Diagnosis and Treatment Surgery, 15th Edition, McGraw-Hill Education.	x			x			x			
Additional	Townsend, C. M. (2021). Sabiston Textbook of Surgery E-Book: The Biological Basis of Modern Surgical Practice, Elsevier Health Sciences.	x			x			x			
	Blom A, Warwick D, Whitehouse M: Apley& Solomon's System of Orthopaedics and Trauma, CRC Press, 2017.	x			x			x			
	Becker W, Naumann HH, Pfaltz CR, Behrbohm H. Ear, nose, and throat diseases with head and neck surgery. 3rd edition. Stuttgart, New York: Thieme, 2009.	x			x			x			

Additional course information
All students are required to wear a white medical coat, white trousers and medical footwear during the clinical rotation.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XII			
Course title	CLINICAL ROTATION: PEDIATRICS	Course code	MFMSE1204			
ECTS	5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			0	100	20	0
Course objectives	Course objectives are: To achieve practical knowledge of pediatrics. Expand the knowledge and skills necessary for understanding the pathophysiological mechanisms, clinical symptoms, differential diagnostic conclusions, critical evaluation of laboratory findings and rational treatment of the most common pediatric diseases and their complications.					
Course learning outcomes	Learning outcome (LO) Student:			Course learning outcome code		LO code at the study program level
	Conducts medical interview, comprehensive history-taking and physical examination to obtain information for diagnosis.			IU-MFMSE1204-1		IU-MSE14
	Critically judges and explains pathophysiological mechanisms, clinical and laboratory features, treatment and prevention of the most common pediatric diseases			IU-MFMSE1204-2		IU-MSE11 IU-MSE15
	Explains and interprets the etiological factors of clinical conditions in children			IU-MFMSE1204-3		IU-MSE5
	Evaluates all of the data in order to determine adequate therapy for a child or to decide where a patient should be referred to.			IU-MFMSE1204-4		IU-MSE15
	Lists and classifies by importance emergency conditions in pediatrics and recommends a therapeutic approach			IU-MFMSE1204-5		IU-MSE10
Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar					
Course content	Week / shift	Topic				
	Week 1	The febrile child, Serious life-threatening infections				
		Vomiting, acute abdominal pain, dehydration.				
		Neonatal jaundice, neonatal infection				
		Immunisation				
		Syncope, cardiac arrhythmias, chest pain.				
	Week 2	The seriously ill child, shock				
		Anaphylaxis, Asthma				
		Diabetes mellitus, Diabetic ketoacidosis				
		Epilepsies of childhood, febrile seizures				
		Urinary tract infection, Enuresis, Proteinuria, Haematuria				
	Week 3	Haematological disorders- anemia.				
		Respiratory infections				
		Developmental problems and the child with special needs.				
Language	English					

E-learning	Classes are taken in person, e-learning is not applicable.
Teaching methods	Teaching, interactive and active-experiential

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	**written exam**	oral exam	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Class attendance and engagement with preparations for the practical exam		120	4	10%
Pre-exam/Written exam	IU-MFMSE1204-2 IU-MFMSE1204-3 IU-MFMSE1204-5	20	0,7	45%
Pre-exam/Practical exam	IU-MFMSE1204-1 IU-MFMSE1204-4	10	0,3	45%
In total		150	5	100%

Method of calculating the final grade
The final grade is the average of the written (Case report) and practical grades. Evaluation is descriptive.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	Croatian	English	other	multilingual	book	article	script	other
Compulsory	Lissauer, Tom; Carol Will, Illustrated textbook of pediatrics, London 6th edition: 2021		x		x			x			

Additional course information
Students are obliged to regularly attend and actively participate in all forms of classes. The exam in Pediatrics is taken after the class and consists of a written (case report) and practical (patient examination with interpretation) part. The final grade is the average of the grade of the written and practical exam. Evaluation is descriptive.

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XII			
Course title	CLINICAL ROTATION: GYNECOLOGY	Course code	MFMSE1205			
ECTS	5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			0	100	20	-
Course objectives	- to introduce students to the organization of antenatal, perinatal and postnatal care and consequently the movement of perinatal and maternal mortality. - to introduce students to the availability of care during pregnancy and childbirth, as well as care for the mother and fetus (newborn) - to expand the knowledge of students in the field of reproductive health, especially sexual education and family planning, as well as prevention and early detection of diseases of the reproductive system in the world and in our country. - special review of programs in the promotion of women's health.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	- Recognizes the importance of a high-level health care during pregnancy, as well as during and after childbirth and explains the meaning of antenatal care in developed and underdeveloped countries of the world.	IU-MFMSE1205-1	IU-MSE-4
	- Connects and applies knowledge regarding the most common gynecological diseases and pathological conditions in pregnancy, labor and puerperium.	IU-MFMSE1205-2	IU-MSE-8
	- Recognizes the importance of family planning and childbirth; applies the cervicovaginal smear taking (Pap test) on model and/or patient and interpretates cytological findings.	IU-MFMSE1205-3	IU-MSE-10 IU-MSE-14 IU-MSE-16
	- Recognizes risk and dangerous factors for reproductive health including risk factors for the occurrence of malignant diseases of the reproductive organs, their prevention and early detection methods.	IU-MFMSE1205-4	IU-MSE-10 IU-MSE-13 IU-MSE-14 IU-MSE-15
	- Applies the gynecological and obstetric examination on model and/or patient.	IU-MFMSE1205-5	IU-MSE-8 IU-MSE-14
	- Develops the plan for management of the vaginal delivery as well as the third and fourth stage of labor on model.	IU-MFMSE1205-6	IU-MSE-8 IU-MSE-14

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar	
Course content	Week / shift	Topic
	Seminars	(S1) Gynecological history and examination. Diagnosis of pregnancy
		(S2) Antenatal care. Differential diagnosis of convulsions in pregnancy
		(S3) Preterm delivery
		(S4) Emergencies in obstetrics
		(S5) Pathology in the puerperium
		(S6)Contraception. Irregular uterine bleeding
	Exercises	(E1-100) Practical work under supervision
Language	English	
E-learning	Classes are conducted live. On-line classes (if necessary) can be performed through the Google meet platform (max application. 10%).	

Teaching methods	Teaching, interactive and active-experiential

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	written exam	**oral exam**	**practical**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes with preparation for the practical exam		120	4	
Pre-exam/Practical exam	IU-MFMSE1205-3 IU-MFMSE1205-5 IU-MFMSE1205-6	20	0,7	70%
Pre-exam/Oral exam	IU-MFMSE1205-1 IU-MFMSE1205-2 IU-MFMSE1205-4	10	0,3	30%
In total		150	5	100%

Method of calculating the final grade
Evaluation is descriptive. For details see the additional information.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	F. Gary Cunningham et all. 24th Edition. Williams Obstetrics. Mc Graw-Hill Companies, 2014.		x		x			x			
Additional											

Additional course information
The course Clinical rotation: Gynecology contains 120 hours and is performed during 3 weeks. Teaching consists of seminars and exercises. Students are required to actively participate in classes from seminars and exercises, where knowledge will be evaluated and continuously checked. The exam is taken after positive evaluation of class attendance and participations, and consists of the practical (examination of patients with interpretation) and oral part. **Practical exam** - students will use a clinical example to demonstrate understanding, treatment, diagnosis and therapy options for the relevant problem. The **oral exam** includes the most important, integrative units from gynecology and obstetrics. The oral exam does not examine detailed but integrative knowledge, which is essential for understanding the entire course and medical practice. Evaluation is descriptive (pass/fail).

Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XII			
Course title	EMERGENCY MEDICINE WITH CLINICAL ROTATION	Course code	MFMSE1206			
ECTS	5	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			0	100	20	-

Course objectives	The main objective of the course is to introduce students with the most common emergency and life-threatening conditions, and with their management. Also, upgrading knowledge of the emergency situations acquired in the previous courses during the practical work, with an emphasis on differential diagnosis and the latest treatment algorithms.		
Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Describes the triage procedure in the emergency center/unit in hospital or primary care conditions and separates urgent from non-urgent patients.	IU-MFMSE1206-1	IU-MSE8 IU-MSE9 IU-MSE14
	Describes and applies the basic and advanced life support procedures under supervision and monitors the course of treatment and care.	IU-MFMSE1206-2	IU-MSE10 IU-MSE11 IU-MSE12
	Differentiates various types of shock and creates treatment and therapy procedures.	IU-MFMSE1206-3	IU-MSE5 IU-MSE6 IU-MSE7
	Describes and differentiates specific emergency conditions such as drowning, electric shock, heat stroke, freezing, bleeding, trauma, poisoning, acute chest pain, pediatric and gynecological emergencies, suggests the algorithm for their management and referral.	IU-MFMSE1206-4	IU-MSE5 IU-MSE10 IU-MSE11 IU-MSE15
	Demonstrates the ability to work in a team with other medical and non-medical personnel and explains health information in appropriate manner.	IU-MFMSE1206-5	IU-MSE16 IU-MSE18 IU-MSE19 IU-MSE21
	Demonstrates with supervision skills, techniques and procedures regarding referral and management of patients in emergency room.	IU-MFMSE1206-6	IU-MSE10 IU-MSE14 IU-MSE17 IU-MSE20

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Seminars	Cardiopulmonary resuscitation Basic life support Advanced life support Pediatrics basic and advanced life support Trauma life support (primary and secondary examination) Drowning, electric shock, heat stroke, freezing, poisoning, choking Acute Abdomen Chest pain and life-threatening heart rhythm disorders Hypertensive crisis Cerebrovascular insults and consciousness disorders The bleeding from the gastrointestinal and respiratory tract Septic shock pathophysiology and algorithm of treatment Anaphylactic shock pathophysiology and algorithm of treatment

		Emergency Gynecological Bleeding
	Exercises	Practical work with patients under supervision in emergency care units
Language	English	
E-learning	Classes are taken in person.	
Teaching methods	Lecture method/Teacher-centered methods, interactive/participative methods, practical work with supervision in the emergency room/outpatient settings.	

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	practical/project task	other	written exam	**oral exam**	**practical exam**

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes (seminars and exercises)	IU-MFMSE1206-1 IU-MFMSE1206-5 IU-MFMSE1206-6	120	4	0%
Pre-exam / Practical scenario	IU-MFMSE1206-1 IU-MFMSE1206-2 IU-MFMSE1206-4 IU-MFMSE1206-5	15	0,5	50%
Pre-exam / Oral exam	IU-MFMSE1206-2 IU-MFMSE1206-3 IU-MFMSE1206-4	15	0,5	50%
In total		150	5	100%

Method of calculating the final grade
Evaluation is descriptive.

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	Croatian	English	other	multilingual	book	article	script	Other
Compulsory	CPR guidelines		x		x						x
	ITLS guidelines		x		x						x
Additional	Power Point presentations and handouts	x			x						x

Additional course information
The exam of the course Emergency Medicine with Clinical Rotation is carried out in front of course teacher and consists of an oral and practical part (scenarios). Conditions for exam approach are a certificate of regular attendance (exercises and seminars), 20% of absence is allowed. Completed exam is recorded descriptively (as passed or failed).

Study program	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	6	Semester	XII			
Course title	DIPLOMA THESIS	Course code	MFMSE1207			
ECTS	3	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			-	90	-	-
Course objectives	Acquiring knowledge and skills in terms of methodology and conducting research in the field of medicine, as well as the thesis preparation and public presentation.					

Course learning outcomes	Learning outcome (LO) Student:	Course learning outcome code	LO code at the study program level
	Identifies and integrates the fundamental determinants of the methodology of scientific research and the writing of scientific papers in own research.	IU- MFMSE1207-1	IU-MSE7
	Independently sets the aim and hypothesis of scientific research, including and excluding factors, chooses the appropriate methodological approach, number of subjects and type of research, and critically evaluates own research.	IU- MFMSE1207-2	IU-MSE7
	Describes the importance of ethical principles in scientific research work and integrates these principles into his own research in the form of independent writing of a request to the ethics commission.	IU- MFMSE1207-3	IU-MSE12
	Analyzes the obtained data, clearly presents the results in the paper, and argues the results with a selection of relevant literature.	IU- MFMSE1207-4	IU-MSE7
	Makes a presentation of his own work.	IU- MFMSE1207-5	IU-MSE20 IU-MSE21
	Orally presents the results of his own scientific research.	IU- MFMSE1207-6	IU-MSE20 IU-MSE21

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Teaching units	Introduction to scientific work Historical notes Preparation of the thesis writing project What is a scientific paper Ethics in scientific research How to write a title How to prepare a summary How to write an introduction How to write a materials and methods section How to write the results How to write a discussion How to express gratitude How to cite references How to form effective tables How to prepare effective graphs How to write a thesis Where to submit your manuscript
	Exercises/Thesis preparation	Independent student work in conducting research under the supervision of a mentor and preparation and presentation of the diploma thesis in front of the committee.

Language	English
E-learning	Classes are conducted live. If necessary, classes can be done combined (live and online) or completely online via e-learning platforms (Google Meet) up to max 20%.
Teaching methods	Teaching, interactive and active-experiential.

Types of assessment (indicate - **Bold**)							
Type of pre-examination obligation					Type of exam		
midterm	seminar paper	essay/report	**practical/project task**	other	**written exam**	**oral exam**	practical

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes with preparation for writing the thesis		30	1	0 %
Conducting research and writing the thesis under mentor's supervision	IU - MFMSE1207-1 IU - MFMSE1207-2 IU - MFMSE1207-3 IU - MFMSE1207-4	45	1,5	50 %
Oral presentation in front of the committee	IU - MFMSE1207-1 IU - MFMSE1207-3 IU - MFMSE1207-4 IU - MFMSE1207-5 IU - MFMSE1207-6	15	0,5	50 %
In total		90	3	100 %

Method of calculating the final grade

The quality of the thesis itself and the oral presentation or public presentation of the thesis in front of the committee is evaluated. The committee consists of three members, one of whom is the student's mentor or commentator, and the other two members are faculty members, one of whom must hold the minimum rank of assistant professor. After the presentation of the work, each committee member questions the student about the work. The final grade is obtained on the basis of the sum of the quality of the thesis itself (assessed by the Commission for the Graduate Thesis with 0-50 points) and the public presentation of the thesis with (assessed by the Commission for the Defense of the Graduate Thesis with 0-50 points).

The final assessment is carried out according to the Rulebook on studying at the University of Mostar and applies to all study groups. According to the Study Regulations, the final grade is obtained as follows:
A = 91-100% 5 (excellent)
B = 79 to 90% 4 (very good)
C = 67 to 78% 3 (good)
D = 55 to 66% 2 (sufficient)
F = 0 to 54% 1 (insufficient)

Literature (indicate)	Title (title, author, year)	Edition		Language				Type of literature			
		own	other	croatian	english	other	multilingual	book	article	script	other
Compulsory	Gastel B, Day RA. How to Write and Publish a Scientific Paper. 8th ed. Santa Barbara, California: Greenwood; 2016.		x		x			x			
Additional	Teaching materials	x			x						x

Additional course information

The content of the course includes independent work of students under the supervision of a mentor (60 school hours). Direct teaching of 30 hours is conducted in the first week of the 6th year and aims to acquaint students with their obligations regarding the application of the topic of the thesis, reporting the research to the ethics committee and instructions on conducting research and writing the thesis.